



Annual Report

2012-13



Dr. Y.S.R. Horticultural University
Venkataramannagudem, West Godavari District - 534 101, A.P.

STUDENTS ACTIVITIES



Annual Report

2012-13



Dr.Y.S.R. Horticultural University
Venkataramannagudem, West Godavari District – 534 101, A.P.

Dr.YSRHU, Annual Report, 2012-13

Published by

Dr.YSR Horticultural University

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Dr. B.M.C. REDDY
VICE-CHANCELLOR
Dr. Y.S.R. Horticultural University



Foreword

I am happy to present the Fifth Annual Report of Dr. Y.S.R. Horticultural University (Dr. YSRHU). It is a compiled document of the University activities during the year 2012-13.

Dr. YSR Horticultural University was established at Venkataramannagudem, West Godavari District, Andhra Pradesh on 26th June, 2007. Dr. YSR Horticultural University is second of its kind in the country, with the mandate for Education, Research and Extension related to horticulture and allied subjects. The university at present has 4 Horticultural Colleges, 5 Polytechnics, 27 Research Stations and 3 KVKs located in 9 agro-climatic zones of the state.

Dr. YSR Horticultural University offers B.Sc. (Hons.) in Horticulture, M.Sc. (Horticulture) with specialization in four areas, namely i) Fruit Science, ii) Vegetable Science, iii) Floriculture & Landscaping, iv) Spices, Plantation, Medicinal & Aromatic crops and Ph.D (Horticulture). The University runs on the land grant pattern followed in the USA, integrating Horticultural Education, Research and Extension. With an intension to provide self employment to rural youth and also to make use the services of rural youth, the university has established five Horticultural Polytechnics to offer two year Diploma in Horticulture.

The Dr. YSR Horticultural University Board of Management was not constituted during the year 2012-13. And three Academic Council meetings, one REC meeting and three ZREAC meetings were held during the year.

A total of 246, 53 and 9 students in B.Sc. (Hons.) Horticulture, M.Sc. (Horticulture) and Ph.D (Horticulture) respectively along with 113 students in Diploma in Horticulture course are on rolls during the year.

The Dr. YSR Horticultural University is conducting basic, applied, location / region specific and anticipatory research for the overall development of horticultural crops in the state at 27 research stations.

The university scientists are involved in popularizing the proven technologies and improved varieties developed through various extension activities viz., All India Radio, Print and Visual media, Participation in Exhibitions, Kisan melas, Rythu chaitanya yatra, Rythu Sadassulu and Adarsha Rythu programmes.

I take this opportunity to thank the Indian Council of Agricultural Research and Government of Andhra Pradesh for their financial and technical support to the University.

I am thankful to Academic Council, Research and Extension Advisory Council for their timely guidance and cooperation extended in the university administration.

I am whole heartedly thankful to University Officers, Associate Deans, Principals, Heads of Research Stations, Programme Coordinators and supporting staff for their cooperation in preparation of the Annual Report.



(Dr.B.M.C.REDDY)

Vice-Chancellor

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SUMMARY

The Andhra Pradesh Horticultural University (APHU) was established by the Government of Andhra Pradesh with its headquarters at Venkataramannagudem, near Tadepalligudem in West Godavari District, Andhra Pradesh on 26th June, 2007 by Act 30 of 2007 and renamed as Dr.Y.S.R. Horticultural University w.e.f. 18th April, 2011 by Act 13 of 2011. It is the second Horticultural University in the country. The university runs on Land Grant Pattern followed in the USA, with emphasis on Education, Research and Extension of Horticulture and allied subjects. Presently this university has four constituent Colleges of Horticulture, 27 Research Stations, 3 KVKs and 5 Horticultural Polytechnics situated in 9 agroclimatic zones of Andhra Pradesh.

The University is governed by a Board of Management comprising of 21 members headed by the Vice-Chancellor. The Vice-Chancellor is supported by University Officers viz., Registrar, Dean of Horticulture, Director of Research, Director of Extension, Dean of PG Studies, Dean of Student Affairs, Controller of Examinations, Comptroller and Estate Officer in University management. The academic affairs of the University are governed by the Academic Council, UG and PG board lead by the Vice-Chancellor, the Research and Extension services are guided by Research and Extension Council (REC).

EDUCATION

This university offers B.Sc. (Hons.) Horticulture in four constituent colleges namely College of Horticulture, Anantharajupet (Kadapa District), Mojerla (Mahaboobnagar District), Rajendranagar (Ranga Reddy District) and Venkataramannagudem (West Godavari District), M.Sc. (Horticulture) with specialization in Fruit Science, Vegetable Science, Floriculture and Landscape Architecture and Spices, Plantation, Medicinal and Aromatic Crops in all three colleges and Vegetable Science at Mojerla and Ph.D (Horticulture) at College of Horticulture, Rajendranagar and Venkataramannagudem. The university has established five Horticultural Polytechnics in rural areas to offer two year Diploma in Horticulture. The Horticultural Polytechnics are at Dasnapur (Adilabad district), Madakasira (Ananthapur district), Ramachandrapuram (East Godavari district), Ramagirikhilla (Karimnagar district) and Kalikiri (Chittoor district).

During the year 2012-13, two Academic Council meetings were held. Students on roll are 246, 53, 9 and 113 in B.Sc. (Hons.) Horticulture, M.Sc. (Horticulture), Ph.D (Horticulture) and Diploma in Horticulture respectively. NSS activities were organized at College of Horticulture, Anantharajupet, Mojerla, Rajendranagar and Venkataramannagudem. 3rd Inter Collegiate Sports & Games meet was held at HC & RI, Venkataramannagudem during 12-14th February, 2013 for degree colleges and 2nd Inter Collegiate Sports, Games, Cultural and Literary meet for Polytechnic colleges was held during 24-26th March, 2013 at SSPG Horticulture Polytechnic, Madakasira.

RESEARCH

Crop Improvement

In mango the table variety, Totapuri (131.68 kg/tree), juicy variety, Suvarnarekha (67.33 kg/tree) and hybrid, Manjeera (156.65 kg/tree) recorded the highest yield, while the clone Dashehari-35 recorded maximum fruit yield per tree (96.65 kg/tree) and cumulative yield (328.67 kg/tree). Among the sapota accessions, Virudhnagar recorded more number of fruits/tree (3409.33), fruit yield (147.06 kg/tree / 14.71 ton/ha) and cumulative yield (75.76 t/ha). Yield was maximum in Palur-1 (85.23 kg/plant) followed by Hybrid (80.47 kg/plant) among jackfruit varieties at HRS, Venkataramannagudem.

Maximum yield was recorded in Shiraz (15.70 kg/vine) and maximum juice recovery per cent (17.12%) was recorded in Chenin Blanc among the vine varieties of grape evaluated at Rajendranagar. Among the pomegranate accessions, Ruby (4.8 kg/plant) recorded maximum yield in hasta bahar crop. But maximum TSS was observed in Bhaguwa (17° Brix), while in ber cv. Umran (118.9 kg) and cv. NA-7 in Aonla (83 kg) recorded the highest fruit yield per tree at HRS, Anantapur.





FHIA-3, a dual purpose tetraploid hybrid of banana, recorded higher yield (54.15 t/ha) and has been recommended for state release for its higher yield potential and Fusarium wilt resistance at HRS, Kovvur. Cashew germplasm was evaluated at CRS, Bapatla, with mean nut yield per tree was maximum in BLA 39/4 (16.37 kg/tree) followed by T.No.228 (14.85 kg/tree) cumulative nut yield was also found highest in the same entry BLA 39/4 (82.85 kg/tree). The coconut hybrids Gauthami Ganga x Chandra Kalpa hybrid recorded highest nut yield (132.68 nuts/plant) and oil yield (19.37 kg/palm). In rubber, highest latex yield (6.05 lt/tree) and dry rubber (2.4 kg/tree) was recorded in RRIM 600 at HRS, Ambajipeta.

Twenty five genotypes of bottle gourd, 50 genotypes of bitter gourd, 35 genotypes of ridge gourd, 22 landraces of okra and 125 female genotypes of spine gourd were evaluated and characterized for further use in crop improvement programmes at VRS, Rajendranagar. Suprabha variety of ginger recorded highest yield (11.76 ton/acre). Out of seven genotypes tested in turmeric, RH-9/90 recorded highest fresh rhizome yield (30.3 t/ha) followed by RH.13/90 (29.7 t/ha) in comparison to Duggirala Red as check (23.60 t/ha) at FRS, Sangareddy.

Fifty five genotypes of gladiolus and 120 genotypes of chrysanthemum were evaluated and characterized. In chrysanthemum the spoon type varieties winter queen and garden beauty are suitable for garden display, while PAU-B-43, PAU-B-107 and Autumn Joy with good yield characters can be recommended for pot culture under Hyderabad conditions. In marigold, Rama Kuppam selection recorded more flower yield (11.97 t/ha) followed by Pusa Basanti Gainda (10.89 t/ha) at HRS, Mahanandi.

Crop Production

Fertigation of coconut palms at 75% RDF (98.45 nuts/palm) was found to produce yields at par with 100% RDF (115.45 nuts/palm) and proved better with highest B:C ratio of 2.69. Application of FYM @10 kg, Neem cake @1.25 kg and vermicompost @5 kg/plant could produce yields (72.24 t/ha) at par with those produced by the application of recommended inorganic fertilizers (75.60 t/ha) under sustainable organic production system in Banana at HRS, Ambajipeta. Approach method of grafting has recorded maximum success of 90% in jackfruit at HRS, Venkataramannagudem.

Application of nutrients through FYM (25%), vermicompost (25%), green leaf manure (25%) and remaining 25% through inorganic manure resulted in maximum number of fruits per tree (82.37) and fruit yield per tree (33.27 kg/tree) in integrated nutrient management in mango. Three sprayings of potassium sulphate (K_2SO_4) at 2% concentration at 15 days interval starting from peanut stage on Baneshan variety of mango recorded highest quantitative characters like fruit number per tree (31.45) fruit weight (293.2) and yield per tree (9.03 kg/tree). Further, application of 750 ppm ethrel recorded highest firmness (6.24 kg.cm²) on 12th day of treatment at FRS, Sangareddy.

Removal of top soil in the basins upto 3 inches and mulching with black polythene sheet with perforations recorded maximum fruits (472.33) per tree in sweet orange, while Application of 50% recommended dose of N and K₂O (800g N x 200g K₂O g/tree/year) through drip has recorded higher canopy volume (23.83 m³), fruit yield (413 fruits and 80.95 kg/tree) with favourable fruit quality (41.69%) juice and 10.13°B at HRS, Mallepally and CRS, Tirupati.

Application of Oxyflourfen @0.06 Kg ai/ha (pre emergence) + 2 hand weedings at 2 and 3 months after planting was found to be the best method to manage the weeds effectively and recorded higher tuber yield (33.94 ton/ha) in cassava, while application of cycocel @500 ppm produced 70.14 q/ha of fresh root yield in coleus at HRS, Venkataramannagudem and MAPRS, Rajendranagar respectively.

Entomology

Under Integrated Pest Management of Mango Module III first spray of thiamethoxam 0.008% @0.3 g/l at panicle emergence stage followed by second spray (21 days after 1st spray) of Profenofos 0.05% @1.5 ml/l were found to be effective in controlling the hoppers at FRS, Sangareddy.

At HRS, Lam in chilli, Azadirachtin 10,000ppm @3 ml/lt was proved effective in reducing the flower & fruit damage due to blossom midge. Triazophos 40 EC, chlorantranilipole 18.5 SC, thiacloprid 21.7 SC and Imidacloprid 17.8 % SC were found to be alternative chemicals to reduce the blossom midge.





Pathology

Four sprays i.e., first spray with Acephate @1.5 gm/l + Neem oil @ 2ml/l, second spray with Fipronyl @1.5 ml/l + Neem oil @ 2ml/l, third spray with Acetamiprid @ 2g/l + Neem oil @ 2ml/l and fourth spray with Acephate @1.5 g/l + Neem oil @ 2ml/l at 10 days interval were found effective against TOSPO wilt disease of tomato at VRS, Rajendranagar.

At HRS, Kovvur, it was found that the best time to plant banana (cv. Grand Naine) is between to April to June to avoid sigatoka disease severity and to obtain good yields. The fungicides, Difenconazole 1ml/l (0.1%) and Difenconazole 1ml/l + Petroleum based mineral oil 1% were the most effective treatments which recorded lowest sigatoka leaf spot.

EXTENSION

This University has KVK's are at Pandirimamidi, East Godavari District, Venkataramannagudem, West Godavari District and Ramagirihilla, Karimnagar District. Scientists of Dr.Y.S.R.H.U. have participated in diagnostics surveys, Rythu Chaitanya yatras, disaster management programmes, training programmes to farmers and officers of the Department of Horticulture and Agriculture, conducting field days, transfer of technology through mass media, publications, field demonstrations and village adoption programmes etc. ZREAC meetings were conducted in all the three zones viz., Coastal zone, Rayalaseema zone and Telangana zone involving scientists, departmental officers and local farmers. As a support to mass media cell of Commissioner of Agriculture, All India Radio and Doordarshan monthly calendar of operations of Horticultural crops is prepared well in advance and circulated to all the concerned stations and extension agencies in the state.





I. INTRODUCTION

The Andhra Pradesh Horticultural University was established by the Government of Andhra Pradesh by Act 30 of 2007 with its headquarters at Venkataramannagudem, near Tadepalligudem in West Godavari District and renamed as Dr.Y.S.R.Horticultural University w.e.f. 18th April, 2011 by Act 13 of 2011. It is the second Horticultural University in the country. The University runs on the Land Grant pattern followed in the USA, with emphasis on Education, Research and Extension of Horticulture and allied subjects.

The University at present has four horticultural colleges, five polytechnics, 27 Research Stations and three KVKs across 9 agro-climatic zones of the state. Based on the present day need ongoing research programmes at 27 Research Stations have been re-oriented into eight thrust areas. Apart from the non-plan research programmes, nineteen All India Coordinated Research projects are also operating at different research stations of the university. Funds for research are provided by the State Government and also the Indian Council of Agricultural Research (ICAR). The ICAR provides 75 per cent of funds for conducting research under various All India Coordinated Research Projects of ICAR.

The University is governed by a Board of Management comprising of 21 members headed by the Vice-Chancellor. The Vice-Chancellor is supported by University Officers viz., Registrar, Dean of Horticulture, Director of Research, Director of Extension, Dean of PG Studies, Dean of Student Affairs, Controller of Examinations, Comptroller and Estate Officer in University management. The academic affairs of the University are governed by the Academic Council, UG and PG Boards led by the Vice-Chancellor. The Research and Extension services are guided by the Research and Extension Council (REC).

This university offers B.Sc. (Hons.) Horticulture, M.Sc. (Horticulture) with specialization in i) Fruit Science ii) Vegetable Science iii) Floriculture and Landscape Architecture, and iv) Spices, Plantation, Medicinal and Aromatic crops and Ph.D (Horticulture). The course curriculum prescribed by the IV Deans' committee of Indian Council of Agricultural Research is being followed for the degree programme. At under graduate level besides course work, students to equip the practical field knowledge on the Horticultural crops they shall also undergo Rural Awareness Work Experience Programme (RAWEP) and subsequently Experiential learning programme with subject modules, namely, (1) Commercial Horticulture (2) Protected cultivation of high value Horticulture crops (3) Processing of fruit & vegetables for value addition (4) Floriculture and landscape gardening. In RAWEP the final year students are deputed to stay in villages along with farmers for 90 working days, where they will interact with farmers of the village, work with them, understand the field problems, apply the latest knowledge, acquire necessary skills and gain self confidence. The rural based training programmes i.e., RAWEP, Experiential Learning programme will be useful to develop the manpower requirement with different technical expertise in view of the globalization of horticultural trade and for imparting quality education and training in horticulture to the students. Besides with an intention to provide self employment to rural youth, and also to make use the services of rural youth in rural development, the University has established five horticultural Polytechnics in rural areas to offer two year Diploma in Horticulture.

The University scientists are involved in popularizing the proven technologies and improved varieties developed through various extension activities, namely; All India Radio, print and visual media, participation in Exhibitions, Krishi Melas, Rythu Chaitanya Yatra, Rythu Sadassus and Adarsha Rythu Training Programmes.





II. UNIVERSITY ADMINISTRATION

His Excellency, the Governor of Andhra Pradesh, **Sri E.S.Lakshmi Narasimhan** is the Chancellor of the University.

Dr. C.V.S.K.Sarma, the Vice-Chancellor, Agricultural Production Commissioner and Principal Secretary to Government & Vice-Chancellor i/c. is the Academic Head and Principal Executive Officer of the University.

The organizational set up of the University is presented in flow chart.

The University is governed by the following authorities.

- Board of Management
- Academic Council

A. AUTHORITIES OF THE UNIVERSITY

1. Board of Management

The Board of Management of Dr.YSRHU is the apex body, empowered to make policy decisions, with the Vice-chancellor as its Chairman who is also the Chief Executive of the University.

The Board of Management has representatives from State Legislature / Parliament (4 no.), the Horti-industry (2 no.) and State Chamber of Panchayat Raj (1) as well as Horticultural Scientific Community (1 no.). In addition, one representative from the Indian Council of Agricultural Research, three Members of Academic Council of the University, Secretaries to Government from Panchayat Raj and Finance Departments and Director of State Departments of Agriculture and Animal Husbandry are also the Members of the Board of Management of Dr.YSRHU. During the period under report the Board of Management was not constituted by Govt. of Andhra Pradesh except for the Ex-officio members.

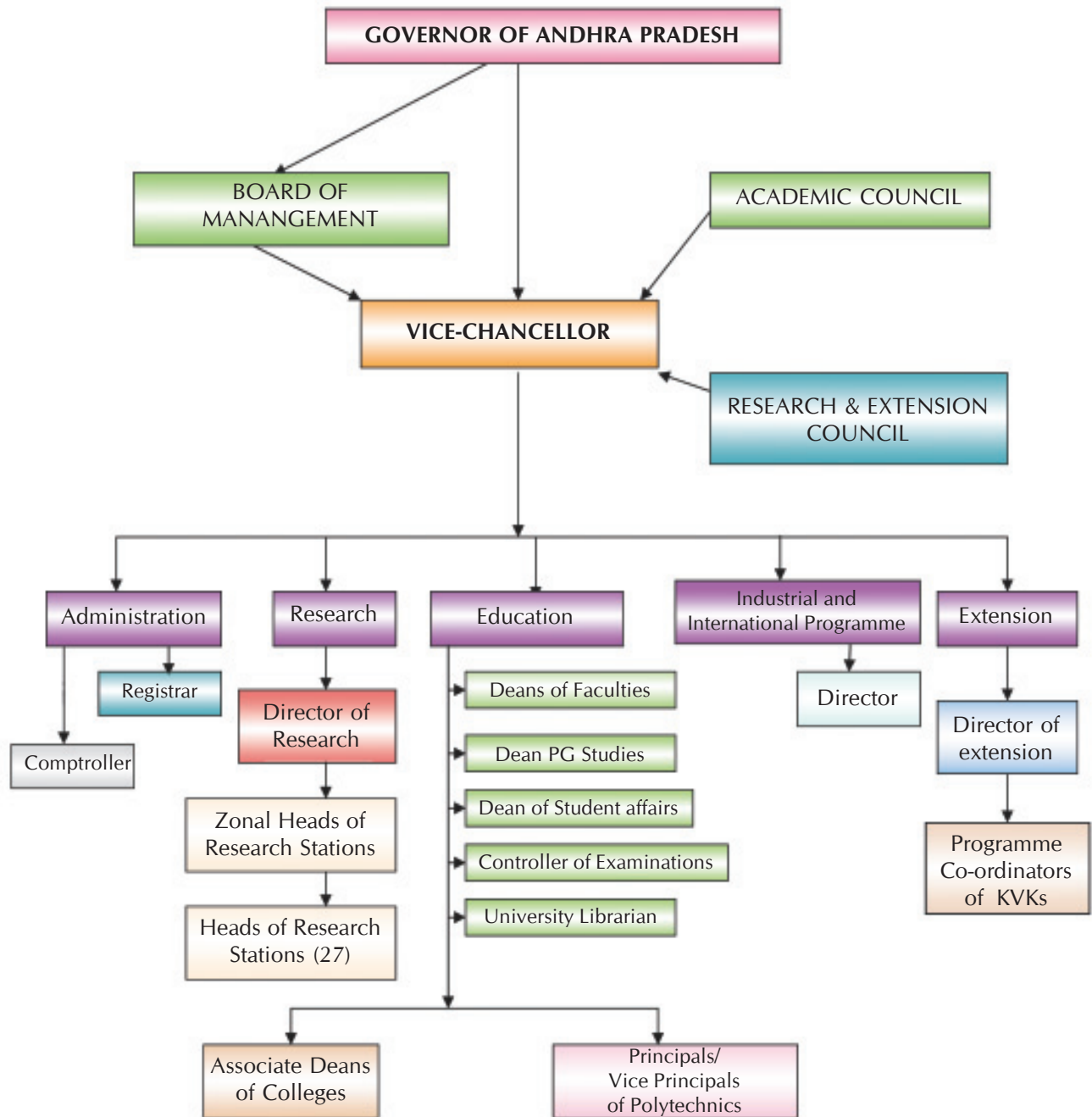
Members of Board of Management, Dr.YSRHU

- Ex-Officio Members**
- Dr. C.V.S.K.Sarma**, I.A.S. Agril. Production Commissioner & Principal Secretary to Government, ATM & Vice-Chancellor (From 26.02.2011)
 - Sri.V. Nagi Reddy**, I.A.S., Vice-Chancellor, ANGRAU
 - Dr. V.Prabhakar rao**, Vice-Chancellor, SVVU
 - Dr. C.V.S.K.Sarma**, I.A.S. Agril. Production Commissioner & Principal Secretary to Government, ATM
 - Mrs. Vasudha Mishra**, I.A.S. Secretary to Government (IF)
 - Mrs. I.Rani Kumudini**, I.A.S. Commissioner & Director of Horticulture





ORGANIZATIONAL STRUCTURE OF Dr.Y.S.R. HORTICULTURAL UNIVERSITY





2. Officers of the University

The list of University Officers for the year is furnished as follows.

UNIVERSITY OFFICERS

Vice-Chancellor	Dr. C.V.S.K.Sarma , I.A.S. Agril. Production Commissioner & Principal Secretary to Government, ATM (From 26.02.2011 onwards)
Registrar	Dr. B.Srinivasulu (01.11.2011 onwards)
Comptroller i/c.	Dr. B.Srinivasulu (1.6.2011 onwards)
Dean of Horticulture i/c.	Dr. B.Srinivasulu (01.04.2012 to 11.07.2012)
Dean of Horticulture	Dr. M.Lakshminarayana Reddy (12.07.2012 onwards)
Dean of Post Graduate Studies i/c.	Dr.D.Srihari (16.07.2013 onwards)
Director of Research i/c.	Dr.B.Srinivasulu (1.11.2011 onwards)
Director of Extension	Dr. M.B.Nageswararao (04.07.2012 onwards)
Dean of Student Affairs i/c.	Dr.G.Subbi Reddy (12.4.2012 to 12.07.2012)
Dean of Student Affairs	Dr.D.Srihari (13.07.2012 onwards)
Controller of Examinations	Dr. B.Srinivasulu (12.03.2009 to 09.12.2012)
Controller of Examinations	Dr. M.Pratap (10.12.2012 onwards)
Estate Officer	Sri P.R.P.Raju (05.03.2010 onwards)

3. Academic Council

The Academic Council is vested with the responsibility of implementing and monitoring all the academic programmes. The Council is headed by the Vice-Chancellor, as Chairperson and consists of Deans of Faculties, Directors of Research and Extension, Controller of Examinations, Dean of Student Affairs, University Heads of Departments and Professors as Members. In addition, the Council consists of ten academicians, representing different faculties nominated by the Vice-Chancellor and two representatives of the Board of Management. As Chief Executive of the University the Vice-Chancellor is vested with the powers and responsibilities for the academic administration.

MEMBERS OF ACADEMIC COUNCIL

Clause (i) The Vice-Chancellor	Dr.C.V.S.K.Sarma , I.A.S., Agril. Production Commissioner & Principal Secretary to Government & Vice-Chancellor
Clause (ii) The Vice-Chancellor, ANGRAU	Sri V.Nagi Reddy , I.A.S., Vice-Chancellor, ANGRAU
Clause (iii) The Vice-Chancellor, SVVU	Dr.V.Prabhakara Rao , Vice-Chancellor, S.V.V.U.
Clause (iv) The Dean of Horticulture	Dr.M.Lakshminarayana Reddy , Dean of Horticulture, Dr.YSRHU
Clause (v) The Directors	Dr.B.Srinivasulu , Director of Research, Dr.YSRHU
Clause (vi) Dean of Students Affairs	Dr.D.Srihari , Dean of Students Affairs & Dean of PG Studies (FAC), Dr.YSRHU





- Clause (vii) **Controller of Examinations** **Dr.M.Pratap**, Controller of Examinations, Dr.YSRHU
- Clause (viii) **The University Librarian** **Dr.K.Veeranjaneyulu**, University Librarian, ANGRAU
- Clause (ix) **The University Heads of Departments and Heads of Departments of College** -
- Clause (x) **The Associate Deans of Colleges** **Dr.K.Umajyothi**, Associate Dean **Dr.M.Madhavi**, Associate Dean **Dr.P.Veeranna Goud**, Associate Dean **Dr.P.Babu Ratan**, Associate Dean
- Clause (xi) **The Associate Directors of Research of the Regions / Zones** -
- Clause (xii) **Three Principal Scientists (Crop)** **Dr.M.B.Nageswara Rao**, Professor (Horticulture) **Dr.J.Dilip Babu**, Principal Scientist (Hort.) **Dr.M.Vijaya**, Principal Scientist (Plant Path.)
- Clause – xii (2) -
- Clause (xiii) **Members of Board of Management** -
- Clause (xiv) **The eminent educationists from outside the University in the field of Horticulture** **Dr.A.B.Patil**, Registrar University of Horticultural Sciences, Bagalkot, Karnataka **Dr.C.Ravisankar**, Professor (Hort.) & Univ. Head (Retd.), ANGRAU
- Clause (xv) **One nominee of the Indian Council of Agricultural Research** **Dr.S.Arulraj**, Director, NRC Oil Palm
- Clause (xvi) **Two Associate Professors and two Assistant Professors from the Faculties** **Dr.A.Girwani**, Associate Professor (Horticulture) **Dr.B.Sreenivasulu**, Associate Professor (Horticulture) **Dr.D.Venkata Swamy**, Assistant Professor (Horticulture), **Dr.D.Srinivasa Reddy**, Assistant Professor (Entomology)
- Clause (xvii) **Principals of Polytechnics** **Dr.G.Srihari**, Principal **Sri M.Sattiraju**, Vice-Principal
- Clause (xviii) **The Registrar** **Dr.B.Srinivasulu**, Registrar, Dr.YSRHU

B. MEETINGS OF THE AUTHORITIES OF THE UNIVERSITY

Academic Council

The Academic Council normally meets once in six months. Tenth and Eleventh Academic Council meetings were held on 08-06-2012 and 05-01-2013 at University Auditorium, ANGRAU, Rajendranagar and International Guest House, Dr.YSRHU, V.R.Gudem.

C. FACULTY STRENGTH

The cadre-wise strength of teaching staff of Dr.YSRHU is as follows

Faculty Strength in Dr.YSRHU during 2012-13

Teaching Staff	
Post	No.
Professors	34
Associate Professors	28
Assistant Professors	98





III. EDUCATION

1. Teaching Institutes

Dr. YSR Horticultural University (Dr. YSRHU) offers under graduate programme, B.Sc. (Hons.) Horticulture, M.Sc. (Horticulture) with specialization in Fruit Science, Vegetable Science, Floriculture & Landscape Architecture and Spices, Plantation, Medicinal & Aromatic crops and Ph.D (Horticulture). In addition to these, Dr. YSRHU is also offering two years Post-matric-diploma programme in horticulture.

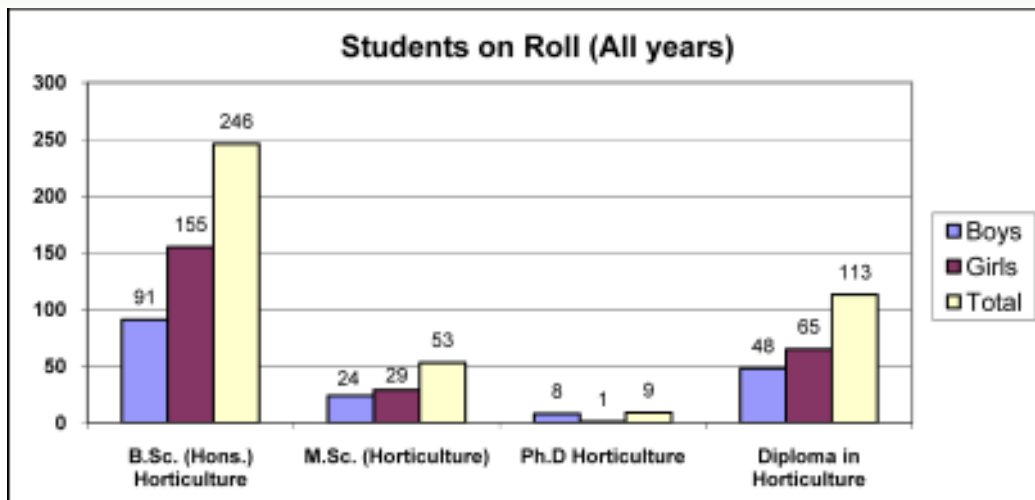
The list of colleges and polytechnics with their location, year of establishment and courses offered is given in Table.

S.No.	Teaching Institute with location	Courses offered
I.	Colleges of Horticulture	
	i) Horticultural College & Research Institute, Anantharajupet	B.Sc. (Hons.) Horticulture M.Sc. (Horticulture) with specialization in Fruit Science, Vegetable Science, Floriculture & Landscape Architecture and Spices, Plantation, Medicinal & Aromatic crops
	ii) College of Horticulture, Mojerla	B.Sc. (Hons.) Horticulture
	iii) College of Horticulture, Rajendranagar	B.Sc. (Hons.) Horticulture M.Sc. (Horticulture) with specialization in Fruit Science, Vegetable Science, Floriculture & Landscape Architecture and Spices, Plantation, Medicinal & Aromatic crops and Ph.D (Horticulture)
	iv) Horticultural College & Research Institute, Venkataramannagudem	B.Sc. (Hons.) Horticulture M.Sc. (Horticulture) with specialization in Fruit Science, Vegetable Science, Floriculture & Landscape Architecture and Spices, Plantation, Medicinal & Aromatic crops and Ph.D (Horticulture)
II.	Horticultural Polytechnics	
	i) Horticultural Polytechnic, Adilabad ii) Horticultural Polytechnic, Kalikiri iii) SSPG Horticultural Polytechnic, Madakasira iv) Horticultural Polytechnic, Ramagirikhila v) SKPP Horticultural Polytechnic, Ramachandrapuram	Diploma in Horticulture

2. Admission Strength and out turn of Students

Course	Students admitted (2012-13)		
	Boys	Girls	Total
B.Sc. (Hons.) Horticulture	91	155	246
M.Sc. (Horticulture)	24	29	53
Ph.D. (Horticulture)	8	1	9
Diploma in Horticulture	48	65	113
Total	171	250	421





3. Scholarships and Stipends

Name of the Scholarship	No. of recipients	Amount received (₹)
BC Post Matric Scholarship	126	3493195
SC Post Matric Scholarship	60	837113
ST Post Matric Scholarship	25	834103
EBC Post Matric Scholarship	38	547335
EPC Post Matric Scholarship	13	29120
Disabled	-	-
District Minority Department Scholarship	5	18380

4. Students' Hostels

No. of Hostels			No. of students accommodated		
Boys	Girls	Total	Boys	Girls	Total
5	6	11	298	480	778

5. Students Research

College of Horticulture, Rajendranagar

S.No	Degree	No. of students
1	M.Sc (Hort.)	21
2	Ph.D (Hort.)	04
	Total	25

M.Sc Thesis (Submitted) – 21,
Ph.d Thesis (Submitted) – 3

Horticultural College & Research Institute, Venkataramannagudem

S.No	Degree	No. of students
1	M.Sc (Horticulture)	18
2	Ph.D (Horticulture)	-
	Total	18

Horticultural College & Research Institute, Anantharajupet

S.No	Degree	No. of students
1	M.Sc (Horticulture)	8
2	Ph.D (Horticulture)	-
	Total	8





6. Students Activities

i) NSS Activities

Horticultural College & Research Institute, Anantharajupet

S. No.	Name of the activity/camp	Venue	Date & duration	No. of students attended
1.	NSS Off campus Special camp	Punnativaripalli Obulavaripalli Mdl	25-2-13 to 03-3-13(10 days)	50
2.	Blood donation camp on the eve Swami Vivekananda 150 th birth anniversary	HC&RI, Anantharajupet	1 day collected	30 units of blood

College of Horticulture, Rajendranagar

Name of the college	Camp	Venue	Date	No. of students attended
College of Horticulture	NSS Unit-I	Peddagolkonda (V), Shamshabad (M), Rangareddy Dist	19-11-2012 to 25-11-2012	50 students
College of Horticulture	NSS Unit-II	Mudimyala (V), Chevella (M), RR(Dist.)	September, 2012	50 students

The Awareness talk on Organ Donation

NSS unit-I conducted the awareness talk on **“Organ Donation”** on **11.12.12**. The chief organization in this activities in the country, **MOHAN** (Multi Organ Harvesting Association Network) Foundation was invited for the talk. The Programme Manager explained the students and staff about the importance of donating the organs and how much worthy it is in saving the others life.

Blood Donation Camp

NSS Unit-I has conducted a blood camp on 12.12.12 in which the volunteers have participated actively 46 Blood samples have been donated.

Horticultural College & Research Institute, Venkataramannagudem

Camp	Venue	Date	No. of students attended
Sadbhavana Diwas	HC&RI, VRGudem	13-08-2012	152
International Non-Violence day		02-10-2012	165
World Aids day		01-12-2012	172
Campus cleaning		06-12-2012	154
Blood Donation camp		12-12-2012	98
Swami Vivekananda 150 th birth day celebrations		12-01-2013	62
NSS Special Camp		Koonavaram, Tadepalligudem mandal	15-03-2013 to 21-03-2013
NSS Special Camp	Veerampalem, Tadepalligudem mandal	15-03-2013 to 21-03-2013	50

Horticultural Polytechnic, Adilabad

Camp	Venue	Date	No. of students attended
NSS Special camp	Ankoli	15 th to 21 st & 31 st March, 2013	44





NSS Activities at Horticultural Polytechnic, Kalikiri

Camp	Venue	Date	No. of students attended
NSS Special camp	Sanyasivandlapalli, Kalikiri mandal	01-02-2013 to 07-02-2013	41

NSS special camp was conducted at Sanyasivandlapalli for 7 days. The camp activities include Medical camp, Veterinary camp, literacy campaign, field visit, Sanitation works etc.



SSPG Horticultural Polytechnic, Madakasira

Name of the College	Camp	Venue	Date	No. of Students Attended
SSPG Horticulture Polytechnic, Madakasira, Anantapur district.	Special Camp	Madakasira Nagar Panchayat	1 st – 7 th March, 2013	50

Special Camp Programme

A special camping Programme was conducted in Madakasira Nagar Panchayat. Madakasira Mandal. Anantapur district from 1st-7th March 2013. 50 NSS Volunteers have taken part in the Special Camping Programme. An Animal Health Camp, Health Camp for Old aged Shramadhan (Water harvesting Structure was Constructed). Farmers-Scientist-Department Officers Interaction meeting on Pomegranate and Field visit etc., programmes were conducted during Special Camping Programme.

Horticultural Polytechnic, Ramagirikhilla

Name of the College	Camp	Venue	Date	No. of Students Attended
Horticulture Polytechnic, Ramagirikhila	Special camp	Ladnapur Ramiahpalli	15-03-2013 to 21-03-2013	39 members





SKPP Horticultural Polytechnic, Ramachandrapuram

Camp/Activity	Venue	Date	No. of Students attended
Teacher’s Day	College campus	05-09-2012	50
NSS Day	R.C.Puram Town, East Godavari District	24-09-2012	50
Gandhi jayanthi and International Day of Non violence and peace	SKPP H.Polytechnic, Ramachandrapuram	02-10-2012	50
Aids awareness Campaign	R.C.Puram Town, East Godavari District	1-12-2012	50
Lecture on Human rights	College campus	10-12-2012	50
NSS Special Camp	Velangi Village, Karapa Mandal, E.G.District	18.02.2013 to 24.02.2013	50



AIDS day rally



Ambedkar Jayanthi



NSS special camp



NSS special camp – rally on anti plastic



NSS special camp - tree planting



NSS special camp-painting to panchayat office building



NSS special camp-temporary compound wall erection at old age home



NSS special camp - valedictory function at Velangi on 24.02.2013



Puls Polio 20-01-2013



Rythu training programme 19-01-2013



400m relay team



400m relay team



Cultural Team (skit)

ii) Sports, Games and Cultural Activities

Horticultural Polytechnic, Kalikiri

Activity	Venue	Date	No of students from H.P.K.	Prizes won
Sports, Games and cultural activities	SSPG Horticulture Polytechnic, Madakasira	24-03-2013 to 26-03-2013	20	19
Sports and Games	Horticulture Polytechnic, Kalikiri	29-11-2012 to 30-11-2012	43	30





College of Horticulture, Rajendranagar

45 students participated in inter college Sports & Games meet at held (12-02-2013 to 14-02-2013) V.R. Gudem and achieve the following prizes.

First Prize – Basket Ball,(Boys) Table Tennis(Boys), Short Put (Boys & Girls), 100mtr Running Race(Girls) 1500 mtr (Boys)

Second Prize – Basket Ball (Girls), Table Tennis (Girls), Cricket (Boys), Volley Ball (Girls) Badminton (Boys) 5 students from the college participated in All India Inter Agricultural University Sports & Games Meet 2012-13 held at Bidar, Karnataka.

Horticultural Polytechnic, Adilabad

Participated in 2nd Inter Collegiate Sports, Games & Cultural meet (24-26th March) organized for Diploma students of the University conducted at SSPG Horticulture Polytechnic, Madakasira.

Horticultural Polytechnic, Ramagirikhilla

2nd Inter Collegiate Sports and Games, cultural & Literary Meet was held from 24-03-2013 to 26-03-2013 (3 days) at SSPG, Horticulture Polytechnic, Madakasira. College students participated in the meet.

SSPG Horticultural Polytechnic, Madakasira

The SSPG Horticulture Polytechnic, Madakasira stood First with 86 points and bagged the Overall Championship at 2nd inter collegiate sports, games and cultural literary meet held at SSPG Horticulture Polytechnic, Madakasira.

Mr. S. Mahaboob Basha a student of Second Year has won First prize in 100m, 200m and 400m running race.



Dr. D. Srihari Dean of Student Affairs Congratulating Mr. S. Mahaboob Basha



SSPG Horticulture Polytechnic with the Overall Championship Cup

Sree Rajeev Gandhi Memorial Cricket League Championship is being sponsored by the Honourable MLC. Government of Andhra Pradesh, Shri. Gundumala Thippe Swamy. The students of Our College actively participated in the League and have played 16 matches on Sundays and Second Saturdays from 20th August 2012 to 14th November 2012.

Students of 2011 Admitted Batch gave a bid Farewell to 2010 Admitted Batch on 22nd June 2012. Fresher’s Day was celebrated on 10th December 2012.

Horticultural College & Research Institute, Venkataramannagudem

Freshers’ day: The freshers’ day celebrations were performed on 5.10.2012 giving a grand welcome to the students of 2012 admitted batch.

Legal awareness camp: This institute had organized Legal awareness Camp with regard to “A.P. Prohibition of Raging Act-1997” by inviting Sri. M. Ramanadhan, Lawyer on 17-09-2012.

Educational tours: Educational tours, one to Andhra Pradesh and the other one to South India were conducted during the reporting period. The A.P tour was conducted during August, 2012 under the leadership of Dr. N. Emmanuel and Mrs. T. Suseela. The South India tour was organized during September 2012 under the guidance of Sri K. Sessa Kiran and Mrs.K.Usha Kumari.

Inter-Collegiate Sports and Games Meet, 2012-13: The 3rd Inter Collegiate Sports and Games Meet was hosted by Horticultural College and Research Institute, VR Gudem, under the chairman ship of Dean of Student Affairs Dr. D. Srihari from 12th -14th February, 2013. The institute was awarded with the Overall Championship for various sports and games. Students viz., Miss M. Lavanya and Mr. Ch. Rohit stood as champions in athletic events. A total of fourteen students from our college were selected in the university team and participated in All India Agricultural Universities Games and Sports meet held at Bidar, Karnataka.





College Day: College Day of Horticultural College & Research Institute was celebrated on 27th April 2013 by conducting competitions in sports, games, cultural and literary events. Dr. S. Arul Raj, Director, Directorate of Oil palm Research, Pedavegi was invited as Chief Guest. The prizes were distributed to the winners by the Chief Guest, Dr. D. Srihari, Dean of student affairs & Dean PG Studies and Dr. A. Sujatha, Associate Dean of HC&RI, V R Gudem.

Horticultural College & Research Institute, Anantharajupet

Students from the college participated in 3rd inter collegiate games and sports meet conducted at HC&RI, V.R. Gudem, W.G. Dist. from 12th to 14th Feb/2013 and stood 2nd in overall championship.

11(eleven) students of this campus got selected and participated in All India Inter Agricultural Universities Sports and games meet-2012-13 held at Bidar, Karnataka from 6th to 10th March, 2013. Fresher's day and College day were celebrated in the campus.

Education Tours

Horticultural Polytechnic, Kalikiri

Research Station / Pvt. Companies/ Farmers fields	Date	1 st / 2 nd Year Diploma
Aluka Foods Pvt. Ltd.,V.S. Bio Products Pvt. Ltd., Madanapalli	12-04-2012	1 st and 2 nd year Diploma Students
Soil testing laboratory, Madanapalli	14-09-2012	1 st Year Diploma students
DARE, Pulicherla	17-09-2012	2 nd year Diploma Students
Citrus Research Station, Tirupati, HCRI,	11-10-2012	1 st Year Diploma students
Banana Tissue Culture Laboratory, Private Nurseries (Rayalaseema Nursery), Anantharajupeta, Palamaneru	12-10-2012	
(Farmers fields and Private Nurseries) and Kuppam		
Progressive Farmers fields at Punganur, Vayalapadu and Madanapalli mandals Indian Institute of Horticultural Research, Bangalore	05-11-2012 and 06-11-2012	2 nd year Diploma Students





Horticultural Polytechnic, Ramagirikhilla

The Second year (2011 batch) Students were taken to Educational tour to Rajahmundry by covering HRS Ambajipet, HRS Kovvur, Kadiyam Ornamental Nursery, KVK Pandirimamidi, ITDA Horticulture Nursery , Rampachodavaram.

SKPP Horticulture Polytechnic, Ramachandrapuram

Bagged 17 medals in Sports, Games, Literary and cultural events in Inter collegiate sports meet conducted at Madakasira from 24-03-2013 to 26-03-2013.

Sports				
Boys			Girls	
3 rd Place	B.Suresh Babu	Running 100 m	1 st Place	J. Usha Rameswari
2 nd Place	B.Suresh Babu	Running 200 m	1 st Place	A. Haritha
2 nd Place	B.Suresh Babu	Running 400 m		J. Usha Rameswari
3 rd Place	B.Suresh Babu	Relay 400 m	1 st Place	N.Manasa Reddy
	G.Devisri Prasad			T.Anitha Krishna
	Sk.Dastagir			A.Harika
2 nd Place	B.Suresh Babu	Javelin Throw	2 nd Place	J. Usha Rameswari
2 nd Place	G.S.Satyanarayana	Long Jump	2 nd Place	J. Usha Rameswari
2 nd Place	B.Suresh Babu	Discus Throw	1 st Place	M. Amaragana Sai

Games	Cultural Events
Valley Ball - Winners Tennicoit - Winners Shuttle (Girls) - Runners	Skit- 2 nd place
Literary Events	
Elocution - 1 st Prize - K.Y.Lakshmi Sailaja Essay Writing - 2 nd Prize - K.Naga Sai	

University toppers in P.G. programme

The university top rankers among 2011 admitted student batch in PG programme in department of fruit science, vegetables, floriculture and landscape architecture and plantation, spices, medicinal and aromatic crops in Dr.YSRHU is furnished hereunder.

	Department	Students name	ID No.	Year of admission	OGPA	Remarks
1	Fruit science	Mr. Ch.Sankar Dasu	VHM/2011-14	2011-12	9.18/10.00	University topper
2	Vegetables	Ms.G.Madhavi	VHM/2011-07	2011-12	9.16/10.00	University topper
3	Floriculture and landscape architecture	Ms.K.Janaki	VHM/2011-15	2011-12	8.84/10.00	University topper
4	Plantation, spices, medicinal and aromatic crops	Ms. M. Anitha	VHM/2011-01	2011-12	9.21/10.00	University topper





IV. RESEARCH

The university is conducting basic, applied, location /region specific and anticipatory research for the overall development of horticultural crops in the state at 27 Research Stations located in 9 agro-climatic regions of the state. The research programmes are covered under three categories namely, Non plan projects/ University projects, ICAR plan projects under All India Coordinated Research Projects and State Horticulture Mission projects.

The research activities of the university are being carried out in the following thrust areas.

1. Thrust areas of research

- Increasing productivity
- Sustaining productivity under biotic and abiotic stress
- Improving nutritive value
- Environment protection
- Increasing profitability to the farmers
- Export promotion
- Minimization of post harvest losses
- Processing and value addition

2. Research Stations

Sl.No.	Horticultural Research Stations	Research Crops	AICRP on
1.	Horticultural Research Station, Chintapalle, Vishakapatnam District.	Spices, Flowers	Black pepper, Turmeric, Ginger
2.	Horticultural Research Station, Pandirimamidi, East Godavari District.	Fruits, Vegetables, Palmyrah	Palmyrah
3.	Horticultural Research Station, Ambajipeta, East Godavari District.	Coconut, Cocoa	Coconut
4.	Horticultural Research Station, Kovvur, West Godavari District.	Banana, Elephant Foot Yam, Colocasia	Banana, Elephant Foot Yam
5.	Horticultural Research Station, Venkataramannagudem, West Godavari District	Sapota, Jack, Betelvine, Medicinal plants	Sapota, Jack, Papaya, Betelvine, Medicinal plants, Tapioca
6.	Horticultural Research Station, Vijayarai, West Godavari District.	Oil Palm, Vegetables	Oil palm
7.	Mango Research Station, Nuzvid, Krishna District	Mango	-
8.	Horticultural Research Station, Lam, Guntur District.	Chilli, Vegetables, Spices	Chilli, Vegetables, Grain spices
9.	Cashew Research Station, Bapatla, Guntur Dist.	Cashew	Cashew
10.	Horticultural Research Station, Darsi, Prakasam District.	Sweet orange, Vegetables	-
11.	Horticultural Research Station, Adilabad, Adilabad District.	Vegetables, Flowers	-
12.	Horticultural Research Station, Aswaraopet, Khammam District.	Mango, Guava, Vegetables	-
13.	Turmeric Research Station, Kammarapally, Nizamabad District.	Turmeric	Turmeric





Sl.No.	Horticultural Research Stations	Research Crops	AICRP on
14.	Horticultural Research Station, Mallepally, Nalgonda District.	Arid plantation crops	-
15.	JVR Horticultural Research Station, Malyal, Warangal District.	Mango, Chilli	-
16.	Floriculture Research Station, Rajendranagar, Ranga Reddy District.	Flowers	Flowers
17.	Grape Research Station, Rajendranagar, Ranga Reddy District.	Grape	Grape
18.	Herbal Research Station, Rajendranagar, Ranga Reddy District	Herbal crops	-
19.	Vegetable Research Station, Rajendranagar, Rangareddy District.	Vegetables	Vegetables, Tuber crops, Grain spices
20.	Fruit Research Station, Sangareddy, Medak District.	Mango, Guava, Custard apple	Mango, Guava
21.	Horticultural Research Station, Anantapur, Anantapur District.	Arid Fruit crops	Pomegranate, Amla
22.	Horticultural Research Station, Anantharajupet, Kadapa District.	Fruit crops, Vegetables	-
23.	Horticultural Research Station, Mahanandi, Kurnool District	Vegetables	-
24.	Citrus Research Station, Petlur, Nellore District.	Citrus crops	-
25.	Citrus Research Station, Tirupati, Chittoor Dist.	Citrus, Sweet orange	Sweet orange, Acid lime
26.	Post harvest Technology Research Station, Rajendranagar, Hyderabad		
27.	Post harvest Technology Research Station, Venkataramannagudem, West Godavari District.	Mango, Sweet orange	

3. Seasonal conditions and crop performance

During 2012-13, the mean minimum and mean maximum temperatures ranged from 20.3 °c to 32.5°c while the highest temperatures of 40.5°c was recorded during the month of May, 2012 and minimum of 13.0°c was recorded during December, 2012. The mean RH was 77.11% (FN) and 44.53%(AN) while maximum and minimum humidity levels 89%(FN) & 24%(AN) were recorded during the months of September 2012 and May 2012 respectively. A total of 794.0 mm rainfall was received in 52 rainy days while 80% of the total rainfall was received in 2 months i.e. during June, July and September, 2012.

On an average good rainfall during the year, resulted in better performance of chrysanthemum and marigold. Also during Rabi, Gladiolus crop was performed a lot due to good average rainfall.

The areas, production and productivity of horticultural crops in Andhra Pradesh during 2012-13 are presented.

Statistics of Horticultural crops in Andhra Pradesh during 2012-13

Sl. No	Crop Category	Area (000'HA)	Production (000'MT)
1	Fruit Crops	883.1	13260.9
2	Vegetables Crops	621.6	11192.6
3	Plantation Crops	283.7	7138.8
4	Spice Crops	538.6	2210.9
5	Flower Crops	30.0	1086.1
6	Medicinal Plants	20.2	77.8
	Total	2377.2	34967.1





4. Salient Research Results during 2012-13

Tables and Results of the experiments conducted during the year 2012-13:

Coordinated varietal trial in Black Pepper

Sl.No.	Variety	Plant height (Cm)	No.of Branches per vine	Yield per vine (g)
1	HB20052 (P-8)	291.34	16.00	254
2	PRS-88	158.07	10.70	—
3	ACC.53	122.20	7.70	—
4	ACC 106	173.98	10.433	—
5	ACC 33	124.04	13.1	—
6	ACC 57	111.71	9.267	—
7	C-1090	187.23	6.833	—
8	HP-39	183.65	8.0	—
9	Panniyur-1	283.14	12.833	214
10	Karimunda	150.34	6.50	—
	Sem \pm	7.404	0.399	—
	CD 5%	22.168	1.195	—
	CV %	7.181	6.82	—

Development of organic package for spice based cropping system

Treatment	Plant height (Mt.)	Length of Spike (cm)	No. of berries per spike	Fresh berry yield (kg/vine)
Organic	3.62	12.14	64	3.68
Inorganic	3.95	13.06	66	4.01

Coordinated varietal trial in Turmeric-2009

Treatments	Plant height (cm)	No. of tillers/ plant	Leaf length (cm)	Leaf width (cm)	Leaf Area(sq.cm)	Rhizome yield/ plant(g)	Rhizome yield/ plot(Kg)	Fresh Rhizome Yield t/ha.	Recovery(%)	Dry yield (t/ha)
RH 9/90	84.6	3.533	43.0	9.60	412.8	489.0	14.96	37.4	18.0	6.73
RH 13/90	91.03	4.067	48.4	10.267	496.9	595.3	14.19	35.5	17.81	6.32
RH 80	89.73	4.667	45.5	10.133	461.0	538.3	16.79	42.0	19.60	8.23
RH 50	89.40	3.533	46.5	9.96	463.1	446.6	11.54	28.9	15.20	4.39
TCP 70	92.66	4.933	57.2	15.80	903.7	224.3	7.33	18.3	23.90	4.38
TCP 129	92.80	5.133	64.1	14.60	935.8	318.3	9.70	24.3	25.80	6.26
Chintapalli local	81.30	5.067	54.5	12.70	692.1	298.6	10.64	26.6	22.00	5.85
SE (m) \pm	0.795	0.190	0.64	0.236	—	46.52	1.056	—	-	-
CD 5%	2.477	0.593	1.993	0.735	—	144.9	3.289	—	-	-
CV %	1.551	7.456	2.156	3.444	—	19.37	15.02	—	-	-





Studies on the effect of rhizome size and nursery on growth and yield of Turmeric

Treatments	Plant height (cm)	No. of tillers/plant	Leaf length (cm)	Leaf width (cm)	Leaf Area (sq.cm)	Rhizome yield/plant (g)	Rhizome yield/plot (Kg)	Fresh Rhizome Yield t/ha.
T1	77.4	3.66	41.20	12.2	502.6	90.8	0.93	3.10
T2	109.3	5.00	45.40	15.5	703.7	263.9	3.51	11.70
T3	91.2	4.26	48.40	13.8	667.9	245.8	2.35	7.83
T4	98.0	4.86	49.66	14.1	700.2	190.0	4.90	16.33
T5	111.0	9.00	53.93	15.0	809.0	263.2	6.67	22.23
T6	103.1	3.00	50.80	15.0	762.0	223.8	5.63	18.77
T7	128.6	3.06	57.46	13.9	798.7	308.0	7.37	24.57
T8	118.4	3.80	42.53	13.6	578.4	260.7	6.02	20.07
T9	136.0	3.40	65.20	17.4	1134.5	377.8	8.56	28.53
SE (m) ±	8.48	0.721	4.126	1.00	—	26.18	0.373	—
CD 5%	25.643	N.S	12.47	N.S	—	79.16	1.127	—
CV %	13.583	24.87	13.27	11.73	—	18.34	12.08	—

Genotype x Environmental interaction on quality of Ginger

Treatments	Plant Stand (No./40)	Plant height (cm)	No. of tillers/plant	Rhizome yield/plant (g)	Rhizome yield/plot (kg)	Fresh Rhizome Yield t/ha
Himagiri	17.0	35.33	11.0	232.03	4.47	11.17
Suravi	21.0	24.33	9.0	231.74	4.83	12.07
Suprabha	27.3	38.00	15.0	281.10	5.65	14.12
Rajata	20.3	39.66	12.3	280.53	4.83	12.07
Mahima	21.6	39.00	14.0	281.30	4.90	12.25
Varada	26.3	44.00	19.3	471.63	8.53	21.32
Narsipatnam	25.0	41.00	15.0	238.33	4.06	10.15
Nadia	33.3	44.66	21.0	523.10	9.10	22.75
SE (m) ±	1.95	0.718	0.456	9.939	0.206	—
CD 5%	5.97	2.200	1.398	30.438	0.631	—
CV %	14.02	3.252	5.406	5.422	6.158	—

Evaluation of herbicides for the control of weeds in Ginger (*Zingiber officinalis* Rosc.)

Treatments	Plant height (cm)	No. of tillers/plant	Rhizome yield/plant (g)	Rhizome yield/plot (kg)	Fresh Rhizome Yield t/ha
T1	26.86	7.8	130.2	2.41	6.02
T2	28.46	9.1	146.4	2.73	6.82
T3	30.26	11.7	186.9	3.72	9.30
T4	31.06	11.1	180.0	3.52	8.80
T5	34.56	14.1	257.8	5.07	12.67
T6	35.15	14.2	224.5	4.42	11.05
T7	37.94	17.4	353.4	6.80	17.00
T8	35.43	16.3	345.6	6.44	16.10
T9	46.00	21.2	502.0	9.80	24.50
T10	40.93	19.7	428.5	8.24	20.60
T11	13.79	2.96	39.6	0.95	2.375
T12	43.80	22.6	511.2	10.18	25.45
SE (m) ±	0.949	0.748	8.198	0.131	—
CD 5%	2.802	2.208	24.19	0.387	—
CV %	4.881	9.229	5.153	4.245	—




Effectiveness of new molecules of fungi toxicants against *Phytophthora* foot rot of Black Pepper in Existing Plantation

Treatments	Yellowing (%)	Defoliation (%)	Death of Vines (%)	Yield / Vine (Kg)
T1 Spraying and drenching with 0.1 % of Fenamidone (10 %) + Mancozeb (50 %) (Sectin)	16.20	21.32	13.11	1.8
T2 Spraying and drenching with 0.1 % of Fenamidon (10 %) + Mancozeb (50 %) (Sectin) + Soil application of <i>T.harzianum</i> (MTCC-5179) 50 g/vine with 1 kg neem cake	12.50	14.98	9.50	3.12
T3 Spraying and drenching with 0.2 of kocide + after 10 days soil application of <i>T. harzianum</i> (MTCC 5179) 50g/vine with 1 kg neem cake.	17.30	17.45	14.21	2.45
T4 Potassium phosphonate (0.3%) + <i>Trichoderma harzianum</i> (MTCC-5179)	13.64	16.14	12.24	2.92
T5 Control	25.78	31.25	23.58	1.15
SEM ±	1.32	2.01	1.25	1.21
CV %	14.02	16.35	17.78	13.17
CD (P=0.05)	2.14	4.07	3.91	0.67

Evaluation of cut flower varieties of Orchid cultivars under high altitude zone of Visakhapatnam district along with local germplasm

Treatment	Plant height (cm)	Leaves per cane	Leaf length (cm)	Leaf width (cm)	Number of shoots per plant	Number of spikes per plant	Length of spike (cm)	Number of florets per spike	Inter nodal length (cm)	Flower pedicel length (cm)	Longevity of spike on plant (days)
Sonia-17	43.28	10.	13.0	5.25	5.0	8.85	39.3	10.3	4.70	4.20	40
Big white	40.21	9.3	12.1	5.20	3.0	6.25	33.6	8.55	3.90	3.85	35
Phalanopsis	17.08	7.5	8.50	6.10	0	3.66	32.1	7.32	2.00	3.41	26
Vanda hybrid	50.19	24.	14.8	2.89	1	0	0	0	0	0	0

Evaluation of cut flower varieties of Orchid cultivars under high altitude zone of Visakhapatnam district along with local germplasm

Treatment	Plant height (cm)	No of tillers per plant	No.of leaves per tiller	No. of panicles per plant	Length of panicle	No.of Capsules per panicle	Fresh yield per plant (g)	Wt. of 100 capsules (g)	Recovery (%)
Mudigere-1	275.1	18.5	15.25	22.11	31.10	22.0	141.1	57.0	24.6
Mudigere-2	295.3	21.3	16.87	21.02	30.90	25.2	183.0	57.0	26.3
Mudigere-3	225.2	13.1	14.21	19.47	31.60	25.0	90.60	71.0	25.4
Nagellani green gold	264.8	12.65	13.54	18.47	29.80	23.5	93.5	64.0	25.0
SK-14	240.2	14.31	14.57	14.34	28.70	18.3	141.0	62.0	27.4

Particulars of cultures under Minikits testing/ multilocation trial

Name of the culture	Year of minikit testing	Important features
Yangambi KM-5	2012	Yangambi Km 5 cultivar in banana is an exotic cultivar with resistance to panama wilt, Rhizome rot nematodes and leaf spot diseases.



A. CROP IMPROVEMENT

FRUITS

MANGO

Evaluation of mango variety and hybrids

At HRS, Aswaraopet, among different table varieties tested, Totapuri recorded highest mean yield of 131.68 kg/tree followed by Mahamooda Vikarabad (92.01 kg/tree), while the least mean yield was recorded by var. Prabha Sankar (12.48 kg/tree).

Concerned to the juicy varieties, Suvarna Rekha recorded highest mean yield (67.33 kg/tree) followed by Navaneetham (60.35 kg/tree, usage in among the variety tested least mean yield was recorded with Peddarasam (33.46 kg/tree).

Regarding the hybrids, the period under report Manjeera recorded highest mean yield of 156.65 kg/tree. Pertinent to cumulative mean yield of hybrids for 16 years, hybrid Manjeera showed its superiors recording highest mean yield of 1743.29 kg/tree followed by Neeleshan 1702.69 kg/tree.

Effect of different chemicals on regulation of flowering & fruiting in mango

A field trial conducted at HRS, Malyal (2012-13) using different chemicals to regulate flowering and fruiting for cv. Baneshan (Table.1), foliar spray of KH_2PO_4 1% + KNO_3 1% (T4) resulted in improving the percent perfect flowering their reflecting on increased yield clearly flowered by sprays of K_2HPO_4 1% + Thioureal 1% (T5) and K_2HPO_4 1% + KNO_3 1% (T3) (113.25 kg/tree, 106.25 kg/tree and 105.2 kg/tree respectively.

Effect of different chemicals on flowering parameters of Mango C.V. Baneshan, during the year 2012-13

S.No	Treatments	Percent Flowering (%)	Fruit weight (g)	Yield kg/tree	TSS (brix)	Fruit set/Panicle
T1	K_2HPO_4 1%	63.8	332.5	65.2	17.8	4.27
T2	KH_2PO_4 1%	57.05	310.75	76.5	17.82	5.3
T3	K_2HPO_4 1% + KNO_3 1%	61.25	347.25	105.2	17.55	5.51
T4	KH_2PO_4 1% + KNO_3 1%	76.25	390.25	113.25	17.48	5.26
T5	K_2HPO_4 1% + Thioureal 1%	75.4	407.25	106.25	17.32	4.86
T6	KH_2PO_4 1% + Thioureal 1%	72	380	96.5	17.39	4.65
T7	Control	45.2	350	67	16.26	3.91
	CD at 5%	6.51	42.42	16.5	0.45	0.32

SWEET ORANGE

Characterization of Citrus germplasm under Tirupati conditions during 2012-13

S.No	Botanical Name	Date of planting	Plant height (m)	Canopy spread (m)		Stem girth (cm)	Canopy volume (m^3) / tree	No. of fruits
				EW	NS			
Sweet orange (<i>Citrus sinensis</i> Osbeck)								
1.	Valencia sweet orange	12-09-2005	2.45	2.75	2.93	35.00	10.36	-
2.	Excelsor malta	12-09-2005	2.37	1.63	1.68	22.67	3.41	-
3.	Jaffa	12-09-2005	1.57	1.20	1.25	18.00	1.23	85





S.No	Botanical Name	Date of planting	Plant height (m)	Canopy spread (m)		Stem girth (cm)	Canopy volume (m ³) / tree	No. of fruits
				EW	NS			
4.	Pinapple Sweet orange	12-09-2005	3.45	3.0	3.08	44.50	16.66	190
5.	Egypt Sweet orange	12-09-2005	1.90	1.75	2.40	31.00	4.18	
6.	Paperind Sweet orange	12-09-2005	1.77	1.42	1.42	22.67	1.86	
7.	S/CM Sweet orange	12-09-2005	2.32	2.13	2.37	30.67	6.12	90
8.	Enterprise 8718	12-09-2005	2.35	1.95	2.03	25.33	4.88	120
9.	Parson brown	12-09-2005	1.75	1.97	173	28.67	3.12	200
10.	Mediterranean sweetorange	12-09-2005	2.88	2.20	265	27.33	8.80	110
11.	Queen Sweet orange 8763	12-09-2005	2.45	2.33	265	33.33	7.93	100
12.	Madam venus	12-09-2005	2.03	2.25	250	30.67	5.99	50
13.	Cadenarafine	12-09-2005	2.45	2.50	2.55	36.00	8.18	—
Sour orange (<i>C. aurantium</i> (L) Osbeck)								
14.	Herales Sour orange	12-09-2005	2.75	2.08	2.20	32.00	6.60	200
15.	Australian sour oranj	12-09-2005	3.13	2.90	3.00	36.50	14.24	150
16.	Sour Dig	12-09-2005	2.22	2.27	2.42	28.67	6.36	250
17.	Sour orange-9751	12-09-2005	2.22	2.13	2.12	28.00	5.24	150
18.	Chinnato	12-09-2005	1.25	1.00	075	17.00	0.49	120
Pummelo (<i>Citrus grandis</i>)								
19.	Pummelo pink	12-09-2005	3.20	3.73	3.77	42.00	23.56	130
20.	Pummelo-21-111-10	12-09-2005	3.03	2.65	2.78	36.00	11.71	50
21.	Pummelo 31-1-13	12-09-2005	2.13	2.10	2.60	32.00	6.10	75
Grape fruit (<i>Citrus paradise</i>)								
22.	Japanese Summer	12-09-2005	3.25	4.75	5.00	53.00	40.42	250
23.	Grape fruit (Attari small)	12-09-2005	2.65	1.25	1.20	20.00	2.08	150
24.	Marsh grape fruit	12-09-2005	1.98	1.55	1.50	20.33	2.41	75
Rough lemon (<i>Citrus jambhiri</i> Lush)								
25.	Soh Myndong	12-09-2005	2.87	3.27	3.63	48.33	17.82	150
26.	Rough lemon 8779	12-09-2005	2.75	2.23	1.95	21.00	6.25	50
27.	Rough lemon Rahuri	20-01-2010	1.80	1.30	1.25	17.00	1.53	-
28.	Jambheri assam	20-01-2010	2.52	1.82	1.40	24.33	3.35	-
29.	Rough lemon assam	20-01-2010	1.50	1.00	1.00	16.67	0.79	-
Trifoliolate oranges (<i>Poncirus trifoliata</i>) & Hybrids								
30.	Troyer Citrange	12-09-2005	2.55	1.78	1.58	26.00	3.77	-
31.	Carizo citrange (<i>P. trifoliata</i> x <i>C. paradisi</i>)	20-01-2010	1.85	1.10	1.03	11.00	1.10	-
Mandarin group (<i>Citrus reticulata</i>)								
32.	Willow leaf	12-09-2005	2.63	2.52	2.60	38.00	9.02	165
33.	Dancy Tangeron <i>Citrus tangerina</i>	12-09-2005	3.25	3.38	3.73	49.50	21.39	250
34.	Rangatra Mandarin <i>Citrus reticulata</i>	12-09-2005	2.17	1.67	1.73	23.00	3.28	150
35.	Unshiu Mandarin <i>Citrus unshiu</i>	12-09-2005	3.32	3.10	2.82	31.00	15.18	140
36.	Calamondin <i>Citrus madurensis</i>	20-01-2010	1.45	1.25	1.38	14.50	1.30	
37.	Kinnow	20-01-2010	2.35	2.13	2.35	24.50	4.77	-





S.No	Botanical Name	Date of planting	Plant height (m)	Canopy spread (m)		Stem girth (cm)	Canopy volume (m ³) / tree	No. of fruits
				EW	NS			
38.	Cleopatra	20-01-2010	1.55	1.05	0.95	12.33	0.81	-
39.	Mermoloid orange	20-01-2010	2.00	1.43	1.95	20.00	2.91	-
Limes (<i>Citrus aurantifolia</i>) & Lemon (<i>Citrus lemon</i>)								
40.	PKM-1		2.35	1.53	1.53	22.00	2.89	
41.	Nagpur lemon	12-09-2005	1.55	1.00	1.05	18.00	0.85	50
Other species								
42.	<i>C. depressa</i>	12-09-2005	3.00	2.40	1.75	44.00	6.60	120
43.	Sunkokon	12-09-2005	1.63	1.95	1.90	26.50	3.17	140
44.	Pectinofera	12-09-2005	2.20	2.42	2.32	29.67	6.45	150
45.	<i>C. hystrix</i>	12-09-2005	1.52	1.77	1.38	17.33	1.94	120
46.	<i>C. moi</i>	12-09-2005	2.37	2.37	2.30	27.00	6.75	70
47.	Kum quat- <i>Fortunella sps</i>	12-09-2005	2.00	2.23	2.13	31.00	4.99	90
48.	Kukudai	12-09-2005	1.98	1.90	1.83	25.00	3.62	150
49.	Emekai puli <i>Citrus medica</i>	12-09-2005	4.18	4.07	3.77	56.67	33.55	185
50.	CRH-47	12-09-2005	3.63	2.35	2.40	48.5	10.79	75
51.	Kitchili <i>C. madaraspatana</i>	20-01-2010	2.37	2.02	1.98	25.67	4.96	-
52.	Gajanimma <i>C. limettioides</i>	20-01-2010	1.88	1.48	1.64	24.33	2.39	-
53.	<i>C. macrophylla</i>	20-01-2010	1.83	1.60	1.48	18.50	2.26	-
54.	Citron - <i>Citrus medica</i>	20-01-2010	1.38	1.33	1.30	16	1.24	-

S. No.	Name of the accession	Wt. of fruit (g)	Juice (%)	Brix (°)	Acidity (%)
1.	Sweet orange : Pineapple Grape fruit	200	38	12	0.6
2.	Marsh grape fruit	188	42	7.6	2.5
3.	Japanese summer	499	50	7.9	4.4
4.	Rough lemon : Soh Myndong Pummelo	200	40	8.2	4.3
5.	Pummelo pink	502	21	10.8	4.5
6.	Pummelo 31-1-13	450	25	10.6	5.3
7.	Sour orange				
7.	Herales	229	28	6.6	5.6
8.	Sourdig	220	30	7.8	5.3
9.	Australian sour orange	510	30	7.6	4.9
10.	Sour orange 8751	177	32	7.3	6.7
11.	Mandarin				
11.	Unshiu	611	37	8.6	1.9
12.	Dancy tangeron	80	40	8.0	1.7
13.	Willow leaf	178	42	7.4	1.8
14.	Other species				
14.	Kumquat <i>Fortunella sps</i>	240	15	5.9	1.8
15.	Kukudai	90	16	7.4	2.9
16.	<i>C. depressa</i>	28	11	8.5	1.5
17.	CRH-47	94	18	8.5	4.2
18.	<i>C. hystrix</i>	45	32	7.6	4.3
19.	Emmikai puli <i>Citrus medica</i>	590	20	8.0	2.5





CRS, Tirupati, a total of 116 citrus germplasm accessions comprising of Sweet orange (13), Sour orange (5), Pummelo (8), Grape fruit (3), Rough Lemon (5), Trifoliolate orange & Hybrids (4), Manderins (9), Acid lime (48), Lemons (2) and other species (19) are being maintained for evaluation and characterization. Data presented on growth parameters (Table 1) and fruit quality parameters (Table 2) revealed that among sweet orange group maximum vegetative growth was observed in Pineapple Sweet orange (canopy volume 16.66 m³) with an average fruit weight (200g), highest juice percentage (38 %) and TSS (9°). In sour orange group Australian sour orange recorded maximum plant height (3.13m) and canopy volume (14.24 m³) and fruit weight (510g). Pummelo pink among Pummelo group, Japanese Summer among grapefruits, Soh Myndong among rough lemons, Troyer citrange among trifoliolate hybrids and Dancy Tangeron among Manderins are highly vigorous. Emmikai puli (*Citrus medica*) recorded highest plant height (4.18m), canopy volume (33.55m³) and average fruit weight (590g).

Twenty germplasm accessions planted during 2010 are at pre bearing stage and the accessions collected during 2011-12 are at secondary nursery stage.

During 2012-2013, one new red pummelo germplasm accessions is collected from the farmers field and budded on rangpur lime root stock.

Clonal selection of Sweet Orange

Clonal selection survey was initiated to select the elite clones of sweet orange having better yield and better quality. Data regarding the growth parameters on 5 year old sweet orange clones from (Table no.2) indicates that, Sathgudi sweet orange clone has recorded significantly maximum plant height (2.67m) and canopy volume (11.95 m³) followed by TS3 clone. However TS1 clone recorded minimum plant growth parameters (canopy volume 3.53 m³).

Table: 2

Treatments	Place of Collection	Plant height (m)	Canopy spread (m)		Stem Girth (cm)	Canopy Volume (m ³)
			E-W	N-S		
TS ₁	Venkata Reddy Gari Palle, Tadepatri (M) Ananthapur	1.68	2.13	1.85	23.67	3.53
TS ₂	Ammavaripeta, B.K. Samudram (M) Ananthapur	1.80	1.78	1.98	23.00	3.59
TS ₃	Madugula Tipparthi (M) Nalgonda	1.90	2.58	2.25	25.67	5.92
TS ₄	Peddavuru Vill & M, Nalgonda	1.67	2.30	2.40	24.00	4.83
TS ₅	Veligandla (Vill &M)Prakasam	1.82	2.40	2.23	27.00	5.31
TS ₆	Cheruvukomuupalem, P.C. Palle (Mandal) Ananthapur	1.83	2.22	2.55	26.33	5.43
TS ₇	Sathgudi (Check)	2.67	2.97	2.80	33.33	11.95
	CD@5%	0.43	0.62	0.43	0.57	3.27

SAPOTA

HRS, Aswaraopet, as per the 14 years cumulative yield data cricket ball recorded the highest yield (890.67 Kg per tree) followed by Kalipatti (808.08 kg per tree) and lowest yield was recorded by Mirandi (181.79 kg per tree).

HRS, VR Gudem, 34 accessions of sapota were maintained. Among different accessions planted during 1996, cultivar Kirthibarthi has recorded maximum plant height (8.25 m) and canopy volume (588.28 m³), while more fruits tree⁻¹ (3409.33), fruit yield (147.06 kg tree⁻¹ and 14.71 t.ha⁻¹) and cumulative yield (2001-2012) was recorded in Virudhnagar (75.76 t.ha⁻¹).

HRS, VR Gudem, in varietal trial of sapota 10 varieties were planted. Among which PKM-1 has recorded significantly higher fruit number/tree (2519.92), while Singapore recorded maximum yield per tree (154.03 kg and 15.40t/ha). Highest cumulative yield was recorded in PKM-3 (113.42 t.ha⁻¹).





GRAPE

Grape Research Station, Rajendranagar

Evaluation of table and raisin varieties

Among the varieties evaluated, based on pruning weight the variety cardinal expressed high vigour in summer (6.82 kg/vine) and fantasy seedless during the winter (2.36 kg/vine). Maximum yield was recorded in Rizomat (30.58 kg/vine). With respect to quality and raisin recovery merbean seedless recorded maximum TSS (22.35° Brix) and also the maximum raisin recovery (23.02%).

Evaluation of juice & wine varieties

The data recorded on the varieties showed that maximum fruit yield was recorded in Shiraz (15.70 kg/vine) followed by Chenin Blanc (14.97 kg/vine). Among the varieties, maximum juice variety percent (17.12%) was recorded with Chenin Blanc.

Evaluation of commercial varieties on different rootstocks

Vigour: Based on the pruning weight, Thompson Seedless on SO4 rootstock (3.89 kg/vine) was found to be more vigorous.

Yield: Maximum yield was recorded in Thompson Seedless on own root (13.87 kg/vine).

Quality: Maximum TSS was recorded in Thompson Seedless on 1103P rootstock (21.87° Brix).

Collection, maintenance and evaluation of germplasm

Vigour: Based on the pruning weight, Chenin Blanc (6.64 kg/vine) was found to be more vigorous.

Yield:

Seeded table varieties :

Among the seeded table varieties (14 No) Italia has recorded highest yield of 15.98 kg/vine with 20.15° Brix.

Seedless table varieties :

Among the seedless table varieties (15 Nos) Pusa Urvasi has recorded highest yield of 13.95 kg/vine with 18.3° Brix.

Raisin varieties :

Among the raisin varieties (9 Nos), 2Aclone has recorded maximum yield of 12.91 kg/vine with 18.2° Brix.

Juice varieties :

Among the juice varieties (12 Nos), Rubi Red has recorded highest yield of 26.29 kg/vine with 23.1° Brix .

Wine varieties :

Among the wine varieties (9 Nos) the Shiraz has recorded highest yield of 35.1kg/vine with 18.5°Brix .

Evaluation of varieties for juice and wine making on 110 R root stock

Grafting was done in the month of October 2012 and the crop is in establishment stage

Evaluation of varieties for table and raisin making on 110 R root stock

Grafting was done in the month of October 2012 and the crop is in establishment stage

Evaluation of commercial varieties on 110 R, Dogridge, 1103 P rootstocks

Grafting was done in the month of October 2012 and the crop is in establishment stage

Improvement of yield in high quality grapes (Non Plan)

Grafting was done in the month of October 2012 and the crop is in establishment stage.





POMEGRANATE

Horticultural Research Station, Anantapuram

Germplasm collection, evaluation and maintenance of pomegranate

Disease free planting material of all the 17 lines (Ganesh, G-137, Muscat, Jodhpur Red, Jalore Seedless, P-23, Basin Seedless, Dorasut Malagi, Alan, Speen danadar, Tabast, Lupania, Dholka, Utakal, Badana Sadana, Suner Anar and Virupakshi) were multiplied and planting will be done in a new block during July – August, 2013.

Varietal trial on pomegranate

Among the varieties studied, plant height recorded highest in Jalore Seedless (2.13 m) and Ganesh (1.60 m). Plant spread in EW and NS direction was maximum in Jalore Seedless (1.44m and 1.64 m) and Ganesh (1.49m and 1.56 m). *Hasta bahar* crop was taken and the highest yield was observed in Ruby (4.8 kg/plant) followed by Bhaguwa (4.3 kg/plant) and Mridula (3.9 kg/plant). Maximum TSS was observed in Bhaguwa (17 °Brix) followed by Mridula (15.5 °Brix) (Table.12).

Table-12: Plant growth parameters and yield of Pomegranate varieties in 2012 (Year of Planting 2008)

Variety	Plant ht (m)	No. of Branches	Plant Spread (m)		Fruit yield (kg/plant)	TSS (°Brix)
			EW	NS		
Ganesh	1.60	4.38	1.49	1.56	3.7	14.2
Mridula	1.43	4.13	1.23	1.20	3.9	15.5
Bhaguwa	1.34	3.63	1.26	1.28	4.3	17.0
Ruby	1.28	2.63	1.11	1.10	4.8	15.0
Jalore Seedless (check)	2.13	4.88	1.44	1.64	0.1	12.7
<i>Statistics</i>						
CD at $P=0.05$	0.14	0.87	0.12	0.19	0.51	0.95
SE.m +	0.04	0.28	0.04	0.06	0.16	0.44
CV (%)	5.83	18.48	6.12	9.76	2.73	4.16

JACKFRUIT

Horticultural Research Station, VR Gudem

Twenty five accessions of jackfruit were collected and maintained at this station. Data revealed that maximum plant height was recorded in Monkey Jack (8.05 m), while canopy volume was maximum in Tanjavur (498.32 m³) followed by NJ-1 (391.98m³). Yield was maximum in Palur-1 (85.23 kg) followed by Hybrid (80.47 kg).

In varietal trial of Jackfruit 10 varieties were planted. Maximum plant height and canopy volume was recorded in Gumless Jack (7.69 m & 235.90 m³). Yield was maximum in Palur-1 (52.40 kg fruits/tree and 5.24 t/ha)

PAPAYA

In evaluation of promising varieties of papaya, plant height was higher in TFCP-1 (3.28 m) and lower in TFCP-2 (2.72 m). Number of leaves, Number of fruits per plant and yield were maximum in TFCP-4 (20.39, 17.40, 18.20Kg, 45.49 t/ha). Fruit weight was higher in TFCP-4 (1367.08g) and lower in TFCP-1 (669.52 cm).

RAMBUTAN

In Performance of promising Rambutan clones trial, growth data was presented which indicated that plant height was 4.27 m in seedling population and 0.52 and 0.55 m in Chettali Sel. I and Chettali Sel. II.





BANANA

Horticultural Research Station, Kovvur

Collection, conservation, characterization and maintenance of banana Germplasm

Characterization for 102 accessions as per descriptor developed by IPGRI – INIBAP/CIRAD for banana in plant and ratoon crops was completed. Two new accessions viz. Dudhsagar (AAB, Silk) and Manohar (ABB) were added during the year 2006-2007. Now the total no. of accessions maintained at HRS, Kovvur increased to 107.

Clonal selection in commercial banana varieties

- Dwarf Cavendish clone (KBS – 8) continue to record an average bunch weight of 50.0 Kg with a yield potential of over 115 t/ ha. Search for selection of superior clones will be continued.
- Identified a clone from Tella Chekkara keli variety of banana in backyard cultivation with 9 hands, 127 fruits with a bunch weight of 16 Kg and the clone is under field evaluation.
- Identified another clone from Tella Chekkara keli variety of banana from farmers' field with 9 hands, 216 fruits and the clone is under field evaluation.
- In Grand Naine, one clone was identified with 16 hands and 200 fruits from farmers' field and the clone is under field evaluation. In Kovvur bontha also, one clone was identified with 7 hands/bunch and growth of Kovvur bontha clone is very rapid and some of the plants started shooting at 7th month stage. Similarly, field evaluation of clone is in progress.

Evaluation of FHIA Hybrids of Banana

Among culinary types, significant higher yield (54.15 t ha⁻¹) was recorded in FHIA-3, whereas in dessert cultivars FHIA-23 recorded higher yield of 42.30 t ha⁻¹ with a crop duration of more than fourteen months. During 17th group discussion held at Kalyani, West Bengal, a dual purpose tetraploid hybrid FHIA 3 which enjoys good consumer preference has been recommended for state release keeping higher yield potential and Fusarium wilt resistance in view.

Varietal Trail on Banana

Among all the varieties, during two years of study banana Cv. Gandeve has recorded highest yield of 52t/ha and 70.40 t/ha in both plant and ratoon crops respectively. Very poor fruit development was observed in Rajapuri and it was unfit for marketing. Among other cultivars viz; Kothia, Rastali and Jahaji also performed well.

ACID LIME

Citrus Research Station, Petlur

Above 117 accessions in the Rutaceae family are maintained. It comprised of 20 sweet orange, 6 sour orange, 25 rough lemon, 7 Grape fruit, 3 pumello, 7 Rangapur lime, 9 acid lime, 2 lemons, 8 mandarin types, 15 miscellaneous species, 5 genera other than citrus and 10 hybrids. During this year sunki mandarin types are severely affected by *Fusarium* root rot disease.

JAMUN

Fruit Research Station, Sangareddy

Varietal evaluation in Jamun (*Syzigium cuminii* Skeels)

insitu grafting has been done during the year 2012-13. The mortalities will be rectified during 2013-14.

Horticultural Research Station, Pandirimamidi

Studies on standardization of jamun wine preparation

Jamun (pittaneredu) consists of 52 % of pulp and 48% seed. In the pulp, the juice content is 28.0 % and skin 24.0 %. TSS at initial stage of fruit harvest is 8.9 Brix.





BER

Horticultural Research Station, Anantapuram

Germplasm collection, evaluation and maintenance of ber

In Ber collections, maximum plant height was recorded in Kaithili and Gangaregu (2.83m and 2.65m respectively) and highest plant spread (EW, NS) in Seb (3.45m and 3.51m) followed by Kaithili (3.26m, 3.09m), and Gangaregu (3.16m, 3.14m). Highest fruit yield per tree was recorded in Umran (118.9 kg) and Seb (112.3 kg), followed by Mundia (107.8 kg). With regard to fruit quality parameters, fruit weight was highest in Umran (37.20 g) and least in Gangaregu (19.45 g). TSS was recorded highest in Gola (14.5 °Brix) and Seb (14.4 °Brix) and least in Gangaregu (11.17 °Brix) (Table.1).

Table-1: Growth and yield parameters of ber germplasm during 2012 (Year of planting 1983)

Variety/ selection	Plant height (m)	Stem girth (cm)	Plant spread (m)		Fruit weight	Pulp weight (g)	Stone weight (g)	TSS (°Brix) (g)	Fruit yield (kg/ plant)
			EW	NS					
Seb	2.39	72.14	3.45	3.51	33.95	32.37	1.58	14.42	112.3
Gola	2.42	77.14	2.96	3.23	32.83	31.30	1.53	14.50	92.2
Mundia	2.49	86.45	2.94	3.32	34.18	32.47	1.72	12.42	107.8
Umran	2.49	86.45	2.94	3.32	37.20	35.48	1.72	13.25	118.9
Kaithili	2.83	83.11	3.26	3.09	33.07	32.01	1.06	12.00	88.2
Gangaregu	2.65	77.07	3.16	3.14	19.45	18.25	1.20	11.17	78.8

AONLA

Germplasm collection, evaluation and maintenance of aonla

In Aonla collections, highest plant height was recorded in Local (6.20 m) followed by Lucknow (5.4 m) and ATPS-2 (4.9 m) (Table.5). Similarly highest tree spread (EW and NS) was recorded in Local (6.2m and 5.7m). Highest fruit weight was observed in NA10 (43.25g) and Kanchan(39.27g) followed by NA7 (38.9g). Pulp weight was recorded highest in NA10 (41.41 g) and Kanchan(37.64 g). Highest TSS content was recorded in Chakaiya (14.45 °Brix). Maximum fruit yield per tree was recorded in NA 7 (83 kg), followed by NA10 (71.8 kg) (Table.6).

Table-5: Growth parameters of Aonla germplasm during 2012 (Year of planting 1993)

Variety/ selection	Average plant height (m)	No. of branches	Stem girth (cm)	Tree Spread (m)	
				EW	NS
NA-6	3.4	4.3	63.3	3.1	3.2
NA-7	4.1	3.0	50.0	3.3	3.1
NA-10	3.9	4.5	74.3	4.1	4.0
ATPS-2	4.9	5.0	80.0	4.3	4.4
Kanchan	4.0	5.3	77.5	4.0	4.2
Chakiah	2.5	3.0	45.0	2.1	2.2
Local	6.2	6.0	116.3	6.2	5.7



Table-6: Fruit yield and quality parameters of Aonla germplasm during 2012 (Yr. of planting 1993)

Variety/selection	Fruit volume (ml)	Fruit weight (g)	Seed weight (g)	Pulp weight (g)	TSS (°Brix)	Fruit yield/plant (kg)
NA6	36.33	34.73	1.64	33.09	13.08	42.3
NA7	39.17	38.90	1.57	37.33	13.17	83.0
NA10	43.37	43.25	1.84	41.41	13.00	71.8
ATPS - 2	36.42	35.38	1.57	33.82	13.93	59.0
Kanchan	43.42	39.27	1.63	37.64	13.78	67.0
Chakaiya	27.75	29.37	1.81	27.56	14.45	29.0
Local	21.83	17.48	0.90	16.59	13.25	20.0

VEGETABLES

PICKLING MELON

Vegetable Research Station, Rajendranagar

Among Pickling melon genotypes, fruit yield per vine was maximum in IC-261077 (5.22 kg) followed by IC-261075 (4.91 kg) which were significantly higher than check, RNSM-3 (2.92 kg). IC-261080 with 63.70 days to first fruit harvest was early than remaining genotypes.

ONION

Fruit Research Station, Sangareddy

Evaluation of onion varieties

During the year 2012-13 (rabi) fresh weight of the bulb/plot obtained maximum in T₄ (Agri Found Dark Red) (64.67 kg/plot) followed by T₃ (Arka Pragathi) (54.00 kg/plot).

POTATO

Evaluation of potato varieties under Sangareddy conditions

During the year (Rabi) 2012-13 Non significant difference was observed between treatments in terms of varieties in plant height. Significant difference between the treatments was observed only in yield kg/plot small sized 0-50g tubers (0.50gms) per plot and maximum yield/plot was recorded in T₅ Kufri Jyothi 9.17 kg/plot and (5729.16 kg/ha) followed by T₆ Kufri Chipsona-1, 5.65kg/plot and 3646.00 kg/ha but on significant difference was reorded between treatments in terms of varieties large sized (51-100 gms) tubers yield kg/plot and yield kg/ha.

TOMATO

Vegetable Research Station, Rajendranagar

In tomato among 24 hybrids tested, maximum fruit yield per plant was recorded in LE-64 x Arka Vikas (3.90 kg) followed by LE - 53 x Arka Alok (3.83 kg) and LE - 53 x Arka Meghali and LE- 64 x Arka Meghali (3.53 kg) whereas the commercial checks US - 618 recorded 2.50 kg followed by Lakshmi (2.27 kg).

Among the thirty tomato hybrids screened for drought resistance, highest fruit yield per plant was recorded in EC162516 X IC249503 (2.85 kg) followed by IC249512 X IC249503 (2.83 kg) and EC 251578 X EC 164654 (2.75 kg).

In Tomato (determinate) IET, No. of fruits/plant was maximum (20.27) in 12/TODVAR-I which recorded the highest yield per hectare (330.76 q/ha).





In Tomato (Indeterminate) IET, the highest yield of 363.51 q/ha was recorded in 12/ TOINDVAR-2

In Tomato (determinate) AVT-I, highest yield/ha and No. of fruits/plant (458.82 q/ha and 19.02) was recorded by 11/TODVAR-I which was on par with II/TODVAR-3 (450.39 q/ha and 17.98).

Horticultural Research Station, Malyal

Studies on nutrient and water use Efficiency in Tomato through drip irrigation and fertigation.

Fertilization is a technique of applying nutrients through micro irrigation system directly at the site of active root zone. This helps in reducing the wastage of nutrients through enhanced fertilizer use efficiency.

CAULIFLOWER

Vegetable Research Station, Rajendranagar

In Cauliflower Early AVT-I, the highest curd yield /ha (270.66q/ha) was recorded by 11/cauevar-1 which was on par with 11/cauevar-3 (264.49q/ha) and 11/cauevar-5 (243.01 q/ha).

BEAN

In dolichos bean pole type cultivars, PSRJ-13021-2 (5.79 kg) and PSRJ-13008 (5.61 kg) were found superior with regard to pod yield per plant and quality when compared with checks viz., RND-1(5.48 kg) and Puas Early Prolific (4.53 kg).

BOTTLE GOURD

Of the 25 genotypes of bottle gourd evaluated during **kharif** 2012, five genotypes LS-52-1-3, LS-52-1-4, LS-16-2, LS-44-1, and LS-45-3 were found promising based on growth, earliness, fruit traits and consumer quality.

BITTER GOURD

Of the 50 genotypes of bitter gourd evaluated during **kharif** 2012, nine genotypes MC-4, MC-5 MC-6, MC-12, MC-19, MC-27, MC-32, MC-34 and MC-47 were found promising based on growth, earliness, fruit traits and consumer quality.

RIDGE GOURD

Of the 35 genotypes of ridge gourd evaluated during **kharif** '2012, eight genotypes LA-156, LA-25, LA-30, LA-173, LA-215, LA-190, LA-218, LA-192-1, and LA-177 were found promising based on growth, earliness, fruit traits and consumer quality.

OKRA

Of the 22 landraces of okra evaluated during kharif 2012, the genotype RNOYR-27 was found dwarf (determinate) with densely branched all over (DBO) growth habit, while RNOYR-28 was found tall (indeterminate) with densely branched all over (DBO) growth habit. The dwarf genotype RNOYR-27 is a potential genotype for inducing dwarfness in okra.

The inbred lines RNOYR-14, 15, 16, 17, 18 and 24 were not only found to be horticulturally superior but also resistant to yellow vein mosaic virus in okra.

Of the 6 genotypes of Indian spinach evaluated during **kharif** 2012, the genotype RNIS-6 had highest intermodal length (5.20 cm), weight of tender shoots (50.48 g), leaf yield per shoot (26.50 g), stalk yield per shoot (24.85 g) and total shoot yield per shoot (1596 g). The genotypes RNIS-1 and RNIS-4 with twining growth habit could be exploited for cultivation on trellis or pandal. The genotypes RNIS-2 and RNIS-3 with twining but initially bushy growth habit could be exploited for pot culture in urban vegetable gardening. The genotypes RNIS-5 and RNIS-6 with procumbent growth habit could be exploited for ground culture without any support.





ASH GOURD

In ash gourd germplasm evaluation, fruit yield per vine was highest in IC-544609 (20.8 kg) which was significantly higher than check, Shakti (12.56 kg). Maximum average fruit weight was recorded by IC-544631 (8.878 kg) and minimum by check, Shakti (4.38 kg).

SPINE GOURD

Of the 125 female genotypes of spine gourd evaluated during **kharif** 2012, ten genotypes RNK-67, 77, 92, 118, 241, 242, 244, 246, 255 and 256 were found promising based on growth, earliness, fruit traits and consumer quality.

AMARANTHUS

In Amaranthus germplasm, maximum leaf weight (254 g) was recorded with RNT 26. where as maximum seed yield of 205.0g/pl was recorded with RNT -1 followed by RNT -53 (150.0g) and RNA-1(1 IO.Og/pl). The lowest seed yield was recorded with RNT 3, RNT 7 and RNT 38 (6 g each.).

CAPSICUM

Horticultural Research Station, Pandirimamidi

Studies on the effect of training on capsicum for higher yields under polyhouse conditions.

Among the treatments Plant height is highest (150cm) in T2 and lowest(126cm) in T9. There was significant difference observed in days to 50% flowering. Lesser number of days (17) in T7 and more(26) number of days recorded in T10. Days required to fruit set to maturity is more (64) in T5 followed by T3, T2. Less number(48) days recorded in T12. Fruit length is highest(10.2cm) in T1 which is significantly different to other treatments and lowest in T12 (7.7cm). Plant yield is highest (1.967kg) in T12 followed by T11 and T10 where as lowest(0.670kg) in T2 .

Horticultural Research Station, Malyal

Studies on production of Capsicum under poly house conditions.

Significant difference was observed among the treatments with respect to plant height, plant girth, no. of branches, no. of fruits, fruit weight, fruit width, yield/plant and yield t/ha. Highest yield was recorded in T₁ (104.79 t/ha) (Indra variety transplanted in November month) and was followed by T4 (85.33 t/ha) (Indra variety transplanted in December month) and lowest yield was recorded in T₈ (61.86 t/ha) (Bomby variety transplanted in January month)

CARROT

Horticultural Research Station, Pandirimamidi

Studies on the performance of different varieties of Carrot in the agency area of East Godavari Dist.

During the year 2012-13 the variety Pusa Yamadagni has recorded a highest root yield of 18.16 t/ha. It has also recorded highest values in terms of fresh weight of root, root yield per plot and root length.

FLOWERS

GLADIOLUS [*Gladiolus byzantinus*]

Floriculture Research Station, Rajendranagar

Collection, maintenance and evaluation of Gladiolus germplasm

During 2012-13, 55 genotypes of gladiolus were evaluated. The varieties Aarthi, IIHR-G-12, Punjab Morning, Shabnam, Swarnima were categorized as early flowering varieties with <47days to initiate the spike emergence. The spike length ranged from as low as 43.56 cm in Fleva Amico to as long as 100.88 cm in Hybrid



94.4 and 100.00 cm in Hybrid-1. The same varieties recorded more number of florets/spike (> 17) while maximum floret size was noticed in ACC.No.7 (11.82cm), Shagun (11.51cm) and Shabnam (11.30cm).

Testing of new genotypes of gladiolus



IIHR-G12, an early variety of Gladiolus

Among the four new genotypes evaluated, IIHR G-12 was found to be early variety recording minimum days for spike emergence (47days), for flowering (55.8days) and also showed maximum spike length (93.18cm), rachis length (43.6cm), and more no. of florets per spike (13.4). However number of spikes per plant (1.7) and diameter of second floret (9.76cm) were recorded high in white prosperity. Regarding the yield of corms, big sized corms were produced by white prosperity with maximum weight of corms per plant (62.8g) and diameter(54.57mm). Whereas, IIHR G12 yielded more no. of cormels per plant(4.8) with highest cormel weight per plant(4.8 g)and diameter of cormel(15.03g).



Field view of germplasm block of gladiolus at Floriculture Scheme, Rajendranagar

Fertigation studies in gladiolus (Non-Plan)

Trial on fertigation studies was conducted on gladiolus variety 'American beauty'. The results revealed that, early spike emergence (81.86days), early flowering (88.13days), maximum spike length (68.23cm) and long duration of flowering (9.53days) were noticed with T6 (50% RDF fertigation). Finally no. of spikes per m²/yield (16.40 spikes per m²) was noticed high in T5: 60% RDF which was on par with T4 (80% RDF) (16.00 spikes per m²).

CHRYSANTHEMUM

Floriculture Research Station, Rajendranagar

Collection, preliminary assessment and maintenance of chrysanthemum germplasm

During the year 2012-13, 120 varieties were evaluated. This year 9 genotypes from Kadapa region, five genotypes from BCKV, Kalyani, West Bengal and 100 genotypes from West Godavari district were collected and planted in the main field. The days for first flower bud appearance showed wide range of variation from as early as 48.99 days to as late as 133.59 days in Pink Cascade respectively. Local Button a mini variety recorded more number of flowers/ spray (298.54). The diameter of flower among the lines differed with the type of flower and it ranged from 2.11cm in local button to 8.89 cm in Star Pink. With regards to number of suckers per plant, maximum number of suckers were produced in the variety Yellow Bonsai (54.46), while, minimum number of suckers per plant were observed in standard variety Taichen Queen (Nil).

PAU-B-43

PAU-B-107

PAU-A-43

PAU-A-64



New genotypes of Chrysanthemum

Testing of newly evolved genotypes of chrysanthemum:

The studies on evaluation of Chrysanthemum hybrids for 3 years (2010-11, 11-12 & 12-13) revealed that, maximum plant height (60.50 cm), plant spread(55.54), highest number of branches per plant(13.03), spray length(30.24 cm) and number of flowers / spray (30.83) were noticed in PAU-B-43. Yellow delight (54.00days) and Autumn joy (79.83days) were found to be early varieties. Though the average flower weight was high in Silper (2.41 g) maximum diameter of flower was noticed in Garden beauty (8.15 cm) followed by Winter queen (7.23). Finally maximum number of flowers per plant was noticed in PAU-B-43 (202.75).



So, it can be concluded from the data that, the spoon type varieties Winter Queen and Garden beauty are suitable for garden display while PAU-B-43, PAU-B-107 and Autumn joy with good yield characters can be recommended for pot culture under Hyderabad conditions.

Irradiation studies in chrysanthemum and tuberose (Non-Plan)

During 2012-13, two varieties of chrysanthemum Akitha and Red Gold were irradiated with different doses of gamma rays and found that, in both the varieties there was a decrease in the plant height and number of branches/plant. At 3.0 Krad the survival percentage was 65 and 54.23 in Akitha and Red Gold respectively. There was a slight difference in the time taken for initiation of flowering. With regards to flower colour and quality, not much variability was found in both the varieties.

TUBEROSE

Genetic enrichment of tuberose

During the year, 13 germplasm lines were evaluated, out of which 9 were of single flowered types and 4 are of double types. Among the singles, GK-T-C-4, a hybrid selection from Pune, recorded more number of florets/spike (52.0) followed by Arka Nirantara(44.93) and Hyderabad Single(43.97). The size of the individual floret was maximum in Prajwal with maximum floret length (6.36cm) and diameter (4.68cm) and correspondingly it recorded maximum yield (2.13t/ha) followed by GK-T-C-4 (1.89t/ha) and Hyderabad Single(1.87t/ha). Among doubles, Suvasini recorded maximum spike length(100.52cm), rachis length (33.16cm), more number of florets/spike (46.80) and finally more yield(14.28t/ha). It is followed by Vaibhav (13.39t/ha) and Hyderabad Double(12.36t/ha).



Variation in bulb characters among tuberose genotypes

Performance of two genotypes Arka Nirantara and GK T-C-4 were tested on various characters with 5 check varieties including Hyderabad single for 3 successive years. The pooled data revealed that the varieties showed significant difference for almost all the characters except no. of leaves/plant. Maximum plant height (46.98 cm) and more no. of florets per spike (45.10) were found in Arka Nirantara (46.98 cm). Early flowering (68.67days) and maximum spike length(86.22 cm) was noticed in Prajwal. Highest rachis length(23.38 cm) was observed in GK-T-C 4 which was at par with Hyderabad single (23.13 cm). Maximum floret length(6.28cm) and floret diameter(4.45cm) were noticed in Arka Nirantara and Prajwal respectively.

Testing of new cultivars of tuberose

So, it can be concluded that Arka Nirantara performed well over check varieties resulting in more no. of florets per spike(45.10) and maximum floret length (6.28 cm).

So, it can be concluded that Arka Nirantara performed well over check varieties resulting in more no. of florets per spike(45.10) and maximum floret length (6.28 cm).

Horticultural Research Station, Pandirimamidi

Observational trail on performance of tuberose in agency tracts of East Godavari District

Plant height was highest in Hyderabad single variety 63cm and the least was recorded with Hyderabad double variety 38 cm. Yield per hectare (217.6qt/ha)and loose flower yield per plant was recorded highest with Calcutta Double variety. Rajat rekha and Suvasini are on par with Calcutta double.

CUT FOLIAGE AND FILLERS (asparagus, ferns and philodendron)

Floriculture Research Station, Rajendranagar

Collection, evaluation and improvement of cut foliage and fillers (asparagus, ferns and philodendron)

Among our Asparagus species, maximum plant height(282.16cm)and spread (137.33cm)was recorded in *Asperagus setaceus*. *Asperagus densiflorus var.springeri* with maximum leaf length (75.76cm),



Asparagus densiflorus var. Springeri



Goldenrod(Solidago)



width (22.94cm), petiole length (35.2cm) and by producing more no. of leaves per plant (98) with in a period of 60 days was most suitable leaf filler for this region.

Two shrubs, *Cycas*.sp. and *Thuja* sp., were evaluated. More no. of new leaves per plant (263.6) were produced by *Thuja* where as *Cycas* with maximum leaf length (54.2cm) produced comparatively less leaves per plant (85.8). Both the species are well suited to this region with minimum care and maintenance.

At FRS, Rajendranagar, among different philodendrons, maximum plant height (94.86cm), spread (114.73cm), leaf length (28.6cm), leaf width, petiole length (27.36cm) and girth (9.86cm) were noticed in *Philodendron williamsii*. Where as *Philodendron charm* produced more no. of leaves per plant (19.33) in a period of 6 months. Among Ferns, all the four varieties except *Asplenium nidus* have densely pinnate showy fronds. Newly collected Fern (ACC-1) produced maximum lengthy leaves (97cm) followed by *Asplenium nidus* (54.93cm).



A new flower filler *Gypsophila elegans* Panicle of *Gypsophila*

A new flower filler *Gypsophila elegans* was added to the existing collection of cut foliage and fillers. It started flowering during early spring gave 3-4 flushes of flower panicles with 15 -20 days interval. This was identified and recommended as flower filler for this region. Among two species of flower fillers, flowering duration was noticed maximum in *Solidago* sp. compared to *Gypsophila* (95days) in a year.

Development of Horticultural techniques for cultivation of flower and leaf fillers in three regions of Andhra Pradesh (RKVY)

Flower Fillers:

Asparagus densiflorus springeri :

The frond length and production interval was low with higher yields in July to January months and the leaf longevity was more in winter months. Maximum plant height achieved was 106.22cm and spread is 136.72cm and no. of fronds per plant per season i.e. yield is 98. It is identified as suitable green leaf filler and is recommended for cultivation in this region.

Asparagus densiflorus meyers:

No. of fronds per plant per season i.e. yield is 65.6. Increased growth with regard to plant height, spread, leaf length, width and number of leaves was observed during winter months from October to January compared to rainy season. Whereas leaf longevity was more during rainy season. The leaf filler was identified as suitable filler to be cultivated in semi shade conditions.

Asparagus setaceus

Plant grows to a height of 282.86 cm with individual leaf length is 13.03cm and width is 12.9cm

Asparagus sps I :

A dwarf form, with very attractive cladodes which are soft and light green in color. Plant grows to a height of 49.1cm and spreads 66.04 cm with no. of leaves per plant is 23. Stem have no thorns. Very attractive foliage filler plant and it Suitable for this region.

Cycas revoluta :

In *Cycas* uniform increase in plant height, spread, leaf length, width and no. of leaves was observed during all the months. Leaf production interval was less during September and October months compared to November and December months. No. of leaves per plant (85.8) were produced in 6months interval with leaf length (54.2cm) and leaf width (9.72cm). This is identified as a suitable filler plant for bouquets as well as ornamental plant for this region with less maintenance.

Thuja sp.:

A compact growing spindle shaped shrub produced 263.6 new leaves per plant in 6 month interval with leaf length (39.6cm) and leaf width (15.96cm). This is identified as a suitable filler plant for bouquets as well as ornamental plant for this region with less maintenance.





ii) Flower Fillers:

Golden rod (*Solidago*):

Plant height at flower stalk initiation was recorded 17.2 cm and spread is 67.24cm. Days to flowering was recorded as 62days and the spike length noticed was 18.2 cms. The flowering duration is 180 days. This was identified and recommended as suitable flower filler for floral arrangements for this region.

Gypsophila elegans :

A new flower filler was added to the existing collection of cut foliage and fillers. Starts flowering during early spring gives 3-4 flushes of flower panicles with 15 -20 days interval. This was identified and recommended as flower filler crop for bouquets and floral arrangements. Grows to a height 66.42 cm with 22.62 cm long panicles having 607 flowers in each panicle.

Among two species of flower fillers, flowering duration was noticed maximum in *Solidago* sp.(180days) compared to *Gypsophila* (95days) a year.

Horticultural Research Station, Chintapalle

Evaluation of cut flower varieties of Orchid cultivars under high altitude zone of Visakhapatnam district along with local germplasm:

During the year 2012-13, observations revealed that, Among the four commercial orchid species evaluated, *Dendrobium* spp. Cul. Sonia-17 recorded the maximum plant height (43.28 cm), number of shoots per plant (5.0), highest number of spikes per plant (8.85), length of spike (39.33 cm) and number of florets /spike (10.35) and longevity of spike (40 days).

HELICONIA, GINGER LILY & BIRD OF PARADISE

Floriculture Research Station, Rajendranagar

Collection and evaluation of under exploited ornamentals (Heliconia, Ginger lily and Bird of paradise)

During 2012-13, 13 genotypes of Heliconia, 3 genotypes of ginger lily and one genotype of bird of paradise were collected and planted. Among the accessions of heliconia, only two accessions started flowering. *Heliconia rostrata* took 250 days to flower followed by Alan Carle (264 days). In both the species, the spike was initiated at 6-7 leaf stage only. Among the vegetative characters, Richmond Red showed maximum plant height of 232 cm followed by Lobstaclaw (166.3cm).

Evaluation of turf grasses

During 2012-13, eight species of lawn grasses were evaluated and found that the germination percentage was highest in Bengal bent (64%) followed by Kentucky blue grass(56%), while in Pensacola the germination % was lowest(11%) and also it took maximum of 10 days to germinate. Maximum shoot length of 22.07cm was noticed in Pensacola followed by Argentine grass (18.23cm). As the temperatures increased from 30°C to 38°C, the fresh weight of all the samples decreased due to slow growth rate. Because of fast growth rate in Weeping love grass, the maximum fresh weight (1389g) and dry weight(743.33g) per plot was recorded at 10 days after mowing. The same species also showed maximum leaf length of 38.77cm.





HELICONIUM

Horticultural Research Station, Pandirimamidi

Observational trail on performance of Heliconium species in the agency areas of East Godavari Dist.

Heliconia psittacorum X *Spathocircinata* (*Heliconia* Golden Torch) variety recorded the highest plant height and produced more number of suckers among the species flowered at 150DAP. *Heliconia* sp. Which flowered at 150days are Golden torch, Parrats beak, Rubra and Ladi Di.

There are 6 heliconia varieties recorded flowering at 180 days after planting.

H. latispatha orange bygyro variety recorded the highest plant height of 68.5cm when flowered at 180 DAP where as Mass de rooj variety recorded highest plant height among all the 6 species. *Heliconia* sp. Which flowered at 240 DAP are Claw I, Claw II, Cinnamomum twist, Peterson, Rostrata, Eden pink, and Richmond red.

BIRD OF PARADISE

Observational trail on performance of Bird of Paradise.

After three years of growth highest plant height of (92.0cm) with leaf number (13.7) and suckers (4) was observed. Highest inflorescence length of 72cm with 11 number of florets are recorded.

GERBERA

Floriculture Research Station, Rajendranagar

Nutrient sprays in Carnation and Gerbera (Non-Plan)

In gerbera, with different nutrient schedules significantly maximum yield was recorded with T3S2(30.00 flowers / m²/ month) followed by T1S2(27.66 flowers /m² /month). In carnations, more no. of flowers per plant i. e. yield was noticed with T3S2 (32 flowers per plant per month) which was on par with T3S3(31.33).

Horticultural Research Station, Pandirimamidi

Studies on the production of gerbera under poly house conditions.

Among the flower characters days taken for bud opening is significantly lowest in Esmera and Banesha (8.3 days) and highest in Avemeria (11 days) and Mamut (10.3). Lowest number days (96.2) taken for 50 % flowering is recorded in Avemaria, Mamut and followed by Tambre whereas highest (106.5) in Banesha, Esmera and Debora. Number of flowers per plant was highest (41.75) in Debora and lowest (23) in Tambre. Flower diameter is highest (8.7cm) in Debora and stalk length (51.25) Tambre.

FLOWER TREES

Floriculture Research Station, Rajendranagar

Survey, collection and evaluation of indigenous flower trees (Non-Plan)

During 2012-13, 14 species of ornamental trees were collected and planted. Among them, only two tree species initiated flowering. Bottle brush tree took 315 days to flower followed by *Bauhinia tomentosa* (380 days).

JASMINE

Standardization of techniques for continuous growth and production in Jasmine (RKVY)

Previous year:

The experiment was conducted on one year old plants of *Jasmine sambac*. The no. of days taken to flower bud appearance was extended up to 62.0 days with pruning in February along with defoliation and pinching of new shoots followed by 41.5 days with pruning in January along with defoliation and pinching of new shoots. Highest no. of flowers per plant per picking (606) was noticed with pruning in January along with defoliation and pinching of new shoots followed by pruning in February along with defoliation and pinching of new shoots





(515.5). Maximum weight of flowers (102.5g) and highest yield per plant (3.59Kg/plant) was observed with pruning in February along with defoliation and pinching of new shoots followed by pruning in January along with defoliation and pinching of new shoots .

Current year:

In the current year along with defoliation, pruning, and pinching techniques, the application of chemicals like CCC and GA3 at different concentrations have been imposed starting from December 2012. The jasmine pickings are still continuing and the data is being recorded on vegetative and floral characters.

CROSSANDRA

HRS, Anantapuram, Anantapuram

Varietal trial of Crossandra

Maximum plant height was observed in Red Lady Crossandra (43.10 cm) followed by Delhi Crossandra (35.42 cm) and Local (34.02 cm). The no. of spikes/plant was observed more in Red Lady Crossandra (18.60) followed by Delhi Crossandra (14.00). Spike length and no. of flowers/spike were high in Delhi Crossandra (8.50 cm and 22.0 cm). Number of flowers/plant was recorded more in Lady Red Crossandra (394.20) followed by Delhi Crossandra (308.0). The hundred flower weight was recorded maximum in Yellow Crossandra (13.18 g) followed by Delhi Crossandra (12.40 g). The yield /plant and yield/acre was high in Delhi Crossandra (38.19g and 7.26 q/ac) and Lady Red Crossandra (27.91 g and 5.30 q/ac) (Table).

Table: Growth, flower characters and yield of different varieties of Crossandra

DOP – 6.10.2012

S. No.	Variety	Plant height at 60 DAT (cm)	No. of branches /plant	No. of spikes /plant	Spike length (cm)	No. of flowers /spike	Flower diameter (cm)	Corolla tube length (cm)	No. of flowers /plant	100 flowers weight (g)	Flower yield /plant (g)	Flower Yield /ac (q)
1	Lady Red Crossandra	43.10	7.8	18.60	8.18	21.20	2.72	2.68	394.20	7.08	27.91	5.30
2	Yellow Crossandra	29.00	7.0	10.50	6.22	17.40	4.00	2.28	182.70	13.18	24.08	4.58
3	Delhi Crossandra	35.42	7.2	14.00	8.50	22.00	3.76	2.32	308.00	12.40	38.19	7.26
4	Local	34.02	4.8	9.20	8.40	20.70	3.30	2.43	190.44	10.83	20.62	3.92
	SE.m+	4.83	0.69	0.73	0.65	1.60	0.13	0.07	10.98	0.67	1.87	0.35
	CD at 5%	10.54	1.50	1.60	1.41	3.48	0.28	0.16	23.93	1.34	4.07	0.77
	C V %	21.63	16.24	8.85	13.13	12.43	5.88	4.80	6.46	8.97	10.66	10.67



Varietal evaluation in Crossandra





TUBER CROPS

CASSAVA

Horticultural Research Station, Venkataramannagudem

Genetic Resources

A total of 70 entries were maintained as gene bank for crop improvement of Cassava. Of which PDP-7, PDP-6 and CMR-11 recorded maximum tuber yield per plant of 11.0, 9 and 8.5 kg/plant respectively. During 2012-13 five more entries were added and received IC numbers from NBPGR.

IET on Cassava mosaic resistant lines (IET Ca MR, 11)

Maximum tuber yield per hectare was recorded in TCMS-5(45.00 t/ha) followed by TCMS-6 (36.67 t/ha) and TCMS 4 (35.42 t/ha) .Highest starch content was observed in TCMS13 (28.0%) followed by TCMS 12(26.7 %).

IET on Short duration Cassava varieties:

Maximum tuber yield per hectare was recorded in PDP-9 (43.33t/ha) followed by PDP-10 (38.0 t/ha) and TCa 12-5 (37.4 t/ha) .Highest starch content was observed in Sree Jaya (28.10 %) followed by TCa 12-7 (26.53 %) and minimum amount of HCN (ppm) was recorded in TCa-12-1 (49.87ppm).

Multi Location trail (MLT) on Cassava (2007):

Ci-800 and Ci- 823 recorded maximum tuber yield (32.14 and 29.22 tons/ha) with starch content of 25.16% and 23.34 % respectively as against check sree Athulya. Minimum amount of HCN (ppm) was recorded in Ci-823 (36.06 ppm) followed by Ci-800 (48.67 ppm).

SWEET POTATO

Vegetable Research Station, Rajendranagar

Germplasm collection, evaluation and maintenance of tuber crops:

Germplasm of Sweet Potato (135 No's) and Colocasia (90 No.s) are being maintained at main center. Colocasia selection RNCA-1 was recommended for release by AICRP on Tuber crops workshop. Characterization was done during this year and same was sent to CTCRI, Thiruvananthapuram. 4 New accessions collected and maintained.

COLOCASIA (Taro)

Multi Location Trial on Colocasia (Taro) (MLT Co 09): From three years pooled data in all the years and locations RNCA-1 has got the maximum yield of 20.12 t/ha than other accessions. Release proposals of RNCA-1 accession will be sent to the AICRP.

Multi Location Trail on Xanthosoma (MLT Xa 09): Among the entries tested KKV-Xa-4 recorded the maximum yield of 12.68 t/ha followed by KKV -Xa-1 12.61 t/ha and as KKV-Xa-3 recorded the 11.86 t/ha.

ELEPHANT FOOT YAM

Horticultural Research Station, Kovvur

Genotype environment interaction studies on genetic resources of elephant foot yam

Total number of entries maintained are 41 (Non irritant type -26; Irritant type-15) . Among 26 non-irritant types, AC 14 and BCA 3 recorded highest yield of 38.52 t/ha whereas among 15 irritant types, AC 24/1 has recorded highest yield of 36.30 t/ha.

Genotype environment interaction studies on genetic resources of colocasia

99 accessions of colocasia germplasm were evaluated. Among 36 short duration accessions, CA 5 has recorded the highest cormel yield of 55.31 t/ha followed by CA 8 (49.38 t/ha). Among 34 accessions of medium duration group, CA 43 has recorded the highest cormel yield of 37.53 t/ha, while among 29 accessions of long duration group No 48 has recorded highest cormel yield of 45.43 t/ha.





Genotype environment interaction studies on genetic resources of *Dioscorea*

22 accessions of *Dioscorea* germplasm were evaluated. Among the Greater yam entries under evaluation, D2 has recorded highest tuber yield of 49.38 t/ha followed by DA-293 with 45.43 t/ha.

Uniform Regional trial on *Amorphophallus*

Among all the entries under evaluation, AC 14 (44.15 t/ha) was found to be statistically on par with Gajendra (45.07 t/ha) which is the high yielding entry. The trial is forwarded to MLT.

IET on greater yam (Minimum 7 months) (2012)

The trial was taken up on 26.7.2012. However, the experiment failed due to the waterlogged conditions prevailed during 1st week of October and November as there was a heavy downpour and Neelum cyclone respectively.

***In vitro* propagation in Elephant Foot yam**

Callus produced in MS media supplemented with NAA (1.5mg/lit) and BA (2.0mg/lit) has produced green protocorms in all the 6 regeneration media under study.

Standardisation of protocol for *in vitro* regeneration of ornamentals

In *Aerides odoratum*, among different media tried, 1st leaf initiation was observed in VW media (12-13 Weeks After Sowing) where as in *Rhyncostylis retusa* 1st leaf initiation was early in KC media (9-10 Weeks After Sowing) followed by VW media (11-12 Weeks After Sowing).

SPICES

GINGER

Fruit Research Station, Sangareddy

Performance of ginger varieties under Central Telangana Zone

Maran variety was superior in terms of yield and quality. Analysed data will be presented during SLTP.

Studies on off season edible variety

Top working has been completed and data was recorded on one year old plants

Horticultural Research Station, Chintapalle

Genotype X Environmental interaction on quality of Ginger - GIN/CI/3.5

Out of the ten varieties allotted in this project we have received only 6 varieties from different centres and with local check Narsipatnam conducted the experiment in Randomized block design. Growth and yield parameters of eight varieties recorded.

During the year 2012-13, observations revealed that, Maximum plant height was recorded in Nadia (44.66 cm) followed by Varada (44.0 cm). Nadia produced maximum tillers (21) followed by Varada (19.3).

Among the varieties, Nadia recorded maximum yield (22.75 t/ha) of fresh rhizomes followed by Varada (21.32 t/ha) and lowest yield was recorded in Himagiri (11.17 t/ha). All the genotypes are susceptible for ginger rhizome rot disease and the symptoms are visible from the month of August. Disease incidence was low during the months of November onwards.

During the month of November and December leaf tip drying observed, due to accumulation of dew in the leaf tip and chilling temperatures. For controlling the tip drying, spraying had been taken up with Tricontinol @ 2 ml/lit. And this has worked well in controlling the tip drying ultimately resulting in good yields.

Horticultural Research Station, Pandirimamidi

Studies on the performance of improved varieties of ginger in the agency areas of East Godavari Dist.

Among the varieties Suprabha recorded significantly highest plant height (68cm) and lowest (44cm) in Suruchi. Highest (11.76t/ac) is recorded in Suprabha followed by Maran (8.23t/ac) and CTP local(6.62t/ac) and lowest in (2.2t/ac) in Assam local.





BLACK PEPPER

Horticultural Research Station, Chintapalle

Coordinated Varietal trial in Black Pepper-2006 PEP/C1/3.3:

this experiment was initiated during the 2009-10 at Horticultural Research station Chintapalle. Ten varieties of black pepper planted, namely PRS-88, HB-20052 (Panniyur-8), Acc-33, Acc-53, Acc-57, Acc-106, C-1090, HP-39, Panniyur-1 and Karimunda. The observations for 2012-13 are here under, maximum plant height was noticed in Panniyur -8 (HB20052) (291.34 cm) followed by Panniyur-1 (283.14 cm), these two varieties were on par with each other in terms of plant height. Maximum number of sub-vines per plant was observed in HB 20052 (16.00) followed by ACC-33 (13.1) and Panniyur – 1 (12.83). Spike initiation observed in Panniyur -8 and 1 varieties and recorded 254 grams and 214 grams fresh berry yields in Panniyur-8 and Panniyur-1 respectively.

CHILLIES

Horticultural Research Station, Malyal

Effect of mulching in increasing water use efficiency in Chilli Var. LCA-34/353/Teja

Significant difference was observed among the treatments with respect to plant height, plant girth, no. of branches, no. of fruits, fruit weight, fruit width, yield/plant and yield t/ha. Highest yield was recorded in T₄ (4.26 t/ha) and was followed by T₁ (3.83 t/ha) and T₇ (3.83 t/ha) lowest yield was recorded in T₅ (2.99 t/ha).

TURMERIC

Turmeric Horticultural Research Station, Kammarapally

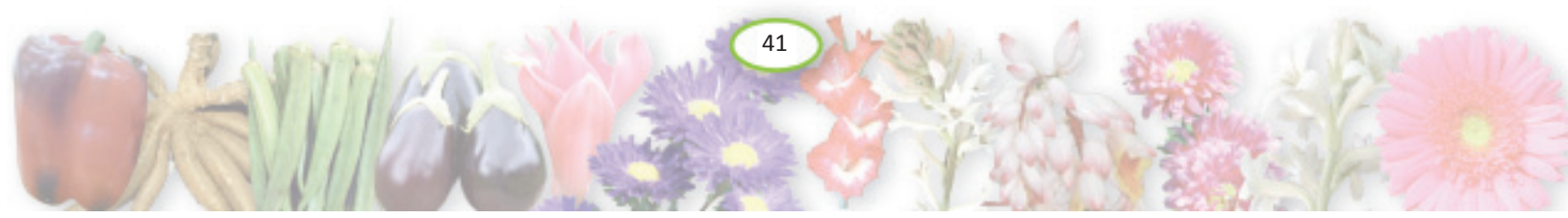
Germplasm Collection, Characterization and Conservation

It is a continuous experiment at present, 220 genotypes/germplasm collections are being maintained at TRS Kammarapally. Genotypes are grouped into long (8-9 Months), medium (7-8 Months), short duration groups (6-7 Months) based on duration of the culture. lot of variability was observed for growth and yield characters. Variability was also observed for diseases like Rhizome rot, *Colletotrichum* and *Taphrina* leaf blotch.

During the year 2012-13, among the all germplasm lines tested, Selection of Duggirala Red recorded highest rhizome yield (13.945Kg/3m²) followed by CLI-316 (12.95 5Kg/3m²). (Table-1)

Table: 1 Data on growth parameters and fresh rhizome yield of some germplasm Cultures

S.No.	Cultures	FRY(kg/3m ²)	S.No.	Cultures	FRY(kg/3m ²)
1	PCT-17(4 Lin)	9.9	18	Rajendra sonia	11.9
2	No. 5	8.6	19	TCP-2(LD)	8.9
3	PCT-3	9.5	20	NO.5(6)(LD)	8.5
4	JTS-15(4 Lin)	11.6	21	JTS-307	7.8
5	Parbhani (SD)	11.4	22	CLI-29	9.5
6	Selection of DR	13.94	23	Rajendrasonia	13.6
7	Kasturi Araku	13.6	24	JTS-319	7.9
8	JTS-324	15.8	25	THUDUPUJA	9.693
9	PCT-3	12.3	26	CLS-9	9.5
10	Mnipur local	8.9	27	JTS-326	7.3
11	JTS-12	12.0	28	CLI-336	9.8
12	PCT-13	9.6	29	PTS-8	12.6
13	JTS-314	7.9	30	PCT16	9.9
14	PCT-5	10.4	31	D-4	9.2
15	Bari peddapasupu (4)	8.3	32	Sonajuli	9.8
16	CLI-370 (8) (SD)	7.7	33	JTS-9	10.5
17	CLI-34	8.3	34	PCT-8	6.9





S.No.	Cultures	FRY(kg/3m2)
35	cli-335\2\2lin	6.8
36	JTS-609-2Lin	7.0
37	PTS-6	7.8
38	PTS-11-3LINES	9.0
39	G.L.Puram	13.6
40	PTS-59	10.5
41	JTS-5	6.8
42	TC-14	9.6
43	CC-94	9.2
44	ST-510	7.6
45	JTS-607	8.4
46	CLI-320	8.6
47	JTS-314	7.4
48	WAIGON	7.8
49	CLI-365	8.3
50	CLI-362	8.4
51	NDH-18	7.8
52	SHILLONG	6.7
53	CLI-310	7.4
54	ACC-585	6.8
55	No 3	6.8
56	JTS-8	7.6
57	JTS-305	6.8
58	JTS-611	7.7
59	Gangavaram collection (4)(LD)	7.6
60	PCT-18	7.0
61	PCT-16	6.7
62	PCT-10	7.6
63	PTS-38	7.3
64	CLI Jyothi	7.1
65	JTS-1	7.3
66	DAGHI	6.8
67	JTS-1	7.0
68	PTS-52	6.7
69	CLI-195	7.5
70	JTS-10	6.9
71	CO-1	7.0
72	CCA-304	7.4
73	JTS-306	8.1
74	KTS-5	8.9
75	ST-75	8.0
76	RASMI	6.6
77	CLS-24	6.9
78	CLI-342/1	9.5
79	PTS-38	9.3
80	CT-1	9.8
81	CLI-364	7.5
82	CLI-342/1	8.3
83	PTS-43 (3)(SD)	7.6
84	BEEDER	9.6
85	ST-154	7.3
86	CLI-361	8.7

S.No.	Cultures	FRY(kg/3m2)
87	CLI-36	7.2
88	PTS-15	6.8
89	RH/9/9	10.5
90	CLI369	6.8
91	CA-90	6.9
92	PTS	7.1
93	CLI-367	6.5
94	CLI-324	8.5
95	PCT-1	10.6
96	JTS-3	9.8
97	CLI-324	11.2
98	KTS-3	9.8
99	JTS-311	10.6
100	CLI-38	10.8
101	PCT-16	9.9
102	JTS-324	8.9
103	ST-35	10.8
104	JTS-310(MD)	11.5
105	JTS-13	9.8
106	Chennur local	10.0
107	CA Sompert	7.5
108	jts-320	10.7
109	CLI-367	6.8
110	KTS-7	8.8
111	Manipu Local	6.8
112	CLI-226	10.2
113	CLI-32/4	10.3
114	RH/9/9	7.5
115	Nagaland local (2) (MD)	7.6
116	JTS-321	9.0
117	BALCK TURMERIC	7.0
118	94-02	8.9
119	TCP-10	9.3
120	CLI/196/4	7.5
121	CLS-24	11.0
122	PTS-11	11.5
123	CLI-136	8.0
124	CLS-9	8.9
125	TCP-29	11.5
126	CLI-325	12.5
127	JTS-6	6.9
128	ST-34	7.3
129	SB-104	12.5
130	CLI-367	6.5
131	CLI-322	8.6
132	KTS-1	8.4
133	CLI-336	12.6
134	PTS-59	11.0
135	Kasturi Avidi	11.0
136	RH-5	11.2
137	Sonajuli	9.9
138	CLI-335	12.5





S.No.	Cultures	FRY(kg/3m2)
139	CA-92/2	7.3
140	CLI-325	9.8
141	SHILLONG KASTURI	8.8
142	PCT-10	7.0
143	PTS-14	7.8
144	Gangavaram collection (4)(LD)	7.6
145	SHILLONG	8.3
146	PTS-24	7.4
147	BDJR-1183	9.3
148	ACC-593	7.5
149	CLI-385	11.3
150	JTS-302	6.4
151	PTS-5	7.4
152	BDJR-1082	6.8
153	CLI-44/1	8.3
154	CLI-394	9.4
155	JTS-14 (2)(LD)	6.8
156	SB-1084	6.5
157	JAMIKA	7.8
158	Rasmi	9.3
159	JTS-303	9.4
160	PCT-10	7.4
161	Nagaland local (2) (MD)	7.6
162	PTS-9	7.5
163	Manipu Local	8.5
164	NDH-18	7.3
165	CLI-329	7.5
166	NDH-6	10.1
167	JTS-38	9.9
168	Nizamabad local	7.5
169	CLI-385	8.5
170	PTS-43 (3)(SD)	8.4
171	JTS-309	8.6
172	PTS-12	8.5
173	GS LONG	7.5
174	CLI-324	8.3
175	Kasturi	9.5
176	BDJR-1995	6.8
177	JTS-304	11.2
178	NH-1	11.0
179	JTS-610	9.5
180	PCT-2	9.6
181	CA-92/2	7.5
182	CLI-29	11.0
183	CA-69	9.6
184	JTS-612	10.6
185	Bari peddapasupu (4)	9.6
186	JTS-3	7.5
187	Kasturi Araku	10.0
188	ndh-4	9.4
189	ic	10.9

S.No.	Cultures	FRY(kg/3m2)
190	tcp-129	7.4
191	DEEPAJI GUDA	7.6
192	STS-608	8.0
193	TUKRIPET	6.5
194	JTS-312	9.9
195	CLI-124	8.2
196	Megaturmeric	9.8
197	PTS-43 (3)(SD)	8.6
198	JTS-614	7.4
199	PTS-14	6.9
200	NDH-18	9.5
201	PTS-7	7.6
202	CLI-36/1	8.3
203	DJTS-14	7.0
204	PCT-18	7.2
205	KTS-4	7.0
206	PTS-15	7.4
207	WEST BENGAL	11.6
208	JTS-603	8.4
209	Duggirala white	13.4
210	CA-19/	7.5
211	etha mukkala	8.6
212	kts-8	7.2
213	JTS-301	8.5
214	RANGA	10.7
215	Jagtial local	8.5
216	pct-5	6.0
217	TC-2/1	8.6
218	JTS-315	7.6
219	CLI-334	9.5
220	ST-510	8.8
221	CLI-339	9.6
222	BSR-1	7.1
223	CLI-320	8.1
224	JTS-313	9.5
225	CLI-Rajam pet	9.2
226	jts-322	8.6
227	KTS-2	9.5
228	CA-SOMPET	8.9
229	IC-1	6.8
230	CLI-196	6.7
231	LOCK DONG	8.0
232	KTS-3	8.1
233	PTS-55	8.6
234	KTS-7	7.9
235	JTS-604	7.8
236	BSR-2	7.5
237	NDH-18	10.1
238	JTS-317	11.5
239	CLI-316	12.9



CVT 2009

During the year 2012-13, out of seven (7) genotypes tested, RH-9/90 recorded highest fresh rhizome yield (30.3t/ha) followed by RH-13/90 (29.7t/ha) in comparison to Duggirala red check variety (43.6 t/ha).(Table-2)

STANDARDIZATION OF WATER REQUIREMENT THROUGH DRIP IRRIGATION IN TURMERIC

During the year 2012-13, among all the treatments tested Drip once in a day at 80% PE treatment recorded highest rhizome yield (32.7Kg/plot) followed by Drip once in 2 days at 80% PE treatment (29.5 Kg/plot) where as Drip once in 2 days at 50% PE treatment recorded lowest rhizome yield (23.58Kg/plot). (Table-3)

Studies on the effect of rhizome size and nursery on growth and yield of Turmeric

During the year 2012-13 among all the nine treatments tested Primary full length rhizome (25-30 g) planting directly in the field recorded highest yield per hectare (44.4t/ha) followed by Two node cutting (10 g) planting in Pro tray (1 month) which is almost equal.

Mechanical Harvesting in turmeric

During 2012-13 the population maintained in T₁ and T₃ is 480 plants and in T₂ and T₄ were 300 plants. The time taken by the tractor mounted harvester is less when compared to power tiller mounted harvester. The percentage of damaged rhizome is also minimum (1.8%) in tractor mounted harvester. The cost for operating the tractor mounted harvester is also low in comparison with power tiller mounted harvester and manual harvesting.

Standardization of processing in turmeric

During 2012-13 in all the eight treatments the initial weight of the sample taken for the experiment is 2.0kg. The final weight was recorded after curing and drying. The final weight of the rhizome varied from 360g to 470g among the treatments. The final weight (465.9g) of the rhizome was maximum in the treatment T6 (Improved processing for 30 minutes and drying). The percentage of dry rhizome recovery varied from 18.0% to 22.3% the highest dry rhizome recovery percentage was noticed in T6 treatment. Number of taken for drying varied from 9.8 to 15.1 between the treatments. More time was taken by the treatment T1 (Traditional processing of rhizome boiling for 40 minutes and drying)

Table- 2 : Data on Plant Growth Parameters and Fresh Rhizome yield of CVT-2009 cultures 2012-13

Treatments	Plant height(cm)	No. of leaves	No. of Tillers	Leaf length(cm)	Leaf width(cm)	Clump Weight (g)	No. of primary fingers	No. of secondary fingers	Length of Mother rhizome(cm)	Width of Mother rhizome (cm)	Weight of mother rhizome (g)	Fresh Rhizome yield (kg/3m ²)	FRY/ha
RH-9/90	67.07	8.73	2.33	46.23	15.17	230.53	5.23	5.3	5.83	4.43	58.13	9.1	30.3
RH-13/90	67.4	8.00	2.40	44.60	14.63	221.50	5.50	4.87	6.0	4.13	60.43	8.93	29.73
RH-80	68.3	7.7	2.13	42.73	13.67	218.73	4.90	5.17	5.83	4.53	62.67	8.7	28.97
RH-50	66.5	7.7	2.50	40.93	13.97	210.63	5.30	5.60	5.90	4.1	69.77	8.8	29.30
TCP-17	64.9	7.57	2.44	45.53	13.28	219.57	5.10	4.60	5.63	4.1	72.27	8.4	27.98
TCP-129	64.2	8.13	2.17	42.17	12.97	206.43	5.23	5.17	5.2	4.2	69.60	8.36	27.83
Duggirala Red	79.6	9.37	2.9	46.17	17.1	553.80	8.20	8.93	9.1	7.33	93.63	13.1	43.6
SE(m)	1.4	0.31	0.14	1.13	0.31	22.29	0.23	0.27	0.19	0.24	2.72	0.23	
CD	3.5	6.3	10.39	4.19	3.72	14.52	7.10	8.26	5.2	8.97	6.77	4.22	





Table3 :Standardization of water requirement through drip irrigation in turmeric

Treatments	Plant Height (cm)	No. of Tillers	Weight of mother rhizome (g)	No. of primary fingers	Weight of primary fingers (g)	No. of Secondary fingers	Weight of secondary fingers	Clump Weight (g)	Plot yield of 60 plants (kg)
T1	75.63	2.77	84.0	8.10	337.7	9.0	73.0	560.3	35.1
T2	85.63	2.90	84.57	8.33	361.8	9.0	76.4	635.9	32.7
T3	82.43	2.90	82.13	7.97	365.7	8.7	76.1	637.7	32.07
T4	75.3	2.10	79.37	7.74	321.98	7.7	65.6	496.8	28.0
T5	76.10	2.13	75.7	7.73	334.7	7.0	65.2	494.7	27.3
T6	70.67	2.17	70.5	7.13	289.3	6.0	55.97	449.3	23.97
T7	69.4	2.3	68.5	7.07	270.43	6.03	54.97	385.5	23.58
SE(m)	1.41	0.17	3.47	0.28	8.19	0.29	2.01	22.3	0.85
CD	3.19	12.04	7.67	6.27	4.35	6.65	5.19	7.3	5.09

Table-4:studies on the effect of rhizome size and nursery on growth and yield of turmeric

Treatments	Plant Height (cm)	No. of Tillers	Leaf Area (cm)	Yield per Clump (g)	Yield per plot (Kg)	Yield per hectare (t)
T1 = Single node cuttings (5 g) directly planting in field	79.57	2.43	375.03	404.6	12.0	40.0
T2 = Two node cuttings (10 g) directly planting in field	77.1	2.78	393.4	442.1	13.8	43.8
T3 = Mother rhizome pieces (10-15 g) directly planting in the field (4 Pieces)	78.47	2.9	406.5	423.8	12.9	42.9
T4 = Single node cutting (5 g) planting in pro tray (1 month)	77.8	3.1	409.5	413.7	12.7	42.3
T5 = Two node cutting (10 g) planting in Pro tray (1 month)	76.9	3.2	411.7	488.6	13.9	44.3
T6 = Mother rhizome pieces (10-15 g) planting in pro tray (1 month)	76.2	3.1	416.1	448.5	13.7	43.6
T7 = Primary full length rhizome (25-30 g) planting directly in the field	77.3	2.6	405.2	501.9	14.1	44.5
T8 = Secondary rhizomes (15-20 g) directly planting in the field	75.97	2.9	419.6	462.1	13.3	42.8
T9 = Mother rhizomes (35-40 g) directly planting in the field	79.6	3.1	395.5	481.7	12.91	42.5
SE(m)	1.43	0.13	4.94	30.8	0.26	
CD	NS	0.39	14.9	NS	0.84	



Table-5: Mechanical harvesting in turmeric

Treatment details	Total yield (t /ha)	Percentage of damaged rhizome (%)	Time and man power used for mechanical harvesting and sorting	Time and man power used for manual harvesting and sorting
T ₁ - Tractor mounted harvester - (width of each bed 120cm; length of each bed 20m; space between two beds 30cm)	37.30	1.8	16.5 hrs	-
T ₂ - Power tiller mounted harvester – (width of each bed 75cm; length of each bed 20m; space between two beds 25cm)	33.70	2.8	27.5 hrs	-
T ₃ - Manual harvesting I: (width of each bed 120cm; length of each bed 20m; space between two beds 30cm)	31.50	3.5	-	4 days
T ₄ - Manual harvesting II: (width of each bed 75cm; length of each bed 20m; space between two beds 25cm)	30.60	3.5	-	4 days

Table 6: Effect of different methods of processing (2012-13)

Treatment details	Initial weight of rhizomes (Kg)	Final weight of rhizomes (g)	Dry recovery (%)	Time taken for drying
T ₁ - Traditional processing of rhizome boiling for 40 minutes and drying	2.00	368.5	18.4	15.1
T ₂ - Traditional processing of rhizome boiling for 60 minutes and drying	2.00	443.1	21.1	13.4
T ₃ - Traditional processing of rhizome boiling for 90 minutes and drying	2.00	442.1	21.2	12.8
T ₄ - Improved processing for 30 minutes and drying (TNAU Model)	2.00	401.7	20.1	10.8
T ₅ - Improved processing for 20 minutes and drying (Steam Boiler)	2.00	465.2	22.2	11.3
T ₆ - Improved processing for 30 minutes and drying (Steam Boiler)	2.00	465.9	22.3	11.4
T ₇ - Dipping in boiling water for 10 minutes and drying	2.00	444.56	21.2	12.2
T ₈ - Raw rhizome sliced and drying (3mm thick slices)	2.00	361.9	18.0	9.8
SE(m)	-	6.52	0.47	0.45
CD	-	19.9	1.45	1.56

Horticultural Research Station, Chintapalle

Coordinated Varietal trial in turmeric 2009 - TUR/CI/2.4

Trial with eight genotypes along with two checks was proposed, but we have received only six genotypes from different centres. Along with Chintapalli local, we have conducted the trial and evaluated the performance of different accessions.

Among the 7 varieties evaluated during the year 2012-13 for Morphological characters, maximum plant height was recorded in TCP-129 (92.80 cm) followed by TCP-70 (92.66 cm). Maximum leaf area is recorded in TCP-129 (935.8 sq.cm) followed by TCP-70 (9037 sq.cm). All accessions showing eight months duration.





In terms of yield parameters, maximum rhizome yield per plant is observed in RH-13/90 (595.3 g/plant) followed by RH-80 (538.3 g/plant) and lowest values recorded in TCP-70 (224.3 g/plant). Maximum fresh rhizome yields are recorded in RH 80 (42.0 t/ha) followed by RH 9/90 and RH-13/90 i.e, 37.40 and 35.50 t/ha respectively. Among the 7 genotypes evaluated, maximum dry recovery observed in TCP-129 (25.8 %) followed by TCP-70 (23.9 %). Very low recovery is observed in RH-50 (15.2 %). Maximum dry yield observed in RH-80 (8.23 t/ha) followed by RH-9/90 (6.73 t/ha). Lowest dry yield recorded in TCP-70 and RH 50 are on par with each other.

Horticultural Research Station, Pandirimamidi

Studies on the performance of improved varieties of turmeric in the agency areas of East Godavari Dist.

Varieties differed significantly for parameters like no. of leaves per plant, yield per plant and non significant in plant height, number of tillers. Among the treatments plant height was height in (1.53m) in CLS-369 followed by Roshmi. Plant height is lowest in Roma (1.03m). In CLI 317 highest number of leaves (15.2) and followed by CLS 369 and lowest (10.3) in Ranga. Highest yield per plant (820g) is TCP-2 followed by CLS 369 and CLI-317 and lowest (368g) in KTS-6. recorded followed by Roshimi, KTS-8 and KTS-3. Yield per plot is highest (45.5kg) in CLI-317 followed by Roshmi and Roma.

CARDAMOM

Horticultural Research Station, Chintapalle

Observational trail on the suitability of different improved Cardamom cultivars in high altitude zone of Visakhapatnam.

during the year 2012-13, observations were revealed that, highest plant height (295.3 cm), maximum number of tillers per plant (21.3), maximum number of leaves per tiller (16.87), were observed in Mudigere -2. Mudigere -2 plants yielded highest (183 g/plant) compared to others.

CINNAMON

Identification of Cinnamon varieties suitable for rainfed conditions of agency tract of Godavari Dist.

The clone SL-44 has recorded the maximum plant height and plant spread. The bark will be harvested in the next season.

CORIANDER

Fruit Research Station, Sangareddy

Studies on the performance of coriander varieties in Central Telangana Zone

At FRS, Sangareddy, during the year 2012-13, Non significant difference was observed in terms of plant height, umbles/plant seed/umbl yield kg/plot and yield kg/ha. Maximum yield recorded in T₋₃ (Sadhana) (562.5 kg/ha) followed by T₅ (APHU Dhanian-1) (523.44) kg/ha.

MEDICINAL & AROMATIC PLANTS

BETELVINE

AICRP on MAP & Betelvine, V.R.Gudem

Totally Twenty four accessions of *Acorus calamus* were collected and maintained during this year. Eighteen accessions were evaluated for morphological and agronomical traits Ploidy analysis was done using flow cytometry at DMAPR, Anand. The report revealed that the accessions maintained were found to be diploid except one accession, Damaramadugu, AP.

Forty four accessions of *Solanum nigrum* were collected and maintained during this year. The distinct characters like Plants bearing red berries with erect growing habit and streak in flower petal were identified and recorded with Accession APSn-25, collected from Shankarghat, UP. Ploidy analysis was done using flow cytometry at DMAPR, Anand. The report revealed that wide variations exhibited among the collected accessions.





PLANTATION CROPS

OIL PALM

Horticultural Research Station, Vijayarai

The six year old ten cross combinations of oil palm data obtained for the year 2012-13 on the 'Evaluation of new cross combinations in Oil Palm – Gen 8C has revealed that there is no significant difference found among the growth and yield parameters. However maximum plant height was recorded with NRCOP 8 with 1.53m and shortest plant height was recorded with NRC OP3 with 1.2m. Maximum palm girth was recorded in NRCOP-5 (1.34M) and minimum girth in NRCOP4(1.11M). Maximum no. of leaves was recorded in NRCOP-5(26.2) and minimum no. of leaves in NRCOP-6 (22.00). NRCOP-3 has recorded maximum no. of male inflorescences per annum (8.1) and NRCOP-4 has recorded minimum (7.1) NRCOP-8 has recorded maximum no. of female inflorescences (10.68) Sex ratio varied from 56.5 to 61.96 NRCOP-8 (2.38) and NRCOP-10 has recorded minimum (10.68). The maximum no. of bunches per palm were recorded in NRCOP-6 (8.19) and lowest in NRCOP-2 (6.48). The maximum bunch weight was recorded in NRCOP-6 (13 kg) and lowest in NRCOP-4(9.47 kg). The maximum bunch weight per palm was recorded in NRCOP-6 (101.82 kg) and lowest in NRCOP-3(73.49 kg). The maximum yield of fresh fruit bunches per palm were recorded in NRCOP-6 (14.56 t/ha) and lowest in NRCOP-05 (9.78 t/ha.).

The one year old ten cross combinations of oil palm data obtained for the year 2012-13 on the 'Evaluation of new cross combinations in Oil Palm – Gen 8D1 has revealed that there significant difference found among the growth and yield parametes. However maximum palm height was recorded in NRCOP-40(29.66 cm) and minimum height in NRCOP-36 (24.44 cm). Maximum palm girth was recorded in NRCOP-31 (0.49 M). Maximum no. of leaves was recorded in NRCOP-38 (12.55) and minimum no. of leaves in NRCOP-36 (10.14).

RUBBER

Horticultural Research Station, Pandirimamidi

Studies on the performance of rubber clones under high altitude conditions.

Among growth parameters PB 235 recorded maximum plant height (14.45 m), whereas spread (8.0 m E-W & 8.0 m N-S) and girth (82.5cm) was highest in PB 28/59. During 38 tapped days highest latex yield (6.05 lit/tree) and dry rubber (2.4 kg/tree) recorded in RRIM 600 followed by PB 28/59.

PALMYRAH

Survey, Collection and Evaluation of Palmyra germplasm.

Survey for the collection of Palmyrah qermplasm for the year 2012

The survey for the collection of Palmyrah germplasm was taken up in Nellore District of Andhra Pradesh during the month of August 2012. The scientist in-charge from AICRP coordinating centre, Killikulam and a scientist from the germplasm exploration division of NBPGR Regional Centre, Rajendranagar, Hyderabad also participated in the joint survey. Altogether 9 accessions were collected and they were planted in the germplasm block of HRS, Pandirimamidi at a spacing of 4m x4m with 12 plants per each accession and were irrigated at timely intervals.

Performance of Palmyrah qermplasm accessions during the year 2012

The results of the data recorded from the germplasm planted in 1991 indicated that the accession 4/91 recorded maximum palm height (1.05 m) followed by accession 6/91 (1.01 m). The stem girth was also recorded maximum with accession 4/91 followed by accession 6/91. The flowering data has shown that Acc. 9/91 recorded the maximum number of 9.6 bunches and the lowest number of bunches were recorded with Acc.7/91 i.e., 3.5 number of bunches.

Among the 1993 years collection of germplasm accession 17/93 has recorded maximum values in terms of palm height (8.25 m), number of leaves (12.6) and number of bunches(8.5) The highest number of fruits per bunch(69) is recorded with the accession 19/93. The accession 16/93 has recorded maximum values in terms of stem girth, lamina length and lamina breadth.



The accessions planted during 1994 shown maximum palm height with accession 27/94. The maximum values in terms of stem girth, number of leaves and lamina breadth was recorded with accession 25/94.

Much variation is observed among the 1995 planted germplasm. The accession 41/95 has recorded the lowest mean values in all the parameters which is very slow in growth even after 17 years. However the maximum mean values in terms of palm height stem girth, number of leaves lamina length and lamina breadth was recorded with accession 39/95.

Among the 1998 planted germplasm accessions flowering was observed for the first time during this year in accession 51/98. The accession 55/98 has recorded the highest palm height, number of leaves, lamina length and lamina breadth.

The results from the data collected from 1999 planted accessions showed that maximum mean palm height of 5.54 metres was recorded with the accession 64/99 and highest number of leaves was recorded with accession 62/99 and the maximum stem girth was recorded in accession 63/99.

The data collected from the 18 accessions planted during the year 2000 indicated that highest values in terms of palm height, lamina length, and petiole length was recorded with accession 68/00. However the maximum number of leaves was recorded the accession 83/00. The lowest values in terms of palm height, lamina length, and petiole length was recorded with accession 79/00. Among the germplasm accessions planted during the year 2001, the maximum palm height was recorded with the accession 121/01. the same accession has recorded maximum mean values in terms of lamina length, lamina breadth and petiole length. However the highest number of leaves was recorded with accession 100/01.

The 2002 planted accessions collected from Nalgonda district of Andhra Pradesh showed the maximum palm height, lamina length, lamina breadth and petiole length with the accession 133/02 and the maximum number of leaves recorded with the accession 136/02.

Among the germplasm collected from Tamilnadu planted during the year 2002, the accession 158/02 recorded maximum palm height, number of leaves and petiole length. The lowest values in terms all the observations is recorded with accession 160/02.

Among the 2003 planted accessions palm height number of leaves and petiole length was recorded highest with the accession 164/03 however the lamina breadth and lamina length was recorded maximum with accession 173/03.

Among the germplasm accessions collected during the year 2004, accession 182/04 has recorded maximum palm height and highest number of leaves. The leaf length and leaf breadth was recorded maximum with accession 177/04.

Among the accessions collected during the year 2006, accession 200/06 has recorded maximum palm height and lamina breadth and accession 196/06 has recorded produced the highest number of leaves.

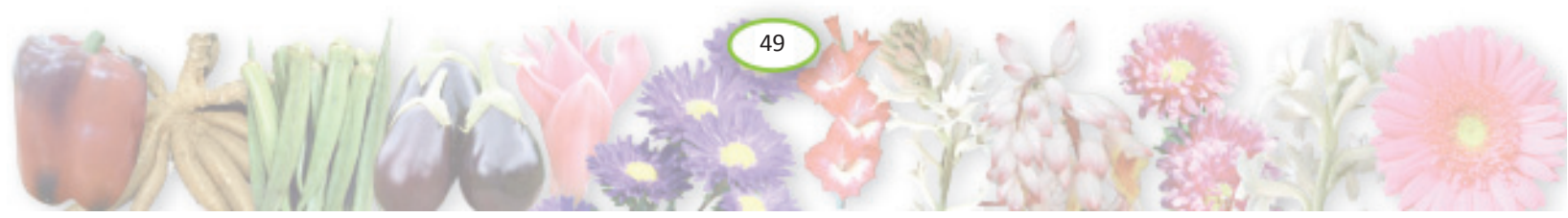
The data collected from germplasm planted during the year 2007 showed maximum palm height number of leaves and lamina length with accession 209/07. The accession 206/07 has recorded maximum values in terms of lamina breadth and petiole length.

CASHEW

Cashew Research Station, Bapatla



Among the 40 germplasm lines evaluated, mean nut yield per tree during the year was maximum in BLA 39/4 (16.37kg) followed by T.No.228 (14.85kg). However, cumulative nut yield recorded was found highest in the entry BLA 39/4 as 82.85 kg / tree followed by accession- 5/1 [65.48 kg / tree]. Apple weights ranged from 34.5 g to 120 g across the top 18 genotypes.





In the MLT-III where 13 genotypes were evaluated Mean nut yield per tree during the year was highest in BH-6[4.06kg] followed by BPP-8 [3.85kg]. Cumulative nut yield per tree was also highest in BPP-8 which has given 21.75kg/tree at 5th harvest and was followed by H-32/4 with 14.00 kg/tree. Mean weight of the apple was highest in BPP-8 with 69.67 g which was followed by H-32/4 (62.0g).

During the year 2011-12 the total number of 1411 crosses have been made between sis cross combinations. Among the different hybrids of 1997 evaluated duration of flowering ranged from 86 days in H-69 to 149 days in H-1. Annual nut yield at 10th harvest is highest with H-36 [28.5kg/tree] closely followed by H-73(28.04kg/tree). However cumulative nut yield was found highest with hybrid H-67(106.3kg/tree) and closely followed by H-36 [96.8 kg/tree]. Lowest cumulative nut yields were recorded in H-6 (19.543kg/tree) and H-3 (20.68kg/tree).

COCONUT

Horticultural Research Station, Ambajipeta

Gen-1A: Collection, conservation and evaluation of local germplasm of coconut

The trial was laid out during February 2013 with the following accessions and it is in establishment stage.

Treatments:

1. CRP 745 [Pillalakodi green]
2. CRP 746 [Pillalakodi brown]
3. CRP 747 [Jonnalarasi green]
4. CRP 748 [Jonnalarasi brown]
5. CRP 749 [Ganga Bondam]
6. CRP 750 [AMB ECT-1]
7. CRP 751 [AMB ECT-2]
8. Itikulagunta ECT Big
9. Itikulagunta ECT Small
10. Saradapuram ECT
11. Srikakulam ECT
12. Vemulapalli ECT Big
13. Vemulapalli ECT Small

The accessions viz. Pillalakodi green, Pillalakodi brown, Jonnalarasi green, Jonnalarasi brown and Ganga Bondam were planted in RBD with four replications. Remaining accessions are planted as an observational trial with 6 palms per genotype.

Gen -2: Production and evaluation of new cross combinations in Coconut.

The trail was laid out during 1985 with six cross combinations in RBD replicated thrice. The data on yield and quality parameters of nuts was recorded and presented in Tables.

S. No	Accession Number/Hybrid	Name of the cross combination
1.	VHC – I	ECT x MGD
2.	Ganga Bondam x ECT	Gauthami Ganga x ECT
3.	Ganga Bondam x Fiji	Gauthami Ganga x Kera Baster
4.	Ganga Bondam X Philippines Ordinary	Gauthami Ganga x Double Century
5.	Ganga Bondam x Laccadive Ordinary	Gauthami Ganga x Chandra Kalpa
6.	ECT x Ganga Bondam (Godavari Ganga)	ECT x Gauthami Ganga

Among hybrids evaluated, significant differences were recorded for plant height (Table-1), age at first flowering (Table-2), number of bunches per annum; nut yield per annum (Table-3) dehusked fruit weight and oil content (Table-5). Highest yield of 132.68 nuts/palm was recorded in Gauthami Ganga x Chandra Kalpa hybrid followed by Gauthami Ganga x Double Century (122.16 nuts/palm). The highest oil yield of 19.37 kg/palm was recorded in Gauthami Ganga x Chandra Kalpa and was on par with Gauthami Ganga x Double Century (16.38 kg oil/palm).



Table 1 : Growth attributing characters of the coconut hybrids.

Treatments	Plant height (m)	Girth at base (cm)			Functional leaves on the crown	Leaf length (m)	Petiole length (cm)	Leaflet no.		Leaflet length (cm)	Leaflet breadth (cm)
		50	100	150				Left	Right		
VHC I	11.28	119.26	123.83	114.50	32.58	3.72	108.66	108.75	110.97	119.83	5.83
GB x ECT	7.84	78.82	84.43	91.50	32.44	3.77	113.33	106.00	100.38	116.33	5.46
GB x Fiji	7.43	73.66	84.33	71.50	32.33	3.09	106.83	102.00	104.16	101.91	5.23
GB x PO	8.15	83.67	99	70.50	33.16	3.45	107.33	101.50	105.22	112.50	4.83
GB x LO	7.56	81.86	72.16	85.83	32.86	3.75	110.83	110.10	111.00	112.73	4.86
ECT x GB	8.61	95.98	80.33	82.16	32.66	3.71	114.16	103.11	105.22	114.05	5.03
SE(M)	0.42	6.50	6.05	8.96	0.87	0.17	2.27	1.83	4.63	3.87	0.25
CD	1.44	20.76	19.327	N.S.	N.S.	N.S.	N.S.	5.85	N.S.	N.S.	N.S.

Table:2 Floral biology parameters of the coconut hybrids

Treatments	Age at first flowering (months)	Inflorescence Production per annum (no)	Avg.no. of spikelets (no)	Average no. of female flowers per inflorescence (no)
VHC I	50.77	14.75	41.33	29.08
GB x ECT	37.11	10.22	40.40	30.10
GB x Fiji	39.44	9.0	28.16	27.73
GB x PO	40.33	10.77	37.77	28.16
GB x LO	38.88	12.0	37.60	28.10
ECT x GB	42.88	10.86	42.05	29.44
S Em +	1.70	1.65	6.15	2.92
CD	3.73	N.S	NS	N.S

Table 3: Harvesting parameters of the coconut hybrids

Treatments	No. bunches produced for annum	No. bunches in button stage	No. bunches in fist and nut stage	No. of nuts harvested per annum
VHC I	11.25	5.58	5.83	105.16
GB x ECT	9.53	3.64	6.66	106.250
GB x Fiji	9.00	4.70	4.25	109.16
GB x PO	14.16	7.00	6.16	122.16
GB x LO	12.76	5.26	6.56	132.68
ECT x GB	10.77	4.88	5.86	116.26
SE(M)	0.70	0.61	0.43	3.02
CD	2.56	N.S.	1.37	9.66

Table 4: Tender nut parameters of the coconut hybrids

Treatments	Water content (ml)	Sweetness of water	Taste of meat	TSS
VHC I	218.00	Good	Good	5.90
GB x ECT	296.66	Good	Good	5.90
GB x Fiji	267.66	Good	Good	6.00
GB x PO	353.00	Good	Good	6.23
GB x LO	330.00	Good	Good	5.83
ECT x GB	286.00	Good	Good	5.30
SE(M)	39.88			0.08
CD at 5 %	N.S.			0.28



Table 5: Fruit component traits of the coconut hybrids

Treatments	Fruit length (Cm)	Fruit breadth (Cm)	Fruit weight (g)	Dehusked fruit weight (g)	Husk weight (g)	Kernel thickness (g)	Shell thickness (cm)	Shell weight (g)	Husk thickness (cm)	Copra content (g/nut)	Copra content per annum (Kg/palm)	Oil content (%)	Estimated oil yield (kg/palm)
VHC I	20.83	15.33	1320.83	517.50	803.33	1.31	3.91	175.83	1.98	135.25	17.26	61.50	10.54
GB x ECT	21.43	13.50	1116.643	445.00	671.63	1.30	2.91	151.61	2.10	139.16	18.61	62.00	11.55
GB x Fiji	20.33	13.66	1416.66	586.66	830.00	2.07	3.75	159.16	2.29	153.83	16.14	60.00	9.64
GB x PO	21.66	14.66	1356.66	583.33	773.33	1.47	3.20	151.66	2.20	184.66	23.78	69.00	16.38
GB x LO	21.06	13.98	1360.00	591.66	768.33	1.20	2.73	118.66	1.86	153.66	25.92	69.00	19.37
ECT x GB	23.33	14.05	1208.33	505.00	703.33	1.34	3	125.55	2.63	144.00	18.84	69.00	12.97
SE(M)	0.98	0.88	66.86	29.42	N.S	0.37	0.40	19.64	0.29	19.45	2.37	0.80	1.72
CD	N.S	N.S	N.S.	93.91	N.S	N.S	N.S	N.S	N.S	N.S	N.S	2.56	5.49

Gen-2A: Evaluation of new coconut hybrids of location specific cross combinations

The seedlings of six cross combinations viz., CRP 509 x Kalpa Pratibha (ECT x Cochin china) Gauthami ganga x Kalpa Pratibha(Ganga Bondam x cochin china) , CRP 509 x Double Century (ECT x Philippines Ordinary), Gauthami ganga x Double Century (Ganga Bondam x Philippines Ordinary), Double Century x Gauthami ganga (Philippines Ordinary x Ganga Bondam),CRP 509 x Gauthami ganga (ECT x Ganga Bondam) were planted in June 2011 in randomized block design with three replications . The experiment is in vegetative stage.

Among the cross combinations, ECT x Double Century recorded highest plant height (307.33 cm), leaf length (156.58 cm), petiole length (63.0cm), highest leaflet number 33.11 (right) and 31.27 (left), Leaflet length (73.63cm) and leaflet breadth (3.01cm).

Table 6: Growth attributing characters of new coconut hybrids.

Treatments	Plant height (cm)	Total no of leaves	Leaf length (cm)	Petiole length (cm)	Leaflet no.		Leaflet length (cm)	Leaflet breadth (cm)
					Left	Right		
ECT x CC	129.49	6.26	78.43	41.99	15.10	14.64	50.33	2.03
GB x CC	75.20	5.0	58.36	25.86	13.63	12.30	36.40	1.57
ECT x DC	307.33	8.15	156.58	63.00	33.11	31.27	73.63	3.01
GB x PO	107.33	5.84	71.83	37.22	19.77	19.50	39.16	1.76
DC x GB	158.72	6.83	112.62	46.05	24.57	23.39	58.61	2.33
ECT x GB	125.18	11.84	88.76	37.38	20.22	19.13	50.32	2.36
S Em +	19.38	1.90	7.33	3.78	3.07	2.76	3.20	0.17
CD at 5 %	61.87	NS	23.41	12.09	9.82	8.80	10.24	0.55

Gen-3: Trial of promising hybrids and varieties in coconut

The experiment was planted in 2002 with the following entries in three replications in randomized block design.

1. Chandrasankara (COD x WCT)
2. Lakshaganga (LCT x GBGD)
3. Kera Ganga (WCT x GBGD)
4. Chandralaksha
5. VHC-I (ECT x MGD)
6. VHC-II (ECT x MYD)
7. Chandrakalpa
8. Double Century
9. Godavari Ganga (ECT x GBGD)

Among different hybrids and varieties evaluated, significant differences were observed for plant height at 50 and 100 cms (Table-7), fruit weight, dehusked fruit weight, husk weight, quantity of water (Table-11), copra content, copra content/annum, oil content and estimated oil yield (Table-12). Though nut yields found non-significant, the highest nut yield (119.56/palm) was recorded in Godavari Ganga.

With respect to nut characters, the highest fruit weight was recorded in Chandra laksha (1216.66g) and it was on par with Chandra sankara (1166.66g). Copra yield/palm/ annum was highest in VHC – I (23.91 kg) followed by Kera Ganga (20.99 kg). However, Kera Ganga recorded the highest oil yield (13.14 kg/palm) and it was on par with VHC – I (10.61 kg) and Chandra sankara (10.12 kg).





Table 7: Growth attributing characters of the coconut hybrids and varieties

Treatments	Plant height (m)	Girth at base (cm)			Functional leaves on the crown	Leaf length (m)	Petiole length (cm)	Leaflet no.		Leaflet length (cm)	Leaflet breadth (cm)
		50	100	150				Left	Right		
Chandrasankara (COD x WCT)	5.87	97	107	99	29.20	2.31	143.0	112.16	113.50	103.0	5.8
Lakshaganga (LCT x GBGD)	5.35	140	104	105	29.53	3.18	142.0	114.33	116.16	124.0	5.3
Kera ganga (WCT x GBGD)	5.77	100	95	84	30.00	3.2	141.0	108.16	111.16	117.0	6.1
Chandralaksha	5.65	78	94	96	27.88	3.26	138.0	112.50	113.83	180.0	5.6
VHC-I (ECT x MGD)	5.63	118	121	119	31.20	3.35	138.0	110	111.16	131.0	6.3
VHC-II (ECT x MYD)	5.49	113	112	87	29.00	3.15	135.0	100.66	118.00	117.0	6.0
Chandra kalpa	5.46	137	94	119	29.10	3.2	150.0	109.66	112.33	121.0	5.6
Double Century	6.13	130	150	108	30.86	3.36	143.0	115	117.50	121.0	5.8
Godavari Ganga (ECT x GBGD)	4.82	72	90	91	30.46	3.31	141.0	110.50	111.33	129.0	5.6
S Em +	0.30	8	4	18	1.00	N.S	N.S	5.55	2.90	N.S	N.S
CD at 5%	N.S.	27	12	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

Table 8: Floral biology parameters of the coconut hybrids and varieties

Treatments	Age at first flowering (months)	Inflorescence Production per annum(no)	Av.no. of spikelets (no)	Average no. of female flowers per inflorescence (no)
Chandrasankara (COD x WCT)	47.66	10.16	38.33	31.33
Lakshaganga (LCT x GBGD)	46.33	8.83	37.50	32.50
Keraganga (WCT x GBGD)	51.33	10.50	41.83	36.16
Chandralaksha	47.33	9.83	40	34
VHC-I (ECT x MGD)	49	9.66	39.33	29.50
VHC-II (ECT x MYD)	52.33	9	44.66	34.66
Chandrakalpa	48.33	9.33	44.33	35.50
Double Century	51.66	11.16	41.83	31.66
Godavari ganga (ECT x GBGD)	47.66	10.66	27.53	33.83
S Em +	1.60	0.82	4.47	1.97
CD at 5%	N.S	N.S.	N.S.	N.S.

Table 9: Harvesting parameters of coconut hybrids and varieties

Treatments	No. of bunches produced for annum	No. of bunches in button stage	No. of bunches in fist and nut stage	No. of nuts harvested per annum
Chandrasankara (COD x WCT)	9.83	3.50	6.33	106.15
Lakshaganga (LCT x GBGD)	8.83	2.83	6.10	112.45
Keraganga (WCT x GBGD)	9.83	3.33	7.16	102.90
Chandralaksha	9.83	3.16	6.16	91.54
VHC-I (ECT x MGD)	9.66	3	6.66	111.22
VHC-II (ECT x MYD)	9	3.33	5.66	90.72
Chandrakalpa	9.33	3.33	4.33	109.31
Double Century	11.16	3.50	6.66	90.66
Godavari ganga (ECT x GBGD)	10.66	3.83	6.83	119.56
S Em +	N.S	0.50	0.62	10.83
CD at 5%	N.S.	N.S.	N.S.	N.S





Table 10: Tender nut parameters of the coconut hybrids and varieties

Treatments	Water content (ml)	Sweetness of water	Taste of meat	TSS
Chandrasankara (COD x WCT)	313.33	Good	Average	6.06
Lakshaganga (LCT x GBGD)	248.33	Good	Average	6
Keraganga (WCT x GBGD)	238.33	Good	Good	6.06
Chandralaksha	400	Good	Good	6.30
VHC-I (ECT x MGD)	308.33	Average	Good	6.40
VHC-II (ECT x MYD)	230	Good	Average	6.33
Chandrakalpa	271.66	Good	Good	6
Double Century	326.66	Good	Good	5.13
Godavari ganga (ECT x GBGD)	341	Good	Good	6.16
S Em +	49.97			0.39
CD at 5%	N.S.			N.S.

Table 11: Fruit component traits of the coconut hybrids and varieties

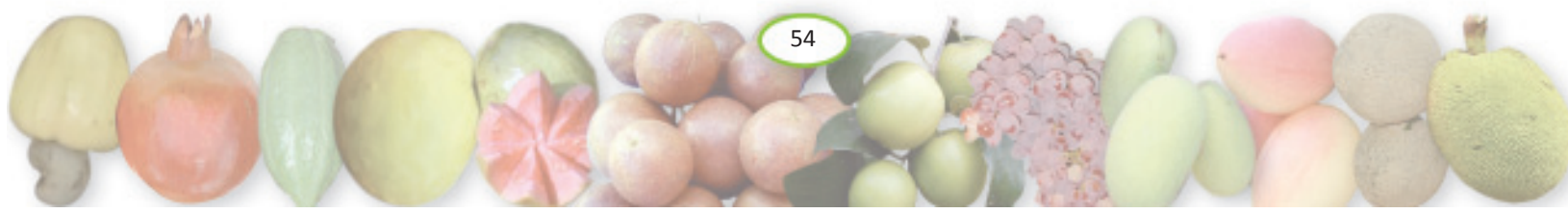
Treatments	Fruit length (Cm)	Fruit breadth (Cm)	Fruit weight (Cm)	Dehusked fruit weight (g)	Husk weight (g)	Quantity of water (ml)	Kernel weight (g)
Chandrasankara (COD x WCT)	21	14.83	1166.66	504.17	662.50	119.16	216.66
Lakshaganga (LCT x GBGD)	18.50	13.33	1058.33	486.67	571.67	113.33	183.33
Kera ganga (WCT x GBGD)	17.66	14	861.66	426.67	425.00	103.33	198.33
Chandralaksha	20	12.66	1216.66	575.00	641.67	141.66	180
VHC-I (ECT x MGD)	19	14	758.33	408.33	350.00	86.67	148.33
VHC-II (ECT x MYD)	20	12	1013.33	541.67	471.67	155.00	220
Chandrakalpa	19.66	12.50	958.33	438.33	520.00	86.67	216.66
Double Century	18.66	16.33	1150.00	606.67	543.33	170.00	216.66
Godavari Ganga (ECT x GBGD)	0.90	13	1066.00	556.67	510.00	150.00	220
S Em +	0.90	0.87	66.91	38.34	50.59	17.26	24.30
CD at 5%	N.S	N.S	202.33	115.95	152.98	52.19	N.S.

Table 12: Fruit component traits of the coconut hybrids and varieties

Treatments	Kernel thickness (g)	Shell thickness (cm)	Shell weight (g)	Husk thickness (cm)	Copra content (g/nut)	Copra content per annum	Oil content	Estimated oil yield
Chandrasankara (COD x WCT)	1.63	2.66	120	1.33	126.66	15.60	65.0	10.12
Lakshaganga (LCT x GBGD)	1.23	3	106.66	1.36	111.66	13.68	62.33	8.57
Keraganga (WCT x GBGD)	1.36	2.66	103.33	1.36	108.33	20.99	64.33	13.14
Chandralaksha	1.23	2.83	106.66	1.43	190.00	20.87	65.00	9.30
VHC-I (ECT x MGD)	1.67	2.66	91.66	1.67	126.66	23.91	61.66	10.61
VHC-II (ECT x MYD)	1.67	3	93.33	1.36	170.00	17.30	70.33	8.80
Chandrakalpa	1.33	3	113.33	1.33	139.16	14.34	63.00	14.73
Double Century	1.23	3.33	160	1.30	126.66	14.46	61.33	15.52
Godavari Ganga (ECT x GBGD)	1.23	2.66	100	1.43	150.00	20.41	66.00	13.47
S Em +	0.08	0.37	12.89	0.08	8.63	1.85	0.80	1.64
CD at 5%	0.26	N.S.	N.S.	N.S.	26.10	5.60	2.44	3.51

Gen 10: Performance of Tall x Tall hybrids in coconut in different agro-climatic regions

The seed nuts of cross combinations viz., WCT x TPT, LCT x ADOT, BGR x ADOT ADOT x ECT, ECT x LCT, ECT x ECT were received from CPCRI, Kasaragod and seedlings were raised at HRS, Ambajipeta and the experiment was laid out in RBD with four replications in June 2011 and it is in vegetative stage.





The hybrids showed significant differences for plant height, total number of functional leaves, petiole length and leaflet numbers (Table-13). The highest plant height (242.83 cm) and functional leaf number (7.72) was recorded in WCT x TPT hybrid and it was on par with LCOT x ADOT (187.11 cm and 7.55) and BGR x ADOT (182.16 cm and 7.5) respectively. However, the highest leaf let number 32.99 (left) and 31.83 (right) was recorded with WCT x TPT and it was on par with BGR x ADOT and LCOT x ADOT.

Table 13: Growth attributing characters of Tall x Tall hybrids of coconut

Treatments	Plant height (cm)	Total no of functional leaves	Leaf length (cm)	Petiole length (cm)	Leaflet no.		Leaflet length (cm)	Leaflet breadth (cm)
					Left	Right		
LCOT x ADOT	187.11	7.55	117.55	70.10	28.83	27.66	63.60	3.01
ADOT x ECT	117.38	5.61	82.66	35.20	20.99	17.33	53.38	2.13
BGR x ADOT	182.16	7.55	117.22	66.66	29.66	28.27	64.48	2.86
ECT x LCT	177.10	6.58	109.94	69.27	22.33	20.88	60.94	2.43
WCT x TPT	242.83	7.72	148.65	90.55	32.99	31.83	67.44	3.48
ECT x ECT	166.59	6.32	106.69	57.94	21.94	20.83	63.16	2.63
S Em +	30.98	0.65	16.84	13.71	3.83	4.03	8.82	0.47
CD	69.93	1.48	NS	30.96	8.66	9.12	NS	NS

Gen 10 a: Performance of New (experimental) cross combination of Tall x Tall hybrids in coconut in major agro-climatic regions

The seed nuts of cross combinations viz., Kalpa Mitra x CRP 509 (Java x ECT), Double Century x CRP 509 (Philippines ordinary x ECT), Kera Bastar x CRP 509 (fiji x ECT), Chandrakalpa x CRP 509 (Laccadive Ordinary x ECT), CRP 509 x Kalpa Mitra (ECT x Java), Kalpa pratibha x CRP 509 (Cochin China x ECT), CRP 509 x Kera Bastar (ECT x Fiji) were received from CPCRI and nursery was raised and the experiment was planted in August 2011 in RBD with four Replications. The experiment is in vegetative stage and none of the hybrid showed significant differences with respect to growth attributing traits.

Table 14 Growth attributing characters of Tall x Tall hybrids of coconut

Treatments	Plant height	Total no of leaves	Leaf length	Petiole length	Leaflet no.		Leaflet length	Leaflet breadth
					Left	Right		
JAVA x ECT	285.16	8.99	160.42	119.53	36.16	35.03	67.05	3.65
PO x ECT	325.27	10.99	189.27	132.65	40.16	38.88	75.83	3.9
FIJI x ECT	210.66	8.33	125.88	84.61	31.49	33.32	58.66	3.70
LO x ECT	235.41	9.38	110.53	71.75	29.92	29.63	65.88	3.01
ECT x JAVA	263.16	11.32	172.52	133.6	38.72	37.89	70.62	3.34
COC x ECT	185.21	7.1	106.33	79.49	19.33	18.77	65.43	2.26
ECT x FIJI	232.27	9.27	142.27	90.44	26.77	26.99	59.6	2.8
ECT x ECT	146.44	8.61	86.21	58.44	22.38	21.44	60.11	2.48
S Em +	58.341	1.44	N.S	N.S	8.82	9.2	8.04	N.S
CD	N.S.	N.S	N.S.	N.S	N.S	N.S	N.S.	N.S

Gen 11: Performance of Dwarf x Dwarf hybrids in coconut in different agro-climatic regions

Treatments:

S. No	Name of accession	Accession number
1.	COD x MYD	IND 007 x IND 058
2.	COD x MGD	IND 007 x Kalpa Raksha
3.	MYD x CGD	IND 058 x IND 029
4.	GBGD x MOD	CRP 751 x IND 048
5.	CGD x MGD	IND 029 x Kalparaksha
6.	GBGD x GBGD (Local check)	CRP751 x CRP751





The experiment was planted in 2011 and it is in vegetative stage. Among different D x D hybrids, significant differences were observed for plant height and petiole length and for remaining characters, they showed non significant effect. COD x MYD hybrid showed highest plant height of 224.79 cm and petiole length of 95.16 cm and it is on par with COD x MGD hybrid with plant height of 200.55 cm and petiole length of 94.60 cm

Table 15: Growth attributing characters of Dwarf x Dwarf hybrids of coconut

Treatments	Plant height	Total no of leaves	Leaf length	Petiole length	Leaflet no.		Leaflet length	Leaflet breadth
					Left	Right		
COD x MYD	224.79	6.66	112.50	95.16	28.05	26.86	40.88	2.13
COD x MGD	200.55	7.70	105.63	94.60	29.68	29.33	51.67	2.61
MYD x CGD	109.27	6.16	89.02	41.33	21.86	21.25	45.58	1.95
GBGD x MOD	148.77	6.61	90.11	52.33	23.88	22.66	45.38	2.01
CGD x MGD	169.88	7.83	107.16	68.33	27.55	26.83	45.99	2.04
GBGD x GBGD	159.15	6.18	87.04	53.83	21.71	20.52	44.92	1.77
S Em +	17.39	0.61	13.82	10.74	2.76	3.27	4.25	0.25
CD	39.26	NS	NS	24.27	NS	NS	NS	NS

Gen 12: Demonstration of released varieties of coconut in different agro climatic regions Details of seed nuts of newly released coconut varieties exchanged

S. No.	Name of accession	Accession number	Seednut Source Centre
1.	Kalyani coconut – 1	Jamaican Tall	Aliyarnagar
2.	Gautami Ganga	CRP 751	Ambajipeta
3.	Konkan Bhatiyee Hybrid – 1	CRP 751 x CRP 509	Ratnagiri
4.	Kalpadhenu	Andaman Joint	—
5.	Kerakeralam	WCT	Veppankulam
6.	Kerabastar	Fiji tall	Ratnagiri
7.	Kalpaprathiba	Cochin china	Kasargod
8.	Kalpa mitra	Java tall	Kasargod
9.	Kalpa raksha	MGD	Kasargod
10.	Kahikuchi hybrid	IND 058 x Kerakeralam	Ratnagiri

Table 16: Growth attributing characters of released varieties of coconut

Treatments	Plant height	Total no of leaves	Leaf length	Petiole length	Leaflet no.		Leaflet length	Leaflet breadth
					Left	Right		
Kalyani Coconut -1	269.5	9.8	162.5	109.2	47.6	46.4	62	3.28
Gautami Ganga	197.3	9.5	122.1	58.9	34	54.1	54.1	2.4
Konkan Bhatiyee hybrid	358.1	13	236.8	109.6	63.9	62.6	81.2	4.05
Kera Keralam	283.5	9.6	173.1	109.8	39.3	38.6	72.8	3.87
Kera Bastar	294.9	10.1	176.4	117.8	42	41.7	69.6	3.59
Kahi Kuchi Hybrid	106	7	69	40	28	27	34	2
Kalpa Prathiba	132.2	7.6	88.6	43.9	21.4	19.2	51	2.31
Kalpa Mitra	198.1	6	108.3	88.2	19.9	17.9	71.3	2.11
Kalpa Raksha	197.6	5.83	121.3	78.5	31.67	28.83	40.67	2.13
Kalpa Denu	180.3	9	94	78.9	28.2	25.8	51.6	2.88

Among the varieties evaluated, growth attributes, Konkan Bhatiyee hybrid exhibited better performance with respect to growth characters viz., highest plant height (358.1 cm), leaf length (236.8 cm), petiole length (117.8 cm) left leaflet number (63.9) and right leaflet number (62.6) leaflet length (81.2 cm) and leaflet breadth (4.05).





GEN 15: Large scale multiplication of newly released coconut varieties and hybrids in different agro climatic regions.

Under this project multiplication of Gautami ganga, Kera Bastar and Kalpa Prathiba was allotted for Ambajipeta center. During 2012-13, the following seedlings are produced.

S.No.	Name of the variety	No. of seedlings produced
1.	Gautami ganga	2682
2.	Kalpa Prathiba	150
3.	Kera Bastar	58

COCOA

Gen 13: Screening of cocoa clones for their performance as a mixed crop in coconut gardens.

Treatments:

1. VTLCC – 1
2. VTLCH – 1
3. VTLCH – 2
4. VTLCH – 3
5. VTLCH – 4
6. VTLC 1 (Control)

Six cocoa clones viz., VTLCC – 1, VTLCH – 1, VTLCH – 2, VTLCH – 3, VTLCH – 4, VTLC – 1 (Control) were planted in November, 2008, in RBD with four replications and the clones have established in the field. Data on vegetative characters was recorded. Though non significant, maximum plant height (235.25 cm) was recorded by VTLCH – 4 followed by VTLCH – 2 (220.38 cm). Mean girth, height at first branching and East –west canopy spread and North-South canopy spread showed non significant effect. Number of fruiting branches was highest in control (5.0) and it is on par with VTLCH – 4 (4.62) and VTLCH – 3(3.75).

Table 18: Growth attributing characters of cocoa clones.

Treatments	Plant height	Girth	Height at 1 st branching	E – W canopy	N – S canopy	No of fruiting branches
VTLCC – 1	215.87	20.62	79.25	209.02	195.12	3
VTLCH – 1	219.60	23.06	110.02	209.88	230.87	2.37
VTLCH – 2	220.38	22.06	70.83	208.24	207.04	2.45
VTLCH – 3	214.27	22.22	79.05	209.87	151.37	3.75
VTLCH – 4	235.25	23.82	78	248	248.75	4.62
VTLC - 1 (Control)	175.18	37.68	93.77	177.29	173.02	5
S Em +	23.60	6.77	15.28	27.40	34.60	0.65
CD at 5%	N.S.	N.S.	N.S.	N.S.	N.S.	1.97

FOREST PRODUCE

TAMARIND

Horticultural Research Station, Anantapuram

Germplasm collection, evaluation and maintenance of Tamarind

In tamarind germplasm, the highest plant height was recorded in Vellore59 (5.08 m). Highest plant spread (EW and NS), was recorded in Hossur77 (8.3m and 6.6m) and Salem163. No fruiting was observed during 2012 in all the germplasm (Table.2).

Among the Punganur (PU) selections, planted in September 2000, highest plant height was recorded in PU 2 (4.18 m) followed by PU8, and PU16. Highest plant spread (EW and NS) was recorded in PU6 (4.3 and 4.8 m) , followed by PU15, PU12 and PU21. No fruiting was observed during 2012 in all the germplasm (Table.2).





Table -2: Growth parameters of tamarind germplasm during 2012 (Yr. of Planting 1999 &2000)

Germplasm	Plant height (m)	Stem girth (cm)	Tree Spread (m)		No. of branches /plant	Yield *(kg/tree)
			EW	NS		
PKM 1	3.96	64.22	6.02	5.62	5.80	
N-1	3.92	72.96	5.70	5.82	5.20	
Prathishtan	4.04	70.12	5.64	5.66	5.20	
ATPS-1	4.68	72.24	6.18	6.42	5.20	
ATPS-2	5.04	71.00	5.18	5.36	5.00	
Vellore-29	4.98	74.00	5.15	5.23	5.50	
Vellore-59	5.08	74.75	5.05	5.28	6.25	
Vrigam-112	4.27	63.83	5.13	5.23	5.00	
Salem-102	5.03	75.73	5.53	5.57	5.67	
Salem-163	4.67	75.00	6.10	5.67	5.33	
Bommidi-163	4.57	75.67	5.50	5.53	5.33	
Vellore-2	3.47	65.27	4.60	4.63	5.00	
Pollachi-11	4.97	82.67	5.37	5.50	5.67	
Vellore-1	4.67	63.67	3.87	3.90	4.67	
Hosur-77	4.20	75.50	8.30	6.60	4.50	
JK1	3.56	47.68	3.98	3.90	3.80	
PU 1	3.64	55.40	3.80	3.66	3.60	
PU 2	4.18	61.00	3.93	4.00	5.25	
PU 3	4.04	60.80	3.80	4.22	5.00	
PU 4	3.90	60.75	4.08	4.28	4.50	
PU 5	3.62	58.00	3.94	4.06	5.40	
PU 6	4.08	62.00	4.30	4.83	5.50	
PU 7	3.74	55.00	3.96	3.86	5.20	
PU 8	4.10	62.67	3.97	3.90	4.67	
PU 10	3.38	46.75	3.55	3.60	4.00	
PU 11	3.30	49.75	3.15	3.35	2.50	
PU 12	3.34	58.20	3.66	4.20	3.60	
PU 13	3.80	57.75	3.75	3.50	4.50	
PU 14	3.74	61.00	4.02	3.92	5.60	
PU 15	3.20	56.00	3.80	4.25	3.00	
PU 16	4.08	65.00	4.10	4.02	3.60	
PU 17	3.80	54.50	3.90	3.90	4.00	
PU 18	3.58	51.75	3.73	4.18	3.75	
PU 19	4.00	67.00	3.60	3.73	4.67	
PU 20	3.56	55.20	3.90	3.56	3.80	
PU 21	3.85	56.50	4.00	4.20	4.50	
PU 22	2.78	44.25	3.68	3.43	3.00	
PU 24	3.87	51.33	3.60	3.50	3.33	
PU 25	3.93	47.67	3.53	3.23	3.00	
PU 26	3.65	44.00	3.60	3.30	2.50	
PU 27	2.20	34.00	1.90	2.10	1.00	

* No fruiting observed in all the above germplasm



Table -3: Yield /plant (kg) in Tamarind germplasm (2004-12)

	2012	2011	2010	2009	2008	2007	2006	2005	2004	Mean	
PKM 1		7.50	—		8.80	1.70	7.50	1.67	5.70	5.48	
N-1		15.00	—		21.50	1.50	3.28	1.74	1.83	7.48	
Prathishtan		—	—		—	—	—	—	—	0.00	
ATPS-1		15.67	—		9.78	1.70	13.96	0.96	9.80	8.65	
ATPS-2		14.67	11.00		8.87	1.34	—	—	15.70	10.32	
Vellore-29		13.80	—		22.60	1.30	1.92	—	6.25	9.17	
Vellore-59		13.00	—		6.88	—	—	—	—	9.94	
Vrigam-112		—	—		—	—	—	—	—	0.00	
Salem-102		—	—		16.50	—	—	—	—	16.50	
Salem-163		—	—		—	—	—	—	—	0.00	
Bommidi-163		—	—		—	—	—	—	—	0.00	
Vellore-2		24.50	26.00		23.50	1.90	2.84	1.86	12.60	13.31	
Pollachi-11		22.50	—		—	—	—	—	—	22.50	
Vellore-1		19.00	—		—	1.60	8.25	1.65	8.50	7.80	
Hosur-77		14.00	—		12.80	—	—	1.26	—	9.35	
Red tamarind (> 20 yrs age)		123.50	29.00		—	—	—	—	—	76.25	
Singapore Seedling (> 20 yrs age)		98.45	—		—	—	—	—	—	98.45	
JK1	No Yield recorded		—	No Yield recorded	—	—	—	—	—	0.00	
PU 1		17.50	—		7.00	1.37	7.66	—	—	8.38	
PU 2		16.00	—		9.50	1.27	2.59	—	—	7.34	
PU 3		13.00	—		10.50	1.33	2.98	—	—	6.95	
PU 4		16.00	—		8.00	1.57	1.00	—	—	6.64	
PU 5		16.00	—		—	1.40	8.85	—	—	8.75	
PU 6		—	—		5.50	—	—	—	—	5.50	
PU 7		29.50	—		4.10	—	—	—	—	16.80	
PU 8		9.00	—		16.00	—	—	—	—	12.50	
PU 10		18.00	—		5.00	1.60	1.48	—	—	6.52	
PU 11		19.75	—		—	1.50	1.54	—	—	7.60	
PU 12		15.50	—		12.00	—	—	—	—	13.75	
PU 13		31.50	—		19.00	—	—	—	—	25.25	
PU 14		15.85	—		13.00	—	—	—	—	14.43	
PU 15		37.50	—		13.00	—	—	—	—	25.25	
PU 16		15.67	—		2.30	—	—	—	—	8.99	
PU 17		12.50	—		4.80	—	—	—	—	8.65	
PU 18		19.50	—		11.20	—	—	—	—	15.35	
PU 19		13.50	—		—	—	—	—	—	13.50	
PU 20		18.40	—		9.20	—	—	—	—	13.80	
PU 21		15.25	—		—	—	—	—	—	15.25	
PU 22		22.33	—		7.30	—	—	—	—	14.82	
PU 24		21.00	—		4.67	—	—	—	—	12.84	
PU 25		13.00	—		—	—	—	—	—	13.00	
PU 26		16.00	—		12.00	—	—	—	—	14.00	
PU 27		—	—		—	—	18.00	—	—	—	18.00

The performance of tamarind germplasm over years (2004-12) indicated that Vellore – 2 recorded a mean fruit yield of 13.31 kg/tree followed by ATPS-2 (10.32 kg/plant) and Vellore – 29 (9.17 kg/plant). Among Punganoor Selections PU – 5 (8.75 kg/plant) and PU – 1 (8.38 kg/plant) were promising (Table.3).

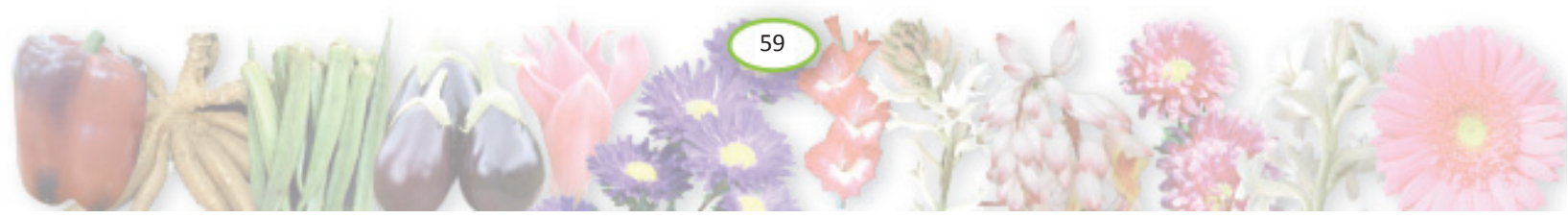




Table – 4: A new germplasm was collected from Thettu village near Madanapalli and fruit quality parameters were analyzed and presented here under:

	Fruit weight (g)	Length (cm)	Width (cm)	Pulp weight (g)	Shell weight (g)	Fibre weight (g)	Seed weight (g)	No. of seed/plant
Thettu Selection	49.83	23.70	9.78	28.39	9.18	1.90	10.27	10.80

Varietal trial of tamarind

Among the five varieties under evaluation trial, Pratistan (2.6 m) followed by Dharwad Sel.1 (2.4 m) and PKM1 recorded maximum plant height. (Table.14) Ajanta recorded least plant height (1.7 m) and seems to be dwarf type. Plant spread in EW and NS direction recorded maximum in PKM1 (2.6 and 2.8 m) followed by Dharwad Sel. 2 and Dharwad Sel 1. Stem girth recorded highest in Pratistan and PKM1 (39.3 and 35.4 cm respectively). The varieties started bearing during 2012. Among these the highest fruit yield per plant was recorded in Dharwad Sel-1 (1.89 kg) followed by Dharwad Sel-2 (1.40 kg). Dharwad Sel-1 expressed its superiority over other varieties in terms of fruit weight (21.55 g), length (15.4 cm), width (6.9 cm), pulp weight (10.4 g), shell weight (5.77 g) and fibre weight (0.76 g). Fruit weight was recorded minimum in Ajanta variety (4.89 g) (Table.15).



Table-14: Plant growth and yield parameters of Tamarind varieties in 2012. (Year of Planting 2008)

Variety	Plant ht (m)	No. of Branches	Plant Spread (m)		Girth (cm)	Fruit Yield (Kg/Plant)
			EW	NS		
Pratistan	2.6	4.3	2.7	2.8	39.3	0.06
Dharwad Sel. 1	2.4	4.4	2.5	2.6	32.0	1.89
Dharwad Sel. 2	2.1	4.0	2.4	2.7	30.9	1.40
Ajanta	1.7	3.3	1.8	1.9	31.6	0.16
PKM1 (check)	2.4	4.0	2.6	2.8	35.4	0.21
<i>Statistics</i>						
CD at P=0.05	0.52	ns	0.51	0.44	6.7	ns
SE.m +	0.17	ns	0.16	0.14	2.2	ns
CV (%)	19.0	ns	17.57	14.32	17.17	ns

Table – 15 : Quality parameters of Tamarind varieties

Vareity	Fruit weight (g)	Length (cm)	Width (cm)	Pulp weight (g)	Shell weight (g)	Fibre weight (g)	Seed weight (g)	No. of seed/plant
Pratistan	16.35	12.06	6.34	6.42	4.80	0.44	4.62	6.00
Dharwad Sel. 1	21.55	15.40	6.90	10.40	5.77	0.76	4.44	6.40
Dharwad Sel. 2	17.41	14.20	6.00	7.13	4.34	0.73	5.13	7.00
Ajanta	4.89	9.54	4.60	1.49	2.48	0.33	1.50	4.20
PKM1 (check)	13.07	10.48	5.76	6.84	2.95	0.38	3.70	5.80
Statistics								
CD at P=0.05	1.84	1.96	1.30	1.02	1.30	0.27	1.02	1.97
SE.m +	0.61	0.92	0.62	0.34	0.61	0.09	0.34	0.92
CV (%)	9.22	11.83	16.45	5.87	23.87	1.35	5.10	24.99





CUSTARD APPLE

Germplasm repository and improvement in custard apple.

Custard apple grafts were planted during 1999 - 2000 (Table.7). Maximum plant height was recorded in Molkalmur 10 (2.98 m), followed by Molkalmur 9 (2.66 m) and Kokkanti (2.58 m). Highest plant spread (EW and NS) was recorded in Pythota S.No.6 (2.5m and 2.6m), followed by Molakalmur S.No. 10 (2.55m and 2.5m) and Pythota S.No 8 (2.56 and 2.2 m). Fruit yield recorded highest in Yengalampalli 5 (62 fruits/plant) and Kokkanti 307 (60 fruits/plant) followed by Molkalmur 13, Yengalampalli 14, Yengalampalli 6 and Balanagar. Highest fruit weight recorded in Pythota s.no. 6 (286 g) followed by Yengalampalli 1 and Balanagar (276 g). Highest TSS recorded in Arka Sahan (27.8°brix) and Kadiri 306 (26.2°brix) followed by Pythota S.No.6 (25.6°brix), Yengalampalli 8 (25°brix) and K.Dayaluripalli 13 (25 °brix) (Table.8).

In germplasm collections that are planted in 2005 (Table.9), highest plant height was recorded in SK 6 (2.68 m) followed by SK7 and SK2 . Plant canopy spread (EW and NS direction) was recorded highest in SK4 (2.4 and 2.6m) and SK6 (2.42 and 2.24 m). Highest fruit yield was recorded in SK-4 (82 fruits/plant). Fruit weight highest recorded in APK (Ca)1 (260 g) and TSS recorded highest in SK7 (24.4°brix) followed by SK1 (Table.10).

Table-7: Plant growth and yield parameters of Custard apple selections during 2012 (Year of Planting 1999 and 2000)

S. No.	Accession no.	Plant height (m)	Stem girth (cm)	No. of branches	Plant Spread (m)		Fruit yield (no/plant)
					EW	NS	
1	Arka Sahan	1.89	53.71	4.00	1.84	1.90	16.00
2	Atemoya × Balanagar	2.31	50.44	4.22	1.92	2.14	33.56
3	Atemoya × Washington	2.35	59.50	4.75	1.85	2.13	26.50
4	Balanagar	2.32	52.60	4.40	2.44	2.42	53.75
5	Ballary	1.93	51.00	3.50	1.90	1.68	15.00
6	Hyderabad	2.08	51.40	4.20	2.00	2.08	40.00
7	Jambugumpala No.1	2.20	52.00	4.60	2.36	2.38	42.00
8	Jambugumpala No.2	1.83	44.75	4.25	1.58	1.78	25.00
9	Jambugumpala No.3	1.97	39.17	3.33	1.78	1.98	43.00
10	Jambugumpala No.4	1.80	42.80	3.00	1.78	1.72	36.75
11	Jambugumpala No.5	2.16	47.40	4.20	2.30	2.20	39.60
12	Jambugumpala No.6	2.00	48.00	3.60	2.02	2.06	21.00
13	Jambugumpala No.7	1.80	53.50	4.00	2.15	1.88	48.25
14	K.Dayalauripalli No.13	2.18	44.50	3.50	2.38	1.93	55.00
15	K.E. Palli No.1	2.20	54.60	4.20	2.18	2.06	31.20
16	K.E. Palli No.2	2.00	45.50	4.25	1.98	2.10	39.00
17	K.E. Palli No.3	2.10	52.83	4.00	1.83	2.05	27.33
18	Kadiri 305	2.48	37.40	4.20	2.30	2.36	53.00
19	Kadiri 306	2.22	46.80	3.80	2.12	2.22	41.20
20	Kadiri No. 132	2.47	50.50	4.67	2.18	2.35	51.33
21	Kadiri No. 169	2.45	47.00	5.00	2.15	2.15	40.00
22	Kokkanti	2.58	38.80	4.40	2.20	2.34	51.40
23	Kokkanti No.307	1.90	40.00	4.00	1.60	1.80	60.00
24	Molakalmur	2.06	45.20	4.00	2.20	2.12	25.60
25	Molakalmur No.1	2.40	49.83	3.33	1.98	2.08	33.83
26	Molakalmur No.7	2.58	61.50	5.75	2.33	2.48	43.25
27	Molakalmur No.8	2.56	58.30	4.60	2.35	2.68	37.33



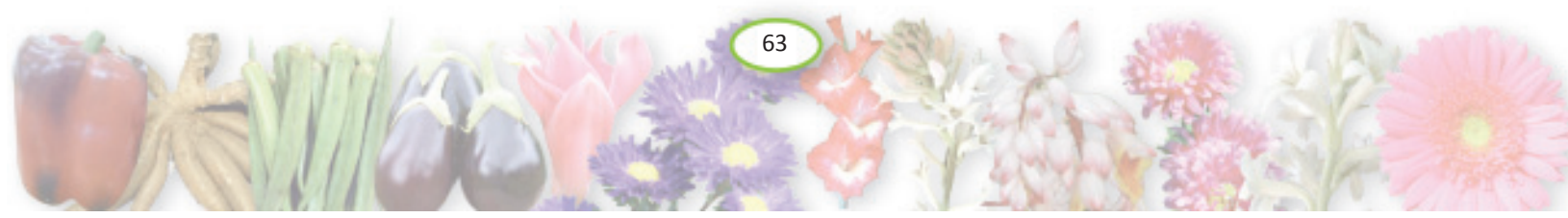
S. No.	Accession no.	Plant height (m)	Stem girth (cm)	No. of branches	Plant Spread (m)		Fruit yield (no/plant)
					EW	NS	
28	Molakalmur No.8 a	2.06	42.80	3.60	1.76	1.92	25.20
29	Molakalmur No.9	2.66	55.00	5.00	2.38	2.50	35.78
30	Molakalmur No.10	2.98	57.75	3.75	2.55	2.50	39.50
31	Molakalmur No.12	2.47	57.33	5.22	2.26	2.29	40.00
32	Molakalmur No.13	2.45	55.75	4.50	2.30	2.40	57.50
33	Molakalmur No.14	2.38	47.17	3.50	2.05	2.08	51.20
34	Mutravanipalli No.1	2.34	43.40	4.40	1.92	1.98	42.20
35	Mutravanipalli No.2	2.28	48.00	4.20	1.94	2.12	44.00
36	Nallaldadi	1.76	42.20	3.40	1.70	1.76	35.50
37	Nallaldadi No.1	2.18	43.60	4.20	1.92	1.98	19.00
38	Nallaldadi No.2	1.95	55.25	4.25	1.78	2.03	32.00
39	Nallaldadi No.4	2.28	48.40	4.00	1.84	1.94	13.80
40	Nallaldadi No.5	2.14	50.40	4.00	2.16	2.06	36.60
41	Nallaldadi No.8	1.58	39.20	3.00	1.22	1.38	26.00
42	Nallaldadi No.9	2.36	51.60	4.00	2.10	2.18	17.20
43	Nallaldadi No.10	1.58	40.40	3.40	1.48	1.62	28.33
44	Nallaldadi No.11	2.23	48.25	4.00	2.13	2.23	47.50
45	Nallaldadi No.12	2.26	54.00	4.60	2.28	2.50	39.75
46	Nallaldadi No.13	2.24	57.80	4.80	1.84	1.76	17.20
47	Pythota No.1	2.16	59.30	4.30	2.08	2.03	37.57
48	Pythota No.2	2.36	56.30	4.70	2.25	2.12	32.44
49	Pythota No.3	2.49	53.22	4.33	2.29	2.23	19.11
50	Pythota No.4	2.33	51.22	4.11	2.07	2.18	18.25
51	Pythota No.4 a	1.95	52.50	4.50	1.85	1.80	52.50
52	Pythota No.5	2.37	56.00	4.40	2.09	2.07	28.11
53	Pythota No.6	2.47	53.33	4.67	2.50	2.62	37.50
54	Pythota No.8	2.33	50.00	3.80	2.56	2.26	50.40
55	Yengalampalli	2.31	47.71	4.14	1.96	2.27	44.00
56	Yengalampalli No.1	2.43	56.50	4.83	2.27	2.37	52.00
57	Yengalampalli No.2	2.20	46.25	3.50	1.98	1.98	50.25
58	Yengalampalli No.4	1.98	58.75	3.75	1.85	2.13	40.50
59	Yengalampalli No.5	2.32	50.33	4.33	2.42	2.45	62.50
60	Yengalampalli No.6	2.27	44.67	3.67	2.08	2.08	56.33
61	Yengalampalli No.7	2.38	52.40	4.20	1.88	1.92	37.80
62	Yengalampalli No.8	2.18	57.00	3.50	2.03	2.00	41.50
63	Yengalampalli No.9	2.25	51.50	4.00	2.10	2.13	46.33
64	Yengalampalli No.10	2.17	46.17	3.83	2.23	2.15	42.17
65	Yengalampalli No.12	2.38	43.60	4.20	2.04	2.24	36.80
66	Yengalampalli No.13	2.45	45.75	4.00	2.25	2.28	41.50
67	Yengalampalli No.14	2.20	51.33	4.33	2.03	2.28	55.33
68	Yengalampalli No.15	2.42	51.60	4.40	2.14	2.30	26.00
69	Yengalampalli No.16	2.33	53.50	4.00	1.98	2.00	37.67
70	Yengalampalli No.17	2.43	55.00	3.75	2.18	2.25	28.00
71	Yengalampalli No.18	1.95	45.00	3.50	2.00	2.00	36.00





Table-8: Fruit quality parameters of Custard apple selections during 2012 (Year of Planting 1999 and 2000)

S.No.	Accession no.	Frt wt (g)	Pulp wt(g)	Seed wt (g)	Peel wt (g)	TSS (°Brix)
1	Arka Sahan	259.2	134.5	14.3	110.4	27.8
2	Atemoya × Balanagar	198.2	88.2	10.2	99.8	22.2
3	Atemoya × Washington	189.2	96.4	12.7	80.1	21.8
4	Balanagar	186.0	110.2	15.3	60.5	23.4
5	Ballary	276.2	131.2	13.4	131.6	23.0
6	Hyderabad	210.0	110.3	11.2	88.5	22.1
7	Jambugumpala No.1	198.0	78.9	13.0	106.1	21.5
8	Jambugumpala No.2	179.5	93.4	11.4	74.7	23.0
9	Jambugumpala No.3	187.2	89.2	16.5	81.5	21.0
10	Jambugumpala No.4	186.0	82.5	11.4	92.1	20.9
11	Jambugumpala No.5	198.2	101.2	12.3	84.7	24.1
12	Jambugumpala No.6	198.6	100.0	16.6	82.0	21.9
13	Jambugumpala No.7	187.9	86.5	27.2	74.2	23.1
14	K.Dayalauripalli No.13	139.0	84.2	10.2	44.6	25.0
15	K.E. Palli No.1	187.2	118.9	23.4	44.9	22.1
16	K.E. Palli No.2	189.0	87.2	13.5	88.3	21.8
17	K.E. Palli No.3	180.3	80.2	11.4	88.7	22.5
18	Kadiri 305	187.2	101.4	19.5	66.3	25.3
19	Kadiri 306	156.7	86.2	21.1	49.4	26.2
20	Kadiri No. 132	145.0	88.3	15.2	41.5	21.8
21	Kadiri No. 169	197.3	81.2	18.8	97.3	23.2
22	Kokkanti	187.7	78.3	10.2	99.2	21.4
23	Molakalmur	165.2	96.2	13.2	55.8	24.1
24	Molakalmur No.1	178.2	87.0	14.2	77.0	23.6
25	Molakalmur No.7	286.2	124.2	20.1	141.9	25.6
26	Molakalmur No.8	176.2	78.9	14.2	83.1	21.3
27	Molakalmur No.8 a	243.2	143.2	19.8	80.2	21.3
28	Molakalmur No.9	181.2	78.9	11.4	90.9	23.2
29	Molakalmur No.10	167.2	76.2	13.2	77.8	22.0
30	Molakalmur No.12	178.5	101.2	12.7	64.6	21.0
31	Molakalmur No.13	175.2	88.9	13.2	73.1	23.3
32	Molakalmur No.14	169.2	81.2	10.2	77.8	23.2
33	Mutravanipalli No.1	154.0	91.2	12.4	50.4	23.2
34	Mutravanipalli No.2	167.3	82.3	11.4	73.6	23.1
35	Nallaldadi	252.3	110.2	18.9	123.2	23.4
36	Nallaldadi No.1	213.4	123.5	17.8	72.1	22.2
37	Nallaldadi No.2	187.2	107.2	21.2	58.8	21.9
38	Nallaldadi No.4	187.2	87.2	13.4	86.6	23.5
39	Nallaldadi No.5	170.2	88.2	9.8	72.2	21.8
40	Nallaldadi No.8	186.3	89.2	13.7	83.4	22.1
41	Nallaldadi No.9	156.6	78.2	10.2	68.2	21.7
42	Nallaldadi No.10	165.4	98.0	16.2	51.2	21.4
43	Nallaldadi No.11	178.9	89.2	16.7	73.0	23.5
44	Nallaldadi No.12	187.2	78.9	16.6	91.7	21.8
45	Nallaldadi No.13	176.0	78.2	17.6	80.2	24.1
46	Pythota No.1	189.2	87.2	18.7	83.3	21.7
47	Pythota No.2	198.2	88.2	10.2	99.8	22.2
48	Pythota No.2 a	210.3	82.3	15.8	112.2	22.4
49	Pythota No.3	210.3	97.2	18.2	94.9	23.4
50	Pythota No.3a	198.2	81.2	16.2	100.8	24.0





S.No.	Accession no.	Frt wt (g)	Pulp wt(g)	Seed wt (g)	Peel wt (g)	TSS (°Brix)
51	Pythota No.4	198.4	110.2	13.2	75.0	23.0
52	Pythota No.4a	168.9	98.2	11.7	59.0	22.7
53	Pythota No.5	189.2	80.2	11.9	97.1	21.2
54	Pythota No.6	226.2	112.4	16.8	97.0	23.4
55	Yengalampalli	172.4	88.2	11.3	72.9	23.3
56	Yengalampalli No.1	276.2	143.2	20.2	112.8	21.4
57	Yengalampalli No.2	234.2	98.2	14.2	121.8	24.0
58	Yengalampalli No.4	210.2	110.4	16.2	83.6	21.2
59	Yengalampalli No.5	198.2	81.3	13.8	103.1	21.4
60	Yengalampalli No.6	245.0	117.2	19.2	108.6	22.5
61	Yengalampalli No.7	178.9	101.2	19.2	58.5	24.0
62	Yengalampalli No.8	212.0	123.2	17.9	70.9	25.2
63	Yengalampalli No.9	198.9	71.2	21.2	106.5	23.4
64	Yengalampalli No.10	232.0	102.3	18.5	111.2	23.1
65	Yengalampalli No.12	196.5	88.2	11.3	97.0	23.2
66	Yengalampalli No.13	216.0	123.4	13.2	79.4	23.5
67	Yengalampalli No.14	223.4	114.2	19.2	90.0	23.2
68	Yengalampalli No.15	187.3	83.2	23.4	80.7	22.4
69	Yengalampalli No.16	210.1	113.2	14.2	82.7	21.4
70	Yengalampalli No.17	164.0	83.4	11.6	69.0	24.0
71	Yengalampalli No.18	190.2	100.2	11.2	78.8	20.9

Table 9. Plant growth and yield of Custard apple selections during 2012 (Year of planting - 2005)

S. No.	Accession no.	Plant height (m)	Stem girth (cm)	No. of branches	Plant Spread (m)		Fruit yield (no/plant)
					EW	NS	
1	APK1	2.09	37.92	3.58	1.81	1.73	28.58
2	DC-1	2.38	35.38	3.25	1.90	1.96	41.29
3	DC-3	2.38	43.40	4.40	2.14	1.96	41.80
4	SK-1	2.18	37.00	3.75	1.90	2.23	40.00
5	SK-2	2.43	42.00	4.00	2.00	1.93	50.25
6	Sk-3	2.12	36.80	3.20	1.86	1.86	36.40
7	SK-4	2.37	44.67	5.33	2.40	2.63	82.33
8	SK-5	1.96	38.60	4.00	1.68	1.88	49.00
9	SK-6	2.68	35.40	3.80	2.42	2.24	51.20
10	SK-7	2.40	44.25	3.75	1.90	2.03	34.25

Table 10. Plant growth and yield of Custard apple selections during 2012 (Year of planting - 2005)

S.No.	Accession no.	Fruit wt (g)	Pulp wt (g)	Seed wt (g)	Peel wt (g)	TSS (°Brix)
1	APK1	260.5	146.2	22.2	92.1	22.1
2	DC-1	220.5	142.0	21.7	56.8	22.3
3	DC-3	210.0	130.5	23.2	56.3	21.0
4	SK-1	212.0	128.4	21.5	62.1	24.2
5	SK-2	200.5	121.5	20.8	58.2	22.4
6	Sk-3	232.0	127.9	26.4	77.7	20.4
7	SK-4	225.0	162.6	25.8	36.6	22.3
8	SK-5	200.0	127.7	26.8	45.5	23.4
9	SK-6	215.6	123.2	21.6	70.8	22.5
10	SK-7	235.0	132.5	20.7	81.8	24.4



Table- 11: Yield/plant in custard apple germplasm (2005-2011)

	2005	2006	2007	2008	2009	2010	2011	Mean
ArkaSahan	4.00	—	—	0.36	5.73	10.58	16.20	7.37
Atemoya × Balanagar	4.00	5.30	—	—	2.63	12.02	5.91	5.97
Red Sithaphal X Pond apple1	3.02	3.56	3.56	—	5.37	5.34	—	4.17
Atemoya × Washington	3.28	7.30	—	—	3.99	7.01	7.14	5.74
Balanagar	3.63	9.13	—	2.32	2.30	15.16	3.46	6.00
Bengaluru	4.18	1.20	—	—	—	—	—	2.69
Ballary	3.00	5.70	—	—	2.95	5.86	18.41	7.18
Ramaphal	2.93	7.14	7.14	2.46	2.48	9.14	—	5.21
Hyderabad	3.06	3.14	3.14	2.57	3.15	8.64	5.25	4.14
Jambugumpala No.1	1.73	—	—	1.73	2.99	5.28	4.71	3.29
Jambugumpala No.2	2.91	3.81	3.81	2.33	3.61	4.22	7.18	3.98
Jambugumpala No.3	2.82	5.12	—	1.41	4.57	4.93	4.35	3.87
Jambugumpala No.4	3.12	2.85	—	1.37	4.19	6.40	5.06	3.83
Jambugumpala No.5	3.93	5.17	—	1.86	5.67	6.60	5.01	4.71
Jambugumpala No.6	—	2.65	2.65	0.70	5.53	8.85	9.46	4.97
Jambugumpala No.7	—	—	—	3.12	4.45	5.08	3.89	4.14
K.Dayalauripalli No.13	3.67	—	—	4.24	1.87	5.60	2.53	3.58
K.E. Palli No.1	—	—	—	7.02	5.38	4.48	6.00	5.72
K.E. Palli No.2	3.43	—	—	3.53	2.52	5.60	4.85	3.99
K.E. Palli No.3	2.73	3.05	—	2.17	2.20	4.29	6.60	3.51
K.E. Palli No.7	1.81	—	—	—	—	—	—	1.81
Kadiri 305	3.45	—	—	—	2.98	6.21	3.53	4.04
Kadiri 306	3.86	—	—	1.39	3.96	5.50	3.80	3.70
Kadiri No. 132	—	—	—	1.29	1.86	5.24	2.82	2.80
Kadiri No. 169	3.00	—	—	—	5.27	1.59	4.93	3.70
Kadiri No.152	3.00	—	—	—	—	—	—	3.00
Kokkanti	4.66	—	—	—	3.59	7.16	3.65	4.77
Kokkanti No.307	1.89	—	—	—	2.97	—	2.75	2.54
Kokkanti No. 5	3.68	—	—	—	—	—	—	3.68
Molakalmur	—	—	—	1.29	—	—	6.96	4.13
Molakalmur No.1	3.78	—	—	1.09	3.09	6.16	8.46	4.52
Molakalmur No.2	4.12	—	—	—	—	—	—	4.12
Molakalmur No.3	4.33	—	—	—	—	—	—	4.33
Molakalmur No.4	3.62	—	—	2.43	—	—	—	3.03
Molakalmur No.5	3.66	—	—	—	—	—	—	3.66
Molakalmur No.6	4.91	—	—	1.88	3.22	7.58	—	4.40
Molakalmur No.7	4.83	4.23	4.23	—	4.32	9.17	4.07	5.14
CRIDA1	4.00	—	—	—	—	—	—	4.00
CRIDA15	—	—	—	0.82	—	—	—	0.82
Molakalmur No.8	0.96	5.63	5.63	1.09	4.46	5.23	6.51	4.22
Molakalmur No.8 a	—	—	—	—	—	—	7.19	7.19
Molakalmur No.9	—	5.50	5.50	2.68	5.07	4.11	4.67	4.59
Molakalmur No.10	—	3.62	3.62	2.35	4.68	4.79	4.52	3.93
Molakalmur No.12	—	3.12	3.12	1.30	3.78	3.45	4.38	3.19





	2005	2006	2007	2008	2009	2010	2011	Mean
Molakalmur No.13	—	—	—	1.99	15.07	3.07	2.94	5.77
Molakalmur No.14	—	—	—	2.01	5.43	4.03	3.01	3.62
Molakalmur No.15	—	—	—	—	4.78	3.57	—	4.17
Mutravanipalli No.1	3.01	5.87	—	2.10	3.73	6.25	3.96	4.15
Mutravanipalli No.2	3.12	—	4.90	2.83	4.85	4.68	5.73	4.35
Mutravanipalli No.12	—	—	—	0.62	—	—	—	0.62
Nallaldadi	—	—	—	—	5.25	8.11	6.01	6.46
Nallaldadi No.1	—	—	—	—	—	—	9.85	9.85
Nallaldadi No.2	3.21	—	4.31	1.51	4.02	3.30	5.85	3.70
Nallaldadi No.3	2.02	—	—	—	—	—	—	2.02
Nallaldadi No.4	—	3.69	3.69	1.01	3.95	6.17	12.33	5.14
Nallaldadi No.5	—	7.95	7.95	1.50	4.02	5.66	5.09	5.36
Nallaldadi No.6	—	—	—	0.53	—	—	—	0.53
Nallaldadi No.8	—	5.52	5.52	0.82	4.64	2.45	6.02	4.16
Nallaldadi No.9	0.93	2.72	2.72	1.14	—	4.96	9.62	3.68
Nallaldadi No.10	3.00	2.17	2.17	1.51	2.95	10.30	6.31	4.06
Nallaldadi No.11	3.94	4.62	—	2.73	3.49	7.22	3.94	4.32
Nallaldadi No.12	0.59	4.13	4.13	—	3.78	6.11	4.43	3.86
Nallaldadi No.13	3.12	5.24	5.24	0.72	4.15	5.21	11.00	4.95
Pythota No.1	3.48	2.86	2.86	2.24	3.02	8.80	5.28	4.08
Pythota No.2	2.94	4.16	4.16	2.23	6.23	5.01	6.48	4.46
Pythota No.3	2.33	6.32	—	1.75	7.65	8.02	11.00	6.18
Pythota No.4	2.67	2.80	2.80	4.41	7.45	5.31	10.86	5.19
Pythota No.4 a	1.36	—	—	—	—	—	3.78	2.57
Pythota No.5	2.89	2.76	2.76	1.87	7.00	7.45	6.01	4.39
Pythota No.6	3.91	2.51	2.51	1.90	7.19	6.73	5.05	4.26
Pythota No.8	—	—	—	—	—	—	4.49	4.49
Pythota No.12	—	4.47	4.47	—	—	—	—	4.47
Yengalampalli	—	—	—	—	3.12	8.11	3.92	5.05
Yengalampalli No.1	1.83	—	—	1.47	4.79	14.61	5.31	5.60
Yengalampalli No.2	2.41	4.21	—	1.70	3.05	6.00	4.66	3.67
Yengalampalli No.3	0.99	—	—	0.98	—	—	—	0.99
Yengalampalli No.4	1.20	4.99	4.98	2.54	5.39	6.13	5.19	4.35
Yengalampalli No.5	3.21	—	—	1.03	2.25	6.14	3.17	3.16
Yengalampalli No.6	3.66	—	—	2.22	2.87	—	4.35	3.27
Yengalampalli No.7	—	—	—	2.29	5.35	4.98	4.73	4.34
Yengalampalli No.8	—	—	4.80	0.95	7.10	7.67	5.11	5.13
Yengalampalli No.9	2.91	—	—	1.46	2.22	1.60	4.29	2.50
Yengalampalli No.10	—	—	—	1.77	3.53	8.13	5.50	4.73
Yengalampalli No.11	1.88	—	—	1.55	—	—	—	1.72
Yengalampalli No.12	—	8.40	8.40	1.40	4.73	7.74	5.34	6.00
Yengalampalli No.13	2.63	—	6.10	1.40	4.17	6.98	5.20	4.41
Yengalampalli No.14	2.93	3.56	—	2.16	3.13	8.39	4.04	4.04
Yengalampalli No.15	2.98	—	5.60	—	2.86	3.07	7.20	4.34
Yengalampalli No.16	1.91	—	6.70	1.03	3.00	5.58	5.58	3.97
Yengalampalli No.17	1.50	—	5.50	1.24	2.66	3.60	5.86	3.39
Yengalampalli No.18	2.11	—	—	0.99	8.52	4.94	5.28	4.37





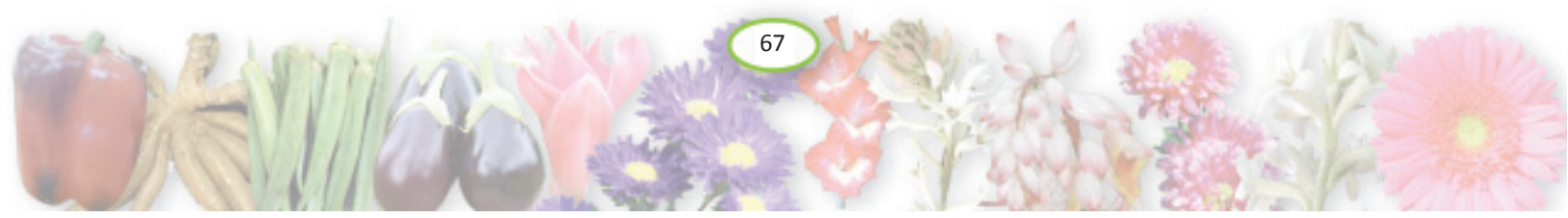
Based on the performance over years (2005-2011) it was noticed that the highest mean fruit yield of 7.37 kg/plant was recorded in Arka Sahan followed by Bellary (7.18 kg/plant). The next best accession was Pythota No.3 with 6.18 kg/plant (Table.11).

Varietal trial of custard apple

Among the six varieties under trial, Sinhan Local recorded maximum plant height (2.16 m) followed by APK (Ca1) (2.13 m). Red Sitaphal was found to be a slow growing dwarf type and recorded least plant height (1.59 m). Stem girth was also found maximum in APK (Ca-1) (30.75 cm) followed by Sinhan Local and Balanagar (29.63 cm). Plant Spread in both EW and NS direction was found maximum in Sinhan Local (2.21 and 2.36 m) followed by Arka Sahan and APK (Ca-1). Least plant spread recorded in Red Sitaphal. Fruit yield was found maximum in APK (Ca⁻¹) (15.8 fruits / plant) which was closely followed by Balanagar (15.3 fruits / plant). Maximum Mean fruit weight was recorded in Arka Sahan (278.75 g) followed by Sinhan Local (230.25 g). TSS content was high in Arka Sahan (27 °Brix) followed by Sinhan Local (25.60 °Brix) (Table.13).

Table-13: Plant growth, yield and quality parameters of Custard apple varieties in 2012. (Year of planting 2008)

Variety	Plant ht (m)	Stem Girth (cm)	No. of Branches	Plant Spread (m)		No. of fruits / plant	Average fruit weight (g)	TSS (°Brix)
				EW	NS			
Rayadurg	1.84	26.13	4.38	1.76	1.90	9.9	210.50	24.00
APK (Ca-1)	2.13	30.75	4.13	1.88	2.09	15.8	227.00	22.00
Red Sithaphal	1.59	22.38	3.63	1.13	1.40	3.4	182.50	21.40
Arka Sahan	1.78	23.44	4.25	1.78	2.16	10.3	278.75	27.00
Sinhan Local	2.16	29.63	4.75	2.21	2.36	14.3	230.25	25.60
Balanagar (check)	2.06	29.63	4.13	1.75	2.03	15.3	210.75	23.40
<i>Statistics</i>								
CD at P=0.05	0.20	3.3	0.66	0.20	0.22	2.49	17.50	1.19
SE.m +	0.06	1.09	0.22	0.06	0.07	0.86	8.21	0.56
CV (%)	10.45	13.27	12.3	15.06	15.71	4.52	5.20	3.31



B. CROP PRODUCTION

FRUITS

MANGO

Horticultural Research Station, Darsi

Testing of promising varieties of Mango:- Nine varieties were planted namely Banganapalli, Totapuri, Imam Pasand Suvarnakha, Ratna, Navaneetham, Chinnarasam, Peddarasam and Ulavapadu mango. These varieties were planted in the month of August-2012.

Horticultural Research Station, Sangareddy

Effect of graded doses of organic and inorganic sources of nutrients on mango

The cumulative yield and number of fruits/tree from the year 2009 to 2011 shows that application of 25% organic through FYM + 25% through vermicompost + 25% through green leaf + 25% inorganic manure per each of the tree (T_4) resulted in maximum number of fruits per tree (82.37) and increased no. of fruits per tree (27.70%) over control followed by T_5 (78.53 fruits per tree) and increase in yield of 24.17% over control. Maximum cumulative fruit yield per tree was recorded in T_4 (33.27 kg per tree) followed by T_5 (32.30 kg) and increased cumulative yield over control was 38.65% and 36.50% (T_4) respectively.

During the year 2012 yield data results to be recorded because mango experiment crop is in fruit development stage.

Precision farming in Mango- observation trial, two varieties viz., Baneshan and Himayath have been planted

Augumentation and evaluation of mango germplasm

Maximum number of fruits tree⁻¹ (438) and maximum yield (76.4 kg tree⁻¹) was recorded in the variety CISH M1. However, maximum cumulative yield (487.67 kg tree⁻¹) (in 6 bearing years) was observed in CISH M2.

Survey of seedling germplasm in Mango

Beema 6 I/T8 has recorded maximum fruit weight of 584 g. The seedling Krishna 8E/T14 fruit has recorded maximum fruit length (146 mm) and breath (82 mm). The maximum TSS (24 ° Brix) was recorded in Amrutham sl. No. 21.

Clonal selection of Banganapalli

A total of 3 clones were grafted during 2010-11. The plants will be planted during the year 2012-13 as and when the land is available.

Testing of two superior clones of Dashehari

The maximum number of fruits tree⁻¹ was recorded in Dashehari-35 (863) and maximum fruit yield in Dahehari-35 (96.65 kg tree⁻¹). The cumulative yield based on 9 bearing years revealed highest yield in Dashehari-35 (328.67 kg tree⁻¹).

Testing of promising hybrids of mango

At FRS, Sangareddy, maximum number of fruits tree⁻¹ (143) was recorded in Sunder Langra followed by Neelphonso (137). Maximum yield was recorded in Sunder langra (30.90kg tree⁻¹) followed by Neelphonso (26.50 kg tree⁻¹). Maximum cumulative yield (67.24 kg tree⁻¹) was recorded in Sunder Langra. The TSS was maximum in Sunder Langra (21.6 ° Brix) and maximum shelf life of 9.3 days was recorded in Manjeera.

Evaluation of new hybrids of mango

The grafts were planted during August 2010. The trees are in juvenile stage.

Performance of released mango hybrids/ selections of mango

The grafts were planted during August 2010. The trees are in juvenile stage.





Root stock trial in mango

Maximum root stock girth (0.91 m) and spread E-W (7.64 m) and N-S (7.54 m) and maximum cumulative yield (2004-13) (491kg tree⁻¹) were observed on Banganpalli grafted on Nekkare rootstock. Maximum fruit length (11.0 cm) was recorded in the trees grafted with Banganapalli rootstock.

Pruning trial for high density planting (double row) in mango

The trees in the experiment interlocked and hence the pruning trial was imposed. During the reporting period there is no significant difference with respect to height, girth, spread, number of fruit tree⁻¹, yield and quality parameters.

Mango Research Station, Nuzvid

Among various pruning methods imposed centre opening, lightly pruned upto 2nd node followed by clipping of fruit stalks recorded highest no of fruits/tree (31.5), highest yield/tree (16.085 kg) and lowest no of thrips (2.5/panicle), hoppers (3.1 /panicle).

At MRS, Nuzvid, among the various varieties under high density planting Totapuri recorded significantly highest yield of 4.24 kg/tree and among hybrids Neelishan recorded highest yield of 4.2 kg/tree.

Spraying of two percent potassium sulphate (K₂SO₄) 30 days before harvest on kesar variety of mango resulted in :

Minimum physiological loss of fruit weight of 3.85 % and 10.83 % at 5 and 10 days after harvest respectively. Lowest incidence of Anthracnose disease infection was also recorded in the same treatment i.e. 3.0%, and 3.1 % at 10, and 20 days after harvest respectively.

Significantly highest TSS content of 21.3°B was also recorded in the same treatment.

Three sprayings of potassium sulphate (K₂SO₄) at two percent concentration at 15 days interval starting from peanut stage on Baneshan mango variety recorded highest quantitative characters like fruit number / tree (31.45), fruit weight (293.2) and yield/tree (9.03 kg / tree) when compared to other concentrations of potassium sulphate including control.

From the data collected in Nuzvid mandal of Krishna District it is found that among the different intercrops grown in mango ecosystems (Cereals, legumes, vegetables, commercial crops) mango intercropped with brinjal recorded significantly highest cost benefit ratio of 2.72.

Vegetable Research Station, Rajendranagar

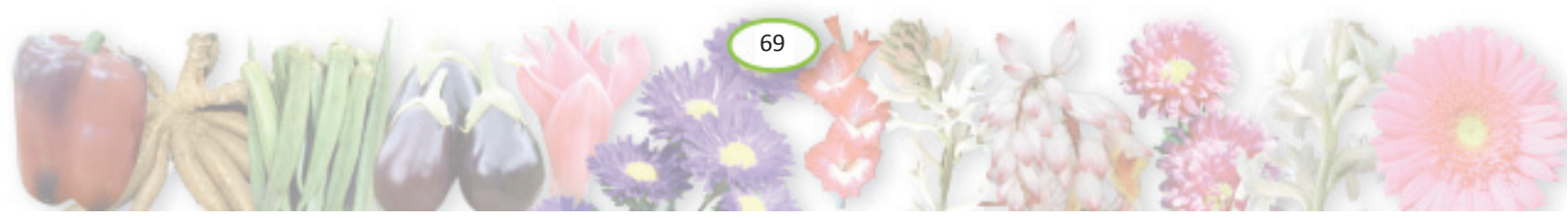
Intercropping tuber crops in Mango orchards

Under intercropping of elephant foot yam in mango, the highest corm yield of 38.66 t/ha was recorded in the treatment where full dose of NPK was applied followed by 35.12 t/ha in the treatment with application of full recommended dose under open condition. In colocasia yield reduction was observed under intercropping systems. Colocasia under open condition with full recommended dose of fertilizer recorded the highest tuber yield of 26.45 t/ha followed by the treatment with application of full recommended dose under intercropping system (16.01 t/ha.)

Citrus Research Station, Petlur

Among the hybrids highest fruit yield of 112.75 fruits per tree was recorded with A.U. Rumani weighing 35 Kg. This was closely followed by Neelgoa which yielded 110.8 fruits per tree. Among 4 table varieties evaluated, highest no of 94.2 fruits per tree was recorded with Khader. Among 4 regular bearers Bangalora variety gave highest no of 600.4 fruits per tree followed by Pulihora which yielded 396.7 fruits per tree. During the year there was no fruiting in Neeleshan, KMH-1, Baneshan, Mulgoa and Neelam.

During this year under rain fed conditions Kalipatti Sapota (46.5 kg/plant), Stargooseberry (9.7 kg/plant), Tamarind (Urigan) (14.2 kg pods/plants), and Custard apple (A x B) (14.1 kg fruits/plant) and Jack seedling (kodur selection) (15 Nos fruits/plant) were performed well.





GRAPE

Grape Research Station, Rajendranagar

Standardization of fertigation in Thomson Seedless grapes grafted on Dogridge:

Yield:

Significantly high yield per vine and quality (TSS) was recorded in fertigation treatments receiving 50 % RDF.

Petiole Nutrient Status:

N was optimum in all treatments receiving 80, 50 and 100 % RDF, P was optimum in all treatments except 100 % RDF (soil). K optimum status was recorded with all 30 and 50% RDF treatments.

Build up of soil nutrients:

There was no build up in the N, a huge build up in the P and a slight build in the K level of the soil when compared to its initial status. Soil application recorded higher N and P level in the soil when compared to the fertigation treatments.

Standardization of irrigation in Thomson Seedless grapes grafted on Dogridge rootstock:

Yield:

Significantly high yield quality and water use efficiency was recorded in treatments irrigated at 60 % ET at shoot growth and berry setting to harvest and reducing the rates to 20% during bud differentiation and flowering stages. By this way 45 % of irrigation water can be saved when compared to irrigating continuously at 80 % ET.

Petiole Nutrient Content:

The petiole nutrient content with respect to N and Ca content increased by reducing the quantity of irrigation water.

Build up of soil nutrients

There was no build up in the N, a huge build up in the P and a slight build in the K level of the soil when compared to its initial status.

SWEET ORANGE

Horticultural Research Station, Darsi

Organic cultivation of sweet orange. Nine treatments were imposed and the trial was planted in the month of September-12.

Horticultural Research Station, Mallepally

Standardization of cultural practices for crop regulation in Sweet orange.

Removal of top soil in the basins up to 3 inches + mulching with black polythene sheet with perforations recorded maximum fruits (472.33) per tree.

Standardization of organic farming in Sathgudi Sweet orange

Maximum stem girth (8.90 cm), plant height (273.00 cm) and canopy spread, East – West (256.32 cm), North – South (264.38 cm) and number of fruits per tree (136.86) was recorded in T1 (NPK = 300:70:80 g/tree) treatment

Response of Sweet orange to different mulches in relation to growth, yield and quality.

Maximum height (287.33 cm), girth (35.66 cm), canopy spread, East-West (307.00 cm) and number of fruits per tree (129.66) was recorded in T6 (Bi-colour polythene mulch of 100 micron) treatment.

Intercropping studies in sweet orange.

The maximum plant height was recorded (245.05 cm) in intercropping sequence with Dolichos bean. Highest net profit from intercropping sequence was obtained from Marigold (Rs.64,666 /ha) followed by Water melon (Rs.63,333 /ha) and lowest from Cow pea (Rs.19,000 /ha).





Citrus Research Station, Tirupati

I.N.M. in Citrus (Sweet orange)

Among the different treatments imposed on 10 year old sweet orange budlings (Table 4), the treatment T₅ with soil application of 50 % RDF along with VAM (500g/plant), PSB (100g/Plant), *Azospirillum* (100 g/plant) and *T. harzianum* (100g/plant) recorded maximum plant growth (Canopy volume 15.25m³) with the highest number of fruits/tree (405), fruit yield (80.36 kg/tree) and quality parameters (42.75% Juice & TSS 10.03). The lowest values for growth, fruit yield and quality parameters were recorded in the treatment with the application of RDF (control). Soil and Leaf samples were collected and the analysis is in progress.

Table 4 : Effect of Bio fertilizers on growth and yield of sweet orange at Tirupati (2012-13)

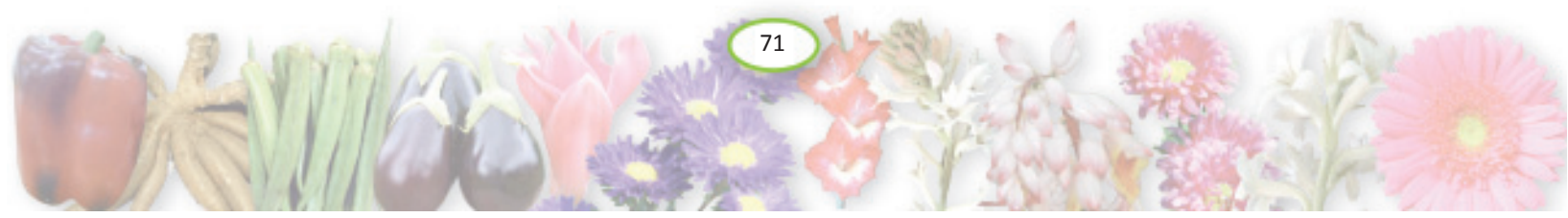
Treat ments	Plant height (m)	Plant girth (cm)	Canopy volume (m ³)	Fruits / tree	Av. Fruit weight (g)	Fruit yield (kg/tree)	Juice (%)	Acidity (%)	TSS (°Brix)
T ₁	1.82	31.31	6.75	372.06	191.25	70.91	41.50	1.03	9.75
T ₂	1.99	33.88	11.23	371.06	186.25	70.59	40.25	0.94	10.05
T ₃	2.09	35.00	10.23	377.44	192.50	80.16	39.50	0.83	10.00
T ₄	2.40	38.71	14.19	384.25	195.00	80.77	41.75	0.86	10.25
T ₅	2.41	41.38	15.25	405.13	198.75	80.36	42.75	0.82	10.30
CD @ 5%	0.77	12.67	12.24	77.56	14.11	14.10	1.59	0.16	0.65

Nutrient management under High Density Planting in Sweet orange: Experimental results on growth parameters of nutrient management under high Density Planting in 6 years old Sweet orange budlings (Table 5 & 6) indicated that significantly highest plant height (2.55 m), canopy volume (11.40 m³), number of fruits (80 per plant) and fruit yield (17.18 kg/plant)were recorded when the plants are supplied with 75% RDF (Inorganic source) along with 25% (Organic source - FYM) under 6x4m spacing (T₇). However, the best quality fruits(32 % juice, 9.07 Brix TSS and 0.55% Titrable acidity are obtained with 50% RDF (Inorganic source) along with 50% (Organic source - green manure) under 6x4m spacing (T_g) followed by T₇.

Table 5: Effect of different spacing and nutrient levels on growth and fruit yield of Sweet Orange at Tirupati (2012-13)

S. No.	Treatments	Plant height (m)	Canopy spread (m)		Stem Girth (cm)	Canopy Volume (m ³)	No. of fruits/tree	Fruit weight (g)	Fruit yield (kg/tree)
			E-W	N-S					
1.	T ₁ (S ₁ L ₁)	2.15	2.61	2.57	30.25	7.87	60.58	174.50	10.62
2.	T ₂ (S ₁ L ₂)	2.24	2.58	2.74	30.83	8.34	78.17	176.33	13.87
3.	T ₃ (S ₁ L ₃)	2.32	2.88	3.03	34.75	10.58	55.67	183.33	10.26
4.	T ₄ (S ₂ L ₁)	2.01	2.37	2.43	27.92	6.10	66.75	192.50	12.82
5.	T ₅ (S ₂ L ₂)	2.22	2.43	2.39	30.92	6.79	60.17	194.00	11.70
6.	T ₆ (S ₂ L ₃)	2.18	2.31	2.36	29.75	6.33	51.75	193.33	10.01
7.	T ₇ (S ₃ L ₁)	2.55	2.83	3.00	34.67	11.40	79.92	214.00	17.18
8.	T ₈ (S ₃ L ₂)	2.28	2.68	2.60	33.00	8.49	74.08	208.33	15.28
9.	T ₉ (S ₃ L ₃)	2.34	2.48	2.67	31.67	8.22	59.42	190.00	11.26
	CD @ 5%	0.29	0.41	0.41	3.75	3.28	1.39	18.67	4.66

S.No	Treatments	Juice (%)	TSS (°Brix)	Acidity (%)	TSS/acid ratio
1.	T ₂ (S ₁ L ₁)	27.93	8.60	0.67	12.91
2.	T ₂ (S ₁ L ₂)	28.30	8.63	0.63	13.70
3.	T ₃ (S ₁ L ₃)	26.98	8.30	0.66	12.70
4.	T ₄ (S ₂ L ₁)	30.59	8.73	0.61	14.46
5.	T ₅ (S ₂ L ₂)	29.29	8.80	0.62	14.19
6.	T ₆ (S ₂ L ₃)	30.00	8.27	0.65	12.73
7.	T ₇ (S ₃ L ₁)	31.03	8.73	0.59	14.81
8.	T ₈ (S ₃ L ₂)	32.07	9.07	0.55	16.34
9.	T ₉ (S ₃ L ₃)	29.73	8.70	0.62	14.00
	CD @ 5%	3.07	0.43	0.09	2.28





Fertigation studies in citrus (sweet orange): Studies on effect of fertigation in 10 year old sweet orange plants (Table 7) revealed that application of 50 percent recommended dose of N and K₂O (800g N & 200g K₂O g/ tree/ year) through drip has recorded significantly higher canopy volume (23.83 m³) and fruit yield (413 fruits & 80.95 Kg/tree) with favourable fruit quality (41.69% juice and 10.13° TSS) followed by application of 100 percent recommended dose of N and K₂O (1500g N & 400g K₂O g/ tree/ year) through drip (T₁).

Treatments	Plant height (m)	Plant girth (cm)	Canopy volume (cu.m)	No. of fruits /tree	Av. Fruit weight (g)	Fruit yield (kg/tree)	Juice (%)	Titration acidity (%)	TSS (°)
T ₁	2.82	48.44	20.84	390.92	186.75	73.12	40.50	0.92	9.88
T ₂	2.82	44.81	18.95	350.35	184.25	64.51	40.25	0.91	9.88
T ₃	2.91	49.88	23.83	413.23	196.25	80.95	41.69	0.87	10.13
T ₄	2.88	50.94	21.82	385.27	182.50	70.84	39.88	0.98	9.80
CD@ 5%	0.28	5.87	0.83	1.61	0.15	1.73	0.82	0.07	0.05

T1:100% recommended dose of N & K₂O; T2:75% recommended dose of N & K₂O

T3:50% recommended dose of N & K₂O;

T4:Soil application of recommended dose of N & K₂O RDF- 1500g N: 350 P205 : 400g K20 g/plant/year

Orchard efficiency analysis in sweet orange:

Thirty five sweet orange orchards of Nellore district in Andhra Pradesh were surveyed and the data regarding yield potential have been recorded (Table 8). Soil and fruit samples were collected and analysed. With regard to pH of the soil, highest values were recorded in low yielding (8.3) followed by medium yielding (8) and the lowest pH in high yielding orchard (7.6).The soil nutrients were the highest in high yielding orchard (0.8% organic carbon, 21 kg/ha P₂O₅ and 350 kg/ha K₂O) followed by medium yielding orchards (0.7% organic carbon, 21 kg/ ha P₂O₅ and 300 kg/ha K₂O) and low yielding orchard (0.5% organic carbon, 25 kg/ha P₂O₅and 270 kg/ha K₂O.)

Observations also indicated that yields and quality parameters are highest in high yielding class (16t/ha .yield, 42% juice and 12.2° TSS) followed by medium yielding orchard (11.5 t/ha yield, 40% juice and 10.5° TSS) and low yielding orchard (9.5 t/ha yield, 34% juice and 9.4° TSS).

Table 8: Soil nutrition and fruit yield parameters in different categories of sweet orange orchards in Andhra Pradesh (2012-13)

Parameters		Low yielding Orchards	Medium yielding Orchards	High yielding Orchards
Soil	pH	8.3	8.0	7.6
	Ec (ds/m)	0.3	0.25	0.1
	OC (%)	0.5	0.7	0.8
	P ₂ O ₅ (kg/ha)	25.00	21.00	21.00
	K ₂ O (kg/ha)	270	300	350
	Fe (ppm)	5.5	11.0	18.5
	Zn (ppm)	0.6	1.0	2.5
	Mn (ppm)	17.5	19.0	21.0
	Cu (ppm)	1.5	2.00	1.98
	Fruit	Weight (g)	168	175
Juice (%)		34	40	42
TSS(°)		9.8	10.5	12.2
Acidity (%)		1.25	1.1	0.9
Yield (t/ha)		9.5	11.5	16.0

Identification of critical stage of water requirement in sweet orange

In identification of critical stage of water requirement in 6 years old sweet orange (Table 9), the treatment 80 % ER at all the stages recorded the maximum canopy volume (21.33 m³), number of fruits (96.67 fruits/plant) fruit yield (16.94kg/plant) and better quality fruits (40.33% juice and 10.07° TSS). Reduction in the irrigation from 80 to 30 PER during stage IV & V has resulted in significant reduction in growth and yield, indicating that stage-IV(March-April) and stage V(May-June) are critical stages of water requirement in sweet orange.



Table 9: Effect of critical stage of water requirement on growth and yield of Sweet orange at Tirupati (2012-13)

Treatments	Plant height (m)	Plant girth (cm)	canopy volume (cu.m)	Fruits per tree	Av.Fruit weight (g)	Fruit yield (kg/ tree)	Juice (%)	Tr. Acidity (%)	TSS (°Brix)
T ₁ (30-80-80-80-80-80% ER)	2.91	43.46	20.54	85.00	175.00	14.92	38.00	0.89	9.17
T ₂ (80-30-80-80-80-80% ER)	2.81	40.88	16.91	78.33	171.33	13.56	39.67	0.87	9.47
T ₃ (80-80-30-80-80-80% ER)	2.66	41.79	15.77	71.67	166.67	11.96	36.58	0.92	9.80
T ₄ (80-80-80-30-80-80% ER)	2.98	43.96	21.01	90.00	180.00	16.17	39.33	0.89	9.43
T ₅ (80-80-80-80-30-80% ER)	2.68	41.08	16.78	81.67	172.67	14.11	37.33	0.92	9.70
T ₆ (80-80-80-80-80-30% ER)	2.86	42.33	16.89	78.33	179.33	14.06	35.67	0.81	9.57
T ₇ (80-80-80-80-80-80% ER)	2.96	45.83	21.33	96.67	175.00	16.94	40.33	0.79	10.07
CD @ 5%	0.39	5.25	7.13	1.34	0.49	0.62	3.13	0.11	0.32

Standardization of stage wise water requirements in sweet orange:

The results on standardization of stage wise water requirement in 6 year old sweet orange (Table 10) Sathgudi budded on rangpur lime revealed that vegetative growth attributes found highest with irrigation at 60 and 80 PER alternately from stage I to stage VI (stem girth 41cm and canopy volume 13.62 m³). The highest fruit yield (96.67 fruits /tree and 16.96 Kg/tree) and quality parameters (Juice 42.22 % & TSS 9.58 Brix) were observed with 80 PER at all the stages. The reduction in the irrigation from 80 % ER to 30 % ER during any stage of growth has recorded reduction in yield from 16.96 Kg/tree to 11.97 Kg/tree. The treatment 30 ER at all the stages recorded poor vegetative growth and low yields by application of less total quantity of water.

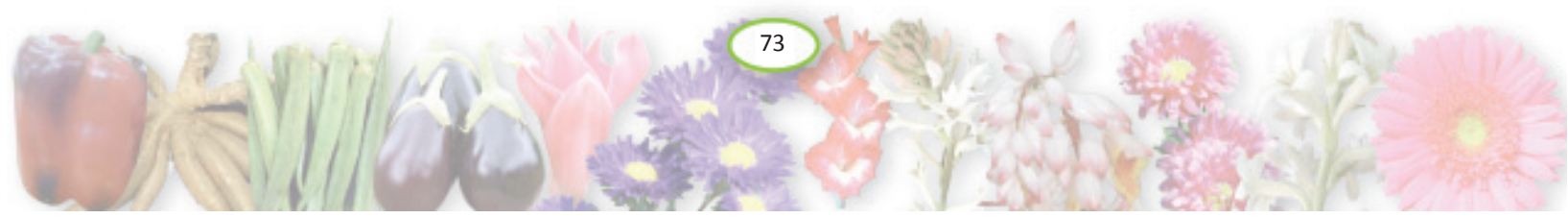
Table -10: Effect of stage wise irrigation requirement on growth and yield of sweet orange at Tirupati (2012-13)

Treatments	Plant height (m)	Plant girth (cm)	canopy volume (cu.m)	Fruits per tree	Av.Fruit weight (g)	Fruit yield (kg/ tree)	Juice (%)	Titration Acidity (%)	TSS (°Brix)
T ₁ - 30-40-30-40-30-40	2.55	40.08	11.48	83.33	175.00	14.44	38.66	0.64	8.81
T ₂ -40-60-40-60-40-60	2.79	40.17	11.12	85.00	173.25	14.87	40.26	0.65	8.92
T ₃ -60-80-60-80-60-80	2.64	41.00	13.62	90.00	180.00	16.25	41.16	0.61	8.96
T ₄ -80-80-80-80-80-80	2.42	37.00	11.66	96.67	185.00	16.96	42.22	0.57	9.58
T ₅ -30-30-30-30-30-30	2.33	30.50	8.55	80.00	171.50	11.97	37.79	0.68	8.63
CD @ 5%	0.30	3.01	4.37	18.83	8.61	2.00	3.06	0.08	0.38

Studies on irrigation and nutrient interaction in Sweet orange: Results on effect of irrigation and nutrient interaction for the second year after imposing treatments in 6 year old sweet orange plants revealed (Table. 11) that application of 90% ER and 80 % RDF recorded significantly highest yield (18.06 kg/ tree with 105 fruits) with high juice content (Juice 41.83 % and TSS 10.23 brix) and has given favourable growth attributes (plant height 2.7 m and plant canopy volume 12.46 cu.m).

Table 11: Effect of irrigation and nutrient interaction on yield in sweet orange at Tirupati (2012-13)

Treatments	Plant height (m)	Plant girth (cm)	Plant canopy volume (cu.m)	No. of Fruits / tree	Av.Fruit weight (g)	Fruit yield (kg/ tree)	Juice (%)	Titration Acidity (%)	TSS (°Brix)
T ₁ -I ₁ F ₁	2.28	29.75	7.94	56.67	186.00	10.57	37.93	0.86	9.33
T ₂ -I ₁ F ₂	2.29	29.92	8.21	60.00	181.67	10.88	37.95	0.91	9.20
T ₃ -I ₁ F ₃	2.30	32.67	8.32	78.67	177.67	13.99	39.00	0.87	9.30
T ₄ -I ₂ F ₁	2.34	33.25	9.41	83.33	176.00	14.67	40.37	0.88	9.37
T ₅ -I ₂ F ₂	2.43	33.42	9.81	86.67	171.67	14.88	39.72	0.89	9.33
T ₆ -I ₂ F ₃	2.42	33.42	9.84	93.33	171.33	15.99	39.92	0.85	9.70
T ₇ -I ₃ F ₁	2.44	33.56	9.84	90.33	168.33	15.21	40.37	0.83	9.90
T ₈ -I ₃ F ₂	2.53	34.17	10.62	95.00	172.33	16.38	41.08	0.82	10.10
T ₉ -I ₃ F ₃	2.70	36.08	12.46	105.00	171.67	18.06	41.83	0.80	10.23
CD@5%	0.54	0.69	1.04	16.36	6.68	3.11	2.59	0.11	0.74





Impact of climate variability on phenology, insect pests, diseases and productivity of citrus (Sweet orange): The experiment was started in six years old sathgudi sweet orange budlings. The observations on month wise weather parameters, crop phenology, pest and disease incidence were recorded (Table 13 & 14). Due to continuous rainfall from August to December the flowering was irregular. Maximum flowering was observed in trees during January, 2013 compared to November. Sweet orange pest calendar revealed that peak incidence of leaf miner was observed during December, January and July, 2012. Rust mite incidence was severe during April to August. Sweet orange disease calendar revealed that bacterial canker was severe during August to December. Greasy spot was recorded throughout the year with a peak incidence during October to November. High incidence of dry root rot was noticed during summer i.e. March to May. Fruit quality aspects are found to be good during August to September, 2012 (42% Juice and 10.4°TSS).

Table 13: Meteorological data 2012

Month	Temp (° C)		Relative Humidity (%)		Evaporation (mm)	Total Rain fall (mm)
	Max	Min	Morning	Evening		
Jan, 2012	29.81	17	84.29	51.45	3.7	4.2(1)
Feb, 2012	32.29	16.93	76.86	37.37	4.79	-
Mar, 2012	37.38	22.53	82.21	31.7	6.69	-
April, 2012	38.7	25.16	78.46	31.23	7.14	24.5(2)
May, 2012	39.46	27.29	67.70	32.54	8.12	101.5(5)
June, 2012	38.58	27.9	57.5	31.96	9.06	38(4)
July, 2012	35.3	25.77	69.58	43.25	6.29	206.5(6)
Aug, 2012	34.7	24.97	73.41	47.06	5.78	166(10)
Sep, 2012	34.33	24.62	78.86	50.03	4.25	70(6)
Oct, 2012	32.49	23.2	82.35	54.74	3.42	204.5(8)
Nov, 2012	30.72	19.79	83.2	55.1	3.09	149(5)
Dec, 2012	29.09	18.9	82.41	59.74	3.45	217(6)

Table 14- Incidence of major pests and diseases in sweet orange during 2012-13

S. No.	Month	Pests					
		Leaf niner	Butterfly	Rust mite	Canker	Greasy spoft	Dry root rot
1	January 2012	***	**	Nil	Nil	*	Nil
2	February 2012	**	*	*	Nil	*	*
3	March 2012	**	*	Nil	Nil	*	***
4	April 2012		Nil	***	Nil	*	***
5	May 2012	Nil	Nil	****	Nil	*	***
6	June 2012	Nil	*	****	*	*	**
7	July 2012	* * *	*	****	***	*	Nil
8	August 2012	*	Nil	****	****	*	Nil
9	September 2012	*	*	*		*	Nil
10	October 2012	*	*	Nil	****	***	Nil
11	November 2012	**	**	Nil	****	***	Nil
12	December 2012	***	**	Nil	****	**	Nil

*Low **medium *** high ****severe

SAPOTA

Horticultural Research Station, V.R.Gudem

In Spacing trial on Sapota Highest number of fruits and fruit yield /tree was recorded in 10 x 10m spacing (2111.44 and 108.58 kg tree⁻¹), while 5.0 x 5.0m spacing recorded maximum fruit yield ha⁻¹ (20.55 t.ha⁻¹). Cumulative yield from 2000-2012 was maximum in 5 x 5m spacing (126.36 t. ha⁻¹) followed by 7.5 x 5.0m (118.24 t. ha⁻¹) and lowest was recorded in 10 x 10m spacing (65.84 t.ha⁻¹). Maximum Canopy volume was recorded in 10 x 10m spacing (327.70 m³).





Effect of inorganic and organic fertilizers on Sapota studies, data presented indicates that there are no significant differences in growth characters for all the treatments, while plant height was maximum in T4 (40 kg FYM + 350 g N + 50 P₂O₅ + 450 g K₂O) (7.07m) and canopy volume was maximum in T5 (40 kg FYM + 50 P₂O₅ + 450 g K₂O) (466.31m³). Number fruits and yield per tree were highest in T7 (2816.50 and 173.18 kg and 17.32 t/ha). Cumulative yield (1999-2012) was highest in the plants receiving 10 kg vermicompost + 350 + 50 + 450 g NPK/plant (88.30t.ha⁻¹).

In fertigation studies on Sapota, growth and yield data presented revealed that the highest plant height (5.98 m) was recorded in T6 (50% recommended dose of N & K₂O + 20 kg FYM with drip irrigation) and canopy volume (220.93 m³) in T2 (75% recommended dose of N & K₂O). Maximum fruit number and yield per tree (610, 43.43 kg and 4.37 t/ha) was recorded in T3 (50% recommended dose of N & K₂O). Cumulative yield from 2006 to 2012 was maximum (18.96 t.ha⁻¹) in T1 (100% recommended dose of N & K₂O).

In Orchard efficiency analysis of Sapota, collected yield data from the selected sapota gardens in the West Godavari district and classified them into three categories based on their yield. Among the orchards (36 no's) surveyed 11% were low yielding, 72% were medium yielding and 17% were high yielding. Soils of high yielding orchards recorded 5.98 soil pH, 0.11 EC, 0.18% organic carbon, 149.54 kg.ha⁻¹ available nitrogen, 21.84 kg.ha⁻¹ available P₂O₅ and 257.92 kg.ha⁻¹ available K₂O. The leaf analysis showed that high yielding orchards had 1.32% N₂, 0.23% P₂O₅ and 1.54% K₂O.

Studies on residual and cumulative effect of nutrients in sapota, the maximum plant height (1.92m) and canopy volume (4.03m³) was recorded in T9 (application of 1/8 of RDF for 1 to 8 years) and plants are in pre-bearing age.

Canopy management under high density planting in sapota studies, data presented is revealed that the results were non-significant. The plant height was maximum in T7 and maximum canopy volume in T8. Plants are in pre-bearing age.

In standardization of stage wise requirement of nutrients in sapota, Data recorded revealed that growth data was not significantly different. T4 i.e. in 100% RDF, 25% N, 100% P₂O₅ & 25% K₂O during June, 50% N & 50% k₂O during August remaining 25% N & 25% K₂O during October application recorded maximum yield (144.24 kg and 14.42 t/ha).

Studies on seed germination in Sapota, minimum number of days (37) taken for germination in T9 (Potting mixture with Azatobacter, Trichoderma, Pseudomonas & AM fungi) while it was maximum in T5 (Soaking in KNO₃ 0.25%/ 24 hrs), T7 (Soaking in hot water 70°C for 24 hrs), T8 (Scarification of seed with sand paper) & T11 (Soaking in Cow dung water / 24 hrs). Per cent seed germination was lowest in T7 (Soaking in hot water 70°C for 24 hrs) and highest in T₁₂ (Control without Soaking). Maximum root length was observed in T_i (Soaking in GA 100 ppm/ 24 hrs) and minimum in T₇ (Soaking in hot water 70°C for 24 hrs). Highest plant height and internodal length was observed in T₁₂ (Control without Soaking) but maximum number of leaves, leaf length and leaf width was observed in T₂ (Soaking in GA 200 ppm/ 24 hrs).

Studies on shelf life of different varieties of sapota, Pala variety recorded the highest titrable acidity (0.24%) and physiological weight loss percentage (19.72%). Virudhnagar recorded the more TSS (24.51° Brix) and ascorbic acid content (6.86 mg/100g). Singapore recorded the highest percent of reducing sugars (6.82%). Highest shelf life of 8.27 days was observed in Kalipatti where as it was lowest (5.88 days) in Pala variety of sapota.

Horticultural Research Station, Mallepally

Effect of Integrated Nutrient Management on yield and quality of Sapota var Kalipatti.

Highest yield (53.64 kg/tree) was recorded in 5 treatment (Inorganic 50 % + 25 % FYM + 25 % Neem cake).

BANANA

Horticultural Research Station, Mahanandi

Comparative Yield Trial with banana cv. Sugandham and G. Naine

In this Grand naine is having more no of fruits (143.28), more length of the fruit (19.56 cm), more fruit wt (149.35 gm/one banana) when compared to Sugandham in 2X2 m spacing. In double row planting with 1.2X2X1.2 m spacing, more yield (61.14 t/ha) was recorded in Grand naine and yield of sugandham is very less (42.74 t/ha) as the plant height is more and got damaged due to heavy winds.



Horticultural Research Station, Kovvur

Validation of fertilizer adjustment equation in banana cv. Martaman.

No significant difference was observed among the treatments with regards to growth parameters and bunch characters in both plant and ratoon crops. However, the no. of fingers in second hand are reported to be more in T_8 (169.24 : 28.55 : 219.78 NPK g/plant) and T_4 (120.34 : 21.16 : 113.5 NPK g/plant).

Studies on Irrigation and Nutrient interaction in banana cv Grand Naine

Data on vegetative parameters with regard to irrigation levels and fertilizer levels no significant difference was observed in plant height and plant girth. However, in irrigation level I_3 (90ER %) recorded significantly higher no of total leaves per plant. Similarly, no. of green leaves is also reported to be significantly higher with application of irrigation at 90ER% (I_3). But with regards to yield and yield attributes there was no significant difference among the treatments. The ratoon crop is in progress.

Standardization of Organic nutrient schedule in banana cv. Robusta/Grand Naine

No significant differences were observed among vegetative parameters except in case of green leaves/plant. The no. of green leaves plant⁻¹ were higher in T_1 (FYM @10kg, Neem cake@1.25kg and vermicompost@5kg/plant) followed by inorganic treatment (T_{11} - N300g+ P100g+ 300g K per plant). Similarly, per ha yield was significantly high (75.60t ha⁻¹) in inorganic treatment (T_{11}) and it was at par with other organic treatments except T_2 (FYM @10+ Neem cake@ 1.25+ Vermicompost@5kg+ Wood ash @3.75kg/plant), T_4 (FYM @15kg+Neem cake@ 1.875kg+ Wood ash@2.625 kg+ Vermi-compost@7.5kg/plant) and T_5 (N_0+K_0) and T_7 (AMF (25g) *Azospirillum* @50g, PSB@ 50g and *T. harzianum* @50g/plant).



Organic banana cv Grand Naine (35 kg bunch)

Standardisation of nutrient requirement for tissue culture banana cv. Grand Naine

Application of 200-50-200 g NPK per plant at 15 days interval in 10 equal splits from 15th day to 150 days consistently recorded higher yield ha⁻¹ (53.63 t ha⁻¹ and 61.25 t ha⁻¹) during 2010-11 and 2011-12 respectively.

Evaluation of culinary cultivars of banana

The culinary cultivar FHIA -3 recorded significantly higher yield of 51.03 t ha⁻¹ and it was on par with Kothia (47.28t ha⁻¹) and Bangrier(46.04t ha⁻¹).

Effect of micronutrients on growth and yield of Amorphophallus

Foliar spray of (T_6) $FesO_4$ (0.2%) + $MgSO_4$ (0.2%) recorded significantly higher yield of 20.37 t ha⁻¹ and it was on par with(T_7) $FesO_4$ (0.2%) + $Mgso_4$ (0.2%), $Znso_4$ (0.2%) + H_3Bo_4 (0.2%), T_5 ($Znso_4$ (0.2%) + $MgSO_4$ (0.2%) and T_4 $Znso_4$ (0.2%) + $FesO_4$ (0.2%) recording 19.67,18.63 and 18.33 t ha⁻¹ respectively.

Studies on Post harvest behaviour in pre released cultivars of banana

Among different pre released cultivars tested, Yamgambi Km 5 recorded highest shelf life of 12 days with 21.5 TSS under ambient conditions.

Studies on stage wise (sub cultures) proliferation efficiency of different banana cultivars (AAA, AAB and ABB) in micro propagation

Among different cultivars kept for initiation, Grand Naine, DC and started proliferating at C_1 subculture stage, whereas in Martaman and KC keli proliferation was noticed from C_3 subculture stage and highest proliferation was observed in Grand Naine (2.4) and DC (2.25). Further subculturing is in progress.

Effect of plant density and nutrients on quality and productivity of banana cv. Martman

Among various treatment combinations, highest productivity was obtained in S_3F_1 (2.5 × 1.25 × 1.25 m spacing and 100% RDF) (64.0 t/ha) followed by S_3F_2 (2.5 × 1.25 × 1.25 m spacing and 75% RDF) (63.61 t/ha). However, the highest B:C ratio was obtained in S_3F_3 (2.5 × 1.25 × 1.25 m spacing and 50% RDF).





Effect of micronutrients on productivity and quality of banana cv. Martaman

Foliar spray of (T_7) $ZnSO_4$ (0.2%) + H_3BO_3 (0.2%) + $FeSO_4$ (0.2%) and (T_8) Arka banana special recorded significantly higher yield of 40.88 t ha⁻¹ and 40.66 t ha⁻¹ respectively as compared to other treatments. The no. of fruits per hand were also reported to be higher in above treatments.

GUAVA

Horticultural Research Station, Darsi

An experiment was planted with an objective of Standardization of training and pruning practices in hedge row planting. Under this experiment two varieties namely Allahabad Safeda and Lalith were planted during the year 2010 and 2011 respectively. At present Allahabad safeda is flowering and fruiting stage and Lalith is vegetative stage.

Fruit Research Station, Sangareddy

To study the effect of mulching on yield and quality of guava under meadow system of planting. Fertigation trial and mulching trial will be taken up in 2013-14. Drip line has been laid out for fertigation trial.

Standardization of Training and pruning practices for hedge row planting in guava crop The combination of 10 cm pruning intensity with 30 fruits pre tree has recorded maximum fruit diameter (7.87 cm).

The treatment combination of second order shoot pruning with 50 fruit load has recorded the minimum number of days taken for harvesting at colour turning stage (105.13).

The maximum average fruit weight at harvest (270.26 g) was recorded with 10 cm pruning followed by 30 cm pruning (242.58 g).

Pruning of first order shoot upto 30 cm intensity has recorded the maximum fruit yield per hectare (17.74 t).

Augmentation and evaluation of guava germplasm

Maximum number of fruits tree⁻¹ (1014) was recorded in Variegated guava. Maximum fruit yield tree⁻¹ was recorded in Kohir Red (128.90 kg tree⁻¹) The cumulative yield for 9 years showed that maximum fruit yield was recorded in Lucknow-46-2 (739 kg tree⁻¹). Maximum average fruit weight (221 g) was recorded in Arka Mrudula. The TSS was maximum in FRS Selection (13.3°B).

Varietal trial in guava

Maximum fruits tree⁻¹ (108) and yield (15.75 kg tree⁻¹) was recorded in Lucknow-49. Maximum fruit weight was recorded in red fleshed (148 g). Maximum fruit length (6.4 cm) and fruit breadth (4.6 cm) was recorded in Chittidar.

Horticultural Research Station, Aswaraopet

During the Second year (2011-12) highest numbers of fruits were recorded in 1.5x2.0 spacing in tattora system and branching at 1 meter height (15.67) which is on par with other treatments in same spacing. Where as highest yield per acre is recorded in case of 1x1 m spacing where in number of plants accommodated per acre is more. Highest yield is recorded in 1x1 m spacing with vertical single stem at 1 m height and 3-4 branches (5.47 t/ac) which is on par with other treatments in same spacing.

JACK FRUIT

Horticultural Research Station, V.R.Gudem

In studies on standardization of propagation methods for Jackfruit, Approach method of grafting has recorded maximum success of 90.00%. Softwood and epicotyl grafting methods were found to be not successful.

Effect of rootstocks on the performance of Jackfruit, data revealed that maximum plant height and canopy volume was recorded in Pechiparai on jack rootstock (5.60 m and 102.99 m³). Yield was obtained only from Palur on Jack rootstock (1.2 kg per tree)



ACID LIME

Horticultural Research Station, Darsi

Performance of Acid lime selections/varieties suitable to Prakasam District. Under this project six varieties namely Pramalinni, Balaji, Petlur Selection-1, TAL 94/13, TAL-94/14 and RHRL-124 were planted in the month of September-2012.

Citrus Research Station, Tirupati

Regulation of flowering in acid lime (*C. aurantifolia*, Swingle) (Observational trial):

The treatment with foliar spray of GA3 (50 ppm) in June followed by cycocel (1000 ppm) in September combined with KNO₃ (1%) foliar application in October has recorded the highest fruit yield (706.67 fruits and 34 kg/tree) with good quality (33.67 ml of juice and 6.93° TSS) in eleven year old acid lime Balaji plants during summer (Table.12).

Table 12: Effect of plant growth regulators on fruit yield of acid lime Tirupati (2012-13)

Treatments	Fruit Weight(g)	No. of fruits/ tree	Yield/tree (kg)	Juice(ml)	TSS(°)
T ₁	34.33	496.67	20.00	28.00	6.40
T ₂	38.00	601.67	26.00	28.67	7.06
T ₃	38.33	627.67	30.00	30.00	7.05
T ₄	40.00	706.67	34.00	33.67	6.93
T ₅	39.07	636.67	32.33	32.00	6.83
T ₆	37.67	583.33	28.00	30.00	6.95
T ₇	39.00	586.67	28.33	29.67	6.73
T ₈	35.33	590.00	26.00	30.33	6.83
T ₉	36.67	566.67	26.00	28.33	6.83
T ₁₀	37.00	566.67	24.67	30.67	6.50
T ₁₁	33.00	578.67	26.33	29.32	6.59
CD@5%	3.03	0.78	2.85	2.54	0.06

- T₁-Control (water spray),
- T₂-GA 50 ppm June + Cycocel 1000 ppm September,
- T₃-GA 100 ppm June + Cycocel 1000 ppm September,
- T₄-T₂ + KNO₃ 1% in October
- T₅-T₂ + KNO₃ 2% in October,
- T₆-T₂ + Salicyclic acid 100 ppm in October,
- T₇-T₂ + Salicyclic acid 100 ppm in October,
- T₈-T₃ + KNO₃ 1% in October,
- T₉-T₃ + KNO₃ 2% in October,
- T₁₀-T₃ + Salicyclic acid 100 ppm in October,
- T₁₁-T₃ + Salicyclic acid 200 ppm in October

Impact of climate variability on phenology, insect pests, diseases and productivity of citrus (Acid lime):

The experiment was started in ten years old acid lime seedlings (Balaji). The observations on month wise weather parameters, fruit quality parameters, pest and disease incidence were recorded (Table 15). Flowering was observed during December and March. Acid lime pest calendar revealed that leaf miner peak incidence was observed during December, January and July, 2012. Rust mite incidence was severe during April to August. Acid lime disease calendar revealed bacterial canker was severe during August to December. Twig blight during January to March. High incidences of dry root rot and longitudinal bark and wood splitting disease (LBW) incidences were noticed during March to May. Acidity and juice percent was also found highest [6.9% and 35% respectively] during January- March.





Table 15: Incidence of major pests and diseases in A cid lime during 2012-13

S. No.	Month	Pests					
		Leaf niner	Butterfly	Rust mite	Canker	Dry rootrot & LBW	Twig blight
1	January 2012	***	**	Nil	Nil	Nil	**
2	February 2012	**	*	*	Nil	*	**
3	March 2012	**		Nil	Nil	***	**
4	April 2012	*	Nil	***	Nil	***	Nil
5	May 2012	Nil	Nil	****	Nil	***	Nil
6	June 2012	Nil	*	****	*	**	Nil
7	July 2012	***	*	****	***	Nil	Nil
8	August 2012	*	Nil		****	Nil	Nil
9	September 2012	*	*	*	****	Nil	Nil
10	October 2012	*		Nil	****	Nil	Nil
11	November 2012	**	**	Nil	****	Nil	Nil
12	December 2012	***	**	Nil	****	Nil	*

*low **medium *** high ****severe

Citrus Horticultural Research Station, Petlur

17 released and pre-released acid lime volume of acid lime have established well and are in bearing stage. Among them CRS – 1, CRS 21, Tenali are highly precocious followed by TAL-94-14 even though very high yielding the juice content is less and less preferred.

The result indicated that different potting potting mixtures has got significant influence on the growth of the seedlings. It was observed that treatment (T4) i.e Red Soil + FYM + VAM + Pressmud produces significantly very vigorous seedlings than any other treatments and it was observed that in T4 maximum Plant height (57.78 cm), Fresh weight of seedling (33.63 gm), Dry wt of the seedling (17.4 gm) and total dry matter % (17.4%) was observed and the T1 i.e Red Soil + FYM + VAM + Vermicompost produces less vigorous seedlings.

POMEGRANATE

Fruit Research Station, Sangareddy

Effect of stress and defoliant on flowering behavior of Pomegranate Cv. Bhagawa.

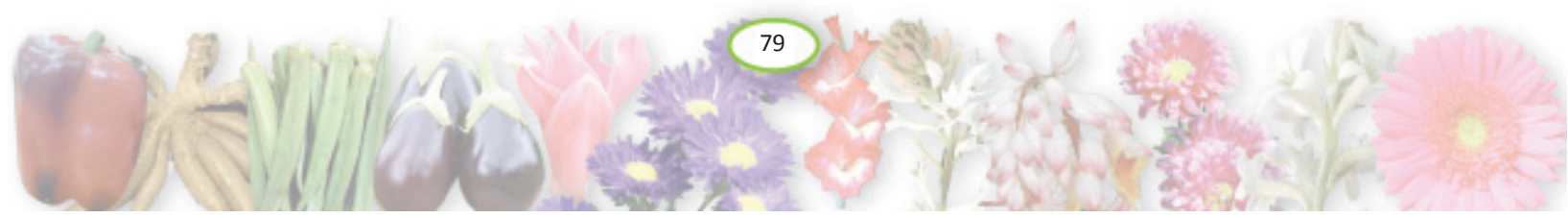
Bhagwa saplings were procured from department of Horticulture nursery, Anantapur and planted in the main field in the month of November, 2009. Treatments imposed stress levels in the month of October, 2012, December, 2012 and February, 2013 defoliant chemicals 3 with 6 concentrations (viz Ethephon – 1500 PPM, 2000 PPM, Urea (5% & 10%) , Thiourea 0.1% & 0.2%) for the year 2012-13. Due to physiological disorder stunted poor vegetative growth was noticed. The malformation was noticed in $\frac{3}{4}$ the of plant population for this pruning, micro nutrient sprays was also taken. There is no change in plant stature Hence, the experiment will be repeated after recovery of malformation of pomegranate plants during the year 2013-14.

Horticultural Research Station, Anantapuram

Effect of different Nitrogen and Water Regimes on Nitrogen Use Efficiency and Water Savings in Pomegranate (Cv. Bhagawa)

The experimental plants were planted in September 2008 in a 3×3 Factorial in Split plot design with the three water regimes based on cumulative pan evaporation (CPE) with IW/CPE of 1.0, 0.8 and 0.6 and three nitrogen levels 100%, 75% and 50 % of recommended dose of nitrogen at monthly intervals. Recommended dose for 3 year old plants is 500 g N, 125 g P, 125 g K. Water and Nitrogen regime treatments for second season were initiated.

Growth parameters non-significant results were achieved during the year 2012 (Table.17). Fruit quality parameters indicated significant effect of water regimes and N levels in terms of fruit weight, yield and N use efficiency. Highest fruit weight was recorded in control (272 g) where 100% RDN of nitrogen with daily irrigation,





however, with IW/CPE of 0.6 and 50 % RDN least fruit weight was recorded (114 g). Highest yield was also recorded in IW/CPE 0.8 and 75% RDN (6.86 kg/plant), IW/CPE 1.0 and 75% RDN (6.78 kg/plant) and control (6.67 kg/plant), However, N use efficiency was highest (10.48 kg fruits/kg N applied) with IW/CPE of 0.8 and 75 % RDN followed by IW/CPE 1.0 and 75% RDN and IW/CPE and 50% RDN (Table.18).

Table 17. Effect of different water regimes and Nitrogen levels on growth parameters of pomegranate (Cv. Bhaguwa) during 2012

Treatments			Growth Parameters		
IW/CPE ^y	% of RDN ^z	Plant height (cm)	Plant Spread (cm)		No. of Stems
			North-South	East-West	
1.0	100	136.11	127.78	123.33	3.67
	75	140.00	121.11	118.89	3.11
	50	142.22	127.78	127.78	3.89
0.8	100	136.67	126.67	117.78	3.33
	75	134.44	133.33	128.89	4.44
	50	130.00	114.44	117.78	3.33
0.6	100	141.11	125.56	131.11	3.56
	75	144.44	130.00	138.33	4.00
	50	136.67	114.44	117.78	3.56
	Control	170.00	180.00	187.78	5.00
IW/CPE		NS	NS	NS	NS
% of RDN		NS	NS	NS	NS
Interaction		NS	NS	NS	NS

^y Irrigation regimes based on Irrigation Water/Cumulative Pan Evaporation ratio

^z RDN indicates Recommended Dose of Nitrogen (at 2 yr RDN = 250 g/plant)

NS, *, **, *** indicates non-significant, significant at P=0.5, 0.01 and 0.001, respectively.

Table 18. Effect of water regimes and Nitrogen levels on fruit quality parameters and yield of pomegranate (Cv. Bhagwa) during 2012 (Dt of Planting Sept 2008)

Treatments		Fruit quality parameters			Yield	NUE ^z (kg fruit yield
IW/CPE ^x	% of RDN ^y	Fruit wt (g)	wt of 100 arils (g)	TSS (°Brix)	(kg/pl)	/kg N applied)
1.0	100	224.67	29.97	16.93	6.16	6.47
	75	239.00	27.08	17.57	6.78	10.27
	50	210.67	24.96	17.87	5.53	10.40
0.8	100	202.00	28.96	18.30	5.75	5.64
	75	210.00	27.15	18.33	6.86	10.48
	50	189.67	26.33	18.50	4.81	7.53
0.6	100	127.00	25.33	18.60	2.55	-0.76
	75	123.67	24.71	18.50	2.46	-1.26
	50	114.00	23.83	18.83	2.33	-2.40
	Control	272.33	29.29	15.33	6.67	7.37
	Unfertilized (N) control	175.00	26.49	15.67	3.10	
IW/CPE		***	NS	NS	***	**
% of RDN		**	NS	NS	***	**
Interaction		NS	NS	NS	**	**

^x Irrigation regimes based on Irrigation Water/Cumulative Pan Evaporation ratio

^y RDN indicates Recommended Dose of Nitrogen (for 3 yr old plants RDN = 500 g/plant)

^z NUE is Nitrogen Use Efficiency [NUE = (Yld of fertilized × Yld of unfertilized plants)/kg of N applied]

NS, **, ***, indicates non-significant, significant at P=0.01, and 0.001, respectively.





Effect of different mulching material on growth and yield of pomegranate (Cv. Bhaguwa)

Pomegranate (Cv. Bhaguwa) grafts have been multiplied and planted in the field. Recorded data on growth parameters. Maximum plant height (77.5 cm), number of branches (3.4) and plant spread (55.3 cm EW – 52.0 cm NS) were recorded in T2 - 100 microns polythene mulch (silver color) was used. The weed density was low in T3-100 microns polythene mulch (black color)(2.6 plants/sq.m) followed by T2-100 microns polythene mulch (silver color)(3.0 plants/sq.m) (Table.24).

Table – 24: Growth parameters of pomegranate Cv. Bhaguwa under different mulch material

DOP – June, 2012

Treatments	Treatment details	Plant height (cm)	No. of branches per plant	Plant Spread (cm)		Weed density (Plants per Sq.m)
				EW	NS	
T1	200 microns woven polypropylene ground cover	76.3	2.8	50.6	46.6	11.9
T2	100 microns polythene mulch (Silver color)	77.5	3.4	55.3	52.0	3.0
T3	100 microns polythene mulch (black color)	70.2	2.8	48.5	50.0	2.6
T4	Organic mulch(groundnut shells)	70.2	2.7	51.3	48.5	7.6
T5	Control (without mulch)	72.4	3.3	53.1	51.6	8.1
	SE.m +	3.28	0.19	3.58	4.86	0.63
	CD at 5%	7.14	0.41	7.81	10.58	1.38
	C V %	6.21	8.85	9.79	13.81	15.92

PASSION FRUIT

Horticultural Research Station, Aswaraopet

Significantly highest fruit number (20.52) and fruit yield (932.02g/pl) was recorded in Bowers system. However, there is no significant difference in TSS and Fruit weight among different treatments.



Passion Fruit Trial



Passion Fruit

Horticultural Research Station, Pandirimamidi

Standardization of variety and training system of passion fruit for the agency areas of East Godavari Dist.

Highest fruit number was recorded in Bower system (61.2nos) with highest fruit weight (68.5g).

PAPAYA

Horticultural Research Station, Anantharajupet

Papaya variety Pusa Nanha was introduced and is in bearing stage.

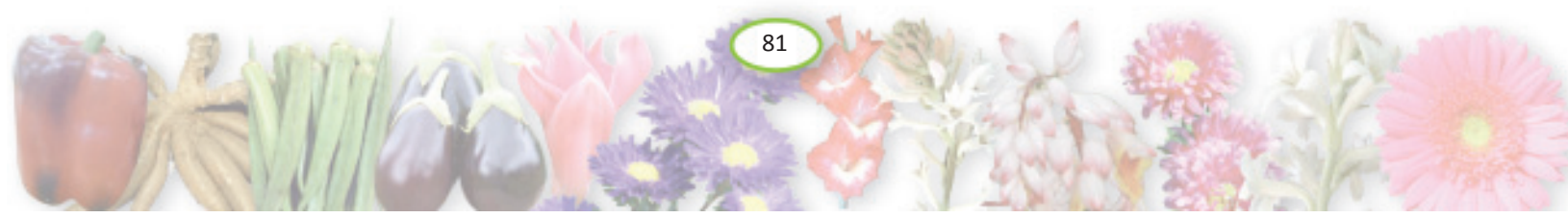
Among two varieties i.e Red Lady and Prabhat tested highest number of fruits per plant was recorded in Prabhat (41.0) where as Mean fruit weight is more in case of Red Lady (1.54 kg) as against 1.03 Kg in Prabhat. Total yield is highest in case of Red Lady (34.75 T/Ac) as against 28.23 T/Ac in case of Prabhat. Incidence of viral diseases was not observed in both the varieties.



MINOR AND ARID FRUIT CROPS

Horticultural Research Station, Darsi

Performance of Minor and Arid fruit suitable to Prakasam District. Under this project nine crops like Ber, Custard apple, Karonda, Pomegranate, Sapota, Tamarind, Aonla, Beal, Wood apple, Jamun, Indian Tamarind and Jack fruit were planted in the month of September and November-12.





FLOWERS

MARIGOLD

Floriculture Research Station, Rajendranagar

Studies on year round flower production in marigold

During 2012, in African marigold var. Pusa Naringa Gaiinda, plantings were attempted at monthly intervals and found that, the growth characters i.e plant height(80.62cm), plant spread (57.88cm) and duration of planting (34.51 days) were maximum in July planting crop. Early flowering was noticed in Nov planting (21.45 days), while late flowering was observed in June planting crop (58.57 days). The flower characters like flower weight and more no. of flowers/plant were observed in August planting.

In French marigold var. Local the growth characters were maximum in July planting, while more number of branches per plant was observed in August planting(17.37). Early flowering was recorded in October planting (38.70 days). While all the flower characters including the flower yield (201 flowers/pl) and flower weight (4.69 g/pl)was maximum in July planting.

Horticultural Research Station, Mahanandi

Identification of marigold varieties for commercial cultivation in Rayalaseema region.

Among 11 varieties of marigold tested, the variety Rama Kuppam selection recorded more flower yield (11.97 t/ha) and the variety Pusa Basanti Gaiinda registered flower yield of (10.89 t/ha) when compared to other varieties. Lowest yield was noted from the variety Local Yellow (8.17 t/ha).

JASMINE

Horticultural Research Station, Mahanandi

Standardization of techniques for continuous growth and flower production in Jasmine (RKVY)

More flower yield (606/picking) was recorded in the treatment with Defoliation + pruning in January + pinching new shoots. More weight of the flowers (102.5g) was recorded Defoliation + pruning in February + pinching new shoots in Jasmine.



GLADIOLUS

Floriculture Research Station, Rajendranagar

Effect of chemicals on weed control in gladiolus

The studies on effect of herbicides in gladiolus variety 'White Prosperity' for the three consecutive years from 2010-11 to 2012-13 revealed that, Metribuzin @0.25 kg a.i./ha has effectively controlled the weeds(35.51 weeds/m²) which is at par with all other treatments including weed free check (56.19 weeds/m²) but are significantly more effective over weedy check control (94.55). Regarding the effect of chemicals on vegetative and floral characters Pendimethalin@ 1.0kg a.i./ha.was effective in showing maximum plant height (91.20cm) spike length(87.42cm) and highest spike weight (53.26g). The same chemical at 0.75kg a.i./ha resulted in maximum rachis length (37.56cm) and diameter of 2nd floret(9.84cm).

So, it was concluded that, though metribuzin. is equally effective to other chemicals in controlling weeds, it showed negative effect on floral characters and thus Pendimethalin at both concentrations is the safest herbicide in gladiolus.

Horticultural Research Station, Mahanandi

Staggered planting technologies for extending the availability of gladiolus flower (RKVY)

In the Gladiolus variety **Swarnima**, more diameter of flower was observed in Corm sowing on October 30th (9.73 cm) followed by Corm sowing on October 30th (9.61 cm). More no. of flowers per spike was observed in Corm sowing on November 15th (12.98) followed by Corm sowing on November 30th (12.23).





In the Gladiolus variety **Shubhangini**, diameter of flower was observed more in Corm sowing on October 30th (9.37 cm) followed by Corm sowing on November 15th (9.34 cm) and No. of flowers per spike was observed more in Corm sowing on November 15th (17.01) followed by Corm sowing on November 30th (16.95).

Horticultural Research Station, Anantharajupet

Evaluation of Gladiolus cultivars for quality cut flower production:

Under this trial 25 Gladiolus varieties corms were collected and planted at HRS, Anantharajupet. Among 25 accessions (from ARI, Rajendranagar and IARI, New Delhi) Amsterdam recorded maximum spike length (90.4 cm) followed by Alexander the Great (86.6 cm), number of flowers per spike was maximum in AC.No.7 (17.4) followed by Amsterdam (16.2) whereas lowest number of flowers per spike was recorded in Invitatie (6.0). Number of cormels per plant was maximum in Purple Flora (66.00) least was recorded in Mascagni (0.25)



CHRYSANTHEMUM

Floriculture Research Station, Rajendranagar

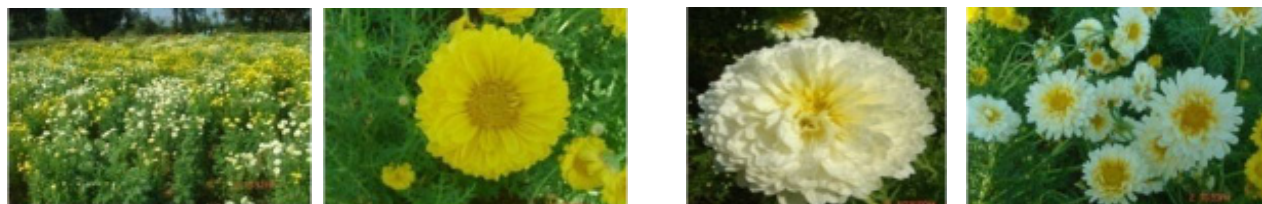
Effect of chemicals on weed control in spray chrysanthemum

The effect of herbicides in chrysanthemum was conducted for three consecutive years from 2010-11 to 2012-13 and the pooled data revealed that Pendimethalin @ 0.75kg a.i/ha and 1.0Kg a.i/ha were very effective in controlling the weeds in chrysanthemum. The yield and yield attributing characters i.e. no. of sprays /plant, spray length, no. of flowers/spray, flower diameter, flower weight and no. of flowers/plant were found to maximum with the application of pendimethalin at both the concentrations over the other treatments. Maximum benefit: cost ratio of 3.45 was observed with Pendimethalin @ 0.75kg followed by Pendimethalin @ 1.0Kg a.i/ha (3.34).

Horticultural Research Station, Anantharajupet

An observational trial was conducted to study the performance of garland

Seeds of yellow and white varieties of Annual Chrysanthemum (*Chrysanthemum coronarium L.*) were collected from ARI, floriculture, Rajendranagar. Among them white coloured garland chrysanthemum performed well with 230.6 flowers per plant compared to yellow with 185.0 flowers per plant.



GARLAND CHRYSANTHEMUM
(*Chrysanthemum coronarium L.*) - Yellow

GARLAND CHRYSANTHEMUM
(*Chrysanthemum coronarium L.*)- white

TUBEROSE

Floriculture Research Station, Rajendranagar

Integrated nutrient management in Tuberose

Studies on INM in tuberose cv. "Hyderabad Double" revealed that all the vegetative and floral parameters differed significantly with the treatments. Among different INM treatments using FYM, Vermi compost, azospirillum and phosphate solublizing (PSB) bacteria, T4 (75% RDF + FYM+ VC + Azo + PSB) showed best results by improving





the yield(27.16 spikes per plot) which was on par with T1(100%RDF + FYM) (25.50 spikes per plot) and the floral characters like highest rachis length(29.83cm) and more no. of florets per spike (49.80). T1 (100% RDF + FYM) was significantly superior at characters like plant height(54.78), more no. of leaves per plant(21.55) and spike length(97.59cm).

FOLIAGE PLANTS (AGLAONEMA AND SCHEFFLERA)

Standardization of suitable containers for foliage plants

Two species of foliage plants i.e *Aglaonema* and *schefflera* were planted in 3 different containers with three different sizes. The results revealed that in *Aglaonema*, the growth response in terms of plant height and no. of leaves/plant were maximum in ceramic containers with maximum size of 25cm. Leaf length (26.0cm) was more in earthen containers of 25cm size which was on par with plastic and ceramic containers of same size. The production interval of leaves was minimum in ceramic containers of 25cm size (36.33 days) followed by earthen containers of 15cm size.

In case of *schefflera*, the plant growth showed good response in earthen container of all sizes with maximum differential height showed in earthen containers of 25cm size. Difference in no. of leaves produced (9.16) was maximum in large sized ceramic containers, while the leaf length (11.0cm), leaf width(10.42cm) and petiole length (12.45cm) were maximum in earthen containers of 25cm size.

Standardization of media composition for foliage plants

Two ornamental foliage plants i.e *Aglaonema* and *Schefflera* were planted in different potting media during 2012-13. The results revealed that, in *Aglaonema*, the growth response in terms of plant height was maximum in T1 (Soil + sand + FYM (2:1:1) with 6.97cm increase in growth over the initial plant height followed by T7 (Cocopeat + sand + FYM + vermicompost) with 6.30cm. More no. of leaves were produced i.e 5.66 leaves over the initial no. of leaves in T5 (Cocopeat + sand + FYM (2:1:1), while all the leaf characters leaf length (37.20cm), width (8.27cm) and leaf area (225.0cm²) were maximum in T6(Cocopeat + sand + vermicompost (2:1:1).

In *Schefflera*, maximum increase in plant height (8.25cm) and no. of leaves produced over the initial (5.67) was noticed in T3 (Soil + sand + FYM + vermicompost(2:1:1.0:0.5) followed by T2. Leaf length (10.10cm) and width(10.18cm) were maximum in T7 (Cocopeat + sand + FYM + vermicompost (2:1:1.0:0.5), while maximum petiole length (12.43cm) and petiole girth(3.23mm) were observed in T3 (Soil + sand + FYM + vermicompost).

Maintenance of compact growth form in foliage plants suitable for pot culture using growth retardants

In *Aglaonema*, with the application of growth retardants like paclobutrazol and Ancymidol at different concentrations, the increase in growth was drastically reduced with paclobutrazol at higher concentration of 0.25 mg drenching / pot and very less no. of leaves and minimum increase in canopy width was observed with ancymidol (1.0mg/pot). Also minimum diameter of stem and minimum leaf area was noticed with ancymidol 1.0mg/pot and paclobutrazol 0.25mg/pot respectively.

In *Schefflera*, growth in terms of plant height and no. of leaves/plant were drastically reduced with paclobutrazol 0.25mg/pot followed by Ancymidol 1.0mg/pot. Similarly leaf length (5.07cm) and width (5.07cm) were significantly reduced with paclobutrazol 0.25mg/pot. The interval of days for leaf production was minimum with paclobutrazol 0.1875mg/pot.

GERBERA

Horticultural Research Station, Pandirimamidi

Studies on the production of gerbera under polyhouse conditions.

Among the 6 varieties plant spread was found non significant. Leaf no. was significantly highest Debora where as in other varieties it is on par with each other. No.of suckers were highest in Banasha followed by Debora and Avemaria.

Days taken from bud burst to bud opening were lower in Banasha (8.66) followed by tambre,Esmara and Debora. Mamut taken maximum number of days for opening.(12.25). number of flowers per plant was highest in Debora (36) followed by Banesa and Mamut. Least was with Tambre (24). Significantly highest flower diameter was recorded with Banesa (9.125cm) flowered by Debora. Least was recorded with avemaria.(7.5cm).

Stalk length was highest in Tambre (55cm) followed by Banesa. Other characters like vase life days taken for 50% flowering found non significant.



TUBER CROPS

CASSAVA

Horticultural Research Station, V.R.Gudem

Low input technology for cassava production

Under the low input technology experiment at Venkatramannagudem centre pooled data for three years shows that, T6 (Sunhemp @ 50 kg/ha + RDK + 50% RDNP + Azospirillum + PSB @ 5kg/ha each) recorded significantly higher values of tuber yield (33.6 t/ha) and starch content (26.2%).

Integrated weed management in Cassava

Application of Oxyflourfen @ 0.06 kg ai/ha (Pre Eme) + 2 hand weedings at 2 and 3 MAP (T6) was found to be the best method to manage the weeds effectively and efficiently and to exploit higher tuber yield (33.94 t/ha) in cassava.

ELEPHANT FOOT YAM

Horticultural Research Station, Kovvur

Intercropping spice crops in elephant foot yam

From the three years pooled data, it is concluded that EFY intercropped with Turmeric in 1:2 ratio was found to be the best cropping system with highest elephant foot yam equivalent yield (67.23 t ha⁻¹) and Land Equivalent Ratio (1.64). However, CB ratio was high (1.90) for EFY + Turmeric (1:1) followed by (1.81) EFY + Turmeric (1:2) compared to elephant foot yam sole crop.



Intercropping Spice crops in Elephant foot yam

Phenology of elephant foot yam in relation to climate change

During the phenology study of elephant foot yam, various growth and yield parameters were recorded at monthly intervals. Gajendra has spouted 2.67 days early as compared to local cultivar. Plant height, pseudostem girth, weight of main corm were found to be more in local cultivar than Gajendra whereas more number of leaflets, maximum leaflet length, leaflet width, leaf area (3759.60 cm²), yield per plant (1.11 kg) and yield per hectare (14.35 t ha⁻¹) were recorded in Gajendra.

Phenology of greater yam in relation to climate change

In greater yam, sreekeerthi sprouted 3.33 days early compared to local cultivar. Yield and yield attributing characters were recorded more in SreeKeerthi than local cultivar as the growth proceeds. At 5MAP, there is a reduction in tuber weight during the tuber bulking stage as the crop experienced waterlogging condition twice due to heavy rains and cyclone.

Site specific nutrient management studies in elephant foot yam

In elephant foot yam, significantly highest yield of 13.27 t ha⁻¹ was obtained when recommended dose of NPK (80:60:100 kg ha⁻¹) was applied which was on par with the treatment (12.04 t ha⁻¹) where fertilizers were applied based on the soil test data.

Effect of different weedicides on the growth and yield of elephant foot yam

Among various treatments under study, average tuber weight, mean tuber diameter and tuber volume were significantly highest in T₃ (Oxyflurofen (1-2 days immediately after planting) 0.25 kg ai ha⁻¹ + Glyphosate (60, 90, 150 days after planting) 1kg ai ha⁻¹ followed by T₁ (Oxyflurofen (1-2 days immediately after planting) 0.25 kg ai ha⁻¹ + Manual weeding at 60, 90, 150 days after planting). Whereas yield is highest in T₁ (29.63 t ha⁻¹) followed by T₃ (29.26 t ha⁻¹) compared to weedy check (25.93 t ha⁻¹). CB ratio is highest in T₃ (1.02). Lowest weed biomass was observed in T₃ (9.07g/0.25 m²) followed by T₁ (10.53g/0.25 m²). Germination percentage was not influenced by different weedicide treatments.





Observational trail on the performance of open pollinated seed of *Amorphophallus paeoniifolius*.

Number of sprouts per seed ranged from 1-6. Number of leaves per plant ranged from 1-6. Per centage of smooth textured pseudostem is 68 where as rough textured pseudostem is 32. Per centage of green coloured pseudostem is 82 where as purple coloured pseudostem is 32. Average tuber weight is 178.19g ranged from 50- 550 g.

Development of noodles and bread from composite flour of elephant foot yam

Physical properties of flour were studied and it was found that the moisture content of the flour was 5.19 %. The pH and titratable acidity values were 5.78 and 1.12 % respectively. Water absorption capacity (18 %), fat absorption capacity (14.0 %) and bulk density (0.70 g/cm³) were recorded for the flour. The values for swelling power, foam capacity and foam stability were 4.55, 21.32 % and 29 % respectively.

Proximate analysis of flour was studied and moisture content of 5.4%, ash 2.5%, fat 0.41 % and protein 3.8% were recorded.

Vermicelli was tried with flour and it was observed that 25-50% wheat flour give good shape and with rice flour stability is very poor.

VEGETABLES

Horticultural Research Station, Anantharajupet

Evaluation and identification of short duration cool season vegetables suitable for southern zone of Andhra Pradesh

The performance of short duration cool season vegetables suitable for local conditions were evaluated at Horticultural Research Station, Anantharajupet. Broccoli, knol-khol, red cabbage, cabbage, cauliflower, Brussels sprout, carrot and beet root were planted during the first fortnight of January, 2013. All the cool season vegetables tried performed well. Cabbage (Unnati F₁ Hybrid) recorded maximum yield per hectare followed by Red cabbage (33.04 t/ha) whereas minimum yield was recorded in Beet root var. Ruby queen (12.67 t/ha). Pest and disease incidence was very low in Knol khol and Carrot.

Growth and yield characters of short duration cool season vegetables

Name of the crop and variety	Plant height (cm)	No. of leaves	Total plant weight (g)	Weight of curd /head/tuber (g)	Yield per hectare (t/ha)
Carrot (Kuroda - improved)	59.72	13.70	151.70	67.55	13.75
Beet root (Ruby queen)	36.40	13.40	132.20	85.56	12.67
Knol –Khol (Neo – F ₁ Hybrid)	10.60	560.30	378.10	21.01	
Red cabbage (Red Jewel F ₁ Hybrid)	39.12	13.12	1651.14	594.80	33.04
cabbage(Unnati F ₁ Hybrid)	45.24	15.00	1904.18	750.60	41.70
Broccoli (Fantasy F ₁ Hybrid)	40.43	29.29	1735.00	433.86	24.12
Cauliflower (Suhasini F ₁ Hybrid)	58.12	28.42	2480.00	340.12	18.89



Knol –Khol (Neo – F₁ Hybrid)





Red cabbage (Red Jewel F₁ Hybrid)

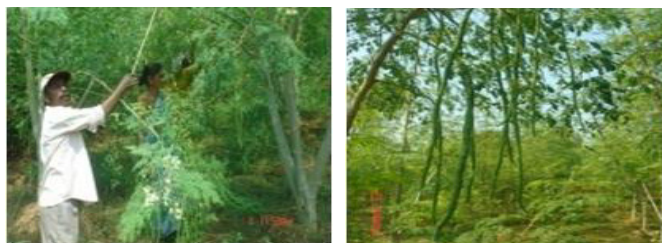


Cabbage (Unnati F₁ Hybrid)



Carrot (Kuroda - improved)

Drumstick plants of PKM-1 and PKM-2 were also planted to study their performance.



ONION

Horticultural Research Station, Mahanandi

Effect of different herbicides on growth and yield of Onion

Among the different herbicides spray, Pre emergence spray with Pendimethalin @ 1.0 kg a.i./ha-1 + oxyfluorfen @ 0.25 kg a.i./ha-1 Post emergence spray at 40 DAT is found to be superior and recorded more plant height (45.48 cm), more stem diameter (4.68cm) more No. of flowers (7.64), more diameter of the bulb (3.87g), more weight of the bulb (57.60 g) and more yield (12.79 t/ha).



Evaluation of onion varieties

Among 15 onion varieties, more yield (33.59 t/ha) was recorded in Bhima Kiran.



TOMATO

Studies on the production of tomato under polyhouse conditions

The determinate types of tomato Lakshmi, Shakthiman, Abhinava and Indeterminate types Hamsa samole and US-618 planted dt. 01-10-2012, 15-10-2012 and 30-10-2012 in polyhouse. Among the combinations of the date of planting 01-10-12 with Lakshmi variety followed by US-618 and Abhinava were found to be superior. In Lakshmi variety more stem diameter (5.1 cm) and more weight of the fruit (79 g) were recorded.

Minimization of fertilizer usage through fertigation and foliar application in selected vegetables (Tomato)

Treatment plot of tomato recorded yield of 46.18 t/ha while the control plot registered 35.42 t/ha.

Horticultural Research Station, Aswaraopet

Among different treatments the treatment provided with 13000 lt/day/ac under black polythene mulch (25 μ) recorded highest yield (1425.38 g/pl) which is on par with the treatment provided with 10800 lt/day/ac under black polythene mulch (1402.50 g/pl). highest marketable yield is recorded in case of 10,800 lt/day/ac under polythene mulch (13.25 ton/ac) which is at par with 13,000 lt/day/ac under polythene mulch (12.99 tons/ac).



BRINJAL

Horticultural Research Station, Mahanandi

Minimization of fertilizer usage through fertigation and foliar application in selected vegetables (Brinjal)

Between two treatments, the treated plot registered yield of 43.58 t/ha and from the control plot yield recorded was 32.87 t/ha.

Horticultural Research Station, V.R.Gudem

Evaluation of brinjal (*Solanum melongena* L.) genotypes in coastal region of Andhra Pradesh, the accessions viz. IC090132, DBT/OR-37, IC090785 and IC285140 appeared to be promising donors for fruit yield and other economic traits.

BROCCOLI

Horticultural Research Station, Aswaraopet

Exotic vegetable crop Sprouting Broccoli was tested under polyhouse, 50 percent shade net and open conditions during winter season at Horticultural Research Station, Aswaraopet. Results revealed that highest curd weight was recorded in Polyhouse (283.3 g) which is on par with Open conditions (266.5g). Curd weight is low in case of shade net grown crop (139.0 g). Curd quality is good in case of Open cultivation with good colour and compactness. Number of days for Curd initiation and curd development is more in case of Shade net compared to open and polyhouse conditions.



Broccoli and Red Cabbage Trials (RKVY)



Sprouting Broccoli

Vegetable Research Station, Rajendranagar

Inter cropping of cabbage and carrot with 50% plant population of Ajwain and Fennel was found profitable in Rabi season.

In broccoli integration of vermicompost @ 2.5 t/ha⁻¹ with 50% of recommended dose of inorganic fertilizers recorded highest yield of 175 q/ha with highest C:B ratio of 1:1.38.

In summer, among the leafy vegetables methi, coriander, palak and amaranthus in open condition recorded 27.91, 24.52, 169 and 107.5 q/ha yield with B:C ratio of 1:0.95, 1:0.87 and 1:0.57 respectively.





GHERKINS

Horticultural Research Station, Aswaraopet

Among three varieties viz. Azax, Sparta and Cassata tested at three different dates of Sowing i.e September, October and November highest yield of 60+ count fruits was recorded in cassata variety sown during September (422.45g) which is on par with Sparta Variety planted during September (410.33 g/pl). Sex ratio is lowest in case of Cassata sown in November (1.93). Highest vine length was recorded in case of Cassata sown during September (147.6 cm) which is on par with Cassata sown during November (139.7 cm) and October (138.4 cm).

CAULIFLOWER

Pooled up data for three years revealed that among four varieties viz. Basanth, NS 60 N, Silver Cup 60 and Sweta Early tested at different dates of transplanting i.e. September, October and November highest yield (5.42 T/ Ac) and highest curd weight (384.13 gm) were recorded in NS 60N during October Transplanting which is on par with Silver Cup during October transplanting with an yield of 5.40 T/Ac and average curd weight of 383.73 gm.

CAPSICUM

Horticultural Research Station, Mahanandi

Studies on the production of capsicum under polyhouse condition

Capsicum varieties Indra (Green), Bombay Red and Orebelle were planted 01-10-2012, 15-10 2012 and 30-10-2012 in polyhouse. Among the combinations of the date of planting 01-10-12 with Bombay Red variety, recorded more plant height (99cm), diameter of the stem (3.9cm), more fruit weight (136g), more fruit length (13.0cm) followed by Indra variety.



Indra (Green)



Bombay (Red)



Orebelle (Yellow)

Horticultural Research Station, Pandirimamidi

Studies on the production of capsicum under polyhouse conditions.

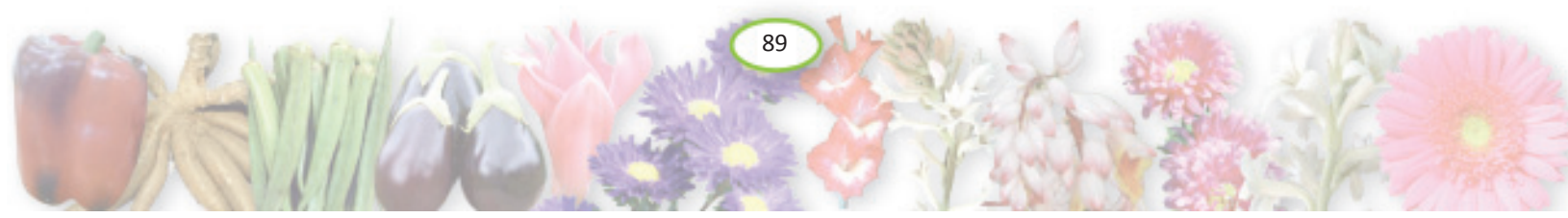
Among the treatments Indra hybrid in September planting recorded the maximum plant yield per plant (2.60 kg) followed by other hybrids in same month of planting where as lowest was observed in November month of planting.

TAMARIND

Citrus Research Station, Petlur

Among 40 Tamarind clones 13 clones are in pod bearing stage. Compared to last year 2011 this year 2012 the yield is moderate and in most of the varieties the flowering was very low and fruiting was recorded only in PTS-18 ,PTS -24, PTS-31, PTS-32 (12-29 kg).

Among 10 wood apple clones PWAS-2, PWAS- 5 and PWAS-9 are yielding better.





SPICES

BLACK PEPPER

Horticultural Research Station, Chintapalle

Development of Organic package for spices based cropping system PEP/CM/2.4

This trial was initiated during the year 2006-07, as per the instructions of Project Co-coordinator, AICRP on Spices, IISR, Calicut fresh plantation was taken up with Panniyur-1 variety for conducting the above experiment. Five organic and five recommended treatments are imposing to the vines. The results are here under,

During the year 2012-13, among the two treatments Inorganic vines (Recommended package of Practices) showing maximum plant height (3.95 mt), length of spike (13.06 cm), maximum number of berries per spike (66) and highest fresh berry yield (4.01 kg/vine) compared to Organic treated vines. Observations in this trial revealed that Plants treated with Organic treatments showing less incidence of *Phytophthora* foot rot disease, this may be due to increasing the beneficial microbial population in the rhizosphere.

GARLIC

Horticultural Research Station, Mahanandi

Effect of different time of planting on growth and yield of garlic in Kurnool District

In Garlic among seven sowings dt: 15-08-2012, 01-09-2012, 15-09-2012, 01-10-2012, 15-10-2012, 01-11-2012 and 15-11-2012, planting date 1/10/12 is found to be good and more plant height (58.9 cm), more stem diameter (2.9 cm), more No. of leaves (8.2), more diameter of stem (10.50 cm), more weight of the bulb (19.1 g) and more yield (7.6 t/ha) were recorded.

GINGER

Fruit Research Station, Sangareddy

Studies on INM of ginger

During the year 2012 even though the experimental site changed against control of severity of soft rot. The plant population is very poor due to poor germination percentage of Rhizomes even though seed treated was taken with fungicide & pesticide. The ginger Maran seed material collected from Kerala through farmers of Zahirabad area even though poor germination in all the experimental plots, due to this less plant population was maintained, hence poor yield recorded. Hence the experiment will be repeated during the year 2013 Kharif also.

Horticultural Research Station, Chintapalle

Evaluation of herbicides for the control of weeds in Ginger (*Zingiber officinalis*)

This trial was initiated during the year 2012-13 with the objective of reducing cost of cultivation in ginger by reducing the manual weeding further lowered the cost of cultivation with higher yields. During the year 2012-13, different pre and post emergence herbicides evaluated in this experiment and the observations revealed that,

During the year 2012-13, observations revealed that, maximum plant height recorded in T9 (46.00 cm) followed by T12 (43.80 cm) i.e. weed free treatment. T9 and T12 are on par with each other in terms of number of tillers. Un weeded control plot recorded lowest plant height and number of tillers as weeds like cypress, cynodan dominated the ginger plants and restrict the growth of ginger shoots.

Maximum per plant yield (502 g/plant) was recorded in T9 treatment i.e. Oxyflurofen 23.5 % E.C, 0.3 kg a.i./ha and it was on par with T12 i.e weed free check plot. Maximum plot yield and projected yield also recorded high in T9 (24.50 t/ha) and T12 (25.45 t/ha).

Oxyflurofen was selected as best pre-emergent herbicide in this experiment compared to pendimethalene. But one has to spray the Oxyflurofen chemical 2nd day after sowing the rhizomes and concentration should not exceed 500 ml/ha, otherwise it will cause phytotoxicity to the ginger plants.

Oxyflurofen controls all kinds of weeds up to 60 days, where as Pendimethalene controls up to 25-30 days only. In excess concentration also pendimethalene has not causing any phytotoxicity to the plants.





Two post emergent weedicides used in this experiment viz., Quazilophop ethyle and Propaquizafop to control grassy weeds at 30-50 days interval. Quazilophop ethyle is much better than Propaquizafop towards controlling the grassy weeds. But both are failed in controlling the broad leaf weeds.

By using the herbicides farmers can reduce the cost of cultivation drastically by reducing the 4-6 manual hand weedings without reducing the yields.

TURMERIC

Horticultural Research Station, Chintapalle

Studies on the effect of rhizome size and nursery on growth and yield of Turmeric - TUR/CM/5.8

This trial was proposed by AICRP, Chintapalli centre during the 22nd annual work shop at Jaipur, Rajasthan, for the year 2011-12. The following observations were recorded for the year 2012-13,

During the year 2012-13, observations revealed that, maximum plant heights were recorded in T9 (136.0 cm) and T7 (128.6 cm), where as short plant heights recorded in transplanted turmeric seedlings viz., T4, T5 and T6. On contrast to plant height, numbers of tillers were more in case of transplanted seedlings (T4, T5, T6) compared to direct sown complete seed propagates (T7, T8, T9) and cut pieces (T1, T2, T3). Maximum leaf area also noted in T9 (1134.5 cm) followed by T5 (809.0 cm).

Lower yields were recorded in case of direct sown cut rhizome pieces in T1, T2 and T3 treatments, hence these treatments not economical. Observed poor plant stand in case of single node cuttings due to poor germination of rhizome pieces.

Experimental values revealed that, maximum fresh rhizome yields were recorded in T9 (28.53 t/ha) followed by T7 (24.57 t/ha). Among the transplanted seedlings, two node raised turmeric plants (T5) have shown good growth and yield (22.23 t/ha) and on par with T7 i.e. sowing of primary rhizomes directly in the field. Based on these experimental results farmers can cultivate the turmeric with two node raised seedlings and with 350 kg of turmeric seed per acre instead of 1400 kg per acre in traditional practice.

In this experiment direct sown mother rhizomes yielded more, but due to the non availability in bulk quantities of mother rhizomes, farmers generally use primary rhizomes as seed.

MEDICINAL & AROMATIC PLANTS

MAPRS, Rajendranga

Gymnema sylvestre cuttings treated with IBA 600 ppm resulted in maximum rooting (38.0 %).

PHYLLANTHUS AMARUS

Planting of *Phyllanthus amarus* at 15 x 10 cm spacing produced higher herbage yield (16.79 q/ha) over transplanting or broadcasting of seed. Among the different organic manures studied application of RDF resulted in higher herbage yield (16.03 q/ha). Application of vermicompost at @ 6t/ha was at par (15.58 q/ha).



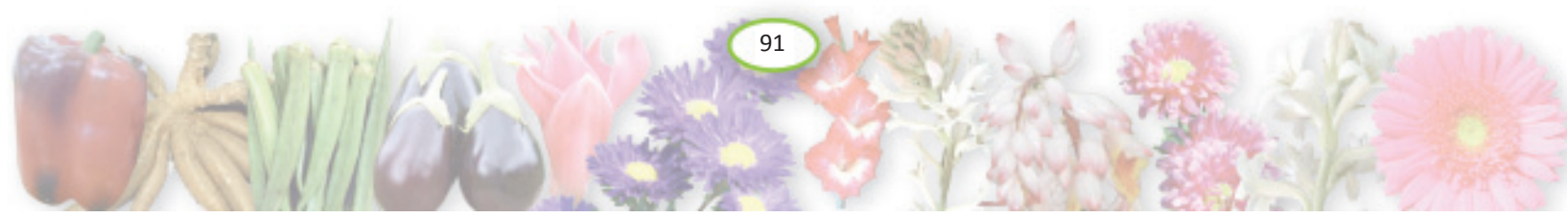
COLEUS

Among the different growth regulators studied on Coleus application of Cycocel @ 500 ppm produced 70.14 q/ha of fresh root yield. While Spraying of Cycocel at 250 ppm was at par (61.43 q/ha). No significant influence of time of application of growth regulator on yield was observed.



PSORALEA CORYLIFOLIA

Planting of *Psoralea corylifolia* at 45 x 30 cm produced significantly higher seed yield (4885.92 kg) over other spacing adopted and direct sowing.





ALOE

Among the two varieties of aloe studied yellow flowering type produced higher leaf yield (67.72 t/ha). Among the different spacing adopted aloe planted at 45 x 45 cm produced higher leaf yield (100.69 t/ha).



ASWAGANDHA

Application of 50% RDF + 50% of N through Vermicompost to Aswagandha under rainfed conditions resulted in higher dry root yield (430.97 kg/ha).



BETELVINE

AICRP on MAP & Betelvine, V.R.Gudem

Significantly highest Rhizome weight and yield/pl. recorded with spacing 60 x 45 cm and FYM 15t/ha compared to other treatments in Acorus calamus.

In Solanum nigrum, Spacing 30 x 30 cm and harvesting at 45 days interval recorded higher herbage yields compared to other treatments. In organic manure trial, Interaction effect of organic manures Vermicompost 6t/ha and biofertilizers Azophosmet 2Kg/ha + Methylobacterium 500ml/ha significantly increased the growth and yield.

Standardization of seed rate in Solanum nigrum revealed that plants with spacing 30 x 30 cm recorded higher growth when compared to broadcasting method. Among broadcasting, seed rate of 2.5 Kg/ha found superior to other treatments and the experiment is in initial stage. Similarly, significantly highest plant height and branches recorded with the seedlings transplanted at 45 days after sowing while significantly highest leaf length and width recorded with the seedlings transplanted at 25 days after sowing and the experiment is in initial stage.

PLANTATION CROPS

COCONUT

Horticultural Research Station, Ambajipeta

Agr.5: Studies on fertilizer application through micro-irrigation technique on coconut.

The trial was initiated during November, 2007 as per the Workshop recommendation in a 25 years old garden of (CRP 509) East Coast Tall variety in randomized block design with four replications. It is evident from the data (Table - 1) that the maximum nut yield (115.45 nuts/palm) was recorded by 100% RDF through fertigation and it is on par with 75% RDF through fertigation with 98.45 nuts per palm. The data on yield attributes revealed that the highest number of leaves on crown (35.35) and number of spadices per palm (13.90) were found in 100% RDF through fertigation. Mean number of female flowers per spadix (29.00) were recorded by 100% RDF through fertigation and it is on par with 75% RDF through fertigation with 27.00 female flowers per spadix.



Table 1: Yield attributes of coconut as influenced by fertigation

Treatment	Total no. of leaves on crown	Mean no. of spadices / palm	Mean no. of female flowers / spadix	Nut yield	
				Pre-treatment 2005-07	Nut yield 2011-12
Control	26.92	9.80	15.60	58.22	67.30
25 % RDF of N,P,K	28.30	12.40	18.45	57.11	82.60
50 % RDF of N,P,K	31.77	13.00	26.50	62.25	91.80
75 % RDF of N,P,K	34.12	13.80	27.00	60.75	98.40
100 % RDF of N,P,K	35.35	13.90	29.00	61.10	115.45
100 % RDF of N,P,K as soil application	29.10	11.00	21.00	59.85	88.00
S Em +	1.17	0.55	0.40	1.25	6.68
CD at 5%	3.56	1.68	1.24	3.75	20.34

Table 2: Quality attributes of coconut as influenced by fertigation

Treatment	Wt. of whole nut (g/nut)	Dehusked nut wt. (g/nut)	Husk wt. (g/nut)	Water content (ml/nut)	Shell weight (gm/nut)	Meat Wt. (g/nut)	Copra Wt. (gm/nut)
Control	833.62	358.50	475.12	53.75	116.75	229.87	87.50
25 % RDF of N,P,K	1002.75	374	628.75	57.62	107.25	266.12	109.25
50 % RDF of N,P,K	852.62	374.50	578.12	68.75	108.37	283.75	123.00
75 % RDF of N,P,K	1042.75	454.12	588.62	68.87	115.62	282.37	123.00
100 % RDF of N,P,K	1104.75	474.50	630.25	75.50	119.75	299.56	134.50
100 % RDF of N,P,K as soil application	1040.37	443.50	596.87	69.25	108.37	252.75	125.00
S Em +	51.10	11.89	52.21	4.09	5.77	11.20	12.73
CD at 5%	155.43	36.16	N.S.	12.44	N.S.	34.07	N.S.

Significant differences were observed among different treatments regarding nut quality characters except shell weight, husk weight and copra weight. The highest nut weight (1104.75g) was recorded by 100% RDF of N.P.K through drip and it is on par with 75% of RDF through drip, 100% of RDF as soil application and 25% RDF through drip. Dehusked nut weight (474.50g) was highest in 100% RDF through drip and it is on par with 75% RDF through drip. 100% RDF through drip recorded highest water content of 75.5 ml.

Agr.10: Development of coconut based integrated farming system model for different agro-climatic regions

Crop combinations:

Coconut + Cocoa + Banana + Pineapple + Tomato + Heliconia (Elephant foot yam was replaced by tomato during 2012).

At HRS, Ambajipeta, during XXI Annual group meeting of AICRP on Palms held at TNAU, Madurai workshop it was decided to divide the whole plot into 3 treatments.

Treatments:

T1 - 2/3rd of Rec. fert. NPK + recycling biomass (vermi compost).

T2 - 1/3rd of Rec. fert. NPK + recycling biomass (vermi compost) + bio fertiliser application + green manuring + vermiwash application.

T3- Fully organic with recycling biomass (vermi compost) + + bio fertiliser application + green manuring + vermi wash application + husk burial + mulching with coconut leaves.

Number of replications: 7

Plot size/Treatment: **Coconut:** 4 palms, **Cocoa:** 6 trees, **Banana:** 16 plants
Pineapple: 4 beds, **Heliconia:** 1 bed **Tomato:** 1 bed

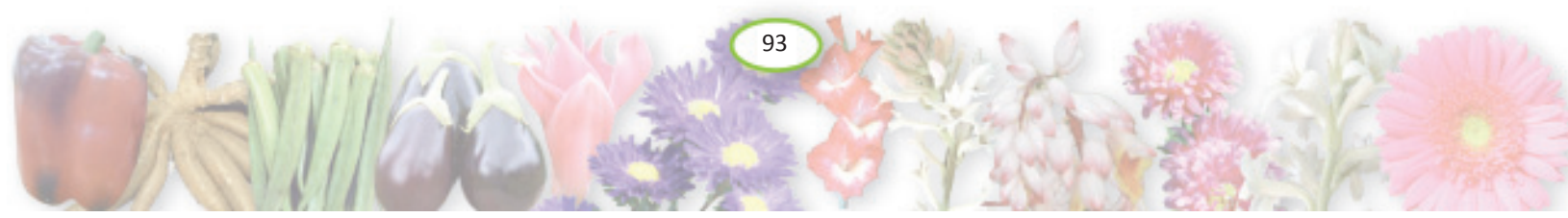




Table 3: NPK, Vermi compost, bio fertiliser for different crops

Crop	1/3 rd of Rec. (T2)	2/3 rd of Rec. NPK (T1)	Vermi compost	Bio fertiliser
Coconut (g/plant)	N: 167 P: 417 K: 333	N: 333 P: 833 K: 666	25kg/tree	Azospirillum:100gm/plant Phosphobacteria: 100g/plant
Banana (g/plant)	N: 67 P: 17 K: 67	N:133 P:33 K:133	8 kg/tree	Azospirillum:50gm/plant Phosphobacteria: 50g/plant
Cocoa (g/plant)	N: 33 P: 13 K: 33	N:67 P:27 K:67	3 kg/plant	Azospirillum:50gm/plant Phosphobacteria: 50g/plant
Pineapple (g/plant)	N: 5 P:0.66 K:1.33	N:11 P:1.5 K:2.7	5 t/ha	Azospirillum:2.5 kg/ha Phosphobacteria:2.5 kg/ha
Heliconia (kg/ha)	N:7 P:7 K:7	N:14 P:14 K:14	2.5 t/ha	Azospirillum:2.5 kg/ha Phosphobacteria: 2.5kg/ha
Tomato (kg/ha)	N:16 P:8 K:8	N:32 P:16 K:16	2.5 t/ha	Azospirillum:2.5 kg/ha Phosphobacteria:2.5 kg/ha

(Vermicompost, biofertiliser and vermiwash will be applied twice a year)

HRS, Ambajipeta

The trial was initiated during November 2008 in 20 years old Godavari Ganga plot as an observational trial. The intercrops viz., cocoa, banana, pineapple elephant foot yam, heliconia were planted during November 2008 and the experimental plot is being maintained. From 2012 the plot was divided into treatments. During 2011 - 12 the data on coconut and intercrops viz., banana, pineapple elephant foot yam was recorded. In coconut nut yield of 138.52 per palm was recorded while cocoa recorded yield of 2.65kg/tree, banana 23.4 kg/tree. Weight of pineapple is 1050g/plant. Soil moisture increased as depth of soil increases. The soil organic carbon, nitrogen, phosphorus and potassium contents increased in June 2012 compared to initial years. The population of earthworms also increased in June 2012.

Table 4a: Growth parameters of coconut and component crops

Crops	2011- 12
Coconut	
No. of leaves on crown	33.58
Other component crops (canopy spread in cm)	
Cocoa	122.5
Banana	183.4
Pineapple	94.50
Elephant Foot Yam	86.45

Table 4b: Yield parameters of main & component crops

Crops	May, 2012
Coconut	
No. of bunches per year	13.12
No. of buttons per bunch	22.00
Nut yield per palm per year	138.52
Copra content	162.36
Oil percentage	68.45
Other components	
Cocoa(kg per tree)	2.65
Banana (kg per plant)	23.4
Pineapple (g per plant)	1050.00
Elephant Foot Yam (kg)	2.75

Table 4c: Soil moisture Content (%)

Summer month & Depth of soil	2011-12
March	
0-30 cm	15.8
30- 60 cm	20.64
60-90 cm	22.88
April	
0-30 cm	14.34
30- 60 cm	18.34
60-90 cm	21.58
May	
0-30 cm	12.82
30- 60 cm	15.48
60-90 cm	17.42
June	
0-30 cm	13.20
30- 60 cm	17.94
60-90 cm	20.84





Table 4d: Soil nutrient analysis

Parameter	Initial values (November, 2008)	After one cycle (June, 2010)	After two cycles (June, 2011)	After three cycles (June 2012)
Organic Carbon	0.058	0.062	0.072	0.080
Nitrogen (%)	0.076	0.082	0.087	0.092
Phosphorus (ppm)	55.25	59.67	62.13	63.22
Potassium (ppm)	144.23	155.77	159.47	160.24
Soil temperature				
15 cm	24.25	23.58	21.45	23.40
30 cm	22.15	22.48	20.14	21.25

Table 4e: Plant nutrient status (%) (Samples were drawn from previous crop)

Crop & Parameter	At vegetative stage	At maturity	Crop & Parameter	At vegetative stage	At maturity
Coconut (every May)			Elephant Foot Yam		
Nitrogen	2.45	2.00	Nitrogen	1.64	1.48
Phosphorus	0.19	0.14	Phosphorus	0.23	0.20
Potassium	2.01	1.78	Potassium	1.32	0.89
Cocoa (every may)			Pineapple		
Nitrogen	1.78	1.56	Nitrogen	1.36	1.27
Phosphorus	0.08	0.07	Phosphorus	1.20	1.08
Potassium	0.68	0.58	Potassium	1.22	1.18
Banana			Heliconia		
Nitrogen	1.97	1.68	Nitrogen	1.76	1.68
Phosphorus	0.22	0.21	Phosphorus	0.16	0.14
Potassium	2.03	1.89	Potassium	1.97	1.58

Table 4f: Microbiological studies

Soil microbial population	June, 2012
Bacteria (Nutrient Agar medium) ($\times 10^5$ cfu/g)	7.20
Actinomycetes (Starch-Casein Agar medium) ($\times 10^5$ cfu/g)	8.84
PSB ($\times 10^4$ cfu/g)	3.24
Trichoderma (Trichoderma specific media) ($\times 10^3$ cfu/g)	9.35
Earth worm population	
10 cm depth	0
20 cm depth	1.0
30 cm depth	2.85

Agr.11: Observational trial on the performance of *Morinda Citrifolia* as mixed crop in coconut gardens

The observation trail on the performance of *Morinda citrifolia* (Noni) was planted during August, 2008 with 25 no's seedlings grafts and 25 tissue culture plants in the inter spaces of coconut. The growth parameters viz, plant height, number branches were recorded and the highest plant height (5.60 m) and mean number of branches per plant (63.82) were recorded in seedlings when compared to tissue culture plants (4.86 m) height and 42.50 branches per plant respectively. The data on yield attributes of coconut revealed that the highest number of leaves on crown, mean number of spadices /palm and mean number of female flowers/ spadix were recorded in Noni seedlings plot (33.40, 11.80 & 22.00/g) when compared to Noni tissue culture plants (32.80, 11.20, 18.15).(Table 5)

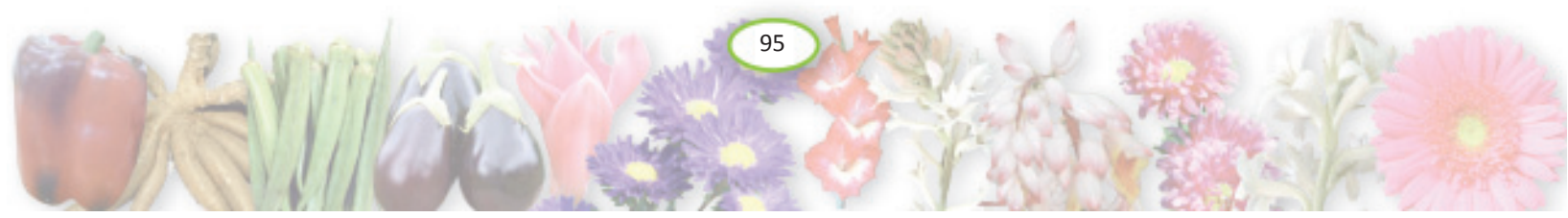




Table- 5: Growth parameters of *Morinda citrifolia* under coconut

Planting material	Plant height (m)	Stem girth (cm)	No. of branches per plant	Fruits per plant	Total fruit weight per plant (kg)	TSS	Coconut yield per palm per year	
							Before planting	After planting
Tissue cultured plants	4.86	51.00	42.5	100.69	5.36	13.20	104	114
Seedlings	5.60	34.68	63.82	121.39	8.18	12.42	98	108

Table – 6: Yield Attributes of Coconut

Yield Attributes of Palm	Noni seedlings Plot	Noni Tissue culture Plot
No. of leaves on crown	33.40	32.80
Mean no. of spadices	11.80	11.20
Mean no. of female flowers	22.00	18.15

OIL PALM

Horticultural Research Station, Vijayarai

The analysed yield data recorded during the year 2012-13 in the experiment on ‘Studies on fertilizer application in oil palm through micro irrigation’ revealed that the data was found non significant for all the characters. However, the highest number of bunches per palm and FFB yield per hectare were recorded with T₅ i.e., 1200:600:1800 NPK through fertigation.

PALMYRAH

Growth and developmental studies in Palmyra [*Borassus flabellifer*]

I. Root studies in Palmyrah: Progress made:

At HRS, Pandirimamidi, under growth and development studies in Palmyrah root studies were initiated to know the growth pattern of roots in different root zones around the Palmyrah tree. On farm trees of various age groups i.e., 5,10,15,20 and 25 years are selected for the study. The number of trees per age group is four.

A trench was dug from the base of the palmyrah tree to a distance of 90 cm with a dimension of 30 cm width, 60 cm depth and 90 cm length. It again The trench were divided in to three equal linear zones of 30cm (Zone A), 60cm (Zone B) and 90 cm (Zone C) away from trunk. Each of these three zones were again divided in to three depths of 0-30 cm, 30-60 cm and 60-90 cm and as such 9 trench zones ie. A1, A2 and A3 under zone A, B1, B2 and B3 under zone B and C1, C2 and C3 under zone C were prepared. All the 9 zones are filled with coir pith and irrigation was provided to the above trees at regular intervals.

The data will be recorded at three months intervals on the number of roots in each of the nine zones regard less of their origin after excavating the coir pith. After recording the data the trench will be refilled with the coir pith. The study was initiated in the month of March 2013 and data recording is in progress.

II. Feasibility study on transplanting of Palmyrah trees of varying age groups.

Progress made: Palmyrah trees of age 1 year, 2 year, 3 year, 5 year, 7 year and 10 year old are identified for transplanting studies. During the month of October 2012, five trees each from the age group 1, 3, and 5 years were dug out from the soil without causing any damage to the roots. The same trees are planted in the experimental plot at 4 x 4m distance and the trees were irrigated regularly and the are observations taken are as follows.

Among the one year old transplanted trees, out of five trees four has put forth new leaf at 30 to 40 days after transplanting and survived.

Among the 3 year old transplanted trees, out of five trees only one tree could survive and remaining four trees died within 10 days.

Among the 5 year old transplanted trees, all the five trees are died within one week and no success is recorded.

Arrangements are made to get JCB for excavating and planting the 7 year old and 10 year old Palmyrah trees and will be carried out in the month of June.





CASHEW

Cashew Horticultural Research Station, Bapatla

The pooled analysis data over past 10 years of the NPK fertilizer experiment had shown that the treatment N2P1K1 i.e., a fertilizer dose of 1000N: 125P₂O₅:125 K₂O had recorded significantly highest cumulative nut yield of 93.0kg/tree and hence can be recommended for higher yields in cashew grown in Andhra Pradesh.

During the year 2011-12, results obtained from planting densities cum fertilizer trial it is evident that trees planted at closer densities i.e. 5m x 4m apart have given higher plant heights, trunk girth, canopy diameter and canopy height Table: CM-4. Annual nut yield per tree was highest 8.84kg per tree in 10 x 5m spaced trees applied with fertilizer levels at 75:25:25 kg/ha [S1M1] which is followed by treatment S1M2 [6.52 kg/tree]. Cumulative nut yields are also highest in the same treatments i.e. S1M2 [32.02kg/tree] and S1M1 [30.69 kg/tree]. Results have indicated that at closer densities vegetative parameters are at higher values and at wider densities yields are higher.

During the year 2011-12, maximum values for growth parameters were recorded with 4 x 4 density level. Highest cumulative yield of 3256 kg/ha was recorded with high density plot compared to the normal density plot where the yield obtained was only 965kg/ha.

During the year 2011-12, cluster bean, Marigold, Amaranth and gogu were grown as inter crops. Clusterbean has recorded maximum yield of 9097 kg/ha and given higher cost benefit ratio 3.7.

CUSTARD APPLE

Horticultural Research Station, Anantapuram

Standardization of pruning technology in custard apple (Cv. Balanagar)

Experimental plants were planted in September 2008 in a 3 x 3 factorial RBD with five replications. Treatments include three pruning intensities (25, 50 and 75% of previous season's shoot) and three pruning timings (60, 75 and 90 days after harvest) including control with no pruning. Pruning treatments were initiated in January 2012. Pruning intensity and time of pruning significantly affected no. of shoots, no. of flowered shoots and % of flowered shoots. Highest no. of shoots were produced with no pruning (8.37). Among the pruning treatments highest no. of shoots (6.45) produced with 25% pruning 60 days after harvest. No. of flowered shoots recorded highest with no pruning (8.11) and 25% pruning after 90 days (8.12). Percent of flowered shoots highest (100%) recorded in 25% pruning 60 days after harvest followed by no pruning (86%). Plant height and plant spread showed no effect with pruning intensity, however slightly affected with time of pruning. Number of fruits per plant recorded more in 50% pruning at 90 days after fruit harvest (12.38) followed by no pruning (10.46) (Table. 19).

Table 19. Effect of time and intensity of pruning on growth and flowering in custard apple (Cv. Balanagar) during 2012.

Treatments		Growth and flowering			Plant height (cm)	Plant spread (cm)		No. of fruits / plant
DAH ^x	Pruning Intensity ^y	No. of shoots	No. of flowered shoots	% of flowered shoots		EW	NS	
60 days	25%	6.45	5.84	100.00	166.25	137.50	137.50	9.88
	50%	5.03	6.70	67.50	146.25	130.00	130.00	10.13
	75%	4.45	6.92	62.50	171.25	126.25	126.25	7.13
75 days	25%	5.90	4.95	50.00	171.25	135.00	135.00	9.88
	50%	5.20	5.65	77.50	160.00	141.25	141.25	9.88
	75%	4.67	4.67	52.50	172.50	150.00	150.00	8.25
90 days	25%	5.78	8.12	77.50	175.00	138.75	138.75	9.38
	50%	4.93	7.26	75.00	182.50	155.00	155.00	12.38
	75%	4.50	7.66	65.00	191.25	151.25	151.25	4.38
	No pruning	8.37	8.11	85.83	161.25	134.46	134.46	10.46
DAH		ns	***	ns	**	*	*	ns
Pruning %		***	**	**	ns	ns	ns	ns
Interaction		ns	ns	*	ns	ns	ns	ns

^x No of Days After final Harvest of fruits

^y Intensity of pruning of previous seasons growth

ns, *, **, and *** indicates non-significant, significant at P=0.5, 0.01 and 0.001, respectively.



C. POST HARVEST TECHNOLOGY

FRUITS

MANGO

Fruit Research Station, Sangareddy

Standardization of ethrel concentration for ripening of Baneshan mango variety harvested at different maturity stages.

On 12th day of ethrel treatment, highest firmness (6.24 kg cm⁻²) was recorded with 750ppm ethrel. Similarly, Acidity was lowest (0.238) in 750ppm while the TSS was highest (13.6) in the same treatment.

BANANA

Studies on Modified Atmosphere Packing of Banana at cold storage conditions

Not executed (lab under renovation)

Studies on Modified Atmosphere Packing of Banana at ambient conditions

20 pore poly propylene bags were effective in maintaining quality and improving shelf life

SITAPHAL

Studies on post harvest quality and shelf life of Sitaphal varieties and Hybrids and Ramphal at cold storage

Not executed (lab under renovation)

Studies on post harvest quality and shelf life of Sitaphal varieties and Hybrids and Ramphal at ambient conditions

Atemoya X Balanagar and Islandgem recorded maximum TSS

AONLA

Horticultural Research Station, Anantapuram

Physiological and physico-chemical changes during storage of aonla fruits.

A new shelf life experiment on Aonla fruit was conducted during 2012 with seven cultivars of Aonla, ATPS-1, ATPS-2, Kanchan, Chakaiya, NA6, NA7 and NA10 with four replications in Completely Randomized Design to study the physiological, physicochemical changes and assessment of microbial infection during storage of aonla fruits. In this experiment 5 kg aonla fruits were kept in corrugated boxes. At every four days interval up to 16 days, observations were recorded on fruit weight, TSS, % of decay and acidity by drawing samples from the boxes. Data shown in the **Table.1** indicates significantly less fruit weight loss was recorded in all the cultivars however, ATPS-2 recorded least loss in weight.

Data presented in **Table.2** indicate that highest % decay loss was recorded in NA10 followed by NA6. Least % decay loss was recorded in Chakaiya. Except for NA10 and NA6, all the cultivars recorded less decay loss upto 8 days under room temperature conditions. TSS and Acidity presented in **Table.3 and 4** indicated slight increase with increase in storage life of fruits under room temperatures.





Table 1. Varietal variation in Physiological loss in weight (g) of Aonla fruits during storage at room temperature (2012)

Cultivar/selection	0 days	4 days	8 days	12 days	16 days
ATPS-1	32.3	27.3	26.0	24.5	20.8
ATPS-2	32.9	30.8	29.9	28.4	28.2
Kanchan	20.2	20.1	19.8	17.7	16.4
Chakaiya	20.6	18.2	20.5	18.6	14.9
NA6	27.2	26.3	24.0	23.0	23.4
NA7	23.4	22.2	20.7	18.1	17.8
NA10	27.3	26.0	24.7	23.2	21.9
Std.Error	0.78	0.66	0.72	0.77	0.86
CD at 5%	2.31	1.97	2.12	2.28	2.53

Table.2. Varietal variation in % decay loss of Aonla fruits during storage at room temperature (2012)

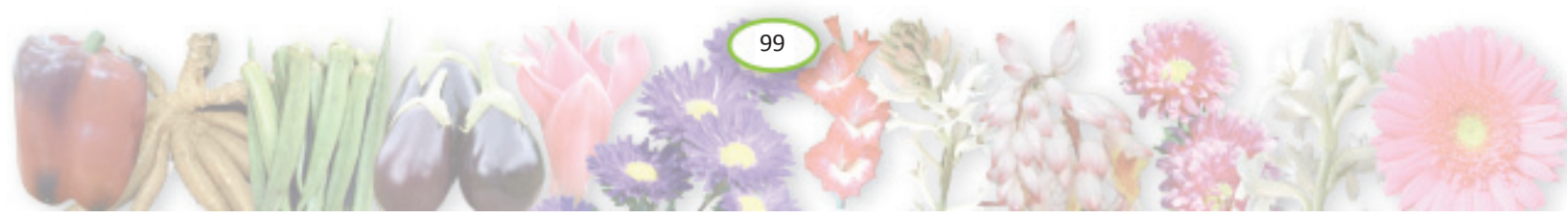
Cultivar/selection	0 days	4 days	8 days	12 days	16 days
ATPS-1	0.0	1.6	3.2	17.5	25.9
ATPS-2	0.0	1.2	2.6	8.6	28.8
Kanchan	0.0	2.2	2.3	4.6	12.8
Chakaiya	0.0	2.7	2.0	9.3	9.9
NA6	0.0	4.4	15.8	32.5	32.8
NA7	0.0	2.2	6.4	15.3	17.5
NA10	0.0	3.2	20.4	25.6	57.5
Std.Error		0.46	1.9	3.13	4.1
CD at 5%		1.36	5.7	9.2	12.1

Table 3. Varietal variation in Acidity (pH) of Aonla fruits during storage at room temperature (2012)

Cultivar/selection	0 days	4 days	8 days	12 days	16 days
ATPS-1	2.4	2.4	2.5	2.8	2.9
ATPS-2	2.3	2.3	2.6	2.7	2.8
Kanchan	2.4	2.3	2.8	2.9	2.7
Chakaiya	2.4	2.2	2.6	2.9	2.9
NA6	2.4	2.3	2.8	2.9	2.6
NA7	2.4	2.4	2.9	2.9	3.0
NA10	2.3	2.1	2.7	2.8	2.8
Std.Error	0.07	0.1	0.1	0.1	0.2
CD at 5%	ns	ns	ns	ns	ns

Table 4. Varietal variation in TSS (°Brix) of Aonla fruits during storage at room temperature (2012)

Cultivar/selection	0 days	4 days	8 days	12 days	16 days
ATPS-1	11.8	14.4	16.3	15.1	15.7
ATPS-2	12.0	15.3	14.5	15.4	14.7
Kanchan	11.8	13.5	13.0	12.8	13.6
Chakaiya	11.9	13.3	12.1	14.1	14.8
NA6	12.1	13.7	12.0	13.6	12.3
NA7	11.8	14.5	13.4	14.1	13.7
NA10	12.0	13.8	13.9	14.9	12.3
Std.Error	0.3	0.23	0.32	0.39	0.40
CD at 5%	ns	0.68	0.95	1.17	1.18





FLOWERS

GLADIOLUS

Floriculture Research Station, Rajendranagar

Post harvest package technology of distant marketing of gladiolus spikes

The studies on post harvest package technology for distant marketing of gladiolus spikes (var.white prosperity) were carried out as per technical programme. The data revealed that spikes harvested at tight bud stage took more days for basal floret to open (3.0 days) and recorded more vase life (7.3days). The spikes harvested at stage-2 (when 4-5 florets show colour) showed more percentage of floret opening (67.3%) more floret size (8.4 cm). Among different packing materials, LDPE 100 guage recorded more vase life (7.3 days) against control with least value (6.3 days).

Standardization of modified atmosphere (MA package) storage of gladiolus cut spikes.

The studies on standardization of modified atmosphere storage of gladiolus cut spikes (var.white prosperity) were carried out as per technical programme. The data indicated that among different packing materials cellophane and LDPE 100 guage recorded maximum vase life (6.3 days), no.of florets opened (6.7). Percentage opening of florets was high in cellophane (47.7%). The spikes in control recorded least values . the percent wt. loss after simulated transit was least in LDPE 200 guage. The maximum value was registered in control.

CHRYSANTHEMUM

Standardization of package technology of chrysanthemum for local and nearby markets.

The standardization of package technology of chrysanthemum for local and near by markets was carried out as per technical programme. The results revealed that packing in LDPE100 gauge recorded maximum vase life in terms of 50% leaves (8.3 days) and 50% flower wilting (10.9 days). Correspondingly the minimum values were recorded in control (7.2 and 9.0 days respectively). The weight loss after simulated transit was maximum in control (12.5%).

Standardization of post harvest technology of chrysanthemum for distant marketing.

Standardization of post harvest technology of chrysanthemum for distant marketing was carried out as per technical programme. The data revealed that maximum vase life in terms of 50% flowering (12.5 days) was registered with cellophane and LDPE 100 packing while that of 50% leaves wilt (10.2 days) was with cellophane. The flower stems in control recorded the minimum value of vase life in terms of wilting of 50% flower (11.3 days) and 50% leaves (9.1days). Weight loss after simulated transit was minimum in LDPE 100 (9.1%) and maximum (12.8%) in control.

Studies on the effect of thidiazuron on post harvest leaf yellowing in chrysanthemum flower stem

Studies on the effect of thidiazuron on post harvest leaf yellowing in chrysanthemum flower stems were carried out as per technical programme. Increase in storage duration decreased vase life of flowers. Foliar spray of thidiazuron had no effect on vase life (50% leaves or flowers wilt), Flower diameter or other parameters.

TUBEROSE

Standardization of post harvest technology for short distant market of tuberose.

Studies on standardization of post harvest technology for short distant market of tuberose (var.Hyd.double) were carried out as per technical programme. Data revealed that LDPE 100 guage and cellophane recorded maximum vase life of 5.5 days compared to 4.2 days in control. Different packing materials did not differ as regard to floret size and water absorption /stem. Minimum wt. loss was recorded in LDPE 100 gauge (3.5%) and maximum in control (5.6%).

Studies of MA storage of tuberose cut stems

Studies on MA storage of tuberose cut stems (var.Hyd. double) was carried out as per technical programme. Increase in duration of storage decreased water absorbtion/stem. Different packing materials had no influence on vase life, floret diameter or water absorbtion.





Effect of packaging and storage on keeping quality of garland flowers of tuberose

Effect of packing and storage on keeping quality of garland flowers of tuberose was carried out as per technical programme. The results revealed that different storage conditions or packing materials used in this studies did not vary significantly.

CARNATION

Floriculture Research Station, Rajendranagar

Standardization of pulsing treatments to increase the vase life of Carnation cut flowers (var. Corsa)

Standardization of pulsing treatments to increase the vase life of carnation cut flowers (var. Corsa) was carried out as per technical programme. The data indicated that maximum vase life (8.5 days) was recorded in T₉. Maximum flower diameter (5.6 cm) was recorded in T₉, T₇ and T₁₄. Flowers in control condition recorded minimum vase life (6.0 days) and minimum flower diameter (4.5 cm) and took more days for flower opening (3.0 days).

MARIGOLD

Studies on post harvest packing of loose marigold flowers

Studies on post harvest packing of loose marigold flowers were carried out as per technical programme. The shelf life of flowers ranged between 5.8 to 6.3 days. Different packing materials did not differ with regards to either shelf life or weight loss after simulated transit.

PLANTATION CROPS

PALMYRAH

Horticultural Research Station, Pandirimamidi

Standardization and Commercialization of Inflorescence Sap Extraction and Inflorescence Sap Based Products (Jaggery, Palm Sugar and Candy)

Yield of neera from the palms mainly depends on skill of the Tapper, the neera flows from the cut end of spathe. Each spathe will give yield for 30-50 days, Sap yields for a period of six months pour the sap four to seven liters per day per palm. Climatic factors affect the flow of neera. Early stages of neera extraction have the problem of bees and monkey is more. Experiments were conducted for increasing the flow of neera by different type of cut for spathe i.e control, cross, V channel and central hole in various spathe of same palm. Results shows that V type cut yields more as compared to others for particular time and total yield during season was more in cross type cut, hence no significant difference among the treatments. Also observed that yield increases with increase in surface area of the cut portion of spathe. Experiments were conducted for improve the yield of neera by applying anti oxidant (Ethopan, EDTA, BHT, CaOH, Citric Acid) to the sliced portion of the spathe and observed entire period of time. The result shows that yield increases more in ethopan followed by citric acid, There is significant difference among the treatments at 5% level.

Yield of neera can be improved by slicing of the spathe more number of times and it is also observed that optimum time between successive cutting of spathe is three hours, it effects duration of yielding also. Also observed that time gap between two cuts not more than 24 hours, if so the spathe will not yield neera as it dries completely. Experiments initiated for modeling of neera flow with time and temperature. Trials ware initiated and in progress for palm honey, palm vinegar, palm candy. Chemical processing: Neera can be stored under refrigerated condition for 7 days by using heating for 5 min under 90°C followed by 0.1% KMS or 0.1% sodium benzoate

Membrane processing: Neera can be stored under refrigerated condition for 60 days by using heating for 5 min under 90°C followed by micro filtration under 1 kg/cm² pressure for 10 min operation. Response Surface Methodology (RSM) was used in this study to determine the optimum conditions of the process for production of jaggery. The effect of three independent variables, x₁ (percent lime), x₂ (temperature) and x₃ (time), on one





response variables Y1(total sugars), X2(ash, %), ^moisture content) was evaluated by using the RSM. A central composite design (CCD) was employed (1) to study the main effect of parameters, (2) to create models between the variables and (3) to determine the effect of these variables to optimize the process for jaggery production. Therefore, 20 experiments were designed based on the second-order CCD with three independent variables at three levels of each variable. Independent variable ranges studied were: lime (0.5-1.5 %), temperature (115-125°C) and time (125-175 min).

Optimized parameters for jageery found from the analysis is at lime of 0.9%, temperature of 117°C and time of 174 min of Total sugars, ash and moisture content were obtained 90.81, 2.88 and 3.90% respectively which is on par with PFA standards of total sugar content (> 90%), moisture <10% and Ash <6%.

Standardization of Tuber Flour Based Food Products (Like Pizza, Bakery items, confectionery, health mix etc.)

Experiments were conducted for identifying the maturity stage of tubers for higher nutritive values. Tubers collected from 13 accessions of 91 planted germplasm block samples collected at age of 3, 4, and months and analyzed. Result shows that 4 and 5th month tubers having higher nutritive value than other samples. Experiments were conducted for preparation of flour and suji from palmyrah tuber by various methods i.e raw tuber (T1), autoclave cooked and dried(T2), open fired(T3), fired in iron tin and directly dried9T4). The tubers were cut into pieces and dried at 60 °C for 24 hrs, milled using pulveriser to pass through a 250 urn sieve, packaged in polyethelyne bag and kept in a refrigerator (4 °C). The moisture content of the palmyrah tuber flour was 5.19 %. The ash and fat contents (dry matter basis) were 2.60 % and 0.57 % respectively. The protein content, fibre content and carbohydrate content were 3.20 %, 10.17 % and 69.38 % respectively. The caloric value obtained was 282.19 kcal/100g. The pH and titratable acidity values were 5.78 and 1.12 % respectively. Water absorption capacity (18 %), fat absorption capacity (14.0 %) and bulk density (0.70 g/cm³) were recorded for the palmyrah tuber flour. The values for swelling power, foam capacity and foam stability were 4.55, 21.32 % and 29 % respectively. The values moderately higher than of similar flours and the flour may be used direct or combined with other flours for preparation of foods.

Biscuits and bread was prepared with tuber flours of 5, 10 and 15%, results shows that bitterness is increasing with increase of tuber flour. Also observed that flour from autoclave cooked tuber has good in taste as compared to other flours.

Standardization of Preservation Technique for Palmyrah Tender Fruit Endosperm.

Experiment were conducted for identifying the maturity stage for nungu. Tender fruit of 50, 60, 70 and 80 days from flower initiation were collected and evaluated by sensory, it was observed More water at age up to 60 days and less quantity of endosperm. It is also observed that at stage of 70 days from the initiation flower was good and more pulp as compared to others for tender nut and at the age of 80 days have more the pulp was hard and suitable for jam and jelly preparation only. It was observed that 70 followed by 60 days nungu give better option as compared to others. The dehydrated samples treated with sugar syrup concentration of 50 and 60 Brix was found to be acceptable in sensory qualities except slight colour change on storage. Nungu in deep freezer lost its originality, IQF or canning may be tried for preservation.





D. ENTOMOLOGY

FRUITS

MANGO

Fruit Research Station, Sangareddy

Screening of germplasm against pests of mango (hoppers, thrips, scales, mealy bugs)

A total number of 90 accessions including clones, seedling selections, and hybrids were screened for hoppers, thrips, scales, mealy bugs, fruit borer. Among them highest hopper population (8.33 panicle⁻¹) was observed in Dashehari -35 followed by dashehari Local. Screening of other sucking pests such as thrips revealed highest thrip population (10.66 panicle⁻¹) in Dashehari Local. Among the germplasm screened, seven (7) entries were recorded resistant (1-20%) and thirty six (36) entries were recorded moderately resistant to scale insects, whereas eight (8) entries were resistant and nineteen (19) entries were moderately resistant to mealybug.

Population dynamics of major pests of mango (Hopper and fruit fly)

In surveillance of mango pests during 2012, peak activity of fruit fly population was noticed in 20th standard week i.e in Banganpalli variety of mango (41.5 per trap). The population of fruit flies was less and declined after 24th standard week. Peak incidence of fruit flies noticed in the 20th standard week and was positively correlated with maximum temperature and negatively correlated with minimum temperature and relative humidity and rain fall.

In surveillance of mango pests during 2012-13, peak activity of hopper population was noticed in 6th standard week i.e second week of February in Banganpalli variety of mango (11.16 hoppers panicles⁻¹). The population of hoppers on panicle (*Ideoscopus clypealis*) was less and declined after third week of March. Peak incidence of hoppers on panicle was noticed in the sixth standard week and was negatively correlated with minimum and maximum temperature and positively correlated with Relative humidity and rain fall.

Cost effective management strategies for fruit flies in mango/Guava

For management of fruitflies in mango and guava, among the treatments T₂ (Hanging of glass wide mouth bottle trap containing 0.1% methyl eugenol and 0.1% DDVP @ 10 traps.ha⁻¹.) was effective in controlling fruitflies followed by T₃ (Dapoli traps). The species observed in the traps were *B.dorsata* and *B.zonata*. The damage of fruitfly was more in red fleshed varieties compared to the white varieties.

This experiment on mango for this year is under progress.

Integrated Pest management of mango hopper

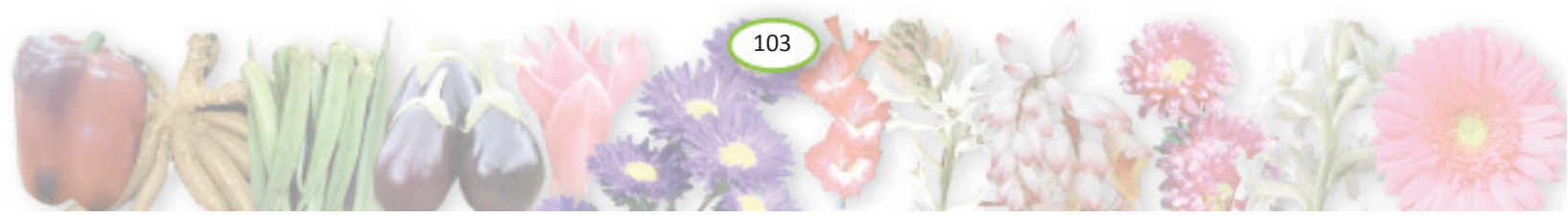
Under Integrated Pest Management of Mango Module III {First spray of thiamethoxam (0.008 %) @0.3g/lit at panicle emergence stage followed by second spray (21 days after first spray) of profenophos (0.05%) } @1.5ml/lit were found to be superior in controlling the hoppers.

Survey and Surveillance of Pollinators.

The major pollinating insects recorded were Paddy butterfly blue butterfly (*Danius flexipus*), Honey bees (*Apis Indica*), House fly, *Coccinella septumpunctata* and other Hymenopterans. Maximum numbers of pollinators were recorded in the middle of the tree (2-4 meter of height) during first week of February, where maximum flowering was noticed (Table.5). Spraying of new chemicals such as Imidacloprid, Actara, Clothionidin were found lethal for pollinators.

Mango Research Station, Nuzvid

Survey was conducted in mango gardens of various mandals of Krishna district for the incidence of different pests during the year. Severe incidence of leaf webber was observed throughout the flowering and fruit development stages. Mango fruit borer incidence was recorded at low to medium level. Lot of flower feeding caterpillars were also observed causing damage to inflorescence.





Among the various insecticides tested Thiamethoxam 25% WG @ 0.005% (5 g / 20 Lit) and Imadacloprid 17.80% SL @ 0.3 ml / Lit of water was effective against both thrips and hoppers throughout the spray period.

Among the various insecticides tested Chloripyriphos 20 EC @ 0.05% (2.5 ml / Lit) + Dichlorovos 76 EC @0.11% (1.5 ml / Lit of water) was effective against fruit borer throughout the spray period.

GRAPE

Grape Research Station, Rajendranagar

Survey for major pests of grape and their natural enemies:

Fixed plot survey conducted at Grape Research Station, Rajendranagar indicated that thrips incidence (*Scirtothrips dorsalis*, *Rhipophorothrips cruentatus*) was very severe during first week of December to last week of February 2012-13. Mealy bug incidence was observed in the 1st week of February and peak incidence was noticed in the third week of March. Flea beetle damage was negligible during the year. Stem borer infestation was also severe in February to March months. Stray appearance of *Spodoptera* and *Helicoverpa* in grape was noticed in the roving survey.

Survey was conducted in 25 vineyards in Rangareddy and Medak districts indicated that Out of 25 vineyards mealy bug (*Maconellicoccus hirsutus*) incidence was high in 7 (24.00%) vineyards whereas moderate infestation was observed in 1(4.00%) vineyard.. Thrips (*Scirtothrips dorsalis*, *Rhipophorothrips cruentatus*) incidence was severe during the year and severe incidence was noticed in 19 vineyards(48.00%).The level of flea beetle infestation was low in 21(44%) orchards. Stem borer (*Coelosterna scrabrator*) infestation was severe in 6 (24%) vineyards. Mite (*Tetranychussp*) infestation was in high intensity in 3 vineyards(4.00).Natural enemies such as Spiders, coccinellid beetles, lace wing bugs, predatory bugs were noticed

Management of thrips in Grape:

Thrips (*Scirtothrips dorsalis*) was very severe during the period. Thrips population was high in 10th to 12th leaf compared to other leaves. Among the tested treatments Spinosad 45% Sc @ 0.3 ml/lit recorded maximum percent reduction of thrips population (73.22) followed by Fipronil (70.5%) after two sprays at 15 days interval.

Management of mealy bugs in Grape:

Mealy bug (*Maconellicoccus hirsutus*) incidence was noticed from last week of January to last week of March. Among all the tested treatments on grape bunches in variety Thompson seedless Spirotetramat @ 0.5 ml/l is very effective against grape mealy bug compared to other treatments followed by Buprofezin@1.25ml/lit.

Biointensive: Among all the biopesticides tested *Verticilium lecani* @5gm.lit was found to be effective with 1.18 mealy bug colonies followed by *Cryptoleamus montrouzieri*.(1.63 mealy bug colonies) after the second spray.

Management of mites in Grape:

Mite infestation (red spider mite *Tetranychus sp*) was severe during the second fortnight of February 2013 to last week of March 2013. Among all the treatments. Abamectin was statistically superior in controlling the mites (96.04 percent reduction over control) in comparison with all the other treatments followed by Spirotetramat (89.22) after two sprays.

Management of stem borer in grape:

Among all the tested treatments, stem injection with Dichlorvos 76 EC (80ml/livehole) and Aluminium phosphide tablets @ 1gm/live hole gave 100 percent reduction of in live tunnels and significantly superior over the other treatments .Superiority of both these treatments may be due to good fumigant action. Chloroform injection, carbon disulphide, methyl bromide, petrol injection recorded 91.67, 75.00, 66.67 and 47.83 percent reduction in live tunnels respectively.

Evaluation of Bioefficacy of Imidacloprid soil drenching:

Thrips:

During the period the thrips (*Scirtothrips dorsalis*) was very severe compared to the last year.Among all the treatments Soil drenching of Imidacloprid 70 WG@ 0.45 g/lit per vine at 20 and 40 days after pruning was effective in management of thrips and mealy bugs.



Jassids:

Jassid population was negligible during the period. However stray appearance of jassids was noticed in the border plants.

Mealy bugs:

Mealy bug incidence was noticed in the last week of January Imidacloprid 70 WG@0.45g/litper vine soil drenching at 20 and 40 days after pruning recorded least mealy bug population(1.00) followed by Imidacloprid 200SL soil drenching at 20 and 40 days after pruning(1.15).

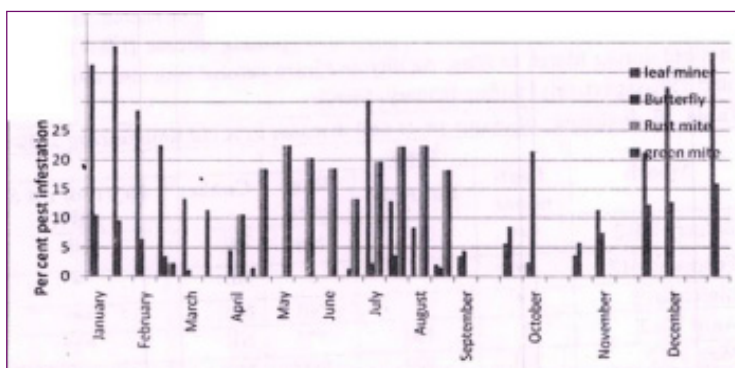
Screening of germplasm for the incidence of pests in grape (Non Plan)

The vines grown on own root were less susceptible to pest compared to those vines wines grown on rootstock. The pest incidence was more on table varieties compared to juice varieties. The grape variety Muscat of Hamberg was less susceptible to thrips whereas Thompson seedless, Red globe, Kutta Kurgoan, Rizamat, A17-3, Anab eshahi Gulabi X Bangalore purple were highly susceptible. H-23, E12/2, Kishmish Rozoviz, Kishmish Beli were less susceptible to mealy bugs and Thompson seedless, Queen of vineyard, Anab eshahi were highly susceptible

SWEET ORANGE

Citrus Research Station, Tirupati

Population dynamics of major insect pests and their natural enemies: A periodical survey for major pests on sweet orange and acid lime was conducted at fortnightly intervals in a fixed plot at the farm and the results revealed that the incidence of citrus leaf miner was moderate to high in November-March, low in April and during the months of May, June no damage was recorded. Butterfly damage started from June II FN onwards. Moderate infestation was recorded during the months of November-January, while during the entire rainy period its infestation was low and during the entire summer (March-May) its infestation was not observed. High to severe green and rust mite infestations were recorded from April to August months, while mite damage was not there during the entire winter (Nov-Mar) period. Among the other pests thrips infestation was found be high on both leaves (25-30%) and fruits (25-50%) during September -December and moderate during January March and August months. Pysllid infestation was noticed from January -May months with peak (30-40 nymphs/5cm twig) infestation during March and April months. Ashy weevil damage recorded from June to September months with peak (35-40%) activity in August, September months. Blue butterfly incidence observed during July, August months but to an extent of <5% only. Natural enemies like different species of spiders, coccinellids, chrysopids and mantids were noticed during August to October months. Predatory mite *Amblysius* sp population was found to be high (1-2mites/cm²) during August& September months on rust mite infested fruits.



Pest	Pest Infestation		
	Low	Medium	High
Pyslla (<i>Diaphorina citri</i>)	Jan, May	Feb	March, Apr
Thrips (<i>scirtothrips.sp.</i>)	June, July	Aug,Jan,Feb,Mar	Sept-Dec
Ash weevil (<i>Myllocerus spp</i>)	June	July	Aug, Sept
Blue butterfly (<i>Tarucus indica</i>)	July, Aug	—	—





Evaluation of different spray schedules against leaf miner in citrus (Nursery/young orchards): The least incidence (0.3%) of citrus leaf miner was recorded in the treatment (T2) Neem formulation 10000 ppm @ 5ml/L followed by Thiamethoxam (0.025%) and was found significantly superior with control up to 14 days in reducing the leaf miner incidence. The second best treatment proved effective was Neem formulation 10000 ppm @ 5ml/L followed by Spinosad (0.002%) (T5) with only 1.2% pest infestation up to 14DAS.

Table-17: Evaluation of different spray schedules against citrus leaf miner during 2012

Treatments	Name of the Treatment	Pre count	Mean per cent incidence of leaf miner		
			3 DAS*	7 DAS	14DAS
1	Neem formulation 10000 ppm @ 5ml/L followed by Acephate (0.1125%)	30.6	8.4(16.84)	5.5(13.56)	3.9(11.43)
2	Neem formulation 10000 ppm @ 5ml/L followed by Thiamethoxam(0.025%)	26.1	1.8(7.71)	0.6(4.44)	0.3(3.13)
3	Neem formulation 10000 ppm @ 5ml/L followed by Profenophos(0.1%)	31.2	3.8(11.24)	1.1(6.02)	3.6(10.93)
4	Neem formulation 10000 ppm @ 5ml/L followed by Thiodicarb (0.075%)	28.4	1.4(6.79)	2.8(9.63)	2.5(9.09)
5	Neem formulation 10000 ppm @ 5ml/L followed by Spinosad (0.002%)	25.7	1.3(6.54)	0.7(4.79)	1.2(6.28)
6	Neem formulation 10000 ppm @ 5ml/L followed by Difenthiouron (0.05%) ¹	22.8	5.3(13.30)	2.4(8.91)	5.6(13.68)
7	Water spray CD @ 5%	19.9	20.4 (26.85) 5.189	21.3(27.48) 3.478	12.0(20.26) 3.502

* Days after spray; Figures in parenthesis are arc sign “ percentage transformed values

Management of citrus thrips, aphids and blackfly/whitefly in citrus. Thrips:

Leaves: The treatment Neem formulation 10000 ppm @ 5ml/L followed by Spinosad (0.002%) was found superior giving >80% control upto 14DAS. This was followed by fiopronil (0.01%) and thiamethoxam (0.025%).

Fruits: Least thrips damaged fruits were noticed in the neem formulation 10000 ppm @ 5ml/L followed by spinosad (0.002%) treatment. The second best treatment was thiamethoxam (0.025%) for thrips management. However fiopronil (0.01%) and thiamethoxam (0.025%) are economical and best chemicals for thrips management in both leaves and fruits.

Table 18: Evaluation of different synthetic chemicals against citrus thrips (leaf infestation)

Treatments	Name of the Treatment	Pre count	Per cent thrips infestation		
			3 DAS*	7 DAS	14 DAS
1	Neem formulation 10000 ppm @ 5ml/L followed by Spinosad (0.002%)	24.7%	4.77 (12.61)	4.76 (12.60)	4.06 (11.62)
2	Neem formulation 10000 ppm @ 5ml/L followed by Quinalphos(0.05%)	24.9%	6.80 (15.11)	7.40 (15.78)	12.13 (20.38)
3	Neem formulation 10000 ppm @ 5ml/L followed by Fipronil(0.01%)	26.1%	4.40 (12.10)	4.06 (11.62)	5.26 (13.25)
4	Neem formulation 10000 ppm @ 5ml/L followed by Profenophos(0.1%)	35.1%	3.17 (10.25)	Ws03 (18.46)	7.80 (20.21)
5	Neem formulation 10000 ppm @ 5ml/L followed by Thiamethoxam (0.025%)	24.5%	3.57 (10.89)	1.40 (6.795)	5.63 (13.72)
6	Neem formulation 10000 ppm @ 5ml/L followed by Dimethoate (0.06%)	28.5%	5.17 (13.14)	3.33 (10.51)	5.33 (13.34)
7	Water spray CD @ 5%	26.6%	20.97 (24.32) 2.962	10.0 (18.43) 2.936	20.13 (23.68) 4.083

* Days after spray; Figures in parenthesis are arc sign “ percentage transformed values



**Table-19: Evaluation of Synthetic chemicals and Natural products against citrus thrips on fruits during 2012**

S. No.	Name of the Treatment	Mean per cent thrips infested fruits		Cost benefit ratio
		2 Months after spray	3 Months after spray	
1	Neem formulation 10000 ppm @ 5ml/L followed by Spinosad (0.002%)	8.93 (17.38)	10.63 (19.02)	2.2
2	Neem formulation 10000 ppm @ 5ml/L followed by Quinalphos(0.05%)	8.53 (20.98)	17.06 (24.39)	1.8
3	Neem formulation 10000 ppm @ 5ml/L followed by Fipronil(0.01%)	10.93 (19.30)	15.33 (23.05)	3.2
4	Neem formulation 10000 ppm @ 5ml/L followed by Profenophos(0.1%)	10.83 (19.21)	20.93 (24.29)	2.2
5	Neem formulation 10000 ppm @ 5ml/L followed by Thiamethoxam(0.025%)	9.2 (17.65)	11.40 (19.73)	2.9
5	Neem formulation 10000 ppm @ 5ml/L followed by Dimethoate(0.06%)	7.3 (15.67)	12.26 (20.49)	2.1
7	Water spray	20.93 (24.26)	21.53 (27.64)	
	CD @ 5%	3.589	6.411	

Figures in parenthesis are arc sign “ percentage transformed values

Bio-rational management of Lemon Butterfly in young orchards:

The experimental results indicated that 14 days after spray, 100% reduction in the larval population of citrus butterfly was obtained in carbaryl 50 WP (0.1%) and *Bacillus thuringiensis* (0.1%) treated plants. NSKE (5%) is the third best treatment with 1.8 larvae/pl. till 14DAS.

Table 20: Effect of different bio-pesticides against Lemon Butterfly in young orchards during 2012

Sl. No.	Treatments	Pre-treatment Count (No.)	Larval Population / 15 cm twig		
			3DAS	7DAS	14DAS
T ₁	NSKE (5%)	7.5	4.3(2.57)	2.2(1.98)	1.8(1.84)
T ₂	Neem soap (10 g/l)	8.3	5.2(2.78)	4.2(2.54)	3.8(2.45)
T ₃	Karanj oil (1%)	7.5	5.9(2.92)	3.8(2.45)	3.8(2.45)
T ₄	Neem oil (1%)	8.0	3.9(2.47)	3.1(2.267)	2.4(2.05)
T ₅	Pongamia soap (10 g/l)	7.8	4.5(2.62)	4.0(2.50)	3.6(2.39)
T ₆	<i>Bt</i> (0.1% = 1 g/l)	7.0	3.0(2.23)	1.5(1.72)	0(0.7)
T ₇	Carbaryl (0.1%)	8.5	1.9(1.87)	0.5(1.20)	0(0.7)
T ₈	Control (Water spray)	8.6	9.3(3.54)	8.3(3.38)	8.5(3.41)
	CV(%)	—	17.6	20.6	21.9
	CD (5%)	—	1.510	1.056	1.204

Figures in the parenthesis are “ transformed values.

Evaluation of bio-rational insecticides against citrus psylla:

The treatment T2, NovaluronIOEC (0.005%) is significantly superior over control followed by treatment T5, Azadirachtin(1%) (0.04%) providing > 80% psyllid control even upto 14DAS and both these chemicals are comparable to Dimethoate 30EC (0.06%), the standard check.

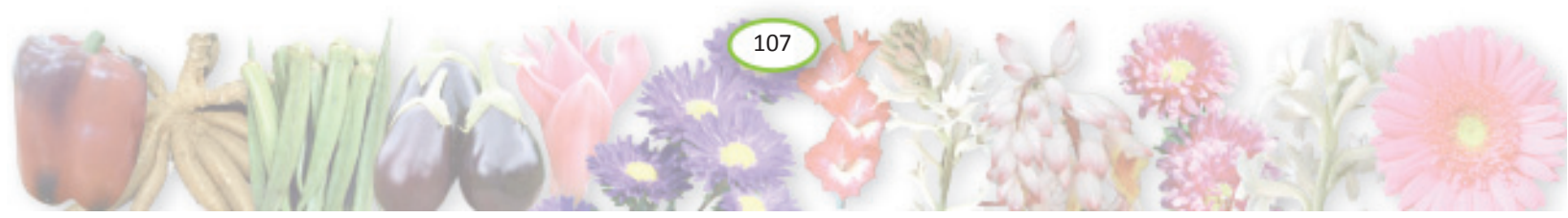




Table 21: Evaluation of bio-rational insecticides against citrus psylla (*Diaphorina citri*) during 2012

	Treatments	No. of nymphs/5cm twig(pre-treatment)	Percent reduction over control		
			3DAS*	7 DAS *	14 DAS *
T ₁	Abamectin 1.9EC (0.0007%)	13.8	80.7(63.93)	93.2(74.88)	55.8(48.33)
T ₂	Novaluron10EC (0.005%)	10.3	80.1(63.50)	93.1(74.77)	83.6(66.11)
T ₃	Petroleum spray oil (5.9ml/L)	12.8	51.2(45.68)	57.6(49.37)	64.3(53.30)
T ₄	Neem oil (3%)	12.9	80.4(63.72)	88.9(70.53)	75.8(60.53)
T ₅	Azadirachtin(1%) (0.04%)	12	95.2(77.34)	95.8(78.17)	65.7(54.15)
T ₆	<i>Verticillium lecanii</i> 2x10 ⁸ cfu (4g/L)	23	83.1(65.72)	90.1(71.66)	76.1(60.73)
T ₇	Dimethoate 30EC (as standard) (0.06%)	26	97(80.02)	93.7(75.46)	80.3(63.65)
T ₈	Control (water spray)	18.7	2.3(63.93)	-37.9(37.99)	-45.5(42.42)
	CV	—	2.7%	4.3%	5.1%
	CD@ 5%	—	3.438	5.753	5.694

* Days after spray; Figures in parenthesis are arc sign “ percentage transformed values

Evaluation of bio-rational insecticides/acaricides against citrus mites: The treatments Ethion 50 EC (0.05%) followed Propargite 57 EC (0.057%) are the two best treatments both in economical and pest controlling aspects against citrus mites.

Table 22: Evaluation of Synthetic chemicals and Natural products against citrus Rust mite during 2012

S. No.	Name of the Treatment	percent Rust mite infested fruits		Cost benefit ratio
		3 Months after spray	5 Months after spray	
1	Neem oil (5%)	2.10(8.33)	5.31(13.32)	4.4
2	Petroleum spray oil (1%)	1.00(5.73)	3.96(11.43)	2.0
3	Petroleum spray oil (2%)	1.60(7.26)	6.50(14.77)	1.8
4	Ethion 50 EC (0.05%)	2.06(8.25)	3.20(10.23)	9.5
5	Abamectin 1.9 EC (0.0007%)	3.50(10.78)	4.83(12.69)	3.6
6	Buprofezin 25 SC (0.125%)	2.50(9.09)	4.76(12.60)	4.4
7	Triazophos 40 EC (0.06%)	2.26(8.64)	3.80(11.24)	5.5
8	Propargite 57 EC (0.057%)	1.26(6.44)	2.50(9.09)	8.8
9	Dicofol 20 EC (Standard) (0.04%)	1.83(7.77)	2.95(9.88)	8.7
10	Spiromesifin 240 SC @1ml/lt	1.56(7.17)	2.58(9.24)	6.1
11	Fenazaquin @ 2ml/ lt	1.75(7.60)	3.45(10.70)	6.6
12	Control(water spray)	12.06(20.32)	23.20(28.76)	0
	CD @ 5%	4.806	4.602	

Figures in parenthesis are arc sign “ percentage transformed values

VEGETABLES

Horticultural Research Station, Mahanandi

Survey and surveillance of pests on major Vegetable crops in Kurnool District.

Roving survey was conducted in the vegetable growing areas of Kurnool district. In Brinjal, 10-21% fruit and shoot borer damage, 1-6 jassids were identified. In Bhendi 6-11% fruit and shoot borer, 2-13 jassids, 4-10 mites, In Tomato, 6-13% fruit borer, 1-5 white flies were identified. 4-13 thrips in Onion and 2-5 thrips in chillies were observed in Kurnool district.





ONION

Development of IPM package for the management onion thrips *Thrips tabaci*

Among the different IPM modules, Seed treatment with Imidacloprid 5g/Kg seed + Application of Neem + cake @200Kg/acre + Barrier crop with Maize + Monitoring with yellow sticky traps + Azadirachtin 1 % @1 ml/lit + fipronil @2ml/lit (Need based) was found to good in controlling thrips incidence (4.57) and more yield (25.28 t/ha) was recorded.

Evaluation of newer insecticides against onion thrips *Thrips tabaci*

Diafenthiuron 50WP @ 1g/lit spray was found to be good controlling the onion thrips (5.15) and more yield (24.64 t/ha) was recorded.

BRINJAL

Development of Integrated Pest Management module for Brinjal shoot and fruit borer.

Different IPM modules were tested against the Brinjal shoot and fruit borer. Among the tested modules. Mechanical removal of damaged shoots + two rows of maize as border crop + potash application @ 100 Kg/ha + selective insecticide Emamectin benzoate 25G @ 0.4 G/Lit need based spray is the best IPM module is found to be effective in controlling the fruit and shoot borer and highest yield was recorded (32.45 t/ha).



SPICES

CHILLIES

Vegetable Research Station, Rajendranagar

In Chilli, for reducing the flower and fruit damage due to blossom midge, Azadirachtin 10,000 ppm @ 3ml/lit proved to be the best. Triazophos 40 Ec, chlorantraniliprole 18.5 SC, thiacloprid 21.7 SC and Imidacloprid 17.8 % Sc were at par with Azadirachtin. Hence, These chemicals can be used alternatively to manage Blossom midge in Chilli.

Buprofezin @ 1 ml/lit and Diafenthiuron @ 1g/lit can be used for the management of Jassids in Okra and for the management of aphids Thiacloprid @ 0.5 ml/lit and Diafenthiuron @ 1 g/lit proved effective.

PLANTATION CROPS

COCONUT

Horticultural Research Station, Ambajipeta

Ent-3: Survey and monitoring of pest problems in coconut (eriophyid mite, rhinoceros beetle, red palm weevil, black headed caterpillar and other pests).

Roving survey carried out from April 2012 in 74 villages of major coconut growing districts of A.P revealed that coconut black headed caterpillar *O.arenosella* incidence initially observed on fish pond bund coconut trees from September 2012 increased and spread to pure coconut gardens especially after the rains received from Neelam cyclone in November 2012 in all the districts (except Krishna) surveyed. In the surveys carried out in the month of January 2013 in, Goganamatam village East Godavari district of two new larval parasitoids of coconut slug caterpillar *M.nararia*; *Euplectrus* sp and *Euplectromorpha* sp belonging to family Eulophidae (Hymenoptera) were identified and were found parasitising this caterpillar under field conditions effectively. A pupal parasitoid *Eurytoma monemae* was also recorded from the pupae of the slug caterpillar. Along with these parasitoids a entomopathogenic fungi *Paecilomyces lilacinus* (Thom) Samson was also isolated from slug caterpillar in Chirutapudi village of East Godavari district.

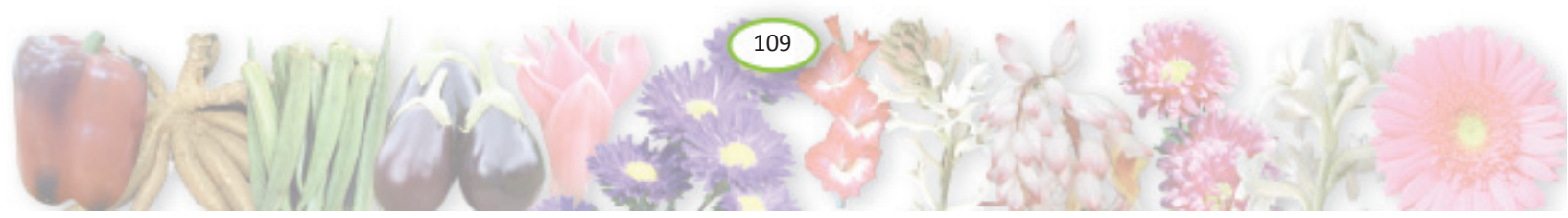
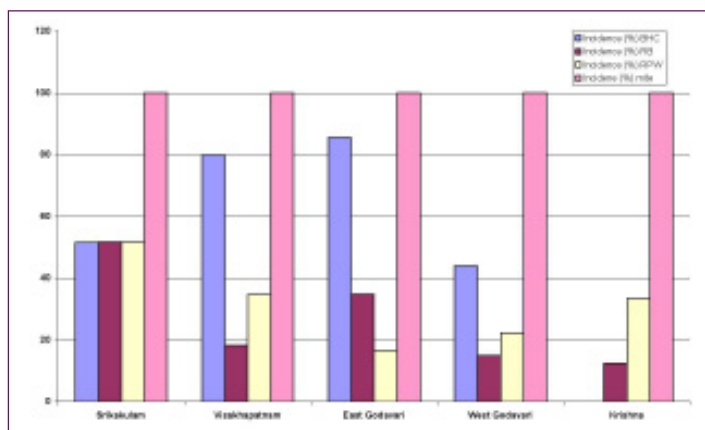


Table-1: Incidence of major coconut pests in important coconut growing districts of Andhra Pradesh (Roving survey)

Sl. No.	Name of District	Pest Incidence (%)			
		Coconut black headed caterpillar	Rhinoceros beetle	Red palm weevil	Eriophyid mite
1	Srikakulam	51.66	51.81	51.7	100
2	Visakhapatnam	80.00	18.33	34.66	100
3	East Godavari	85.57	34.85	16.66	100
4	West Godavari	44.00	15.00	22.3	100
5	Krishna	0	12.50	33.50	100

Figure 1 : Incidence of major pests of coconut in Andhra Pradesh (Roving survey)



Fixed plot survey

Fixed plot survey was under taken in Palivela and Korlapativaripalem villages of East Godavari district. Hundred per cent incidence of eriophyid mite was observed, however medium scale of mite intensity at Palivela and severe scale of mite intensity at Korlapativaripalem was recorded in the fixed plot villages (Table-2). Low intensity of rhinoceros beetle damage was noticed in both the gardens No incidence of Red palm weevil and coconut black headed caterpillar was recorded in fixed plot survey villages.

Table 2 : Monitoring of coconut pests in East Godavari district of Andhra Pradesh (Fixed plot survey)

Name of the Village	Incidence of different pests and intensity									
	Incidence (%)	Mite		Red palm weevil	Black headed caterpillar	Incidence (%)	Rhinoceros beetle		Slug caterpillar	Other pests
		Intensity Mite					Intensity			
		Young	Harvested				Leaf damage (%)	Spindle damage (%)		
Palivela	100	1.52	1.20	—	—	5.0	11.0	—	Low	-
Korlapati varipalem	100	2.10	2.75	—	—	7.0	10.0	—	—	-

Ent 5: Management of eriophyid mite in coconut gardens

The data on the intensity of eriophyid mite in 3 rd bunch was collected to calculate the mean grade index. Three treatments were imposed, T₁ - IPM implemented garden, T₂ – IPM treatment without root feeding and T₃ control plot. The control recorded the highest mean grade index and T1- IPM implemented garden with root feeding recorded lowest mean grade index 1.62 at Ambajipeta and was closely followed by T₂ – IPM treatment without root feeding.





Table-3 : Management of eriophyid mite in coconut garden

Period	Treatments	Grade index of mite infestation in 3 rd bunch
April –June 2012	T1	2.10 (Severe)
	T2	1.94 (Medium)
	T3	2.10 (Severe)
September – October 2012	T1	Root feeding treatment due in September, October and November 12 could not be taken up due to heavy Cyclonic rains and water inundation in experimental gardens
	T2	
	T3	
December-2012 to February - 2013	T1	1.14 (Medium)
	T2	1.04 (Medium)
	T3	2.20 (Severe)
Mean	T1	1.62 (Medium)
	T2	1.49 (Medium)
	T3	2.15 (Severe)

Ent.11: Evaluation of improved strains of parasitoids (Braconid) (*Goniozus nephantidis* – larval parasitoids) and predators (*Cardiostethus exigus*) in the field against *O. arenosella*.

The field trail was conducted in Coconut black headed caterpillar out break garden in Dwarapudi village of Kadiyam mandal in East Godavari district in the month of December 2012 as per CPCRI guidelines. There was a high initial larval population ranging around 81 numbers per ten leaflets in December 2012 and gradually decreased to 18.77 numbers/ten leaflets with a high parasitisation of 77.05 per cent in conditioned and 33.55 numbers/ten leaflets with a parasitisation of 58.81 percent in Unconditioned treatment in the month of March 2013. In untreated control a larval population of 69.8 numbers /ten leaflets was recorded and showed a very low parasitisation of 14.36 per cent

Table-4: Field efficacy of *Goniozus nephantidis* against the coconut black headed caterpillar

Treatment	<i>(O. arenosella</i> larval population/ ten leaflets) Average of ten palms							
	Pre - release Dec 12		Post release					
			One month after Jan 13		Two months after Feb 13		Three months after March 13	
	Larval pop.	p.p.**	Larval pop.	p.p.	Larval pop.	p.p.	Larval pop.	p.p.
T ₁ - Conditioned	81.81(9.09)*	0.0	54.6(7.46)	33.26	33.64(5.88)	58.88	18.77(4.29)	77.05
T ₂ - Un conditioned	81.47(9.08)	0.0	64.8(8.11)	20.46	49.77(7.13)	38.91	33.55(5.88)	58.81
T ₃ - Control	81.51(9.08)	0.0	76.8(8.81)	5.78	63.80(8.50)	21.72	69.8(8.41)	14.36
SEM	0.04		0.05		0.04		0.08	
CD	Non Sig.		0.16		0.13		0.25	

* Figures in parentheses are square root transformed values

pp ** - Per cent parasitisation

Ent-12: Studies on field efficacy of commercially available pheromones against coconut pests viz., rhinoceros beetle and red palm weevil

Studies on red palm weevil pheromone lures were conducted with NPM CPCRI Lure and PCI lure from April 2012. The catches revealed that a total of 639 beetles were caught in NPM CPCRI Lure from April 2012 as against 457 beetles trapped in PCI lure. No catches were observed in control trap.





Table 5: Number of red palm weevils trapped in different pheromone traps (April 2012 to March 2013)

Sl. No	Month	Total no. of weevils trapped in		
		T ₁ – NPM CPCRI lure	T ₂ – PCI lure	T ₃ – Blank trap
1	April 2012	34	49	0
2	May 2012	77	82	0
3	June 2012	75	102	0
4	July 2012	63	45	0
5	Aug 2012	74	24	0
6	Sept 2012	51	27	0
7	Oct 2012	38	19	0
8	Nov 2012	71	36	0
9	Dec 2012	64	27	0
10	Jan 2013	47	16	0
11	Feb 2013	20	19	0
12	March 2013	25	11	0
	Total	639	457	0

Studies on Rhinoceros Beetle (Rhino lure)

Studies conducted with Rhinoceros Beetle lures (Rhino lures) with NPM CPCRI lure and Pest Control India lure arranged in two different gardens. From the data it was found that 74 numbers of beetles were trapped in NPM CPCRI lure while in PCI lure 27 beetles were trapped during the same observational period. No catches were recorded in control trap

Table 6 : Number of rhinoceros beetles trapped in different months [from April 2012 to March 2013]

Sl. No	Month	Total no. of beetles trapped in		
		T ₁ – NPM CPCRI lure	T ₂ – PCI lure	T ₃ – Blank trap
1	April 2012	4	—	0
2	May 2012	30	4	0
3	June 2012	15	11	0
4	July 2012	6	3	0
5	Aug 2012	4	—	0
6	Sept 2012	7	1	0
7	Oct 2012	1	—	0
8	Nov 2012	—	—	0
9	Dec 2012	3	3	0
10	Jan 2013	1	4	0
11	Feb 2013	3	1	0
12	March 2013	-	-	0
	Total	74	27	0

Ent.14: Validation of integrated pest management technology for *Oryctes rhinoceros* in different regions.

Nagulanka village, P.Gannavaram Mandal, East Godavari district was selected for the experiment implementation from 2012. The metarhizium culture and Baculovirus culture were obtained from CPCRI, Kayangulam and are being maintained at Entomology lab, HRS, Ambajipeta. Pheromone lures were obtained from M/s. PCI Ltd and installed in the gardens. The pre treatment infestation data showed 100 per cent incidence and a damage of 65.46, 30.00 and 36.40 percent leaf, spindle damage and multiple cut damage. In January 2013 the damage incidence decreased by fifty percent and a leaf damage of 8.50, spindle damage of 5.00 and multiple cut damage of 1.58 percent were recorded in the experimental field





Table 7: Pre and Post treatment infestation levels of rhinoceros Beetle in the experimental garden

Period of Observation	Name of the village	(%) Damage intensity			
		Leaf	Spindle	Multiple cut	Incidence (young palms)
May 2012 Pre treatment	Nagullanka	65.46	30.00	36.40	100.00
September 2012		9.74	7.00	2.65	70.00
January - 2013		8.50	5.00	1.58	50.00

Ent. 16: Multi-location field evaluation of talc formulation of *Hirsutella thompsonii* (CPCRI isolate) against coconut eriophyid mite at AICRP palm centers

The experiment was initiated in the month of February 2012 with the following four treatments with 20 palms in each treatment (total 80 palms for the experiment) The mite pre treatment population which ranged from 2.38 to 3.92 / 1mm² in February 2012 decreased to 0.69 to 1.36 / 1mm² in March 2013 . A general decline in mite population in control was also observed. However, no predator population was observed in the November 2012 and March 2013 sample nuts as compared to February 2012 and May 2012 months sample nuts. The lowest mite population of 0.24, 0.47 and 0.57 /1mm² was continuously recorded in Treatment T3 (Spraying Palm oil – sulphur emulsion) during the entire observational period.

Table 8 : Population count of eriophyid mite and its predators / 1mm² during the study period

Treatment	Average of ten nuts of 3 months age expressed as population/1mm ²							
	Pre-treatment (February 12)		May 2012		November 2012		March 2013	
	Mite	Predators	Mite	Predators	Mite	Predators	Mite	Predators
T1	2.38(1.84)*	0.65	0.31(1.13)	3.3	0.40(1.20)	0	0.69(1.26)	0
T2	3.49(2.11)	0.9	1.30(1.44)	0	0.10(1.06)	0	0.94(1.36)	0
T3	3.34(1.54)	0.9	0.24(1.09)	0	0.47(1.19)	0	0.57(1.23)	0
T4	3.92(2.22)	1.2	1.64(1.56)	1.5	1.44(1.50)	0	1.36(1.53)	0
SEM	0.17		0.10		0.06		-	
Sig	0.50		0.30		0.18		Non Sig	

*Fig. in parenthesis are n+1 values.

Data on Grade index of harvested nuts revealed that in all the treatments except control medium scale of mite intensity was recorded in February 2013 as compared to severe scale of mite intensity observed in February 2012. However, when compared to February 2012 the percent mite incidence nuts increased in February 2013 in all the treatments.

Table 9 : Grade index of harvested nuts and mite intensity during February 2012 to February 2013

Treatment	Pre treatment Feb 2012	Per cent Mite incidence Feb 2012	Grade index and mite intensity for Feb 2012 sprayed and Dec 2012	Grade index for May 2012 sprayed and Feb 2013	Per cent Mite incidence Feb 2013
T1	2.44 (Severe)	66.06	2.20 (Severe)	1.33 (Medium)	95.2
T2	2.49 (Severe)	70.03	2.13 (Severe)	2.00 (Medium)	97.4
T3	2.44 (Severe)	71.93	1.50 (Medium)	1.14 (Medium)	95.0
T4	2.43 (Severe)	68.33	2.50 (Severe)	2.40 (Severe)	98.6



CASHEW

Cashew Research Station, Bapatla

During 2011-2012 the relation between the percent shoot damage by LBW (Y) and weather variables such as Max.Temp (x1),Min.Temp.(x2),Relative Humidity (m) (x3) Relative Humidity (e) (x4) and Rainfall (x5) was worked out by subjecting the data collected over 48 standard weeks to Multiple Linear Regression Analysis.

All five independent variables in question have accounted for 56% of total variation in percent shoot damage by LBW which has been found significant ($R^2=0.5660$). However among the variables RH(e) was found to exert significant –ve effect on percent shoot damage which means that 1% increase in RH(e) is expected to bring down percent shoot damage by 0.022 times when all other variables tested are at their mean level (Ceteris paribus- holding other things constant). The variable Rainfall was found to exert significant +ve effect on percent shoot damage which means that 1mm increase in Rainfall is expected to increase the shoot damage by 0.0095 times when all other variables tested are at their mean level (Ceteris paribus- holding other things constant).

All five independent variables have accounted for 42% of total variation in percent nut damage by ANB which has been found significant ($R^2=0.42896$). However among the variables Minimum temperature was found to exert significant –ve effect on percent nut damage which means that 1° increase in Minimum temperature is expected to bring down percent nut damage by 1.22 times when all other variables tested are at their mean level (Ceteris paribus- holding other things constant). The variable Relative Humidity(e) was found to exert significant +ve effect on percent nut damage which means that 1% increase in Relative Humidity(e) is expected to increase the nut damage by 1.22 times when all other variables tested are at their mean level (Ceteris paribus- holding other things constant).

Results indicated that all five independent variables have accounted for 20% of total variation in percent leaf damage by leaf miner ($R^2=0.20748$). However among the five independent variables in question, none of the variable is found to exert any effect on the incidence of leaf miner.

All five independent variables have accounted for 55% of total variation in percent shoot damage by shoot tip caterpillar ($R^2=0.55487$). However among the five independent variables in question, Maximum Temperature was found to exert significant –ve effect on percent shoot damage which means that 1° increase in Maximum temperature is expected to bring down percent shoot damage by 0.66 times when all other variables tested are at their mean level (Ceteris paribus- holding other things constant).

Results indicated that all five independent variables have accounted for 55% of total variation in Inflorescence thrips population ($R^2=0.55487$). However among the five independent variables in question, Rainfall was found to exert significant –ve effect on Inflorescence thrips population which means that 1mm increase in Rainfall is expected to bring down Inflorescence thrips population by 0.11 times when all other variables tested are at their mean level (Ceteris paribus- holding other things constant).

Among the insecticides evaluated as post extraction prophylaxis, chlorpyrifos 0.2% offered protection to the tune of 90.9 % trees without re-infestation or persistent attack followed by Carbaryl 0.2% with 77.3 % trees without re-infestation or persistent attack. The other treatments viz., Monocrotophos and treated check with neem oil has offered 66.60 and 50.00 percent protection without re-infestation or persistent attack and are superior over the control treatment which recorded 33.33 % trees without re-infestation or persistent attack.

Preferential zone of attack is collar + root in 42.05 percent of trees (45/107) followed by collar + root + stem in 34.57 percent of trees (37/107) followed by collar+ Stem 23.36 percent (25/107).

In screening germplasm among the 41 accessions screened to identify the tolerant lines against the pests of cashew, **T.No.3/7** has recorded with highest incidence of leaf and blossom webber (14.7%) and **T.No. Hy 95-T4** recorded with the lowest incidence (1.14%). The accession **T.No.17/5** has recorded with the highest incidence of leaf miner (28.85%) and **BLA-139-1** recorded with the lowest incidence (2.00%). With regard to the incidence of leaf folder, the T.No. **Hy 94-T3** has recorded with the highest incidence (11.50%) and **Hy 95-T4** has recorded with low incidence(0.00) The accession **T.No. M 15/4** has recorded with the highest incidence of **Shoot tip caterpillar** (19.57%) and **T.No.6/14** recorded with the lowest incidence (0.85%). The accession line **T.No.4/5** has recorded with highest incidence of Apple and nut borer(47.60%) and T.No.**Hy 95-T4** has recorded with the lowest incidence(0.00)





MEDICINAL & AROMATIC PLANTS

BETELVINE

At AICRP on MAP & Betelvine, V.R.Gudem

Twenty species of insects were recorded on eight medicinal & aromatic crops. Among the insects eleven species were sucking complex viz., aphids, thrips, mites, seed bugs, red cotton bugs, whitefly, leaf hopper and stink bugs recorded on aswagandha, musk mallow, makoi, tulasi and cowhage. Seven defoliator insects were recorded during the period of study. No insects were reported on Vasa.

Senna seed storage beetle & whitefly on dulagondi were identified as *Caryedon* species and *Bemisia tabaci* respectively. Two species viz., *Aproaerema modicella* and *Papilio demoleus* were recorded on *Psoralea corylifolia*. leaf folder was noticed from 22nd Standard week (SW) to 39th SW with four peaks during the crop period.

In *Abelmoschus moschatus* maximum population of aphids, leafhoppers, whiteflies and seed bugs were recorded in dry period i.e. during 51SW, 1st SW, 48SW & 49SW respectively. Whereas, per cent loss in the seed yield due to *Earias vittella* & sucking complex viz., red cotton bugs & seed bugs was found to be 31.93%.

Among the parasitoids, *Apanteles* species is found to be promising larval parasitoid against leaf folder, *Aproaerema modicella* on *Psoralea corylifolia* (Bavanchalu). Similarly, *Glyptapanteles* sps & *Distratrix* sps were identified as predominant larval parasitoids against citrus butterfly, *Papilio demoleus* on the same crop.

Profenofos @ 2.0 ml/lit was found significantly superior over the remaining treatments at 1, 3, 7 days after treatment. Among the botanicals Azadirachtin @ 10000 ppm was found significantly effective over control but statistically on par with remaining aqueous extracts and oil formulations at 1DAT. Similar trend was observed at 3DAT & 7DAT.

Lab Studies revealed that aqueous extracts @ 5% were not significantly effective against per cent pupation & adult emergence of *Spodoptera litura* when compared to NSKE.



E. PLANT PATHOLOGY

Horticultural Research Station, Mahanandi

Survey and surveillance of diseases in major Horticultural crops existing in Rayalaseema Zone.

Survey was conducted in vegetable and fruit crop growing areas in Kurnool, Anantapur and Prakasam districts of Andhra Pradesh. In Kurnool districts observed damping off disease 2-10% in onion, tomato and chilli nurseries. 2-5% bacterial leaf spot disease observed in tomato crop. 10-15% leaf spot in turmeric, 5-10 % yellow vein mosaic virus in bhendi, 5-10% sigatoka leaf spot in banana, 2-5 % powdery mildew in chillies and capsicum and 2-5 % downey mildew in water melon were recorded.

Studies on Epidemiology of major diseases of Horticultural Crops

Onion- purple leaf blotch disease was recorded from July 1st week to 3rd week of November. The results indicated that the leaf blotch disease incidence had significantly positively correlated with maximum temperature (0.5727) and negatively correlated with minimum temperature (-0.6735) while the disease incidence was positively correlated with morning relative humidity (0.0258) and evening relative humidity (0.0934) and negatively correlated with rain fall (-0.0885). The R² value is 0.5599.

Tomato-Early blight disease was recorded from July 1st week to 3rd week of November. The results indicated that the disease incidence had significantly correlated with maximum temperature (0.5117) and negatively correlated with minimum temperature (-0.6601) and the disease incidence was negatively correlated with morning relative humidity (-0.3337) and positively correlated with evening relative humidity (0.1934) and positively correlated with rain fall (0.1794).

Turmeric- Turmeric leaf spot disease incidence was recorded from July 1st week to November 3rd week. The results indicated that disease incidence has significantly positively correlated with maximum temperature (0.5069) and minimum temperature (0.5899) and morning relative humidity (0.01207) and negatively correlated with evening relative humidity (-0.2035) and positively correlated with rain fall (0.1401)

FRUITS

MANGO

Fruit Research Station, Sangareddy

Screening of germplasm against powdery mildew disease in mango.

A total of 295 mango cultivars were screened against Powdery mildew by using 0-5 scale. Two hundred and five (205) entries (including Mallika, Manjeera, Manoranjan, Neelgoa, Neelum, Ratnagiri alphonso, Ratna, Royal Special, Rumani, Vazir Pasand, Zardalu) were recorded with zero incidence while Fifty three (53) entries (including Amrapali, Dashehari, Jalal, kasiratnalu, Kesar, Langra, Nazuk badan, Taimur pasand, Zarda) were recorded with a range of 1-20% incidence and grouped under highly resistant. Forty two (42) cultivars (including Amir pasand, Dashehari, FRS Selection, Kaju, Litchi, Navneetam, Totapari, Vanraj) had shown resistant reaction with 21-40% incidence and moderately susceptible (41-60%) reaction was recorded in Krishna, Lalmuni and UK. The susceptible (61-80) variety is Murisedabadi, whereas no variety was recorded with highly susceptible (>80%) reaction.

Studies on mango malformation

During 2012-13, About 256 mango cultivars were screened against floral malformation and categorized in to four groups by using 0-5 scale. Two hundred (200) entries were recorded with resistant reaction (0% incidence) including Alampur Baneshan, FRS Selection, Himayat, Kesar, Litchi, Manjeera, Manoranjan, Pedda rasam, Ratnagiri alphonso, Royal special, Rumani, Safed mulgoa, Seetha bhog, Surka calcutta, Tellagulabi,





Vanraj, Zardalu, whereas forty (40) entries were with moderately resistant reaction (up to 10%) including Agarbathi, Alphanso, Amrapali, Beneshan, Baramasia, Beauty Mclean, Golavani mamidi, Jagat ramani, Krishna, Lemon, Totapari. Moderately Susceptible (11-20%) reaction was recorded in Tweleve (12) varieties including Abbas, AU Rumani, Kaju, Swarnagudi. Lalmuni, Neeleshan, Neeluddin varieties have shown susceptible reaction (21-30%), whereas Ratna was recorded as highly Susceptible (above 31%) variety.

Epidemiological studies of mango powdery mildew.

The powdery mildew disease was first noticed in second week of February (6th standard week) 2013 on Dashehari (Susceptible) and baneshan (Moderately susceptible) cultivars of mango and continued upto March third week (11th Std. week). In both the varieties (Dashehari -13.4% and Baneshan – 7.8%) the maximum PDI was observed on 1st week of March (9th Std week). It was observed that a range of critical temperature (15.2°C-36.2°C) and Relative humidity (20.5-76.2%) was found congenial for development for the disease. The minimum temperatures were negatively correlated, whereas maximum temperatures positively correlated with PDI of Powdery mildew and the RH recorded at forenoon has shown positive correlation.

Management of mango anthracnose

In the management of mango anthracnose trees sprayed with Tricyclozole (0.1%) followed by Chlorothalonil (0.2%) were found superior over the other treatments in controlling the disease. The disease is caused by *Colletotrichum gloeosporioides*.

Management of Blossom blight of mango

During 2012-13 disease was not observed to implement the experiment.

Survey of seasonal occurrence of different diseases of mango

Survey was conducted to record the disease incidence on mango during 2012-13 in three regions of Andhra Pradesh viz., Telangana, Coastal and Rayalaseema where mango predominantly grown. The major diseases observed in all the three regions were anthracnose, bacterial leaf spot, powdery mildew, floral malformation, sooty mold, gray blight, red rust and gummosis. The Anthracnose disease is severe during rainy season (20.5%) when compared to winter and summer. The Powdery mildew (21.0%) and malformation (18.3%) diseases were severe during February (summer) month. The maximum disease severity was observed in the winter season were Red rust (13.3%), Grey blight (9.50%), Black banded disease (4.50%) and Gummosis (6.00%), where as in summer season Blossom blight 1.5(%), Sooty moulds (21.0%) and Bacterial blight (15.5%) were recorded.

Cost effective management of post harvest anthracnose of mango by pre and post harvest treatment

In the cost effective management of post harvest anthracnose of mango by pre and post harvest treatments, Two sprays of Carbendazim + hot water treatment with Carbendazim found significantly superior followed by one spray of Carbendazim followed by hot water treatment supplemented with Carbendazim over the control.

BANANA

Horticultural Research Station, Mahanandi

Management of Sigatoka leaf spot disease of Banana *Mycosphaerella musicola*

Mineral oil 1 % + Tebuconazole 50% + Trifloxystrobin 25% WG @0.5 g/L was found superior in controlling the Sigatoka leaf spot in Banana (17.87).

Horticultural Research Station, Kovvur

Survey of fungal, bacterial and viral diseases of banana

Sigatoka disease was the most prevalent disease recorded in all locations surveyed and disease incidence is ranged between 1-70 percent.

Among viral diseases BBrMV is the major disease of banana and height incidence (25 %) was observed in K. C. Keli cultivar. BSV has become a problem in tissue culture plants and incidence was ranged between 0-13 percent. BSV is more evident during winter season and causes mortality of young plants.





Rhizome rot particularly in Grand Naine and Tella Chakkerakeli cultivars is the major bacterial disease and incidence ranged between 0-22 percent. This disease has become threat to banana cv. Mortomon and incidence was noticed up to 19 percent during 2012-13 especially in ratoon crop. K.C. Keli which is thought to be resistant to rhizome rot was also affected during summer months and the incidence was ranged between 0-5.2 per cent. However, further study is required to establish the incidence of the disease. Among the other diseases Cordana leaf spot, Deightoniella leaf spot, Freckle leaf spot and CMV were noticed with low incidence.

Integrated management of *Fusarium wilt* diseases

The experiment was planted with pathogen free tissue culture plants on August 2012 in a uniformly distributed *Fusarium oxysporum* f. sp. *ubense* race 1 sick plot. Treatments were administering as per schedule. The plants in all the treatments started showing disease symptoms two months after planting. None of the treatments was effective checking infection. All the treatments were on a par for fusarium severity. The ratings for vascular discolouration were non-significant and none of the plants remained uninfected.

Studies on Sigatoka or prevalent leaf spot disease a) Epidemiology:

Experiment was conducted with highly susceptible cultivar Grand Naine and was planted at monthly intervals (twelve plantings per year) in a block of twenty plants. Irrespective of age of crop and weather parameters April to June plantings recorded significantly less per cent disease index of sigatoka leaf spot. The observation of youngest leaf spotted (YLS) is a measure of the number of leaves free from infection. The higher the YLS value, the healthier the plant is with respect to Sigatoka disease. However, a zero YLS value is indicative of total freedom from the disease. April to June 2011 plantings recorded highest YLS.

Regression analysis was performed between PDI and weekly means of weather variables viz., maximum temperature, minimum temperature, relative humidity at 0800 hrs, relative humidity at 1400 hrs, rainfall and rainy days. The best equation that explained the relationship between disease progress and weather factors for each planting was constructed.

It is clearly evident from the equations that relative humidity at both the hours, maximum temperature and minimum temperature are important weather factors which influence the disease progress. However, it should also be noted that the R^2 values of the equation for each planting varied considerably. The highest R^2 of 0.59 was obtained for October and January planting and the lowest R^2 value (0.13) was obtained with December planting. The intercepts in most of the equations were negative. The regression coefficients (b) were positive for minimum temperature and relative humidity (8.00H) and negatively correlated with maximum temperature, relative humidity (14.00H) and rain fall in the equations they figured. The coefficients of determination (R^2) values were only moderately high indicating that the variation in disease intensity can be explained from 13%-59% by the function of weather variables.

The data clearly indicates that shooting to harvest is the critical time for the crop with respect to Sigatoka disease infection. If favourable weather prevails during this time for the disease, the loss would be greater. It can be concluded that the best time to plant banana (cv GN) is between April to June to avoid Sigatoka disease severity and to obtain higher yields. However, with suitable fungicide intervention the crops planted in other months can be protected from Sigatoka disease in order to obtain higher yields. April to June is the ideal period for planting Sigatoka susceptible banana cultivar for avoiding disease and obtaining higher yields. In the month of November, December, January and February planting, the disease intensity was an increasing trend from August onwards. In this stage, the fungicides can be recommended for the management of disease.

b) Management of Sigatoka or prevalent leaf spot disease with oil based formulations

Treatment T_4 : Difenconazole 1 ml/l (0.1%) and T_8 : Difenconazole 1 ml/l (0.1%) + Petroleum based mineral oil (1%) were the most effective treatments which recorded 51.28 and 59.89 PDI, respectively. The average bunch weight 22.307, 20.667 and 19.89 kg was recorded in the T_4 , T_8 and T_5 , respectively which were on par with each other and significantly higher than all other treatments.

Diagnosis of banana viruses in germplasm and planting material used in experiments

Severity was estimated based on arbitrarily assigned ratings (0: No symptom; 1: Slight; 2: Moderate and 3: Severe) for the most commonly perceivable symptoms viz. chlorotic streaks on petiole, pink streaks on pseudostem, bending of pseudostem and streaks on bracts for BBRMV: and chlorotic streaks on lamina, necrotic





streaks on lamina and black streaks on petiole and pseudostem for BSV. Germplasm raised during the 2012-13 was screened for virus by symptoms. Among the 107 accessions, 21 BBmMV, 57 BSV and 2 CMV infected plants were observed. None of the genotype was infected with BBTv. Planting material of various experiments regularly monitored for viruses.

Integrated management of tip over or rhizome rot disease of banana (observational trial)

A trial was laid out with tissue culture plants of T. C. keli cultivar on 4-7-2012. The plants in all the treatments started showing disease symptoms three months after planting. Treatments are being administered as per schedule. The observational trial revealed that nine months after planting, mortality ranged between 62.50 to 87.50 per cent, whereas incidence was 81.25 to 100 per cent. None of the treatment was effective in checking disease.

Screening banana genotypes for *Fusarium wilt* disease

107 banana genotypes screened in a uniform *Fusarium* wilt sick plot (*Fusarium oxysporum* f sp *cabense* Race-1, VCG 0124) during 2009-10 & 2011-12. Among 107 collections, 54 showed resistance remaining varieties showed varying degree of susceptibility.

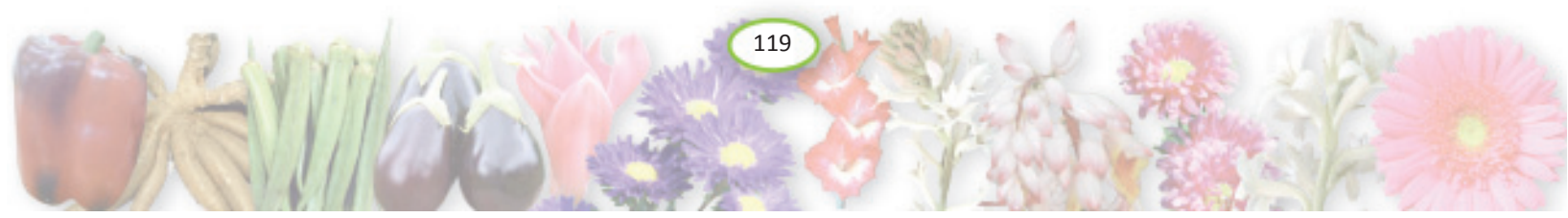
Studies on Post harvest diseases of banana

Survey was made during the period of July 2012 to March 2013. Survey on the post-harvest diseases of banana was done in the market of Kovvur and Rajahmundry. Crown Rot, Anthracnose, Cigar-end Rot, Finger Rot and Rhizopus rot diseases were reported during survey in local market. In the two selected areas more or less same kind of rots were observed. Among diseases, crown rot and Anthracnose were more prevalent.

A total of 10 spots were inspected in two markets, higher incidence of anthracnose and crown rot of banana was observed in September 2012. The range of anthracnose was 4.79 to 18.66 per cent whereas crown rot incidence ranged between 9.75 to 19.14 per cent.

Characteristics of Fungal Isolates Associated with Crown Rot Disease

Fungal Isolate	Characteristics	
	Colony	Microscopic
<i>Botryodiplodia theobromae</i>	The fungus had fluffy mycelia and grew rapidly on PDA. Young cultures were snow-white in nature, turning grayish with time. Older cultures turned black and produced pycnidia (black projections on culture) which were visible to the naked eye.	Spores were big and oval. Mature spores were dark and 1-septate (single septum) when viewed under the microscope.
<i>Fusarium semitectum</i>	The fungus was readily distinguished from other Fusaria by its soft woolly hairs and dense aerial mycelia. The colony appeared to be orange turning to brown as the culture ages.	Spores were mostly curved or spindle-shaped and had a foot cell. Spores were 3 - to 7 - septate under microscope.
<i>Colletotrichum gloeosporioides</i>	The fungus had very little mycelia and grew slowly on PDA. Old cultures were dull white to shiny dull orange.	Spores were 1-celled and cylindrical with rounded ends under microscope.
<i>Aspergillus flavus</i>	The fungus was effuse in nature and grew rapidly on potato dextrose agar. Old cultures were olive to lime green.	Spores produced were numerous, globose to subglobose and smooth in nature under microscope.
<i>Aspergillus niger</i>	The colony on PDA was initially white and quickly turned black as conidial production started. Its growth produced radial fissures in the agar.	Conidia present were numerous, globose and very rough. Immature spores were brown and older spores turn black.
<i>Aspergillus terreus</i>	It had a moderate to rapid growth rate on potato dextrose agar. Colony was yellowish-brown to brown. The colony became finely granular as conidial production started.	Conidia produced were globose and smooth in nature. Spores were dark brown under microscope.





GRAPE

Grape Research Station, Rajendranagar

Survey of grape growing area for important diseases to develop digital disease map:

The following 11 vineyards in Rangareddy (dist.) visited periodically and recorded the intensity of different diseases when visited the grape vineyards after foundation pruning and forward pruning.

Anthraxnose: After foundation pruning this disease was first observed in June-2012 and highest PDI was recorded in October-2012(20 to 82.5). After forward pruning this disease first observed in November-2012 and maximum PDI of this disease was recorded in January-2013 (5 to 28).

Downy mildew: After foundation pruning PDI of this disease was first observed in June-2012 and highest PDI was recorded in October-2012(22.5 to 80.35). After forward pruning first observed in November-2012 and highest PDI recorded in 5 to 28 in December-2012 (5 to 28).

Powdery mildew: After foundation pruning this disease first observed in July-2012 and highest PDI recorded in recorded in October-2012 (20-80). After forward pruning this disease first observed in December-2012 and highest PDI of this recorded in February-2013 (20-40).

Rust: This disease was recorded only at Grape Research Station, Rajendranagr PDI after foundation pruning PDI recorded in the range of 6 – 8 in August-2012, 10 – 12 in September-2012 and 22 to 72 in October-2012. After forward pruning there was no disease occurrence at Grape Research Station, Rajendranagr farm fields.

Bio-efficacy of new fungicide molecules in management of downy mildew:

(Phenamidone 4.44% % + Fosetyl Al 66.66%) 71 WDG and Famoxadone 16.6% + Cymoxanil 22.1% SC were found significantly on par with each other for the management of downy mildew disease in grape.

Bio-efficacy of growth stage specific schedule for the management of downy mildew and powdery mildew:

Four growth specific schedules tested spray Copper hydroxide - Add 5g /L propineb with Hydrogen cyanamide paste - Propineb 70WP -(Iprovalicarb + propineb)66.25WP – Phenomidone + mancozeb 10 + 50 60WG –Phosetyl al 80WP - Phenomidone + mancozeb 10 + 50 60WG -Pyraclostrobin + Metiram55% 60WG - Triadimefon 25WP – Penconazole 10EC – Tebuconazole – Myclobutanil 10WP – Azoxystrobin @ 0.5ml/L – Sulphur 80 WDG were sprayed at growth specific shedule of grape after forward pruning was proved to superior for the management of downy mildew and powdery mildew diseases over spray Copper hydroxide - Paste Hydrogen cyanamide paste - Cymoxanil + Mancozeb) 72WP – (Famaxodone 16.6% + Cymoxanil 22.1) 38.7 SC – potassium salt of phosphrous acid – Kresoxim methyl -(Famaxodone 16.6% + Cymoxanil 22.1) 38.7 SC - Fusilazole 40EC – Penconazole 10EC – Tebuconazole – Myclobutanil 10WP – Azoxystrobin 23SC – Sulphur 80 WDG.

Management of anthracnose and powdery mildew diseases up to 115 days of harvest (Non Plan)

Copper sulphate 4.62% @ 0.8ml/L at 10th day - (Iprodione 25% + carbendazim 25%) 50WP @ 1.25g/L at 20th & 30th day - Difenconazole 25EC @ 0.75ml/L at 40th day - Tebuconazole 29.5m/mEc @ 0.75ml/L at 50th & 60th day - Hexaconazole 5 SC @ 1.0 ml/L at 70th day - (trifloxystrobin25% + tebuconazole 50%)75WG @ 0.25 g/L at 85th , 100th and 115 days after forward pruning were found to be effective in the management of anthracnose and powdery mildew diseases in grapevine.

SAPOTA

Horticultural Research Station, Kovvur

Survey and incidence of disease in sapota a) Roving survey & b) Fixed plot survey

No major diseases of sapota were observed. Allegator like spots and some blighted leaves besides *Phaeophleospora* and Flat limb in sapota at very low level were observed

SWEET ORANGE

Horticultural Research Station, Darsi

Survey and surveillance of sweet orange diseases in Prakasam District

Survey was conducted in 25 mandals of Prakasam District and observed that, Dry root rot and Zn deficiency is more in P.C palli, Yerragondapalem and Markapuram.





Integrated Management of dry root rot in sweet orange

Trichoderma viride culture namely TCT₄ was collected from CRS, Tirupati and distributed to the farmers.

Development of IDM for management of Dry root rot in sweet orange

Invitro studies of Bio control agent i.e *Trichoderma spp* was studied for its antagonistic effect against pathogens *Fusarium spp* (causal Pathogen of citrus Dry root rot) and *Verticillium spp* (Pathogen causing wilts) by using Dual culture method. Under dual culture technique, the *Trichoderma spp* which was known for its Pathogenicity has shown the antagonistic effect by inhibiting the growth of *Fusarium spp* with in 7-9 days completely (photograph enclosed). Regarding *Verticillium spp*, *Trichoderma viride*, had also inhibited the growth of *Verticillium* within 10 days after inoculation (Photograph enclosed). It gives the evidence that, *Trichoderma's* Pathogenicity in inhibiting both *Fusarium spp* and *Verticillium spp* growth under invitro conditions was established, which helps us in planning for going for mass multiplication of *Trichoderma spp*, which helps the farmer in controlling the dry root on Citrus undoubtedly.

Citrus Research Station, Tirupati

Survey, incidence of disease and identification of causal agents:

- a) **Roving Survey:** During 2012 survey was conducted in 25 sweet orange gardens of Ananthapur, Mahaboobnagar, Kadapa, Kurnool and Nellore districts. Citrus greening (21.54-32.75%) and citrus yellow mosaic (15.34-32.56%) are the major diseases observed. Incidence of dry root rot (10.35-17.89%), Scab (11.45-18.56%), twig blight (10.24-15.55%), were also observed along with Zinc (45.50-32.75%) and Magnesium (25.87-18.78%) deficiency in the four districts of Andhra Pradesh (Table 23).

Twenty acidlime orchards were surveyed for occurrence of diseases during 2012 in four districts of Andhra Pradesh, revealed that bacterial canker (100%), bark eruption (10.67-22.56%), citrus greening (10.86-19.98%), root rot (10.58-19.78%) and twig blight (12.85-22.54%), LBWSD (4.80-7.56%) were the major diseases (Table 24).

- b) **Roving Survey:** During 2012 bacterial canker was high during rainy season (July to December) with a peak during October (25.5%). Greasy spot was recorded throughout the year with a peak during November (28.5%). Its incidence was high in matured old leaves than young leaves on Sweet orange with a peak during October and November (28.5%) (Table 25).

Prediction equations are developed for greasy spot and twig blight in Sweet orange using five years (1998, 2001, 2002, 2003 & 2005) historical weather data and the prediction models are validated using 2011 and 2012 disease and weather data.

Crop	Disease	Prediction equation (Five years)	R square
Sweet orange	Greasy spot	$Y = 7.511 - 0.211(T_{max}) + 0.211(T_{min}) + 0.018(Rh_1) - 0.134X(Rh_2) + 0.975X(Gs_{-1})$ Y = Predicted Greasy spot T max = 15 days average Maximum Temperature T min = 15 days average Minimum Temperature Rh1 = 15 days average Morning Relative humidity Rh2 = 15 days average Evening Relative humidity Gs ₋₁ = Previous weeks Greasy spot incidence	R ² = 0.90
	Twig blight	$Y = 1.108 - 0.004(T_{min}) + 0.036(Rh_2) + 0.926(TB_{-1})$ Y = Predicted Twig blight T min = 15 days average Minimum Temperature Rh2 = 15 days average Evening Relative humidity TB ₋₁ = Previous weeks Twig blight incidence	R ² = 0.89
Acid Lime	Bacterial Canker	$Y = -16.67 + (0.565 * T_{max}) - (0.151 * T_{min}) + (0.086 * Rh_1) - (0.079 * Rh_2) + (0.859 * Can_{-1})$ Y = Predicted Leaf Canker T max = 15 days average Maximum Temperature T min = 15 days average Minimum Temperature Rh1 = 15 days average Morning Relative humidity Rh2 = 15 days average Evening Relative humidity Can ₋₁ = Previous weeks Leaf Canke	R ² = 0.89





Validation was done for testing the goodness of fit using two years (2011&2012). The three equations predicting the next week's disease incidence and showing the disease trend very efficiently in the pathosystems (Fig 1 & 2).

Table 23: Incidence of diseases and disorders on sweet orange during 2012

Diseases	Ananthapur	Kadapa	Kurnool	Mehaboobagar	Nellore
CYMV (%)	15.34	28.16	28.16	32.56	28.56
Huanglongbing (Greening) (%)	32.52	30.50	32.75	31.25	21.54
YCV (%)	0.00	0.00	0.00	0.00	0.0
Twigblight (%)	15.55	11.64	10.24	11.21	10.50
Diplodia gummosis (%)	5.50	5.55	3.45	4.50	3.30
Phytophthora gummosis (%)	3.80	4.56	5.15	2.80	2.84
Root rot (%)	17.89	15.48	10.35	13.55	15.55
Sooty mold (%)	1.50	0.00	0.00	1.00	2.98
Pre-harvest stem rot (%)	9.55	7.65	9.78	14.54	10.56
Pink disease (%)	1.00	1.00	1.00	1.00	1.00
Powdery mildew (PDI)	0.00	0.00	0.00	0.00	0.00
Scab (on fruit PDI)	12.50	13.69	18.56	15.54	11.45
Canker (on fruit PDI)	9.50	10.54	7.65	2.56	8.56
CTV (%)	1.50	1.50	1.50	1.00	1.00
Zn deficiency (%)	45.50	36.57	39.54	32.75	42.28
Mg deficiency (%)	25.87	18.78	21.58	19.81	22.45
Sun burn (%)	8.50	9.50	8.98	8.74	5.64
Bud Joint Rot (%)	8.67	3.50	1.56	8.50	8.64

Table 24: Incidence of diseases and disorders on Acid lime during 2012

Diseases	Ananthapur	Kadapa	Kurnool	Mehaboobagar	Nellore
Canker (PDI)	100.00	100.00	100.00	100.00	100.00
Bark eruption (%)	22.56	15.68	11.78	10.67	21.72
Huanglongbing (Greening %)	19.98	14.70	13.58	10.86	22.55
CYMV (%)	0.50	1.00	1.00	1.80	1.55
YCV (%)	0.00	0.00	0.00	0.00	0.00
CTV (%)	5.56	5.50	4.54	4.82	4.45
Root rot (%)	10.58	19.78	12.65	11.37	11.95
Pink disease (%)	0.18	0.55	1.55	1.80	1.75
Diplodia gummosis (%)	6.36	2.16	2.58	0.85	1.05
Phytophthora gummosis (%)	0.85	3.58	2.55	1.16	2.35
Twig blight (%)	22.54	12.85	15.87	14.17	15.86
Sooty mold (%)	3.56	6.78	5.75	6.88	5.86
LBWS disease (%)	5.87	4.80	7.56	5.50	7.45
Iron deficiency (%)	10.00	6.75	10.55	11.54	5.98





Table 25: Survey and incidence of diseases: Fixed plot survey – Sathgudi sweet orange and acid lime during 2012

Month	Sweet orange			Acid lime	
	Canker (%)	Twig blight (%)	Greasy spot (PDI)	Twig blight (%)	Leaf Canker (PDI)
January	15.5	2.2	5.5	4.4	19.5
	15.0	2.1	6.7	5.5	21.3
February	13.5	3.0	5.8	4.1	16.3
	13.5	2.2	6.1	5.5	15.5
March	12.3	3.5	5.8	5.9	12.3
	11.5	2.8	5.2	6.7	7.8
April	7.5	3.5	4.9	7.4	7.3
	7.3	2.7	4.5	7.1	7.5
May	6.5	2.1	4.8	5.5	6.7
	6.5	2.1	5.1	8.8	6.5
June	5.5	3.1	6.8	8.1	6.7
	5.5	3.5	10.9	7.5	10.5
July	10.5	3.2	18.9	9.9	11.4
	12.5	3.5	18.5	9.5	18.3
August	15.6	4.7	21.5	10.5	18.5
	18.5	5.5	24.9	9.5	22.6
September	18.5	5.9	28.5	9.5	28.3
	22.5	6.8	25.9	10.5	32.5
October	22.5	8.8	27.6	11.2	34.53
	25.5	8.9	25.5	12.8	36.81
November	24.6	10.5	32.1	13.5	35.5
	22.5	11.5	35.5	15.7	33.5
December	22.5	13.5	32.0	11.2	32.2
	19.8	13.8	29.7	10.8	28.5

Fig 1. Validation of weather based Prediction equation for Canker on Acidlime 2011 & 2012

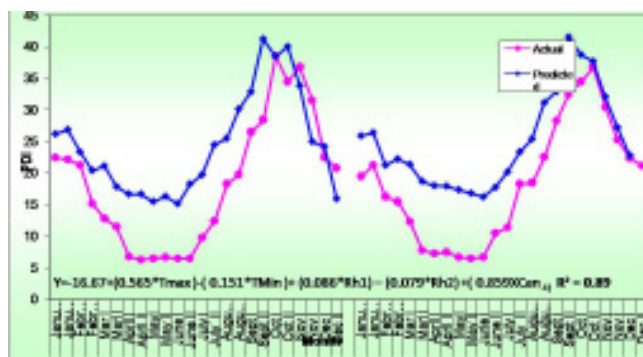
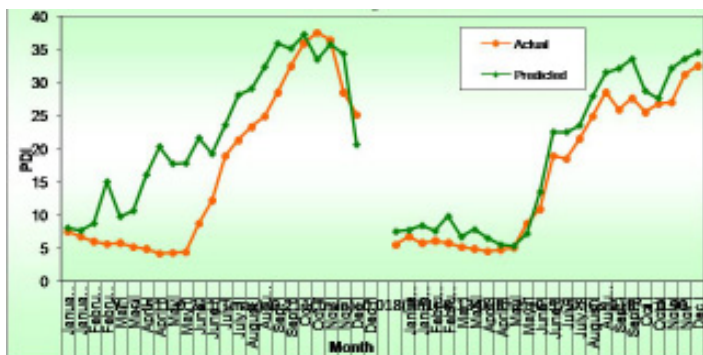


Fig 2. Validation of weather based Prediction equation for Greasy spot on sweet orange 2011 & 2012



Integrated management of fungal disease of citrus:

a) **Dry root rot (*Fusarium*, *Rizoctonia*) (Pot culture experiment):** the experiment is being conducted in the farmers' field at Gurrampakodu village in Nalgonda district. Initial symptomatic trees were identified and the treatments were imposed as per the 17th Group discussion proceedings in the month of August. Percent recovery was recorded nine months after imposition of the treatments. The observations revealed that T3 (Mancozeb (0.2%) soil drench + application of *Pseudomonas fluorescens* (100g/plant) (10⁻⁸) + + 2 kg neemcake FYM 25 kg after 15 days of drenching) and T4 (Mancozeb (0.2%) soil drench + application of *Trichoderma reesi* (TCT10)(100g/tree) (10⁻⁷) + + *Pseudomonas fluorescens* (100g/plant) (10⁻⁸) + + 2 kg neemcake FYM 25 kg after 15 days of drenching) percent recovery is significantly superior (43.75) over T1 (2 kg neem cake + FYM 25 kg), T2 (Mancozeb (0.2%) soil drench + application of *Trichoderma reesi* (TCT10)(100g/tree) (10⁻⁷) + 2 kg neemcake + FYM 25 kg after 15 days of drenching) & T5 (farmers practice) (Table 26).

Table 26: Effect of different treatments on management of dry root rot in citrus

Treatment	No. of trees tested	No, of trees recovered	No, of trees dried	% recovery
T ₁ :	16	1	2	6.25
T ₂ :	16	5	0	31.25
T ₃ :	16	7	0	43.75
T ₄	16	7	0	43.75
T ₅ control	16	0	4	0
CD at 5%				8.964
CV %				24.48

In-vitro screening of *Trichoderma* isolates against *Fusarium solani* by dual culture: To know the effective isolates of *Trichoderma* against *Fusarium solani*, seventeen isolates were screened against the test fungus along with commercial available *Trichoderma viride* by dual culture. Radial growth of the pathogen was measured for every 12 h along with control. Results revealed that all the seventeen isolates inhibited the test pathogen *Fusarium solani*. Even though all the isolates have inhibited the growth of *Fusarium solani*, the isolates TCT₄ and TCT₂ recorded more percent inhibition (80 and 78.75) than others. The inhibition percentage of other isolates was ranged from 71.25 to 77.50. Isolate TCT₈ and TCT₁₅ showed least percentage of inhibition of 71.25.

Effect of *Trichoderma* isolates on the growth of *Fusarium solani* through production of volatile substances: To know the effect of production of volatile substances by *Trichoderma* isolates, all the seventeen isolates were screened against the test pathogen *Fusarium solani*. Colony diameter of the pathogen was measured for every 12 hours along with the control. Among the 17 isolates, 5 isolates have inhibited the growth of pathogen by the production of volatile substance. There was no significant inhibition when the six-day-old cultures of antagonists were used when compared to that of 3-day-old cultures. This may be due to reduction in the quantity of volatile substances upon ageing. Among the isolates producing volatile substances TCT₄ showed maximum inhibition of 60.00.

Influence of acidity on the growth of *Trichoderma* isolates (TCT₂ and TCT₄): In order to know the optimum pH for the growth of *Trichoderma* spp. (TCT₂ and TCT₄) an experiment was conducted by growing the *Trichoderma* isolates in selective medium at different levels of pH. It is observed from the that both the isolates of TCT₂ and TCT₄ recorded maximum mycelial dry weight of 243.3 and 251.3 mg at pH 4.5. At pH 5 the mycelial weights of TCT₂ and TCT₄ were 195.7 and 198.0 mg, respectively. This was followed by pH 4 where the mycelial dry weights of TCT₂ and TCT₄ were 194.0 and 196.0 mg respectively. However they were on par with each other in supporting the growth. Least dry weight of 82.7 and 86.3 mg was observed in TCT₂ and TCT₄ at pH 2.5 (Table 27).

Table 27: Effect of different pH levels on the growth of *Trichoderma* isolates of TCT₂ and TCT₄

pH levels	Mycelial dry weight (mg)	
	TCT ₂	TCT ₄
2.5	82.7	86.3
3.0	124.7	133.3
3.5	164.7	171.7
4.0	194.0	196.0
4.5	243.3	251.3
5.0	195.7	198.0
5.5	121.7	127.3
6.0	94.0	98.7
SEm (±)	0.867	0.816
CD (P = 0.05)	2.6	2.4





In vitro compatibility of different fungicides with *Trichoderma isolate T₂* and *T₄*: Six fungicides viz., carbendazim (50% WP), propiconazole (25% EC), hexaconazole (5% EC), tridemorph (80% EC), chlorothalonil (75% WP) and mancozeb (75% WP) were used to test their compatibility with *Trichoderma isolates TCT₂* and *TCT₄* at different concentrations viz., 50, 100, 250, 500 and 1000 ppm by adopting poisoned food technique. Out of six fungicides tested mancozeb was found to be highly compatible followed by chlorothalonil and tridemorph to some extent. Mancozeb was found to be safe to *Trichoderma isolate TCT₂* and *TCT₄* at 50, 100 and 250ppm with least per cent inhibition of 0, 20.38 and 40.17, respectively while at 500 and 1000 ppm the per cent inhibition of growth was 59.60 and 67.84, respectively. The next best compatible fungicide was chlorothalonil and it was found to be safe at 50, 100 and 250 ppm with per cent inhibition of growth of 14.8, 26.07 and 42.35, respectively while at 500 and 1000 ppm per cent inhibition of growth was 70.64 and 75.48, respectively.

Tridemorph showed inhibition on growth of *TCT₂* isolate and it was in the range of 75.29 to 100% at 50 to 1000 ppm. Carbendazim, hexaconazole propiconazole, were recorded 100 per cent inhibition of growth even at 50 ppm. in both the isolates. (Table 28)

Table 28: In vitro compatibility of fungicides with *Trichoderma isolates T₂* and *T₄*

S. No.	Fungicide	Concentration (ppm)	Isolate T ₂		Isolate T ₄	
			Mean of colony diameter (mm)*	Per cent inhibition of growth	Mean of colony diameter (mm)*	Per cent inhibition of growth
1	Carbendazim (50% WP)	50	0	100	0	100
		100	0	100	0	100
		250	0	100	0	100
		500	0	100	0	100
		1000	0	100	0	100
2	Chlorothalonil (75% WP)	50	72.42	14.8	70.31	17.28
		100	62.84	26.07	64.7	29.41
		250	49.00	42.35	47.5	44.41
		500	24.95	70.64	24.36	71.76
		1000	20.84	75.48	20.33	76.08
3	Hexaconazole (5% EC)	50	0	100	0	100
		100	0	100	0	100
		250	0	100	0	100
		500	0	100	0	100
		1000	0	100	0	100
4	Mancozeb (75% WP)	50	85.00	0	85.00	0.00
		100	67.67	20.38	62.00	24.70
		250	50.85	40.17	49.00	42.35
		500	34.33	59.60	33.00	61.17
		1000	27.66	67.84	26.33	69.10
5	Propiconazole (25% EC)	50	0	100	0	100
		100	0	100	0	100
		250	0	100	0	100
		500	0	100	0	100
		1000	0	100	0	100
6	Tridemorph (80% EC)	50	21.00	75.29	19.00	77.64
		100	13.33	84.31	11.00	87.04
		250	10.00	88.23	7.33	91.3
		500	3.33	96.64	2.00	97.09
		1000	0	100	0.00	100
	Control		85.00	0	85.00	0
	SEm (+)			0.320		0.306
	CD at 5%			0.906		1.874

* Mean of three replications





In vitro efficacy of different fungicides against *Fusarium solani*: Six fungicides viz; carbendazim (50% WP), propiconazole (25% EC), hexaconazole (5% EC), tridemorph (80% EC), chlorothalonil (75% WP) and mancozeb (75% WP) were screened against *Fusarium solani* at different concentrations viz; 50 , 100 , 250 , 500 and 1000 ppm, *in vitro* by adopting poisoned food technique. Results presented in the table 6 showed that carbendazim was found to be very effective followed by propiconazole, tridemorph, chlorothalonil and hexaconazole.

Carbendazim recorded 100 per cent inhibition of growth even from 50 to 1000 ppm whereas propiconazole, recorded 71.88 and 72.47 per cent inhibition of growth of *F. solani* at 50 and 100 ppm, respectively. Further, propiconazole at 250, 500 and 1000 ppm concentrations recorded 86.35, 88.70 and 90.50 per cent inhibition of growth of *F. solani* respectively.

Tridemorph at 50, 100 and 250 ppm concentrations the per cent inhibition of growth was 63.17, 68.23 and 70.23, respectively, while at 500 and 1000 ppm the per cent inhibition of growth was 72.51 and 73.76, respectively. However, these two concentrations were one par with each other. Chlorothalonil at 50, 100, 250, 500 and 1000 ppm concentrations the per cent inhibition of growth was 55.76, 60.39, 62.82, 67.52 and 75.29 respectively. Hexaconazole at 50, 100, 250, 500 and 1000 ppm the per cent inhibition of growth was 52.5, 60.00, 62.82 and 67.52 and 74.58, respectively. Mancozeb was found to be least effective compared rest of the fungicides tested (Table 29)

Table 29: *In vitro* efficacy of fungicides against *Fusarium solani*

Fungicide	Concentration (ppm)	diameter (mm)*	Mean of colony	Per cent inhibition of growth
Carbendazim (50% WP)	50		0	100
	100		0	100
	250		0	100
	500		0	100
	1000		0	100
Chlorothalonil (75% WP)	50		37.6	55.76
	100		33.6	60.39
	250		31.6	62.82
	500		27.6	67.52
	1000		21.0	75.29
Hexaconazole (5% EC)	50		40.3	52.5
	100		34.0	60.00
	250		31.6	62.82
	500		27.6	67.52
	1000		21.6	74.58
Mancozeb (75% WP)	50		73.3	13.76
	100		55.3	34.8
	250		51.3	39.8
	500		47.3	44.35
	1000		43.3	49.05
Propiconazole (25% EC)	50		24.3	71.88
	100		23.4	72.47
	250		11.6	86.35
	500		9.6	88.70
	1000		8.8	90.50
Tridemorph (80% EC)	50		31.8	63.17
	100		27.8	68.23
	250		25.3	70.23
	500		23.3	72.51
	1000		22.3	73.76
Control			85	0
SEm (+)				0.37
CD at 5%				1.046





Screening of promising root stocks against dry root rot (*Fusarium*, *Rizoctonia*) (Pot culture experiment): during 2012-13 promising root stocks from Akola (Rough lemon, Rangpurlime), (2), Rahuri (Shrirampur and Marmalade orange) and Ludhiana (Jatti khatti and Rangpurlime) were collected and seeds are directly sown in pots and inoculum (*Fusarium spp*) multiplied on sorghum grain and mixed to each pot at the rate of 7.5%. Rangpurlime and Jambhiri are also included as resistant and susceptible checks. Results revealed that percent mortality was significantly low in case of NRCC 6 (0.0%) and Australian Sour orange (Tirupati) (0.0%) when compared to other root stocks and susceptible check Jambhiri(69.1%) (Table 30).

Table 30: Screening of promising root stocks against dry root rot

S.No	Root stock	2012-13
1.	NRCC 2	15.5
2.	NRCC 4	8.45
3.	NRCC 5	3.0
4.	NRCC 6	0.00
5.	Rough lemon Akola	5.0
6.	Rangpurlime Shrirampur	4.0
7.	Marmalade orange (Rahuri)	24.8
8.	Rough lemon Akola	15.5
9.	Australian Sour orange (Tirupati)	0.0
10.	Rough lemon (Jatti Katti)	15.6
11.	Rangpurlime (Abhore)	18.5
12.	Rangpurlime (Resistant check)	15.5
13.	Jambhiri (Susceptible check)	69.0
	CD 0.05	0.61
	CV%	2.86

Characterization of citrus yellow mosaic virus: the disease is prevalent in most of the Sathgudi orange orchards. The Sathgudi orange orchards raised with the uncertified planting material is causing concern to orchardists since the disease affects yields and quality of sweet orange fruits. There is a need to locate mild strain for cross protection and also to locate sources of resistance. Studies on the host vector relationship, helps in scheduling of sprays for controlling the vector and there by to contain the spread of the disease under field conditions.

At CRS, Tirupati, during 2012, the results on transmission of CYMV by *P. citri* showed that a minimum of 4 days of acquisition access period (AAP) is required to acquire and transmit the virus. Further, a single mealy bug is able to transmit the virus. Percent transmission increases with increase of number of insects/seedling A minimum of 1 day inoculation access period (IAP) required for 5 insects/seedling to inoculate the virus. Similarly percent transmission increased with increase of IAP and no. of insects/seedling and reached upto 100% with 10 insects/ seedling with 8hrs IAP. All the seedlings are tested by PCR and the positive one are used for calculation of present transmission (Table 31).

Table 31: Insect transmission of citrus mosaic during 2012

No of mealy bugs used/seedlings	APP ^a				IAP ^b			
	1	2	4	8	1	2	4	8
1	0	0	30	20	0	50	50	40
5	0	0	30	40	30	60	80	80
10	0	0	40	60	20	80	80	100

* No. of seedlings used were 5

a- IAP of 7 days was given; b- AAP of 7 days was given, * All plants are tested by PCR

Field samples having mixed infection were screened for the detection of both diseases (CYMV and HLB) by duplex PCR. The amplification of 726bp for CYMV and 451bp for HLB were obtained in duplex PCR in infected field samples. The HLB2 (F-5' TGGGTGGTTTACCATTTCAGTG3' and 5' GCGACTTCGCAACCCATTG 3') primer set has given very strong and bright bands compared to HLB1 (F-5' 'GCGCGTATCCAATACGAGCGGCA3' and R-5 'GCCTCGCGACTTCGCAACCCAT3') primer set to amplify 16S ribosomal RNA region with a product size of 451bp (Fig-3).

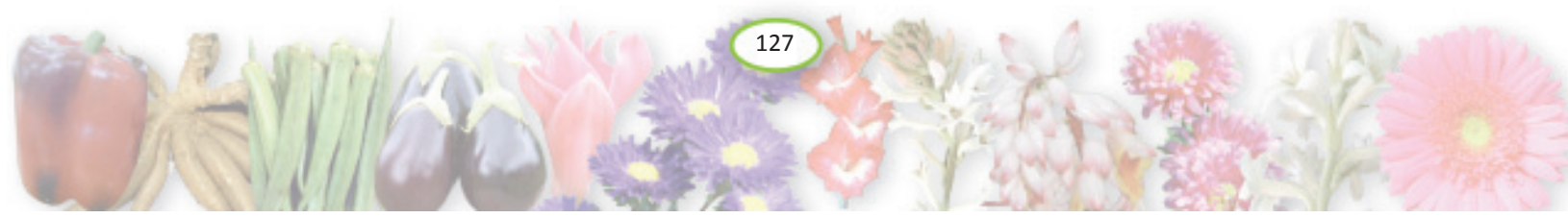
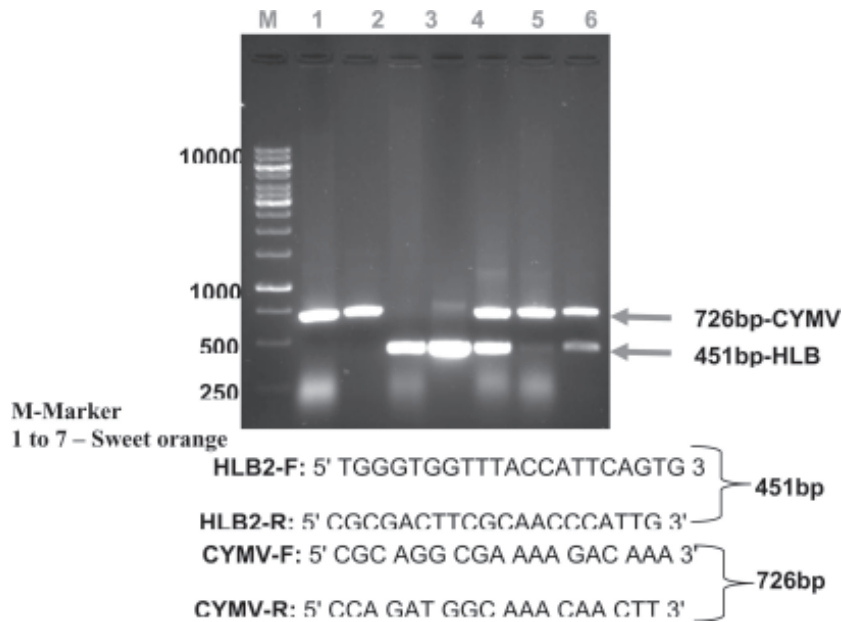


Fig-3: Detection of CYMV and HLB by Multiplex-PCR in field samples of Sweet orange



Studies on greening disease: survey, isolation and characterization of citrus greening bacterial isolates: Isolation of HLB DNA and PCR amplification was established and being used for indexing and detection of HLB in Sathgudi sweet orange nucellar mother trees at this centre since February, 2004 (Anon, 2003).

Survey: Highest incidence of 30.54% greening was recorded on sweet orange in Ananthapur district followed by Kadapa (23.5%). Incidence of vector was observed both on sweet orange and acidlime orchards in surveyed farmers' orchards.

Ten field resistant citrus species consisting of 441 plants belong to ten different citrus species were challenge inoculated with HLB infected buds using patch grafting method under controlled condition. Greening symptoms were observed eleven months after inoculation. DNA was isolated from all the inoculated plants and PCR was carried out using new set of CGB specific primers to confirm the HGB infection. Maximum incidence was observed in *Citrus hystrics* (74.3%) and zero percent transmission was observed in Velaga, Calamandin, Citron, Lisbon lemon, Australian sour orange and Emmikaipoli except Chinnotto sour orange which found free from HLB during 2009 and found infected (50%) during 2010.

At CRS, Tirupati, during 2012 citrus species which showed zero percent transmission viz., Australian sour orange, Emmikaipoli Velaga, Calamandin, Citron and Lisbon lemon seedlings were raised and used as rootstocks and budded with sathgudi to study stock, scion compatibility. The experimentation is in progress.

Identification and molecular characterization of CTV isolates: Survey was conducted in acidlime orchards of Mehaboobnagar, Kurnool, Kadapa and Nellore and the incidence of *Tristiza* virus and vector population were recorded. (Table 32)

Table 32: Percent incidence of CTV in four different districts of AP

District	% CTV	Vector population(No.of aphids per twig)
Mehaboobnagar	9.8	128
Nellore	11.5	93
Kurnool	8.6	114
Kadapa	7.9	178

Aphid vectors *Aphis gossypii* and *T. citricida* are collected from CTV affected plants and maintained in glass house for differential transmission studies.





Supply of disease free plants: during 2012 out of 497 sathgudi scion plants, 179 plants were found infected with citrus greening(CGB), 12 plants were infected with Citrus yellow mosaic (CYMV) and 191 plants were infected with both CGB and CYMV. The plants which were found infected with the diseases were avoided from taking the scion material.

From April to March 2013 a total of 0.536 lakh virus free sathgudi budlings budded on Rangpurlime and 0.694 lakh Balaji acidlime seedlings are supplied to the orchardists of Andhra Pradesh, Karnataka, Tamil Nadu, Pondicherry and Maharashtra state. (Table 33).

Table 33: Production and distribution of virus free planting material sweet orange cv. Sathgudi

Particulars	2008-09	2009-10	2010-11	2011-12	2012-13
Sathgudi budlings	63,601	84,435	93,115	74,091	53,574
Sathgudi buds (lakhs)	1.03	94,140	1,17,496	69,634	5.05
Balaji acidlime	10,935	26,631	49,459	62,529	69,380

Management of scab in sweet orange: during 2012 also Hexaconazole (0.2%) + Streptocycline (100ppm) (T₃) was found effective and significantly superior over all other treatments which recorded 1.6% disease incidence compared to control (23.1%). Other treatments were on par with each other. (Table 34)

Table 34: Percentage of scab infected fruits treated with different chemicals.

Treatments	Mean
T ₁ : Calixin(0.1%) + Streptocycline (100ppm)	5.5
T ₂ : Carbendizim(0.1%) + Streptocycline (100ppm)	7.1
T ₃ : Hexaconazole(0.2%) + Streptocycline (100ppm)	1.6
T ₄ : Mancozeb (0.3%) + Streptocycline (100ppm)	15.3
T ₅ : Copperoxychloride(0.3%) + Streptocycline (100ppm)	11.8
T ₆ : Untreated	23.1
CD at 5%	3.9
CV (%)	24.2

Etiology and management of bark and wood splitting disease in acid lime: At CRS, Tirupati, during 2012 the same treatments were imposed and initial and final length of bark split was recorded. Percent spread was calculated and carbendazim and hexaconazole showed significantly superior by restricting the percent spread to 0.75 and 14.15 respectively (Table 35).

Table 35: Evaluation of best fungicide against longitudinal bark and wood splitting disease

Treatment	Initial length of bark split (cm)	Final length of bark split (cm)	% Spread
T1 Carbendazim (1g/l)	32.5	39.1	15.15
T2 Hexaconazole (1ml/l)	27.2	29.2	0.75
T3 Difenaconazole (1ml/l)	15.7	23.7	50.95
T4 Tridemorph (1ml/l)	29.3	41.1	40.27
T5 Copper oxychloride (3g/l)	18.2	27.8	52.7
T6 Thiphanate methyl (1ml/l)	21.3	33.2	55.87
Control	31.3	52.9	69.0
CD (0.05)			13.66
CV%			23.5

DNA finger printing of Sathgudi sweet orange and Rangpurlime: At CRS, Tirupati, during 2012 primer survey was carried out by using 30 SSR primers. Out of which 6 showed specific bands for Australian sour orange and 1 primer for TAL 14 (Fig.4) (table 36).

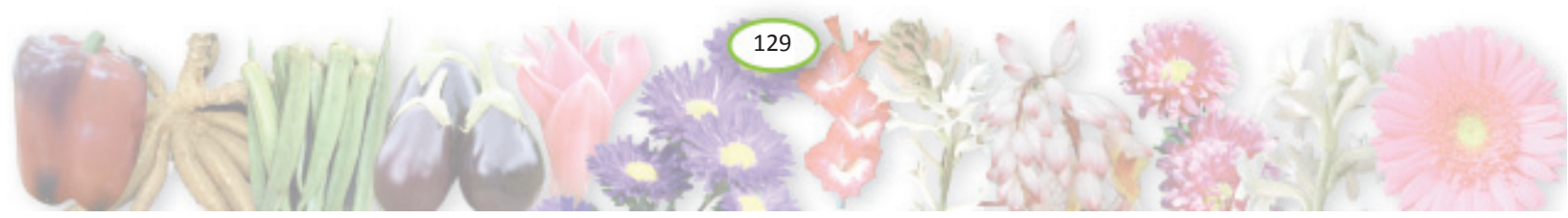
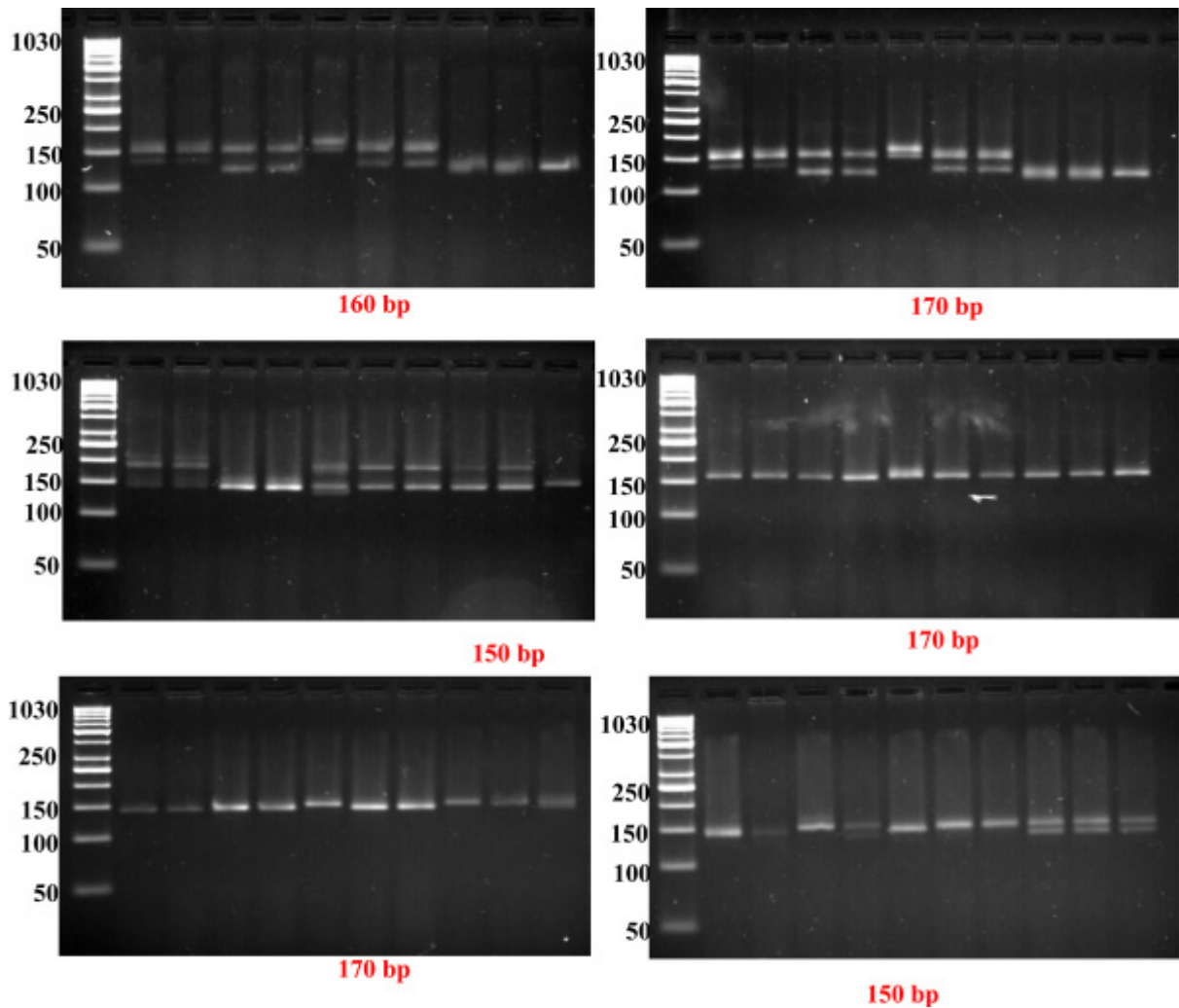


Fig 4: Primer selection and survey for different citrus species



- | | |
|---------------------------|---------------------|
| 1. Sathgudi sweet orange | 6. Jamberu (Assam) |
| 2. Kodur Sathgudi | 7. Rough lemon 8779 |
| 3. Rangpurlime Texas | 8. Balaji Acidlime |
| 4. Rangapurlime | 9. TAL-94/13 |
| 5. Australian sour orange | 10. TAL-94/14 |

Validation of IDM technology for management dry root rot in sweet orange: At CRS, Tirupati, during 2012 the experiment was initiated and treatments were imposed in farmers fields of Anantapur Nalgonda and Nellore districts in the month of December and the results are presented in table given below. The results revealed that in all the three districts T1 (Drenching mancozeb (3g/lit) followed by application of 10 kg *T. viride* multiplied on FYM + Neemcake 5kg + micronutrient spray) is significantly superior over T2 (farmers practice).

Treatment	Anantapur			Nalgonda		Nellore	
	No. of trees tested	No. of trees recovered	% recovery	No. of trees recovered	% recovery	No. of trees recovered	% recovery
T1:	39	20	51.28	19	48.72	22	56.41
T2:	39	12	30.77	9	23.07	10	25.64
CD at 5%			9.28		11.11		26.3
CV %			10.86		13.00		30.88





JACK FRUIT

Horticultural Research Station, Kovvur

Survey and incidence of diseases in Jack fruit

Survey conducted during 2012-13 revealed that fruit rot and *Colletotrichum* leaf spot diseases were the most prevalent disease recorded in all locations surveyed. Fruit rot was the major disease of Jackfruit and the highest incidence of 50 per cent was recorded in V. R. Gudem, West Godavari district. *Colletotrichum* leaf spot was a common disease of jackfruit and incidence was ranged between 1-9 per cent. A new wilt disease was reported from V. R. Gudem experimental fields and 11 plants died due to wilt. Stem canker was recorded up to two per cent shoot in affected plants in Kovvur.

Survey and incidence of insect pests

Fruit borer was the major pest of Jack fruit observed in all the surveyed areas and incidence is 0-30 per cent. Severe infestation of papaya mealy bug on jackfruit was observed in Kovvur. *Acerophagus papyae* parasitoid specific to papaya mealy bug was reared on Jackfruit infested with mealy bug and released.

Etiology of Jackfruit wilt diseases

Eight isolates were obtained on potato dextrose agar medium from infected jackfruit plants of different cultivars. The isolates were characterized based on cultural and morphological characters. Pathogenicity of the isolates tested during the year .

PAPAYA

Survey of fungal and viral diseases of papaya

Papaya ring spot was observed upto 100 per cent in West Godavari, East Godavari and Vizianagaram districts. Wilt incidence up to 100 per cent was recorded especially during November 2012.

Epidemiology and integrated management of papaya ring spot virus

The experiment was failed due to continuous heavy rains during the 1st week of October and November 2012.

ACIDLIME

Citrus Research Station, Petlur

The heavy leaf fall was recorded during the months of april, may, june due to greasy spot (kandena macha tegulu) and cause 15-20 % losses in few locations. During rainy season the incidence of pink disease was observed in moderate to severe due to continuous damp weather conditions.

Fungicides i.e benomyl (0.1%), Bavistin (0.1%), COC (0.25%), Mancozeb (0.25%), Hexaconazole (0.2%) and propiconazole (0.1%) sprayed before the harvest of fruits completely checked the Sour rot disease incidence in acidlime.

Based on the survey reports five projects were prepared and proposed for the year 2013-14.

- Epidemiology and control of greasy spot of acid lime
- Post harvest losses in acidlime and its management
- Effect of different antibiotics on canker disease of acidlime
- Validation of IDM technology for the management of dry root rot in acidlime
- Management of ganoderma root rot in acidlime

POMEGRANATE

Horticultural Research Station, Anantapuram

Survey and surveillance of diseases of Pomegranate

Survey results revealed that 100% prevalence of bacterial blight in surveyed orchards at Anantapuram and Mahaboobnagar districts of Andhra Pradesh. Mean Percent severity of disease on tree was higher at Mahaboobnagar (8.9) compared to Anantapuram (7.0). Less severity of disease was recorded in isolated orchards, Orchards having wind breaks and high level of phytosanitation.

Leaf and fruit spots caused by fungi stands next to the bacterial blight. Mean Percent Severity of fungal fruit spots in Anantapuram district was 8.7 and at Mahaboobnagar it was 11.4. The percent wilt recorded ranged between 0 to 6.8% in the gardens surveyed.

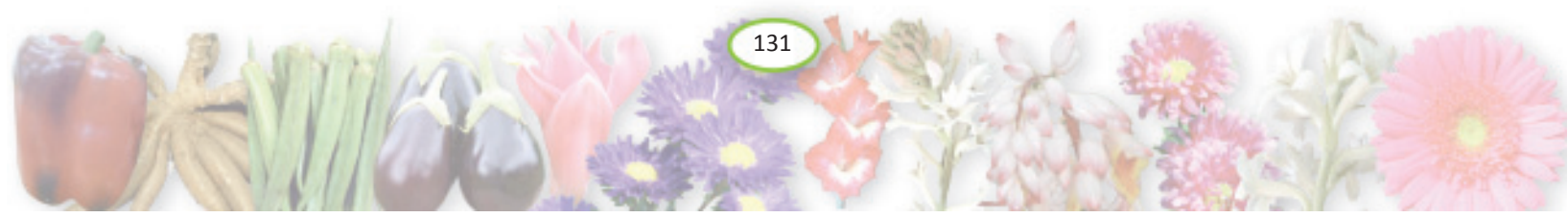


Table – 1: Mean Incidence and severity of Bacterial Blight Disease of Pomegranate in Anantapuram and Mahaboob Nagar districts of Andhra Pradesh during 2012

S. No.	Farmer name	Village	Variety	Area acre	Mandal	District	Incidence			Severity			% Severity on tree
							Leaf	Stem	Fruit	Leaf	Stem	Fruit	
1.	Ram Krishanaih	L.B. nagar	Bhaguwa	10	Bommanhall	Anantapuram	44.1	34.2	44.3	15.7	11.6	14.2	7.1
2.	Bhasakar Naidu	L.B. nagar	Ganesh	10			40.5	37.2	38.7	14.2	11.6	12.7	7.3
3.	Loknath	Gudiselapalli	Ganesh	3	D.Herrahal		41.1	37.2	45.3	14.9	12.2	15.2	7.3
4.	Hanumanth Reddy	Gudiselapalli	Genesh	5			40.4	33.3	49.8	12.8	10.3	15.2	6.9
5.	Thayanna	Aluru	Ganesh	5	Kanekal		36.7	32.4	41.4	12.4	10.5	12.8	7.1
6.	Vanna Reddy	Kottapalli	Ganesh	6			42.7	37.6	41.9	15.3	11.3	13.1	6.7
7.	Prabhakar	Pullampalli	Ganesh	8			38.5	35.3	51.3	13.4	11.6	17.2	6.5
8.	Venkat Reddy	Yerraguntla	Ganesh	3			40.9	39.5	45.3	15.0	12.0	14.7	6.3
9.	Nangi Reddy	Papisanipalli	Bhaguwa	3	Madakasira		38.7	31.8	30.7	15.0	11.4	13.7	6.8
10.	Rajendra Reddy	Papisanipalli	Bhaguwa	2			40.3	30.7	34.4	14.6	12.9	14.2	7.2
11.	Beeralingappa	Harasamudram	Bhaguwa	3			35.0	31.9	31.1	14.9	12.3	13.6	7.0
12.	Siddalinga Gowd	Ayyavaripalli	Ganesh	12			39.1	31.3	26.0	14.5	10.9	8.0	5.4
13.	Lakshmi narasappa	Godam palli	Bhaguwa	4			40.5	32.7	33.2	14.2	12.2	13.9	8.6
14.	Govinda Gowd	Shankargallu	Bhaguwa	5			33.5	29.6	31.2	13.8	12.6	13.4	6.1
15.	Bhaskar Reddy	Amidalagundi	Ganesh	2			37.7	29.8	32.1	15.2	11.5	9.4	5.8
16.	P. Umapati Naidu	Arakativemala	Bhaguwa	3	Puttur		40.4	34.8	35.3	12.9	11.5	9.2	6.2
17.	V. Chennappa	Surepalli	Mridula	2			37.8	33.8	31.8	13.4	12.2	8.6	6.3
18.	N. Suryanarayana	Ammaladinne	Bhaguwa	2	Peddapappur		41.3	36.8	34.8	13.5	11.8	10.8	7.4
19.	Ramanjinelyulu	Viswanathapuram	Bhaguwa	3	Batthalapalli		39.0	34.5	33.4	12.7	11.6	9.6	6.8
20.	Sriram Reddy	Kuraganipalli	Bhaguwa	4	Narpala		38.8	33.8	44.8	12.9	11.4	11.1	6.7
21.	Obulesu	Nayanapalli	Bhaguwa	1.5			39.8	36.3	31.8	13.6	11.5	10.0	8.3
22.	N. Naidu	Venkatampalli	Bhaguwa	2.5			39.6	34.9	31.7	12.6	10.9	9.8	7.3
23.	Nageshwar Reddy	Vemalappalli	Bhaguwa	5	Yellanur		39.5	35.2	31.3	13.7	11.1	9.4	6.8
24.	Madhava naidu	Maneela	Bhaguwa	5	Anantapuram (R)		41.6	36.9	37.5	14.3	11.7	12.5	7.4
25.	G. Subbaiah	Dontaluru	Bhaguwa	3	B.K. Samudram		40.5	37.2	34.6	12.8	11.2	10.6	8.5
26.	Narasimhappa	Narsimpalli	Bhaguwa	8	Thadimari		5.6	6.8	6.6	1.4	1.6	1.6	0.8
27.	Venkatasiva Reddy	Naminankapalli	Bhaguwa	3	Peddapappur		6.3	6.0	3.8	2.0	1.8	0.8	0.7
28.	Sarvotham	D-Cherlupalli	Bhaguwa	5	Battalappli		7.3	6.1	5.2	2.1	1.9	1.4	1.3
29.	Viswantha Naidu	KateganiKalua	Bhaguwa	5	Rapthadu		3.6	3.8	3.8	0.5	0.8	0.8	0.2
							Mean:	34.3	36.9	13.9	11.6	12.1	7.0
30.	Radha Krishna	Settyatmakur	Bhaguwa	3	Gadwal	Mahaboob Nagar	39.7	34.9	39.5	12.8	11.2	10.0	6.3
31.	Salim Khaleem	Gadwal	Bhaguwa	5			42.1	38.1	37.1	13.8	12.3	11.9	9.7
32.	Prakash Reddy	Tumalacheruvu	Bhaguwa	30	Gattu mandal		34.8	33.3	29.6	13.8	12.3	12.1	9.8
33.	Nandivardan Reddy	Seshampalli	Bhaguwa	30	Maldhakallu		41.3	35.1	43.3	15.3	13.3	14.3	8.0
34.	Sitaramayaiah	Peddathandrapadu	Bhaguwa	20	Veddepalli		39.8	32.8	38.8	14.4	14.3	15.3	10.6
35.	Krishna Reddy	Jedcherla	Bhaguwa	10	Jedcherla		6.2	6.3	5.8	1.3	1.4	1.3	0.9
							Mean:	34.8	37.6	14.0	12.7	12.4	8.9
Grand Mean:							38.3	34.6	37.3	14.0	12.1	12.4	7.9


Table-2: Status of Bacterial Blight of Pomegranate in Andhra Pradesh during 2012

S.No	District	Number covered			Prevalence (%)	Mean Severity on a tree (%)
		Mandal	Villages	Orchards		
1.	Anantapuram	13	26	29	100	7.0
2.	Mahaboob nagar	5	6	6	100	8.9

Table-3: Status of fungal leaf and fruit spots of Pomegranate in Andhra Pradesh during 2012

S.No	District	Number covered			Prevalence (%)	Mean Severity on a tree (%)
		Mandal	Villages	Orchards		
1.	Anantapuram	11	22	25	100	8.7
2.	Mahaboob nagar	4	5	5	100	11.4

Table-4: Status of Wilt of Pomegranate in Andhra Pradesh during 2012

S.No	District	Number covered			Prevalence (%)	Mean % Wilt
		Mandal	Villages	Orchards		
1.	Anantapuram	11	22	25	88	2.9
2.	Mahaboob nagar	4	5	5	100	1.9

Management of bacterial fruit spot in pomegranate

During 2012, disease incidence was recorded on leaf, stem and fruit and Percent severity of the tree was calculated and yield was recorded in treatment (spray schedule) and in farmer's practice. Results revealed that Management schedule effectively reduced the disease incidence and severity of bacterial blight which resulted in higher fruit yield compare to farmer's practice.

Table: Influence of spray schedule on the incidence of bacterial blight in pomegranate during 2012-13

Particulars	Incidence			Severity			% Severity on a tree	Yield (Area in Ha)
	Leaf	Stem	Fruit	Leaf	Stem	Fruit		
Treatment	22.58	25.25	25.00	6.78	6.13	7.17	6.92	8.3 tons
Farmer's practice	61.33	64.00	77.17	29.67	32.73	31.42	31.51	4.2 tons

Effect of Management practices against bacterial blight in pomegranate

During 2012, Disease incidence was recorded on leaf, stem and fruit and Percent severity of the tree was calculated and yield was recorded in treatment and in control. Results revealed that Management schedule effectively reduced the disease incidence and severity of bacterial blight.

Table: Effect of Spray Schedule on the incidence of Bacterial Blight during 2012

Particulars	Incidence			Severity			% Severity on a tree	Yield (Kg / ha)
	Leaf	Stem	Fruit	Leaf	Stem	Fruit		
Treatment	33.3	35.7	36.7	10.6	10.8	11.1	11.0	706
Control	68.7	70.2	67.8	29.2	29.9	25.8	27.0	210

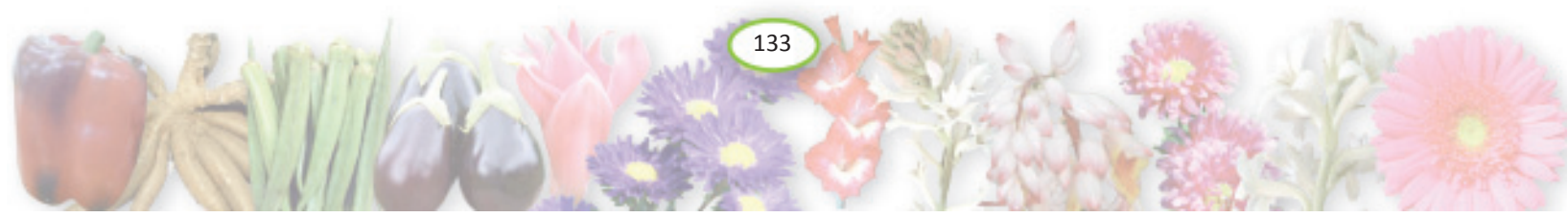


Table – 5: Mean Incidence and severity of fungal leaf & fruit spots & Wilt of Pomegranate in Anantapuram and Mahaboob Nagar districts of Andhra Pradesh during 2012

S. No.	Farmer name	Village	Variety	Area in acre	Mandal	District	Incidence		Fruit	% Severity on a tree	% Wilt	
							Leaf	Fruit				
1.	Ram Krishanaih	L.B. nagar	Bhaguwa	10	Bommanhall	Anantapuram	30.0	28.4	13.0	10.4	4.7	
2.	Bhasakar Naidu	L.B. nagar	Ganesh	10			27.5	27.3	12.1	9.8	3.6	
3.	Loknath	Gudiselapalli	Ganesh	3	D.Herrahal		26.7	31.1	13.3	10.6	0.0	
4.	Hanumanth Reddy	Gudiselapalli	Genesh	5			24.0	31.4	13.4	10.5	0.0	
5.	Thayanna	Aluru	Ganesh	5	Kanekal		26.9	28.6	12.9	10.2	2.6	
6.	Vanna Reddy	Kottapalli	Ganesh	6			26.5	28.2	11.9	9.4	1.6	
7.	Prabhakar	Pullampalli	Ganesh	8			28.1	32.1	13.3	10.5	1.0	
8.	Venkat Reddy	Yerraguntla	Ganesh	3			27.3	30.0	12.6	7.4	0.0	
9.	Nangi Reddy	Papisanipalli	Bhaguwa	3	Madakasira		18.9	19.9	8.4	7.0	2.3	
10.	Rajendra Reddy	Papisanipalli	Bhaguwa	2			18.6	22.2	9.6	7.6	2.7	
11.	Beeralingappa	Harasamudram	Bhaguwa	3			18.8	20.1	9.8	7.7	1.3	
12.	Siddalinga Gowd	Ayyavaripalli	Ganesh	12			20.5	26.3	8.4	4.7	1.0	
13.	Lakshmi narasappa	Godam palli	Bhaguwa	4			20.8	24.4	8.7	7.9	1.8	
14.	Govinda Gowd	Shankargallu	Bhaguwa	5			20.3	22.5	9.6	7.7	1.3	
15.	Bhaskar Reddy	Amidalagundi	Ganesh	2			20.7	28.4	9.7	5.3	2.5	
16.	P. Umapati Naidu	Arakativemala	Bhaguwa	3	Puttur		25.2	28.2	10.7	8.4	6.8	
17.	V. Chennappa	Surepalli	Miridula	2			24.5	29.0	9.1	8.5	3.4	
18.	N. Suryanarayana	Ammaladinne	Bhaguwa	2	Peddapappur		22.8	28.2	8.6	8.8	3.1	
19.	Ramanjinelyulu	Viswanathapuram	Bhaguwa	3	Battalappli		25.6	31.2	9.7	9.6	4.9	
20.	Sriram Reddy	Kuraganipalli	Bhaguwa	4	Narpala		22.5	29.9	8.9	9.4	6.4	
21.	Obulesu	Nayanapalli	Bhaguwa	1.5			21.5	27.8	9.1	9.3	5.1	
22.	N. Naidu	Venkatampalli	Bhaguwa	2.5			23.8	29.3	9.6	9.6	3.9	
23.	Nageshwar Reddy	Vemalappalli	Bhaguwa	5	Yellanur		24.5	29.8	9.7	9.8	4.4	
24.	Madhava naidu	Maneela	Bhaguwa	5	Anantapuram (R)		26.7	32.6	12.6	9.8	5.4	
25.	G. Subbaiah	Dontaluru	Bhaguwa	3	B.K. Samudram		23.1	29.0	8.8	8.9	3.8	
							Mean:	23.8	27.8	11.5	8.7	2.9
26.	Radha Krishna	Settyatmakur	Bhaguwa	3	Gadwal		27.3	30.3	11.9	9.3	2.8	
27.	Salim Khaleem	Gadwal	Bhaguwa	5			27.6	31.3	12.3	9.6	3.0	
28.	Prakash Reddy	Tumalacheruvu	Bhaguwa	30	Gattu mandal		30.3	36.2	15.7	13.8	1.4	
29.	Nandivardan Reddy	Seshampalli	Bhaguwa	30	Maldhakallu		30.2	35.8	18.0	14.2	0.5	
30.	Sitaramayaiah	Peddathandrapadu	Bhaguwa	20	Veddepalli	27.2	35.7	14.6	13.1	1.0		
						Mean:	27.7	32.8	14.6	11.4	1.9	
						Grand Mean:	25.8	30.3	13.1	10.1	2.4	



BER

Epidemiology of powdery mildew of ber

During 2012, the initiation of powdery mildew was delayed and it appeared in traces during 42nd Standard week as against the normal occurrence of 35th or 36th standard week. Even further progress of the disease was also less due to prevalence of dry weather conditions. Correlation studies revealed that PDI is significantly and negatively correlated with maximum and minimum temperatures and positively correlated with relative humidity (RH1).

Correlation studies for 14 years indicate that PDI is significantly and negatively correlated with Minimum temperature and Rainfall and positively correlated with Relative humidity (RH1). At Anantapur disease initiates during 37th or 38th Standard week. PDI negatively correlated with T (max) and T (min) and Positively correlated with RH1 and Sunshine hours.

For disease initiation:

- T (min) < 23.7 °C
- RH1 > 75.5
- Sunshine hours > 6.06

Table – 6: EPIDEMIOLOGICAL STUDIES ON POWDERY MILDEW OF BER, C.V. GOLA DURING 2012

S. No.	Date	Standard Week no.	PDI (Percent Disease Index)	Increase in disease (PDI)	Weather data (Average during standard week)					
					Temperature		Relative Humidity		Rainfall	Sunshine hours /day
					Maximum	Minimum	Morning	Evening		
1.	13-08-2012	33	—	—	35.2	23.5	75.7	35.8	0.0	8.3
2.	21-08-2012	34	—	—	33.6	23.1	78.5	51.3	62.2	5.9
3.	27-08-2012	35	—	—	31.2	22.7	78.0	52.2	2.0	4.4
4.	03-09-2012	36	—	—	31.7	22.5	81.7	50.7	21.0	4.7
5.	10-09-2012	37	—	—	32.9	22.8	75.0	41.0	0.0	7.1
6.	17-09-2012	38	—	—	33.9	21.6	77.7	36.7	0.0	7.4
7.	24-09-2012	39	—	—	33.9	22.0	81.0	44.3	26.0	7.7
8.	01-10-2012	40	—	—	32.5	21.6	77.5	43.0	27.4	7.4
9.	08-10-2012	41	—	—	32.8	20.2	84.7	41.0	0.0	9.0
10.	15-10-2012	42	7.7	—	32.1	20.3	83.7	45.2	1.0	6.4
11.	23-10-2012	43	10.9	3.2	31.0	19.2	92.0	44.7	1.0	7.3
12.	29-10-2012	44	14.0	3.1	29.4	20.8	84.7	58.3	31.2	2.3
13.	05-11-2012	45	16.7	2.7	32.1	21.1	90.7	44.2	0.0	7.2
14.	12-11-2012	46	18.9	2.3	30.2	16.8	82.0	24.3	0.0	9.6
15.	19-11-2012	47	14.8	-4.1	31.4	20.1	86.0	50.0	5.6	7.0
16.	26-11-2012	48	12.1	-2.7	31.5	17.0	81.7	34.0	0.0	8.9
17.	03-12-2012	49	11.9	-0.3	28.9	18.7	87.8	47.5	9.4	4.8
18.	10-12-2012	50	15.2	3.3	32.8	15.8	82.5	30.3	0.0	9.9
19.	17-12-2012	51	7.9	-7.3	29.8	15.4	86.5	36.0	0.0	7.9

Correlation coefficient of PDI (Percent Disease Index) with weather parameters during 2012

S.No.	Weather Parameters	Percent Disease Index (PDI)
1.	Maximum Temperature	-0.60**
2.	Minimum Temperature	-0.69***
3.	RH1	+0.66***
4.	RH2	-0.22
5.	Rainfall	+0.12
6.	Sunshine hours	-0.29

*indicates significant at 5%, **indicates significant at 1%, *** indicates significant at 0.5%.





EPIDEMIOLOGICAL STUDIES ON POWDERY MILDEW OF BER, C.V. GOLLA from 1998 to 2012 (14 years pooled)*

S. No.	Standard Week no.	PDI (Percent Disease Index)	Increase in disease (PDI)	Weather data (Average during standard week)					
				Temperature		Relative Humidity		Rainfall	Sunshine hours /day
				Maximum	Minimum	Morning	Evening		
1.	35	1.30	—	32.76	23.61	76.20	45.01	26.74	5.55
2.	36	9.18	-7.88	32.60	23.51	76.92	46.53	31.37	7.14
3.	37	24.00	-14.81	32.83	23.50	76.14	43.50	16.64	5.99
4.	38	32.00	-8.01	32.76	23.24	77.04	44.56	24.81	6.01
5.	39	44.51	-12.51	32.98	22.98	77.58	44.17	23.71	8.68
6.	40	53.99	-9.48	32.83	22.92	77.77	43.59	20.69	8.12
7.	41	64.71	-10.72	32.88	22.63	79.06	42.13	24.02	6.95
8.	42	54.04	10.67	32.65	23.40	78.89	41.91	16.77	6.52
9.	43	56.33	-2.29	31.68	21.60	82.51	46.58	15.36	5.69
10.	44	58.66	-2.33	30.63	20.88	84.54	49.00	12.03	7.76
11.	45	59.27	-0.61	31.23	20.02	83.13	44.50	10.20	6.71
12.	46	58.18	1.09	31.37	18.88	84.85	40.78	5.24	7.59
13.	47	62.14	-3.97	30.64	19.11	85.47	44.69	5.48	7.26
14.	48	54.65	7.49	30.59	18.67	86.96	43.96	4.31	6.63
15.	49	52.93	1.73	29.48	17.68	87.97	42.80	1.57	7.54

*- During 2003 powdery mildew did not appeared.

Correlation coefficient of PDI (Percent Disease Index) with weather parameters from 1998 to 2012 (14 Years pooled)#

S.No.	Weather Parameters	Percent Disease Index (PDI)
1.	Maximum Temperature	-0.47
2.	Minimum Temperature	-0.57*
3.	RH1	+ 0.65**
4.	RH2	-0.22
5.	Rainfall	-0.63*
6.	Sunshine hours	+ 0.40

*indicates significant at 5%, **indicates significant at 1%, *** indicates significant at 0.5%, **** indicates significant at 0.1%

- During 2003 powdery mildew did not appeared.

Prediction Model:

$$Y = -1541.1 + 24.2 (Tmin) + 11.8 (RH1) - 0.8 (RF) + 18.3 (SSH)$$

$$R^2 = 73\%$$

$$Y = -1708.5 + 24.2 (Tmin) + 13.6 (RH1) + 19.7 (SSH)$$

$$R^2 = 70\%$$

Bio-control of ber powdery mildew

During 2012, the disease was initiated vary late in the season i.e. 42nd Standard week and even further progress of the disease was also low in all the treatments including control. All the treatments differed significantly with the control in reducing the disease incidence. However, lowest percent disease index (15.6) was recorded with 0.1% Karathane alone and which differed significantly with other treatments. Though the bio-agents along with 0.05% concentration of Karathane differ significantly with control the Percent disease control is very low. Hence, the bioagents are not effective in reducing the disease incidence.



Effect of bio-agents on ber powdery mildew during 2012

	Treatment	Mean percent disease index		Per cent disease control over check
T ₁ :	0.1% Karathane alone	15.6	(23.24)*	29.8
T ₂ :	0.05% Karathane alone	18.5	(25.44)	16.7
T ₃ :	1% <i>P.fluorescens</i> (CIAH 196) + 0.05% Karathane	19.4	(26.15)	12.4
T ₄ :	1% <i>P.fluorescens</i> (CIAH NR) + 0.05% Karathane	19.0	(25.81)	14.6
T ₅ :	1% <i>Trichoderma</i> (CIAH 240) + 0.05% Karathane	18.5	(25.47)	16.6
T ₆ :	1% <i>Trichoderma</i> (CIAH NR) + 0.05% Karathane	18.9	(25.74)	15.1
T ₇ :	Carbendazim (Bavistin)	20.1	(26.58)	9.6
T ₈ :	Unsprayed check	22.2	(28.10)	0.0
	SE.m +	0.59		
	CD at 5%	1.27		
	C V %	2.81		

* Figures in the parentheses indicate the transformed values

ARID FRUITS

Screening of germplasm of arid fruits for resistance to diseases

Pomegranate varieties were evaluated for their resistance to fungal and bacterial fruit spots. Intensity of the diseases was recorded by following 0-5 foliar disease rating scale and percent disease index was calculated. Based on the percent disease index, the varieties were categorized and found Susceptible and Highly susceptible.

Reaction of pomegranate germplasm to fungal fruit spot during 2012

S.No.	Variety	Mean Percent Disease Index (PDI)	Category
1.	Ganesh	48.13	S
2.	Mridula	49.58	S
3.	Rubi	51.25	HS
4.	Bhagwa	47.57	S
5.	Jalore seedless	55.14	HS

S = Susceptible

HS = Highly Susceptible

Reaction of pomegranate germplasm to Bacterial fruit spot during 2012

S.No.	Variety	Mean Percent Disease Index (PDI)	Category
1.	Ganesh	44.08	S
2.	Mridula	48.58	S
3.	Rubi	49.33	S
4.	Bhagwa	45.75	S
5.	Jalore seedless	52.50	HS

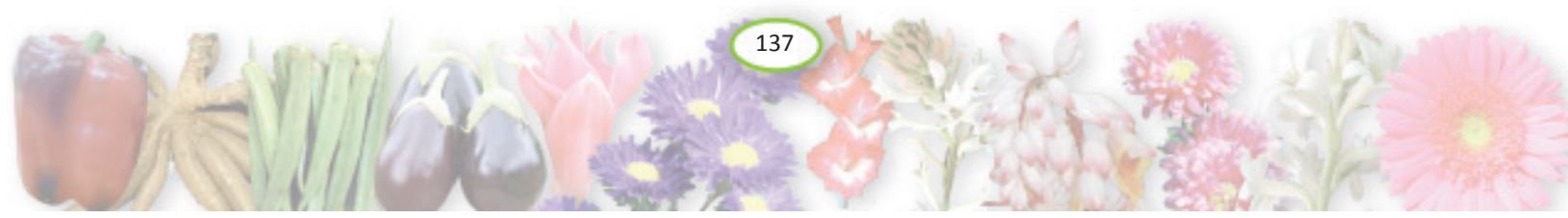
S = Susceptible

HS = Highly Susceptible

FLOWERS

Integrated management of collar rot in Crossandra

During 2012, lowest percent wilt (26.1) and highest flower yield of 40.7 kg/ha was recorded with application of Drenching + spraying with carbendazim @ 1 g/l followed by combination of application of *Trichoderma viridae* + Neem cake and Drenching + spraying with carbendazim @ 1g/L and Application of *Trichoderma viride* through FYM + neem cake (225 kg FYM + 25 kg Neem cake + 2.5 kg *Trichoderma*/ha).





Effect of different treatments on incidence of collar rot / wilt of crossandra during 2012

S.No.	Treatments	Mean Percent wilt
1.	T ₁ : Application of <i>Trichoderma viride</i> through FYM + neem cake (225 kg FYM + 25 kg Neem cake + 2.5 kg <i>Trichoderma</i> /ha)	31.44 (34.10)*
2.	T ₂ : Drenching + spraying with hexaconazole @ 2 ml/ltr	35.23 (36.40)
3.	T ₃ : Drenching + spraying with carbendazim @ 1 g/l	26.14 (30.63)
4.	T ₄ : Spraying with Copper oxychloride @ 3 g + streptomycin @ 0.01 g/lit	38.26 (38.18)
5.	T ₅ : T1 + T2	38.64 (38.39)
6.	T ₆ : T1 + T3	27.27 (31.46)
7.	T ₇ : Spraying with Bacterimycin @ 0.1%	37.12 (37.51)
8.	T ₈ : Application of Carbofuran granules @ 25kg /hectare	39.77 (39.05)
9.	T ₉ : Control	43.18 (41.07)
	SE.m +	2.34
	CD at 5%	4.96
	C V %	7.88

* Figures in the parentheses indicate the transformed values

Effect of different treatments on Flower yield (Kg/ha) during 2012

S.No.	Treatments	Flower Yield (kg/ha)
1.	T ₁ : Application of <i>Trichoderma viride</i> through FYM + neem cake (225 kg FYM + 25 kg Neem cake + 2.5 kg <i>Trichoderma</i> /ha)	38.9
2.	T ₂ : Drenching + spraying with hexaconazole @ 2 ml/ltr	33.8
3.	T ₃ : Drenching + spraying with carbendazim @ 1 g/l	40.7
4.	T ₄ : Spraying with Copper oxychloride @ 3 g + streptomycin @ 0.01 g/lit	35.3
5.	T ₅ : T1 + T2	28.8
6.	T ₆ : T1 + T3	36.6
7.	T ₇ : Spraying with Bacterimycin @ 0.1%	32.3
8.	T ₈ : Application of Carbofuran granules @ 25kg /hectare	28.1
9.	T ₉ : Control	18.4
	SE.m +	5.79
	CD at 5%	12.27
	C V %	21.79

VEGETABLES

ONION

Horticultural Research Station, Mahanandi

Management of Alternaria leaf blotch (*Alternaria porri* of onion (*Allium cepa*))

Tebuconazole 50% + Trifloxystrobin 25% WG was found to be superior in controlling the purple leaf blotch in onion (21.48).

Studies on post harvest diseases in onion crop

Among the post harvest diseases caused by different pathogens more incidence with, *Fusarium* sp., *Rhizopus* sp., *Aspergillus* sp. and *Alternaria* sp. were recorded and identified the pathogens..





TOMATO

Integrated management of wilt in tomato crop.

The experiment was conducted to find out effective measures to control the wilt disease in tomato. Soil solarization with polyethylene sheets, seed treatment with Mancozeb @ 3g /Kg seed, soil drenching with copper oxy chloride @ 3g/L and soil application of *Trichoderma viride* and *pseudomonas fluorescence* along with FYM @ 25T/h is found to be effective in controlling wilt disease in Tomato, This incidence was recorded 8.96, 12.84, 18.40, 25.77 at 15, 30,45,60 days after planting.

Management of Leaf curl and bud necrosis virus disease of tomato.

Seed treatment with Imidachloprid (Goucho) @ 5 g/kg seed. + N.S.K.E.@5% Spinosad 0.3ml/L is found to be superior in controlling the viral disease in tomato. Border crop with jowar and yellow sticky traps @ 4 per acre were also used in controlling the viral disease in tomato. The percent disease incidence was recorded 5.97, 6.79, 7.05 at 30,45 and 60 days after planting. The Whitefly population was recorded 0.96/plant and Thrips population 0.74/ plant after post treatment. Bud necrosis disease incidence was recorded 3.69, 5.64 and 8.46 at 30, 45 and 60 days after planting.

Vegetable Research Station, Rajendranagar

Management of blight diseases of tomato:

The disease incidence ranged from 18.2 to 26.7%. Foliar spray with Metiram @0.3% recorded minimum incidence of the disease (18.2 PDI) and 260.6 q/ha yield. However, in control plot, the disease incidence recorded was 32.2 PDI and yield was 191.1 q/ha.

Integrated management of TOSPO wilt disease of tomato:

Four sprays i.e., first spray of Acephate @1.5 g/l + Neem oil @2.0 ml/l, Second spray of Regent @1.5 ml/1 + Neem oil @2.0 ml/l, Third spray of Admire @2g/15l + Neem oil @ 2.0 ml/l, Fourth spray of Acephate @1.5 g/l + Neem oil @2.0 ml/l at 10 days interval were found to exhibit minimum disease incidence of 9.1 % and yield was 382.5 q/ha. Whereas in control plot, the disease incidence recorded was 15.3 % and yield was 309.7 q/ha.

BOTTLE GOURD

In bottle gourd, gummy stem blight pathogen was isolated and identified as *Didymalla bryoniae*.

POTATO

In potato, Kufri Jyothi recorded significantly minimum incidence of late blight disease with maximum yield when compared to other varieties.

CASSAVA

During roving survey, in cassava, CMD incidence ranged from 5-100% in different areas. Leaf blight incidence was more than 34 % in August - September months where as aphid infestation was 28 % in colocasia. In yam with maize intercropping leaf blight and sucking pest incidence was increasing on yam.

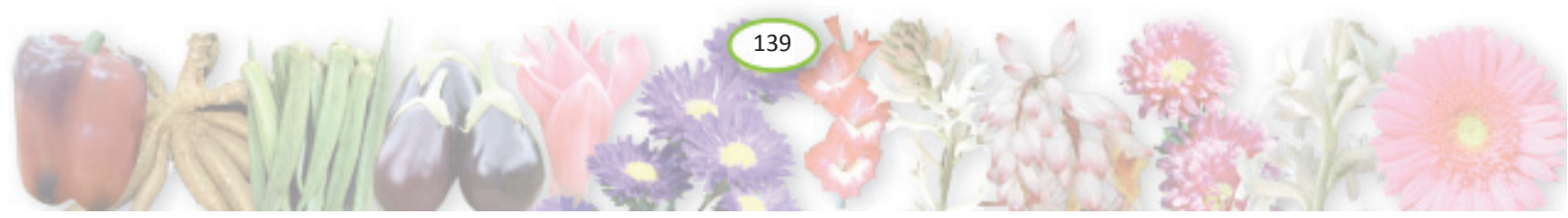
In cassava, the accessions CMR-13.15,17, Ci-800, Co-3 and MNGA-1 (Padmanabha) recorded zero incidence of CMV disease with an yield of above 25 t/ha for the past three consecutive years.

TUBER CROPS

SWEET POTATO

During the survey for pest and disease incidence, in sweet potato 59% weevil incidence, 10%wilt and leaf spot 285 % mosaic incidence was recorded.

For management of sweet potato weevil by using intercropping system coriander and garlic at 1:1 ratio recorded minimum incidence of weevil with high marketable tuber yield when compared with control.





COLOCASIA

Among 73 colocasia accessions screened for phytophthora blight disease, the lines No -6 (9.3%), CA- 15 (9.8%) and RNCA-1 (9.4%) recorded minimum incidence where as susceptible var Telia recorded 28.4% incidence of leaf blight.

In colocasia, 32 % leaf blight incidence during July - August and severe incidence of aphid during October - November months. Where as in yam 26 % leaf blight, 18% mosaic and 10 % collar rot incidence was recorded in July.

ELEPHANT FOOT YAM

Yam bean seed extract @ 5% was found to reduce aphid incidence by 67.3% with increased yields (24.28 t/ha) when compared to chemical treatment (53.24%).

IDM in yam was found superior to chemical treatment and farmers practice with high cost benefit ratio.

SPICES

BLACK PEPPER

Horticultural Research Station, Chintapalle

Management of *Phytophthora* foot rot disease in Black pepper (New Plantation) PEP/CP/5.3

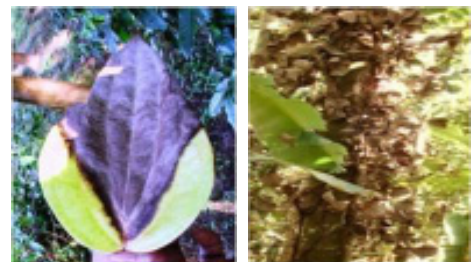
This experiment was started during the July 2008-09 at Horticultural Research station, Chintapalli. Three varieties i.e. IISR- Shakti, IISR- Thevam and Panniyur-5 each of 100 cuttings were brought from IISR, Calicut during the month July- 2008 and were planted in A4 block. The procured cuttings have not established properly resulting in the poor stand.

The cuttings were procured from Pepper Research Station, Panniyur and IISR-Calicut in August, 2010 and planted. However, there was >90% mortality in the cuttings planted in the main field due to transplantation shock and also due to inundation of rain water immediately after planting. This was informed to the Research Monitoring Evaluation committee that visited the Horticultural Research Station, Chintapalli on 1st September, 2010. Some of the left over excess cuttings of IISR-Thevam and Panniyur-05 were multiplied in the shade net house and planted in July, 2011 which have survived and plant stand is approximately 75.0 % as on date. IISR-Shakti couldn't be rescued and they have procured from IISR-Calicut and are in multiplication stage.

Effectiveness of new molecules of fungi toxicants against *Phytophthora* foot rot of Black Pepper in Existing Plantation (PEP/CP/5.4)

The experiment was initiated during 2011-12 at Horticultural Research Station, Chintapalli. New molecules i.e., Fenamidone (10%) + Mancozeb (50%) and Copper Hydroxide were tested for their efficacy against foot rot of black pepper caused by *Phytophthora capsici*.

Experimentation of 2012-13 revealed that spraying and drenching with 0.1% of Fenamidone(10%) + Mancozeb (50%) alone and spraying and drenching with 0.1% of Fenamidone(10%) + Mancozeb (50%) coupled with soil application of *Trichoderma harzianum* (MTCC 5179) @ 50 g/vine with 1.0 kg neem cake recorded lesser incidence of leaf yellowing, defoliation and vine mortality. Spraying and drenching with 0.1% of Fenamidone (10%) + Mancozeb (50%) coupled with soil application of *Trichoderma harzianum* (MTCC 5179) @ 50 g/vine with 1.0 kg neem cake is comparable with the existing recommended practice for managing the foot rot incidence i.e., Foliar application of Potassium Phosphonate (0.3%) + Soil application of *Trichoderma harzianum* (MTCC-5179) @ 50 g/vine. Owing to reduced leaf infection, defoliation and vine mortality, higher yields were recorded in vines that received fenamidone (0.1%) + Mancozeb (50%) and soil application of *Trichoderma harzianum*. Spraying and drenching with 0.2 % of Copper hydroxide and subsequent soil application of *Trichoderma harzianum* also recorded lesser incidence of disease. However, this treatment is not as effective as vines that



Foliar Symptoms of *Phytophthora* Foot Rot in Black Pepper





received either potassium phosphonate or spraying and drenching with 0.1% of Fenamidone(10%) + Mancozeb (50%) coupled with soil application of *Trichoderma harzianum* (MTCC 5179) @ 50 g/vine with 1.0 kg neem cake.

TURMERIC

Turmeric Research Station, Kammarapally

Management of Foliar Diseases in Turmeric

Table 6 shows that there was significant effect of chemicals on disease index of both leaf spot and leaf blotch and yield and non significant on germination. Rhizomes treated with Carbedazim + Mancozeb (0.1%) + foliar spray of Carbedazim + Mancozeb (0.1%) on 45 and 90 DAP recorded the highest germination (92.51 %) which was followed by rhizome treated with propiconazole (0.1%) + foliar spray of propiconazole (0.1%) on 45 and 90 dap (90.83) and lowest rhizome germination was observed in control (86.66).

Lowest leaf spot lowest per cent disease index was recorded in rhizomes treated with Propiconazole (0.1%) + foliar spray of Propiconazole (0.1%) on 45 and 90 DAP (16.46) which was followed by foliar spray of Propiconazole (0.1%) on 45 and 90 DAP (17.9) both are non significant with each other. Similarly in case of leaf blotch , the lowest per cent disease index was recorded in rhizomes treated with Carbedazim + Mancozeb (0.1%) + foliar spray of Carbedazim + Mancozeb (0.1%) on 45 and 90 DAP (15.56) which was followed by foliar spray of Carbedazim + Mancozeb (0.1%) on 45 and 90 DAP (16.73).

It is evident from the table more fresh rhizome yield was recorded in rhizomes treated with Carbedazim + Mancozeb (0.1%) + foliar spray of Carbedazim + Mancozeb (0.1%) on 45 and 90 DAP (17.53 t/ha) which was followed by Propiconazole (0.1%) + foliar spray of Propiconazole (0.1%) on 45 and 90 DAP (17.50 t/ha) the next best treatment was foliar spray of Carbedazim + Mancozeb (0.1%) on 45 and 90 DAP gave the fresh rhizome yield (17.06 t/ha) and lowest yield was recorded in control (14.13t /ha).

Table-6 Effect of fungicides on germination and Disease index on turmeric

Treatment	Germination %	Yield /plot (kg)	Yield (t/ha)	Leaf spot		Leaf blotch	
				PDI	% Disease reduction over control	PDI	% Disease reduction over control
T1- Rhizome treatment with Hexaconazole (0.1% + foliar spray of Hexaconazole (0.1%) on 45 and 90 DAP	89.16	5.03	16.83	19.66	30.18	18.96	34.07
T2- Rhizome treatment with propiconazole (0.1% + foliar spray of Propiconazole (0.1%) on 45 and 90 DAP	90.83	5.23	17.50	16.46	41.54	16.83	41.48
T3- Rhizome treatment with Tricyclozole (0.1% + foliar spray of Tricyclozole (0.1%) on 45 and 90 DAP	88.337	4.93	16.5	20.5	27.20	21.56	25.03
T4- Rhizome treatment with Carbedazim + Mancozeb (0.1% + foliar spray of Carbedazim + Mancozeb (0.1%) on 45 and 90 DAP	92.51	5.26	17.53	18.03	35.97	15.56	45.89
T5- Foliar spray of Hexaconazole (0.1%) on 45 and 90 DAP	89.16	5.0	16.76	19.9	29.33	21.46	25.38
T6- Foliar spray of Propiconazole (0.1%) on 45 and 90 DAP	89.17	5.1	16.96	17.9	36.43	18.5	35.67
T7- Foliar spray of Tricyclozole (0.1%) on 45 and 90 DAP	87.50	4.86	16.3	19.66	30.18	21.76	24.33
T8- Foliar spray of Carbedazim + Mancozeb (0.1%) on 45 and 90 DAP	90.00	5.10	17.06	18.46	34.44	16.73	41.82
T9- Check	86.66	4.23	14.13	28.16		28.76	
S.Em +	1.959	0.149	0.491	0.59		0.715	
CD at 5%	NS	0.450	1.485	1.80		2.16	
CV(%)	3.802	5.17	5.12	5.19		6.18	



Screening of Germplasm cultures against Turmeric Colletotrichum leaf spot

S.No.	Accession No	Disease reaction	Utility
1	PTS-11,-D4, T-5,JTS-606,JTS-1,Guntur, PTS-9	0-20 resistant	Based on the disease and pest reaction these entries were selected and promoted for further testing in large scale
2	JTS-605, JTS-2, JTS-3, KTS-8, PTS-59, PTS-12, Deepaiguda peddapasuopu, Turmeric local,	> 20-40 MODERATELY RESISTANT (MR)	
3	Diggirala telupu, Duggirala redArmoor	> 40-60 MODERATELY SUSCEPTIBLE (MS)	
4	Nil	> 60 SUSCEPTIBLE (S)	

Screening of Germplasm cultures against Turmeric Leaf blotch

S.No.	Accession No	Disease reaction	Utility
1	JTS-319, PCT-14, JTS-604, TC-2, CLI-356, CLI-370, Kasturi-III, VK-145, R.Sonia, PTS-10, PTS-52, JTS-603, JTS-607, JTS-608, J.Palli	0-20 resistant	Based on the disease and pest reaction these entries were selected and promoted for further testing in large scale
2	TCP-1, RH-5, NDH-18, TCP-11, JTS-10, JTS-11, JTS-12, JTS-13, JTS-14, JTS-15, Mydukur, Nirmal peddapasupu, Waigon, Roma, Boath pedda pasupu, Shilong, Sughundham, Phubgni local, CLI rajampet, KASTURI, Ontimetta, Kasturi Avidi, Upparpally, Kasturi, Joguripadu	> 20-40 MODERATELY RESISTANT (MR)	
3	CLI 385, CLI-369, JTS-602, JTS-601 JTS-306, PTS-38, PTS-9, CLI-330, Gadida pasupu , Bari pasupu, Avanighadda, Thuduphuja, CLI-361, CLI-225, CLI-228, CLI-330, CLI-210	> 40-60 MODERATELY SUSCEPTIBLE (MS)	
4	Chosompeta, PCT-5, CA-90, Chennur local, Amruthapani kothapet	> 60 SUSCEPTIBLE (S)	

Screening of Germplasm cultures against Turmeric Rhizome rot

S.No.	Accession No	Disease reaction	Utility
1	JTS-12, JTS-15, JTS-301, JTS-302, JTS-303, JTS-304, JTS-306, JTS-309, JTS-310, JTS-311, JTS-312, JTS-314, JTS-319, JTS-320, JTS-321, JTS-605, JTS-606, JTS-611, JTS-612, Turmeric local, TC-2, TC-4, T-5, CLI-370, CLT-320, CLI-344/1, CLI-38, CLI-325, PCT-10, PCT-12, PCT-13, PCT-14, PCT-18, 360, 361, PTS-9, PTS-24, PTS-38, GS, PTS-19, PTS-10, RH-5, ST-365, ST-510, NDH-18, TCP-2 BSR-1	0-20 resistant	Based on the disease and pest reaction these entries were selected and promoted for further testing in large scale
2	Shillog, Nirmal peddapasupu, Gadidda pasupu, Mydukur, Boath peddapasupu, Kasturi, Ethamukala, Ammruthapani kothapeta, Upparpally, J.palli, kasturi joguripadu, Kasturi ethakota, Padderu local, Thuduphuja, Avanighadda, Waigon, Rajendra sonia, JTS-6, JTS-9, JTS-10, JTS-14, TC 2/1, JTS-305, JTS307, JTS-317, JTS-318, JTS-322, JTS-323, JTS-32, JTS-325, JTS-326, JTS-601, JTS-602, JTS-603, JTS-604, JTS-606, JTS-608, JTS-609, JTS-610, CLT-367, CLI-36, CLI-390, CLIJyothi, CLI-124/6, CLI-369, CLI-385, 21 A CLI	> 20-40 MODERATELY RESISTANT (MR)	





S.No.	Accession No	Disease reaction	Utility
3	32/4, CLI-316, CLI-317, CLI-324, CLI-335, CLI-348, CLI – 36/2, CLI-342/1, CLI-36/1, CLI-321, CLI-310, CLI Rajampet, CLI-330, CLI-365, 15 B, Selection-II, IC, CA, Sompeta, KTS-8, Jorhat local, Kasturi III, PCT-3, PCT-5, PCT-4, PCT-8, PCT-7, PTS-4, PTS-16, PTS-52, PTS-59, PTS-12, PTS-43, VK-77, VK-145, TCP-1, CLI-225 JTS-5, JTS-7, JTS-8, JTS-13, NO-3, Duggirala red, Chennur local, JTS-315, JTS-316, JTS-611, TC-9, D4, CLI-318, CLI-195, CLI 335/2, CLI *-125/2, CLI –125/3, CLI-136, CLI-196, CLI-295, CLI-365, CLI-344, CLI-228, CLI-322, CA-90 Kasturi Avidi, Pasivedula, Kerala variety, Ontimela, RCT-1, ACC-593, PCT-19, PTS-11, PTS-15, PTS-55, Phubgni local, Sugandham, Roma, PTS-62, Muvathiphuja, NDH-6, TCP-11, CO-1, CLI-361, Bari pasupu	> 40-60 MODERATELY SUSCEPTIBLE (MS)	
4	Armoor local, JTS-1, JTS-2, JTS-3, Duggirala white, CCA-304, Guntur, ACC –584, ACC-585	> 60 SUSCEPTIBLE(S)	

Survey and monitoring of turmeric diseases

The was conducted in four mandals, the incidence of Colletotrichum leaf spot is ranged from 9.7 to 13.7%, Tathrina leaf blotch is 5.5% to 15.8% and Rhizome rot is 7 to 12% irrespective of the varieties observed

Table-7 Incidence of major diseases of turmeric

Name of the disease	Date of first appearance of disease	Kammarpally	Upllor	Morthad	Velpur
Colletotrichum leaf spot	Rajpurui 2 nd week of August	Duggirala Red 9.7 %	Prathibha	Armoor Local 7.8 %	13.7 %
Taphrina leaf blotch	2 nd week of October	6.25 %	15.8 %	5.5 %	
Rhizome rot	2 nd week of September	10 %	7%	12 %	10.8 %

MEDICINAL & AROMATIC PLANTS

BETELVINE

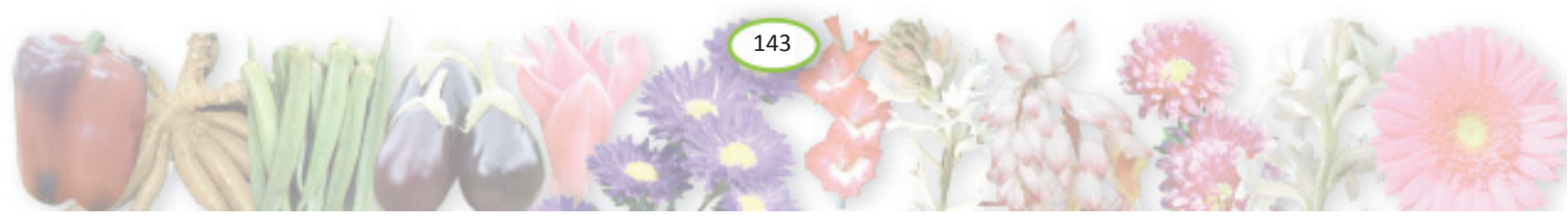
AICRP on MAP & Betelvine, V.R.Gudem

In monitoring trial, On *Mucuna pruriens* YMV, leaf spots (*Cercospora* sp, *Corynospora* sp & *Alternaria* sp) & Rust, while on *Solanum nigrum* leaf spots (*Pseudocercospora* sp, *Corynospora* sp) & wilt were recorded. Only leaf spots were recorded on *Cassia angustifolia* and *Piper longum*.

On *Mucuna pruriens* YMV was the major disease first recorded 50 days after planting and reached 100 % at 105 days in unsprayed and at 112 days in treated plot. Data on seed yield indicated that 23 % increase in seed yield in treated plot over control. Leaf spots *Cercospora* sp and *Corynospora cassicola*, Leaf blight *Alternaria alternata* are the diseases recorded in succession.

During survey root rot on *Coleus forskohlii*, leaf spots on *Costus* sp and *Berginia celiata*; rust on *Canna* sp, While powdery mildew on *Clitoria ternatea*, *Ocimum kilimandscharicum* and *Petalium* sp colonized by biocontrol agent *Ampelomyces quisqualis* were recorded.

On *Acorus calamus* leaf spot PDI varied with spacing, highest disease incidence (14.54%) at 60X60 cm spacing and lowest at 60X30 cm (11.97%), while leaf spot PDI did not differ with FYM levels and interaction of different spacing and FYM levels.





Solanum nigrum wilt disease incidence was not significantly affected by either individual or the interaction effect of different organic manures and biofertilizers. Similarly there was no significant effect of different spacings and harvesting intervals either individually or in combination

PLANTATION CROPS

COCONUT

Horticultural Research Station, Ambajipeta

Path - 3: ETIOLOGY AND EPIDEMIOLOGY OF BASAL STEM ROT DISEASE OF COCONUT

Activity I: Collection of *Ganoderma* isolates from various locations.

As per the suggestions of the 21st annual group meeting, four type cultures of *Ganoderma lucidum* were obtained from Mushroom Research Centre, Solan Himachal Pradesh. The type cultures of *Ganoderma applanatum* were not available at Mushroom Research Centre, Solan Himachal Pradesh. DNA isolation and RAPD studies of the type cultures of *Ganoderma lucidum* are being carried out for comparison with the coconut *Ganoderma* isolates.

Activity II: Conservation and molecular characterization of *Ganoderma*:

RAPD-PCR studies with thirteen isolates of Ambajipeta (Ga, Ga1, Ga2, G1, G12, G13, G14, G15, G16, Gw1, Gw2, NJL and A2) and eight isolates of Veppankulam (Vpm1, Vrm1, Pvi1, Pvi2, Crs1, Crs2, Crs4, Crs5) centre was carried out with RAPD primers Rfu1, Rfu2, Rfu3, Rfu4 and Rfu5 primers. The dendrogram developed using average linkage between groups showed that the isolates Crs1 and Pvi2 of Veppankulam and G12 and G13 of Ambajipeta showed greater diversity from the other isolates of Ambajipeta and Veppankulam centres. The remaining isolates could be grouped in to two major clusters. Cluster 1 included the isolates Vrm1, Crs2, Crs4, Ga1, G14 and NJL. Cluster 2 included Vpm1, Pvi1, Ga2, Gw2, Gw1, Crs5, Ga, G1, G15, G16 and A2 (Fig 1, 2).

Fig 1: Dendrogram showing the relationship among the isolates of *Ganoderma*:

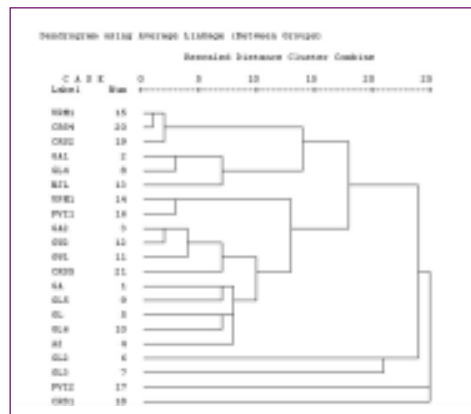
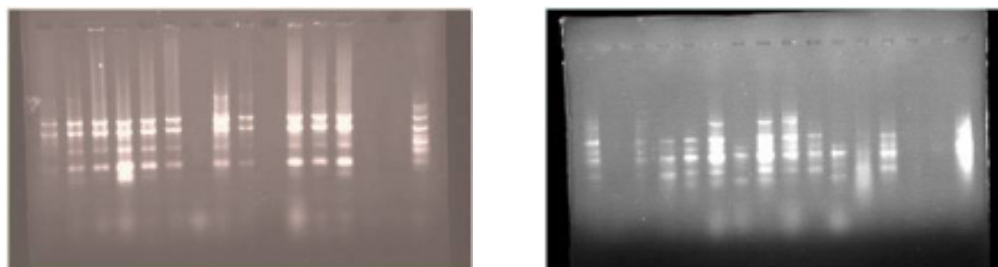


Fig 2: Banding pattern of *Ganoderma* isolates with Rfu 1 and Rfu 2 primers:



Activity III: Epidemiology and disease forecasting:





Impact of other palms and intercrops in coconut on occurrence and spread of disease:

To study the impact of other palms and intercrops in coconut on occurrence and spread of disease, fifty palms in field with sole coconut and field with coconut + banana were selected in Gannavaram village of East Godavari District. Soil at the experimental site is of sandy in nature near the Godavari river basin. Cropping systems are sole coconut and coconut intercropped with banana.

Every month linear and horizontal spread of the disease in that 50 palms were recorded. In sole coconut crop, out of fifty palms, five coconut palms were infected with the disease till June 2012, seven palms were infected in July 2012, eight palms were diseased in August 2012 and nine palms were diseased by the end of February 2013 (Table 1). Whereas, in coconut intercropped with banana out of fifty plants, eight plants showed the symptoms till November 2012. Diseased plants increased to nine in December 2012, 10 in February 2013 (Table 2). The data was presented below.

Table 1: Impact of other palms and intercrops in coconut on occurrence and spread of disease: Sole coconut:

No of palms infected out of 50 palms	Linear spread in cms										
	Apr'12	May'12	Jun'12	Jul'12	Aug'12	Sep'12	Oct'12	Nov'12	Dec'12	Jan 13	Feb 13
1 (4)	134	152	124	Mid	Mid	Mid	Mid	Mid	Mid	Mid	mid
2 (11)	89	89	89	89	89	89	89	89	89	89	89
3 (32)	155	155	155	155	155	155	155	155	162	162	162
4 (35)	68	68	68	68	68	68	68	68	68	68	68
5 (38)	155	155	115	115	115	116	116	116	150	150	152
6 (6)				38	38	39	39	39	42	42	104
7 (11)				82	82	89	89	89	91	91	91
8 (22)					66	64	64	64	64	64	64
9 (29)						170	170	170	170	170	170

Table 2: Impact of other palms and intercrops in coconut on occurrence and spread of disease: Coconut intercropped with Banana:

No of palms infected out of 50 palms	Linear spread in cms										
	Apr'12	May'12	Jun'12	Jul'12	Aug'12	Sep'12	Oct'12	Nov'12	Dec'12	Jan 13	Feb 13
1 (12)	85	85	85	85	85	87	87	87	88	88	88
2 (17)	Died	Died	Died	Died	Died	Died	Died	Died	Died	Died	Died
3 (28)	UP	Up	UP	UP'	UP	Up	UP	Up	Died	Died	Died
4 (36)	66	Dry	65	65	65	68	68	68	102	102	102
5 (37)	71	Dry	71	71	71	73	73	73	96	96	101
6 (42)	Died	Died	Died	Died	Died	Died	Died	Died	Died	Died	Died
7 (43)	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid	Mid
8 (39)	71	71	71	71	74	75	75	75	115	115	115
9 (14)	—	—	—	—	—	—	—	—	156	156	156
10 (3)	—	—	—	—	—	—	—	—	—	—	116

Path - 4: Management of basal stem rot disease in coconut:

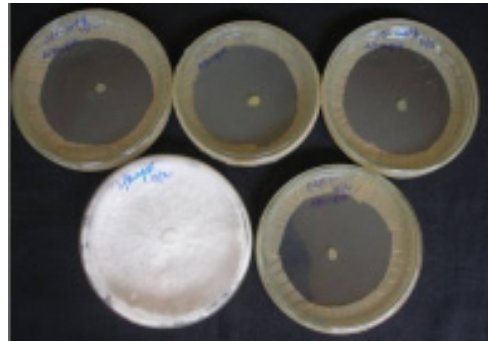
Activity I: Collection, conservation and characterization of bioagents from different locations:

Effect of calixin against the *Ganoderma* pathogen:

The calixin chemical at different concentrations was tested against the *Ganoderma* pathogen through *in vitro* studies. The Appanapalli isolate of *Ganoderma* was tested against the chemical at 0.1%, 0.2%, 0.3% and 0.4% concentrations. The chemical at all concentrations effectively inhibited the pathogen under *in vitro* conditions (Fig. 3).



Fig 3: Effect of calixin on Ganoderma at various concentrations:



Activity II: Rhizosphere Management:

The new BSR management trial with the following treatments was initiated during the year with *Trichoderma viride* and *Pseudomonas fluorescens* formulations. The treatments are being imposed at the specified time intervals with the bioagents, *Trichoderma viridae* and *Pseudomonas fluorescens*.

T ₁	SA of talc based formulation of 125g of <i>Trichoderma viride</i> (T.v.) + 1kg of neem cake / palm at quarterly intervals.
T ₂	SA of talc based formulation of 250 g of <i>Trichoderma viride</i> (T.v.) + 2 kg of neem cake / palm at six monthly intervals.
T ₃	Soil Application of 500 g of talc based formulation of <i>Trichoderma viride</i> (T.v.) + 4 kg of neem cake / palm / year.
T ₄	SA of talc based formulation of 125 g of <i>Pseudomonas fluorescens</i> (P.f.) + 1 kg of neem cake / palm at quarterly intervals.
T ₅	SA of talc based formulation of 250 g of <i>Pseudomonas fluorescens</i> (P.f.) + 2 kg of neem cake / palm at six monthly intervals.
T ₆	SA of talc based formulation of 500 g of <i>Pseudomonas fluorescens</i> (P.f.) + 4 kg of neem cake / palm / year.
T ₇	Soil Application of 125 g of talc based formulation of <i>Trichoderma viride</i> (T.v) and <i>Pseudomonas fluorescens</i> (P.f.) + 1 kg of neem cake / palm at quarterly intervals.
T ₈	Soil Application of 250 g of talc based formulation of <i>Trichoderma viride</i> (T.v) and <i>Pseudomonas fluorescens</i> (P.f.) + 2 kg of neem cake / palm at six monthly intervals.
T ₉	Soil Application of 500 g of talc based formulation of <i>Trichoderma viride</i> (T.v) and <i>Pseudomonas fluorescens</i> (P.f.) + 4 kg of neem cake / palm / year.
T ₁₀	Control

The treatments were imposed in the month of September 2012 and the treatments are being imposed at the specified intervals and the data is being recorded at monthly intervals (Table 3).

Table 3: Data from treatment imposed plants:

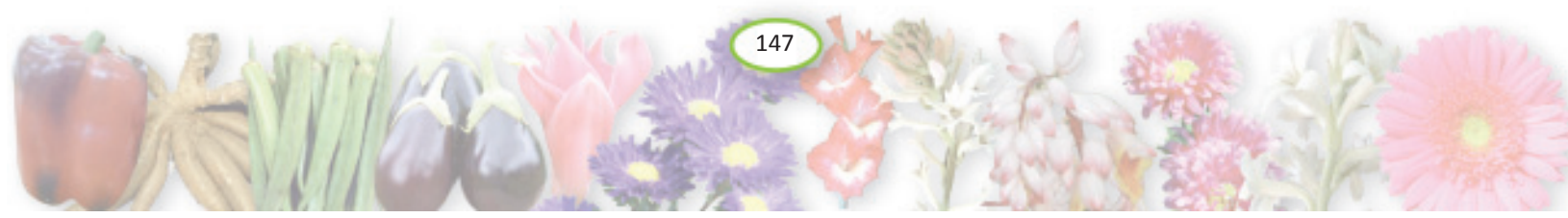
	Before treatment Disease spread	Disease spread (Sep 2012)	Disease spread (Oct 2012)	Disease spread (Nov 2012)	Disease spread (Dec 2012)	Disease spread (Jan 2013)	Yield (Jan 2013)	Disease spread (Feb 2013)	Yield (Jan 2013)
T1 a	0	125	125	152	152	152	15	152	10
T1 a	0	0	0	0	0	0	35	0	35
T 1 a	0	0	0	0	0	0	6	0	6
T2 a	0	0	0	0	0	0	4	0	4
T2a	0	0	0	0	0	0	4	0	4
T3 a	0	0	0	0	0	0	8	0	6





	Before treatment Disease spread	Disease spread (Sep 2012)	Disease spread (Oct 2012)	Disease spread (Nov 2012)	Disease spread (Dec 2012)	Disease spread (Jan 2013)	Yield (Jan 2013)	Disease spread (Feb 2013)	Yield (Jan 2013)
T3 a	0	0	0	0	0	0	12	0	8
T4 a	0	0	0	0	0	0	30	0	30
T4 a	0	0	0	0	0	0	6	0	3
T5 a	Initial spot	84	84	Mid	Mid	Mid	21	Mid	16
T5 a	0	17	17	17	0	0	24	0	18
T6 a	Dried	0	0	0	0	0	10	0	8
T6 a	0	57	57	56	56	0	6	0	8
T7 a	0	0	0	0	0	0	6	0	4
T7a	0	0	0	0	0	0	6	0	13
T8a	0	0	0	0	0	0	18	0	18
T8a	0	0	0	0	0	44	10	46	8
T9 a	0	0	0	0	0	0	102	0	86
T9 a	0	0	0	0	0	0	6	0	16
T 10 a	Initial	0	0	0	0	0	26	0	13
T 10 a	0	0	0	0	0	0	14	0	20
T1 b	87	87	87	91	91	87	8	88	8
T2 b	111	108	108	112	112	Up	20	Up	4
T3 b	73	84	84	73	73	73	12	74	8
T4 b	48	0	0	0	49	48	14	48	12
T5 b	123	160	112	Mid	Mid	Mid	12	Mid	6
T6 b	56	20	20	Mid	Mid	Mid	12	Mid	10
T 7 b	77	84	84	83	79	77	8	77	4
T8b	113	100	101	115	115	115	13	115	7
T9b	100	102	102	102	102	105	10	105	12
T 10 b	85	84	84	84	84	86	17	89	22
T 1 c	Mid	Mid	Mid	Mid	Mid	Mid	5	died	—
T2 c	180	160	172	180	180	180	40	180	28
T2c	171	172	170	172	172	175	10	177	9
T3 c	135	129	154	136	136	136	29	136	25
T3c	154	160	162	156	156	Mid	9	Mid	3
T4c	132	56	56	134	134	132	18	132	12
T4c	155	155	150	156	155	Mid	9	Mid	5
T5c	Mid	Mid	Mid	Mid	Mid	Mid	12	Mid	12
T5c	131	130	130	140	140	131	8	131	3
T6c	Mid	Mid	Mid	Mid	Up	Up	38	Up	10
T6c	140	143	144	144	144	144	8	Mid	2
T7c	153	153	153	156	156	156	14	156	4
T7c	Mid	Mid	Mid	Mid	Mid	Mid	—	Mid	8
T8c	Dried	0	0	0	0	0	12	0	6
T8c	128	180	160	180	180	180	30	180	18
T9c	179	179	179	177	179	179	45	180	9
T9c	127	127	127	127	127	127	10	128	12
T 10 c	Mid	Mid	Mid	Mid	Up	Up	12	Up	12
T10c	129	154	154	Mid	Mid	Mid	24	Mid	19

A: low level of disease incidence
 B: medium level of disease incidence
 C: severe disease incidence





Activity III: Rhizosphere engineering:

Population dynamics of rhizosphere microflora of basal stem rot disease affected palms, apparently healthy and healthy coconut palms were studied to find out their influence on basal stem rot. Soil samples were collected from diseased and healthy palms of Gudapalli, Chintalamori, Gudimula, Kesanapalli, Sankaraguptam and Sakhinetipalli villages during the surveys. Serial dilution technique was adopted to study the microbial population in diseased and healthy palm rhizospheres. The mycoflora associated with healthy soil sample were found to be more in rhizosphere mycoflora and their number when compared to the diseased soil sample. *Aspergillus niger*, *Aspergillus flavus*, *Rhizopus*, *Penicillium spp* and bacterial colonies were the most common mycoflora present in all the samples. The colonies of *Trichoderma* were more in case of apparently healthy diseased coconut palms when compared to the diseased palms.

Path-7: Bio control of bud rot and stem bleeding diseases of coconut

Incidence of bud rot disease in 2012 was more when compared to 2011 as there is heavy and continuous rainfall during last year. Incidence Seedling death due to bud rot was found higher in Godavari Ganga (Hybrid coconut) when compared to the seedling death of East Coast Tall.

Stem Bleeding:

Field evaluation of antagonists against stem bleeding disease in coconut:

Effect of *Trichoderma virens* cake formulation as well as *Trichoderma viride* paste application was tested against stem bleeding disease of coconut under field conditions. Fifty numbers of *Trichoderma virens* cakes from CPCRI, Kasaragod were received and used for the study from the month of March 2012 onwards along with paste application of *Trichoderma viride* for the control of stem bleeding disease of coconut. From the results, application of *Trichoderma virens* cake formulation was found effective when compared to the paste application of *Trichoderma viride*.

S. No.	Treatment	Number of plants treated (in the month of April)	Number of plants showing dried symptom	Number of plants with partially dried symptom	Number of plants showing the symptom again	Number of plants with disease
1	<i>Trichoderma virens</i> cake application	30	17	12	—	1
2	<i>Trichoderma viridae</i> paste application	30	17	—	8	5
3	Control	30	0	0	—	30

Field evaluation of Vanapalli isolate of *Trichoderma viride* against bud rot disease of coconut:

As per the recommendations of 21st annual group meeting, the identified Vanapalli isolate of *Trichoderma viride* was multiplied in large scale and field evaluation of the isolate was initiated during this year. 5 gm of talc formulation of *Trichoderma viride* was applied in the nursery seedlings of coconut. The percentage disease incidence observed in the *Trichoderma viride* treated plants was low when compared to the control plants. A total of 3000 nursery seedlings were selected and treatments was imposed on the plants. The percentage disease incidence in the treated plants was 1.16 and 1.13 during January 2013 and February 2013 when compared to the control with percentage disease incidence of 1.6 and 1.46 during January 2013 and February 2013 respectively (table 5).

Table 5: Field evaluation of Vanapalli isolate of *Trichoderma viride* on bud rot disease of coconut:

S. No.	Treatment	Month	Total number of plants	Diseased plants	Percentage Disease incidence
1	Vanapalli isolate of <i>Trichoderma viride</i>	January 2013	3000	35	1.16
		February 2013	3000	34	1.13
2	Control	January 2013	3000	48	1.6
		February 2013	3000	44	1.46





PATH-8: Survey and surveillance on diseases of coconut (bud rot, stem bleeding and ganoderma wilt):

Surveys were conducted in different mandals of East Godavari, West Godavari and Srikakulam districts of Andhra Pradesh during 2012-13. The major diseases observed in coconut gardens were basal stem rot, bud rot and stem bleeding along with minor incidence of grey leaf spot. Incidence of Grey leaf spot disease was also observed to certain extent in East Godavari and Srikakulam districts during last year (Table-6).

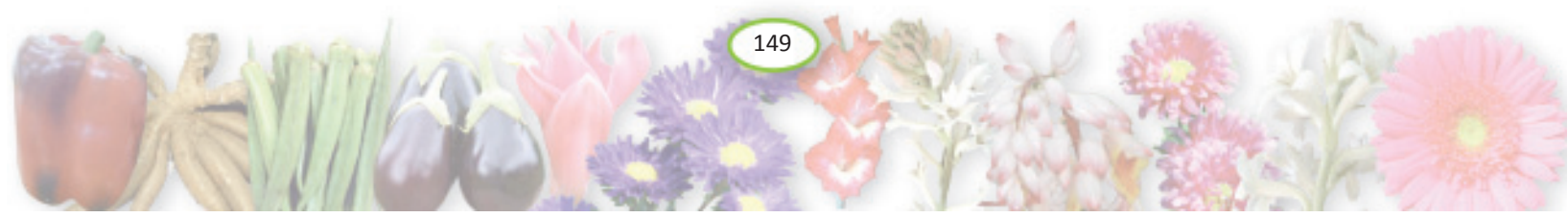
Table-6: Incidence of major diseases of coconut in Andhra Pradesh

S.No.	District	Mandal	Village	Disease incidence and severity (%)	Other observations
1	Srikakulam	Kaviti	Kuttuma	BSR: 8 SB: BR: 1.0	—
		Kaviti	Manikyapuram	BSR: 0.5 SB:1.0 BR: 1.0	—
		Kanchili	Kojjiria	BSR: 10.0 SB:5.5 BR: 1.5	—
		Kanchili	Sriram-puram	BSR: 5.5 SB:12.5 BR: 1.0	—
		Kaviti	Borivanka	BSR: 30.5 SB:— BR: 2.0	Bud rot (1 % Incidence) Leaf spot on coconut. Termite incidence
		Kaviti	Biripuram	BSR: 25.5 SB:2.5 BR: 2.5	Bud rot (1 % Incidence) Termite incidence
		Kaviti	Chandi-puttuga	BSR: 10.5 SB:1.0 BR: 1.0	—
		Kaviti	Jagati	BSR: 18.0 SB:0.5 BR: 1.0	Bud rot (1 % Incidence) Leaf spot incidence
		Sompeta	Baruva	BSR: 8 SB:2.5 BR: 0.5	—
		Sompeta	Gollagondi	BSR: 11.5 SB:1.0 BR: 0.5	—
2	East Godavari	Gannavaram	BSR: 25.3 SB: 1.0 BR: 1.5	—	
		Kalavacharla	BSR: 31.5 SB: 1.5 BR: 1.0	—	
		Kesanapalli	BSR: 23.0 SB: 1.5 BR: 1.0	—	
		Antarvedi	BSR: 26.5 SB: 2.0 BR: 2.0	—	
3	West Godavari	Gopalapuram	BSR: 15.2 SB: 3.4 BR: 1.0	—	
		Kaja	BSR: 11.2 SB: 2.5 BR: 2.5	—	

BSR: Basal stem rot;

SB: Stem bleeding;

BR: Bud rot



PATH- 10: Early detection of basal stem rot disease in coconut

Activity II: Identification of indicator plants for basal stem rot disease:

Studies were repeated for validating bengal gram plant as indicator plant for basal stem rot disease during 2012-13. Artificial inoculation of pure cultures of *Ganoderma* pathogen to the sterilized soil was done with each isolate before transferring of the germinated bengal gram seedlings in pots. Infected plants showed withering, yellowing, browning of the lower set of leaves followed by upper leaves and drying of the plants. When the infected seedlings were uprooted and observed, whitish fungal growth was observed on the cotyledons. In later stages, complete rotting of the basal stem region and death of the plants were observed. Entire symptoms were visible within a month under artificial inoculation studies. Pure culture of *Ganoderma* was isolated from the basal stem regions of infected bengal gram plant. Indicator studies were also conducted with naturally sick soil of *Ganoderma* in pots along with artificial inoculation of the cultures. These plants also showed similar symptoms and culture of *Ganoderma* was isolated from the diseased plants (fig 4).



Infection of *Ganoderma* to Bengal gram seeds under artificial and natural conditions:

For identification of indicator plants for bud rot disease, seedlings of black gram, green gram, horse gram, peas and beans were sown in artificially inoculated soil in pot culture experiments. None of them showed infection of the pathogen to the plants.

PATH-15: Early detection of bud rot disease of coconut:

Activity II: Identification of Indicator Plants for Bud Rot Disease:

For identification of indicator plants for bud rot disease, seedlings of brinjal, papaya, Bengal gram, black gram, green gram, horse gram, peas and beans were sown in artificially inoculated soil in pot culture experiments. None of them showed infection of the pathogen to the plants (Fig 5).



Artificial infection of *Phytophthora palmivora* to the seedlings

PATH - 16 : Identification of coconut types resistant to ganoderma wilt disease:

Seed nuts of 7 new varieties were obtained and planted in sick soil at Gannavaram, East Godavari District at 3X3 m spacing as on farm trial in October 2010. The details of varieties along with number of seedlings sown, number of seedlings died and the reasons of death are given in the table- 7. The trial is in progress.

Table-7: New varieties planted for screening germ plasm Resistant to Basal stem rot disease of Coconut:

S. No.	Variety	Number of seedlings	Number of seedlings survived	Reason
1	Java Giant	5	3	1 (BSR) + 1 (Cattle grazing)
2	Chandra Kalpa (LO)	4	3	1 (BSR)
3	Spicata	5	4	1 (BSR)
4	Laccadive Micro	8	6	2 (BSR)
5	ECT	14	8	2 (BSR) + 4 (Cattle grazing)
6	Ceylon Red	3	2	1 (BSR)
7	GB X ECT	7	5	2 (BSR)
8	Pillalakodi (Local variety)	3	0	3 (Bud rot)
9	Jonnalarasi (Local variety)	3	0	3 (Bud rot)





F. SOIL SCIENCE, AGRONOMY

Fruit Research Station, Sangareddy

Evaluation of substrate dynamics for IPNM in Mango

Maximum plant spread (NS) (7.5 m) was recorded in trees treated with $T_5 - \frac{1}{2} T_1 + 50 \text{ kg FYM} + 250 \text{ g Tichoderma viridae}$. Highest cost benefit ratio (2.41) was recorded in $T_7 - \frac{1}{2} \text{ of RDF} + \text{Azotobacter } 250\text{g} + 50\text{kg FYM}$. Higher available K content (280 kg. ha^{-1}) was found in treatment $T_6 - \frac{1}{2} \text{ RDF} + 50 \text{ kg FYM} + 250 \text{ g Azospirillum}$.

Nutritional Survey In Mango

Maximum yield (100 kg.tree^{-1}) was obtained in Deepak orchard of Kohir mandal and maximum TSS (23 °Brix) was obtained in Madhu gardens, Sangareddy mandal. Higher yield (100 kg.tree^{-1}) and fruit weight (390 g) in Deepak orchard, Kohir mandal is correlated with higher available N (470.4 kg.ha^{-1}) in top 50 cm layer of soil. However, higher TSS (23 °B) and vitamin-C ($24 \text{ mg. } 100\text{g}^{-1}$) in madhu gardens, Sangareddy mandal can be correlated to the higher available K content (264 kg.ha^{-1}).

Fertigation scheduling for quality fruit production of mango

The trial was initiated during the year 2010-11. Drip irrigation system, with the laterals running towards the specified treatments, was installed during November, 2010. The treatments were imposed as per the technical programme during flowering and marble stage of fruit only.

Development of organic package of practices for mango

Maximum number of fruits. tree^{-1} (115) and yield ($32.13 \text{ kg.tree}^{-1}$) was obtained in $T_5 - \text{Vermicompost } (50 \text{ kg.tree}^{-1}) + \text{Azospirillum culture @}250 \text{ g.tree}^{-1} + \text{PSB @}250 \text{ g.tree}^{-1}$. The treatment $T_5 - \text{vermicompost } (50 \text{ kg.tree}^{-1}) + \text{Azospirillum culture @}250 \text{ g.tree}^{-1} + \text{PSB @}250 \text{ g.tree}^{-1}$ has recorded higher cost benefit ratio (1.52).

Evaluation of substrate dynamics for IPNM in Guava

Maximum plant height (E-W) (4.33 m) and plant spread (N-S) (6.41) was observed in $T_7 - \frac{1}{2} \text{ of RDF} + 25\text{kg FYM} + \text{Azotobacter } (250\text{g})$. Maximum fruit weight (202 g) and shelf life (13.33 days) was observed in trees treated with $T_{11} - \frac{1}{2} \text{ of RDF} + 25\text{kg FYM}$ enriched with *Aspergillus niger*. Further, maximum cumulative yield ($688.44 \text{ kg tree}^{-1}$) from 2006-2013 was recorded in $T_7 - \frac{1}{2} \text{ of RDF} + 25 \text{ kg FYM} + \text{Azotobacter } (250 \text{ g})$.

Development of organic package of practices for guava (*Psidium guajava* L.)

No significant difference among the treatments was observed with respect to the vegetative growth and yield and quality parameters of guava. Maximum yield ($80.4 \text{ kg.tree}^{-1}$) was obtained in $T_1 - \text{FYM } (50 \text{ kg.tree}^{-1})$

Effect of different chemicals on regulation of flowering and fruiting in mango

Highest flowering percent (56.25 %) was observed in trees sprayed with K_2HPO_4 1%. Further, maximum fruit no. ($220 \text{ fruits.tree}^{-1}$), fruit weight (468.5 g) and yield ($103.1 \text{ kg.tree}^{-1}$) was observed in trees sprayed with KH_2PO_4 (1%) + KNO_3 (1%). The maximum cumulative yield (2007-13) (568 kg tree^{-1}) was recorded in trees sprayed with KH_2PO_4 (1%) + KNO_3 1%.

Pre- harvest treatments for extending post harvest life of mango

Maximum fruit set (7.97), fruit weight (396) was recorded in trees sprayed with K_2SO_4 . However, maximum storage life (11.0 days) was observed with trees sprayed with $\text{CaCl}_2 \cdot 6 \text{ H}_2\text{O}$ (6 %) along with mulching. (Table 43 & 44). Highest cumulative yield (2007-13) (410 kg.tree^{-1}) was observed in trees sprayed with $\text{CaCl}_2 \cdot 6 \text{ H}_2\text{O}$ (6 %) along with mulching.

Effect of Calcium, Boron and Sorbitol on pollination and fruit set in mango.

Maximum fruit set (12) was recorded in trees sprayed with both boric acid and sorbitol. Maximum number of fruits. tree^{-1} (202), and yield ($59.0 \text{ kg.tree}^{-1}$) was observed in fruits treated with sorbitol. Maximum fruit weight





(377 g) was recorded in the fruit sprayed with both calcium nitrate and sorbitol. Maximum cumulative yield (295 kg.tree⁻¹) was also recorded in fruits treated with sorbitol.

Studies on flowering and fruiting behavior on mango cultivars in relation to weather parameters (Temperature, Humidity, wind velocity, and sun shine hours).

There are no significant differences with respect to fruit drop, no of fruits.tree⁻¹ and yield (kg.tree⁻¹) among the different varieties. There were significant differences with respect to fruit weight. Maximum fruit weight (408 g) was recorded in Mallika.

GRAPE

Grape Research Station, Rajendranagar

Nutrient content of commercial varieties raised on different rootstocks:

Petiole Nutrient Status

Rootstock has significant influence on nutrient uptake by scion. Significantly high N and K were recorded in scions of Dogridge, P in scions of 1103P and own roots, Ca in scions of SO₄ and own roots, while Na in scions of Dogridge and own roots. The accumulation of Cu, Mn and Fe was more on scions of 1103P, while Zn accumulation was very high on own rooted vines when compared to rootstock.

In general among varieties N, P, K and Zn were significantly high with Thompson seedless.

Petiole nutrient content of juice, wine, table and raisin grape varieties grafted on Dogridge rootstock.

The petiole nutrient content of different varieties were analysed for juice, wine, table and raisin grape varieties.

ACIDLIME

Citrus Research Station, Petlur

Among the 10 treatments of acidlime of organic farming experiment plant height in treatment 7 recorded the maximum height of 71.2cm and the lowest was recorded in the treatment 6 was 55.8 cm.

Among the 10 treatments of acidlime of organic farming experiment plant height in treatment 5 recorded the maximum height of 1.42m and the lowest was recorded in the treatment 7 was 1.11m.

Fifteen acid lime orchards were surveyed in different mandals of Nellore district. Out of which twelve gardens were bearing orchards and the remaining three were in pre-bearing stage. Most of the surveyed orchards (60%) displayed visual deficiency symptoms of micronutrients in general and Fe and Zn in particular. Few orchards did not show any deficiency symptoms due to the good orchard management. Most of the soils of surveyed orchards were alkaline - calcareous and non-saline in nature. Water analysis data revealed that the irrigation water used were moderately saline to saline and the electrical conductivity (E.C.) ranged from 0.89 – 2.31 dSm⁻¹. The residual sodium carbonate (RSC) content in all samples was in traces. The leaf nitrogen concentration was low to moderate, ranging from 1.55 – 2.63%. Some of the orchards were under deficiency range of nitrogen.





V. EXTENSION

A. DIAGNOSTIC VISITS

Medicinal & Aromatic Plants Research Station, Rajendranagar

Visited Aloe-vera field near Buvanagiri, Nalgonda District and suggested measures on Agronomic practices and control of leaf spot problem on 25.06.2012.

Visited to Aloe-vera field at Teppalamadugu village, Nalgonda District to organize Alo-vera planting material production for Model Nursery in farmers field on 27.11.2012 and 10.12.2012.

Dr G. Sathyanarayna Reddy and Rao S.Met Reddy, Professor, Alabama A & M University, U.S.A., visited to Turmeric Research Station for initiating a collaborative project on 07-01-2013

HRS, Ananthapuram

Dr. K. Subramanyam, Principal Scientist(Plant Pathology) & Head visited Guava orchards located at village Iruvendela and diagnosed wilting of trees due to root rot and interacted with farmers on integrated management of the disease.

Dr. B. Srinivasulu, Senior Scientist (Horti.) visited Mango orchards in Open Air Jail Farm, Reddipalli village on 04-01-2013.

Dr. B. Srinivasulu, Senior Scientist (Horti.) visited Papaya and banana gardens at Rachavaripalli village, Puttaparti mandal on 02-02-2013.

Dr. B. Srinivasulu, Senior Scientist (Horti.) visited aonla garden at Mudinayanapalli vaillage, Kalyandurg mandal on 09-01-2013.

Dr. K. Subramanyam, Principal Scientist (Plant Pathology) & Head and Dr. B. Srinivasulu, Senior Scientist (Horti.) visited Sweet orange garden Venkatapuram village, Bukkarayasamudram mandal on 08-03-2013.

Floriculture Research Station, Rajendranagar

Dr. P.Lalitha Kameswari, Scientist (Hort.) visited Singapoor village of Shankarpalli mandal on 15/11/12 and observed the fields of gladiolus and rose.

Krishi Vigyan Kendra, Ramagirikhilla

Field diagnostic visits on different crops were conducted to identify the problems faced by the farmers and suggested necessary plant protection measures to overcome the problems. Based on the intensity and spread of the problem trainings and method demonstrations were conducted by selecting a group of farmers from the cluster villages.

S.No.	Crop	Problems	No. of visits
1	Chillies	Wilt, Midge, Thrips, Mites and Micro nutrient deficiencies	5
2	Rice	Blast, Sheath blight, BPH, Stem borer, Panicle mite, Zinc deficiency, Alkaline soils and Sulphide injury	8
3	Maize	Stem borer and Blight	4
4	Cotton	Leaf hoppers, Mealy bug, Flower drop, Wilt and Reddening	11
5	Mango	Hoppers, Termites, Nutrient deficiency and Delayed flowering	6
6	Fruits & Vegetables	Micro nutrient deficiency in tomato, YMV in Bendhi, Shoot & fruit borer in Brinjal, Thrips in chillies, Thrips and Fruit cracking in watermelon	15
7	Flowers	Marigold and Tuberose	4
8	Turmeric	Leaf blotch and Rhizome rot	2





Field visit of rice affected with Brown Plant Hopper



Field visit of Chillies infested with Midge



Field visit of Watermelon affected by Boron deficiency



Field visit of gum gour cultivated in Kataram



Fruit damage caused by midge infestation in chillies



Fruit cracking of watermelon due to Boron deficiency

Krishi Vigyan Kendra, Pandirimamidi

The technical team of Krishi Vigyan Kendra, Pandirimamidi conducted 20 diagnostic visits during the year 2012-13 and suggested remedial measures. The major problems were listed below.

On 24.09.2012 Dr. A. Srinivas, Programme Coordinator & Sri V.Govardhan Rao, SMS (Plant Pathology) made field visit to FLD Paddy MTU-1075 fields in Bandapalli and observations were recorded on pest population and suggested regarding required fertilizer and pesticide application.

On 24th of September 2012 Dr. A. Srinivas, Programme Coordinator and Sri. V. Govardhan Rao, SMS (Plant Pathology) visited maize fields in Folkspeta & Devarathigudem under maize FLD's sponsored by DMR. Suggested balanced fertilizer application, nutrient management and pesticides.

On 22nd of September 2012 Dr. A.Srinivas, Programme Coordinator and Sri. V. Govardhan Rao, SMS (Plant Pathology) visited Brinjal fields in Folkspeta. Observed shoot and fruit borer in brinjal and suggested pesticide application of - Neem oil @ 5ml/ltr. + Carbaryl 3g/ltr. Or Neem oil + Cartop hydrochloride 50SP @ 2.5 g/ltr. Or Coragen @60ml/ac. Or Fluebendamide @50ml/ac.

On 30.10.2012 Sri V. Govardhan Rao, SMS (Plant Pathology), Agriculture Officer, Agriculture Extension Officer, Block Technology Manager – ATMA, Rampachodavaram division made joint diagnostic field visits in I.Polavaram, Bandapalli villages and visited the paddy and Ragi fields. In this visit, observed the leaf blast in paddy and suggested application of tricyclozole 120 g/acre. Under promotion of millets scheme – Initiative for nutrition security – Ragi cultivation promoted in Bandapalli Krishi Vigyan Kendra adopted villages. The scheme aims to demonstrate the improved production and post-harvest technologies in an integrated manner with visible impact to catalyze increased production of millets in the district. Under this programme technical support, scientific information on crop management and regular monitoring of the fields in different locations is being done by Krishi Vigyan Kendra, Pandirimamidi.

On 15th November 2012 Sri V. Govardhan Rao, SMS (Plant Pathology) made diagnostic field visit to Banana and turmeric fields in B.V.Kota village. Observed incidence of leaf spot & leaf blotch in turmeric and Cigatoka leaf spot in Banana, recommended Diethane – M.45@ 2.5 g/ltr. spraying.

On 29.12.2012 Sri V. Govardhan Rao, SMS (Plant Pathology) made diagnostic field visit to Maize fields at Devipatnam mandal along with AO, Devipatnam, BTM-Rampachodavaram block and suggested recommended dosage of fertilizers and pesticide application.



On 29.12.2012 Sri V. Govardhan Rao, SMS (Plant Pathology) made diagnostic field visit to Groundnut field at Devipatnam mandal along with AO, Devipatnam, BTM-Rampachodavaram block. Observed incidence of budnecrosis and recommended application of Lamdacyhalothrin @1.2 ml/lit.

On 09-01-2013 Dr. A. Srinivas, Programme Coordinator, Sri B.Bhaskar Rao, SMS (Horticulture), Sri V.Goardhan Rao, SMS (Plant Pathology), made diagnostic field visit to FLD maize fields in B.V.Kota village which is being implemented under "Promotion of Maize cultivation in agency area of East Godavari district" sponsored by ATMA, East Godavari District and Directorate of Maize Research, Hyderabad.

On 22.01.2013 Sri. V. Govardhan Rao, SMS (Plant Pathology) made diagnostic field visit to paddy fields at Mulapadu village Rampachodavaram mandal along with AO, Rampachodavaram, BTM-ATMA, Rampachodavaram block . Observed the incidence of paddy blast and recommended application of trycyclozole @120 gm/acre.

On 07-03-2013 Sri V.Goardhan Rao, SMS (Plant Pathology) and Dr.A.Srinivas, Programme Coordinator made diagnostic field visit to FLD maize fields in Dandangi village of Devipatnam mandal which is implemented under "Promotion of Maize cultivation in agency area of East godavari district" sponsored by Directorate of Maize Research, New Delhi & ATMA, East Godavari district.

On 08-03-2013 Dr.A.Srinivas,Programme Coordinator, Sri V.Goardhan Rao, SMS (Plant Pathology), made diagnostic field visit to FLD maize fields in Yarlagadda village of Y.Ramavaram mandal which is implemented under "Promotion of Maize cultivation in agency area of East godavari district" sponsored by Directorate of Maize Research, New Delhi.



Diagnostic field visit to Front Line Demonstrations on Maize



Diagnostic visit to Banana field at B.V.Kota village



Diagnostic visit to Turmeric field at B.V.Kota village



Dr. A. Srinivas, PC, and Sri. V. Goardhan Rao SMS (PP)



Dr. A. Srinivas, PC, and Sri. V. Goardhan Rao SMS (PP)



Dr. A. Srinivas, PC, and Sri. V. Goardhan Rao SMS (PP)



Field visit to Ragi field in Bandapalli village



Joint diagnostic field visit to Groundnut field at Devipatnam



Joint diagnostic field visit to Maize FLD field at B.V.Kota



Joint diagnostic field visit to Paddy field at Mulapadu



Joint diagnostic field visit to Maize fields at Devipatnam

CRS, Tirupati

Dr. L.Mukunda Lakshmi, Scientist (Hort.) and Smt. G.Sarada, Scientist (Ent) participated in diagnostic visits in Podalakur, Chejerla, Kaluvoya mandals of Nellore District with respect to sweet orange and acid lime. (31August, 2012 and 1 september, 2012).

Dr. L.Mukunda Lakshmi, Scientist (Hort.) and Smt. G.Sarada, Scientist (Ent) attended diagnostic visit to Guava, Mango and flower crops in Penumuru mandal of Chittoor district. (20-02-2013).





CRS, Petlur

Dr.M.Kavitha, Scientist (Plant Pathology) made 5 Diagnostic visits in various Acid lime & Sweet orange orchards in different mandals of SPSR Nellore district.

Sri.D.Sreedhar, Scientist (Horticulture) made 10 Diagnostic visits in various Acid lime & Sweet orange orchards in different mandals of SPSR Nellore district.

Sri A.Ramanjaneya Reddy, Scientist (Soil Science) made field visits on 7/11/2012, 15/11/2012, 1/12/2012, 24/12/2012, 29/12/2012 and 31/12/2012 along with RAWEP students in Theerthampadu, Mopur, Mopurvellampalli, Althurpadu and Dakkali villages.

Dr.M.Kavitha, Scientist (Plant Pathology) and Sri.D.Sreedhar, Scientist (Horticulture) attended diagnostic visits along with Asst. Director of Horticulture, Nellore.

HRS, Mahanandi

Exposure visit - Scientist (Pl.path) & Head explained the plant protection measures in Banana and use of onion solar dryer to 55 farmers of Chickballapur , Karnataka (State) visited HRS, Mahanandi along with ADH on 25-05-2012.

Under NHM scheme from NHRDF, Kurnool 50 vegetable farmers of Kurnool and Mahaboobnagar districts visited Horticultural Research Station on 29-09-2012 and Dr.Ch.Ruth, Scientist (Pl.path) & Head explained the pest and diseases identified in Onion , Tomato , Chillies and Jasmine crops.

50 farmers visited Horticultural Research Station, Mahanandi along with Agricultural Officers dt.13-03-2013 from Macherla. Dr. Ch.Ruth, Scientist (Pl.path) explained the importance of horticultural crops and cultivation practices of onion and chillies to farmers.

Horticultural Research Station, Mahanandi participated in Horticulture Expo-2012 , at Hyderabad and Onion varieties (6) , Aizwan varieties and banana varietal samples were sent to the programme from 26-01-2013 to 29-01-2013.

HRS, Chintapalle

Visited Gondipakala and Rajupakala villages of Chintapalli mandal and Identified Phytophthora foot rot disease in Black Pepper gardens. Recommended COC 0.3 % drenching and Potassium Phosphonate spray during the onset of monsoon, middle of the monsoon and end of rainy season along with GAP for control of disease.

Visited Choudupalli and Antarla villages and observed Leaf spot infestation in Turmeric during the months of October and November. For controlling the leaf spot advised to clip the disease infested leaves and also recommended spray of Mancozeb 3 g/l.

HRS, Pandirimamidi

Tuni mandal	13.04.2012	Sri.G.Narasimha murthy Scientist (Hort) Dr.K.Rajendra Prasad Scientist (Hort)	Visited the old mango orchards with no flowering in this season and suggested recommendations to get flowering in the next year.
Kadiyam nurseries	21.06.12 to 23.06.12	Dr.K.Rajendra Prasad Scientist (Hort) Smt. K.Usha kumari Scientist (Hort)	Inspected Kadiyam nurseries and given detailed report to ADH Rajahmundry
Vizianagaram district	8.11.12 to 11.11.12	Dr.K.Rajendra Prasad Scientist (Hort) Sri.G.Narasimha murthy Scientist (Hort)	Visited Flood damaged areas and suggested recommendation! to early recover of horticultural crops.
Indukurupeta, potahvaram sarabhavaram villages in addateegala mandal	03.03.2013	Dr.K.Rajendra Prasad Scientist (Hort) Sri. G. Narasimha murthy Scientist (Hort)	Visited Flood damaged areas and suggested recommendation! to early recover of horticultural crops.





HRS, Darsi

S.No.	Date	Programme attended	Village	Mandal
1	23.06.12	Field visit to Sweet Orange garden	Bodanampadu	Kuruchedu
2	27.06.12	Field visit to Ridge gourd and cucumber	Nagambotlapalem	Tallur
3	09.08.12	Field visit to Sweet Orange garden	Potlapadu	Kuruchedu
4	14.08.12	Field visit to Mango garden	Chandalur	Darsi
5	08.11.12	Acid lime, Guava Turmeric, Jasmine and chillies	Denuvukonda, Perayapalem	Addanki
6	09.11.12	Chillies and Brinjal	Modepalli, Singarakondapalem	Marturu
7	12.11.12	Brinjal, Tomato, Chilli, Papaya and Banana	Isuka Darsi, Konanki, Rajupalem, Valaparla, Kondamanjula	Donakonda
8	13.12.12	Watermelon	Lakshmipuram, Polepalli, Rudrasamudram, Battepadu, Chandavaram, Kandulavaripalli	Darsi
9	01.02.13	Watermelon	Chalivendram	Darsi
10	15.03.13	Acidlime	Mareddypalli	Darsi
			Pothavaram	Darsi

Horticultural Research Station, Aswaraopet

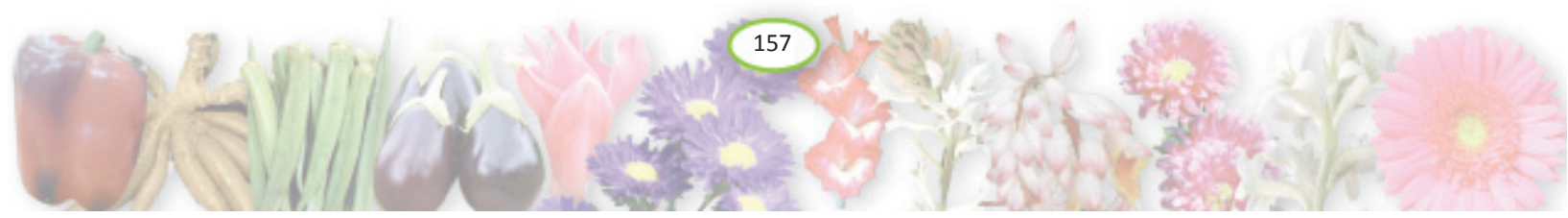
Sri M.Ravindra Babu Scientist of HRS, Aswaraopet made several diagnostic visits to the Farmers' Fields and given suggestions to the farmers on various crops like Mango, Cashew, Banana, Oil palm and Vegetables in Khammam Dist.

Grape Research Station, Rajendranagar

Survey for pests and diseases was conducted in the grape growing districts (Rangareddy, Medak, Mehboobnagar) of Andhra Pradesh. During the visits severity, time of occurrence of pests and diseases were diagnosed and suggested necessary control measures.

Horticultural Research Station, Ambajipeta

S.	Name of the scientist	Date	Place	Diagnosis
1.	Dr. N.B.V.Chalapathi Rao and Dr. A.Snehalatha Rani	27.04.12	Kommaragiri Patnam, E.G.Dist.	Problems due to the incidence of basal stem rot disease in coconut.
2.	Dr. G. Ramanandam and Dr. A. Snehalatha Rani	25.04.12	Odalarevu, E.G.Dist.	Problems due to coconut slug caterpillar.
3.	Dr. G. Ramanandam, Smt.E.Padma and Dr. A. Snehalatha Rani	24.05.12	Vijayarai, W.G.Dist.	Problems due to the incidence of basal stem rot disease in cocoa.
4.	Smt.E.Padma and Dr. A. Snehalatha Rani	23.05.12	Krapachintalapudi, E.G.Dist.	Problems yellowing/bronzing of the lower middle leaves followed by drooping in coconut palms
	Dr. A. Snehalatha Rani	22.06.12	Mukteswaram, E.G.Dist.	Problems due to bark eating caterpillar in cocoa.
	Dr. G. Ramanandam, Dr. N.B.V.Chalapathi Rao and Dr. A.Snehalatha Rani	25.07.12	Kothapeta, E.G.Dist.	Problems due to the incidence of basal stem rot disease and slug caterpillar in coconut.
5.	Dr. G. Ramanandam and Dr. A.Snehalatha Rani	30.07.12 & 31.07.12	Jagati and Borivanka, Srikakulam Dist.	Pest and disease management in coconut.
	Dr. G. Ramanandam	16.01.13	Gollagondi, Srikakulam Dist.	Problems due to black headed caterpillar in coconut.





S.	Name of the scientist	Date	Place	Diagnosis
	Dr. G. Ramanandam	17.01.13	Kuttuma, Kaviti, Jagati and Bejjaputtuga, Srikakulam Dist.	Problems due to black headed caterpillar in coconut.
6.	Dr. N.B.V.Chalapathi Rao	3.01.13	Gogannamatam, E.G.Dist.	Problems due to black headed caterpillar in coconut.
	Dr. N.B.V.Chalapathi Rao	21.02.13	Muramulla, Edurlanka & Kesanapalli, E.G.Dist.	Problems due to black headed caterpillar and Ganoderma wilt in coconut.

Vegetable Research Station, Rajendranagar

Dr.J.Dilip Babu, Principal Scientist & Head along with the team of Scientists visited bittergourd crop in Babaguda village of Shameerpet mandal to inspect the problem complained by JDA, RR District as per the instructions of Director of Research on 07-08-2012 and given the recommendations.

Dr.M.Vijaya, Principal Scientist (Pl.Path.), Dr.M.Padma, Principal Scientist (Horti.), Dr.P.Madhavi Latha, Scientist (Agro.) visited Aziznagar and nearby villages on 14-12-2012 to survey vegetable growing areas and to observe the diseases of vegetable crops.

Dr.B.K.M.Lakshmi, Scientist (Plant. Path.), conducted survey on pest and disease incidence in Tuber Crops as per approved technical programme of work 2012-2013 under AICRP (Tuber crops) on 14/7/2012 at Tenali and surrounding villages of Guntur district.

Dr.B.K.M.Lakshmi, Scientist (Plant. Path.), conducted survey on Tuber crops in Tenali, Guntur and Vuyurru on 20-09-2012 and Venkataramannagudem and surrounding villages on 21-09-2013.

Dr.B.K.M.Lakshmi, Scientist (Plant. Path.), survey was conducted on pest and disease incidence in Tuber Crops on 03-02-2013 and collected data on CMV incidence in cassava at Peddapuram, VR gudem and surrounding villages.

Dr.P.Madhavi Latha, Scientist (Agro.), visited bottle gourd field at Pedashapur village of Shamshabad Mandal where mahico hybrid Varda was raised which was at 45 days age with good growth but suffering with sucking pest complex. Suggested to spray Rogar 2ml/lit and also suggested Multi K spray @ 5gm/lit for good yields.

Dr.P.Madhavi Latha, Scientist (Agro.), attended field visit for farmers of Medak District who visited to Vegetable Research Station on 9.11.2012

Horticulture Research Station, Vijayarai

Dr.V.Suchitra, Scientist (Hort.) has visited several sick horticultural farms and suggested the remedial measures to correct the deficiencies and to control pests and diseases on the crops.

Dr.V.Suchitra and Dr.K.Ramachandrudu, Scientist, DOPR has made joint diagnostic visit in oil palm and cocoa and suggested proper water management for leaf breaking in oilpalm and recommended foliar spray of Zinc 2g/lit of water to prevent Zinc deficiency in cocoa.

Horticultural College & Research Institute, Venkataramannagudem

Dr.N.Emmanuel visited Vijayarai to formulate baits for rodents management in cocoa

Dr.N.Emmanuel visited Veeramapalem to study Spodoptera in groundnut, coconut and purpose is IPM of Spodoptera litura – root feeding with monochrotophos

Dr.N.Emmanuel visited Telikicherla for studying Papaya mealy bug IPM

Dr.M.Lakshmi Narayana Reddy, Dean of Horticulture; Dr.A.V.D.Dorajee Rao, Assistant Professor (Hort) and Sri M.Paratpara Rao, Assistant Professor (Pl.Breeding) visited Soodikonda Estate which was established in 500 acres to identify the causes for meagre flowering in Amla





Krishi Vigyan Kendra, Venkataramannagudem

The Scientists of Krishi Vigyan Kendra, Venkataramannagudem were attended Diagnostic field visits in Agriculture, Horticulture, Animal Husbandry and Fisheries in villages of W.G. District.

Sri N.Veerabhadra Rao, SMS(Fisheries) attended for diagnostic visit on Shrimp culture at Allavaram village on 07.07.2012 and the problem was identified that Tail Rot for Shrimps and recommendations were given for applying BKC @ 1 Ltr per acre at three feet water depth.

Sri N.Veerabhadra Rao, SMS(Fisheries) attended for diagnostic visit on Shrimp ponds at Pippara village on 19.07.2012 and the problem was identified that feeding intake is low as Gut infection in the Shrimps and recommendations were given for application of Vitamin C & Gut Probiotic in feed @ 5grms per Kg feed for 10 days.

Sri N.Veerabhadra Rao, SMS(Fisheries) attended for diagnostic visit at Danthupalli village on 03.08.2012. The problems diagnosed that high bacterial count observed in Shrimps(lab tested) & Water probiotic recommended at regular intervals(once in 10 days).

Sri N.Veerabhadra Rao, SMS(Fisheries) attended for diagnostic visit at Gundugolanu on 01.09.2012. The problems identified that Catla Sps. were dying due to Dactylo gyross combination of Droxy Cycline and Cifro Flaxine in feed @ 150grms for tone feed application for 1 week was recommended.

Sri N.Veerabhadra Rao, SMS(Fisheries) attended for diagnostic visit at Gundugolanu on 18.09.2012. The problems identified that "Argulus in Rohu fish and recommendations made that application of Di- chlorovas(80% solutions) 250ml per acre and allowed Antibiotics 150gm per tone feed for one week.

Dr.K.Vijay Prakash,SMS(Vety.Sci.) attended diagnostic field visit at Telikicherla on 20-07-2012. The problem identified was Anorexia of black cattle and very less milk yield. They were advised Calcium supplementation and Rumen Bolus.

Dr.K.Vijay Prakash,SMS(Vety.Sci.) attended diagnostic field visit at Chodavaram on 31-07-2012. The problem identified as Allergic Mastitis and advised for decreasing Allegeric condition of animal.

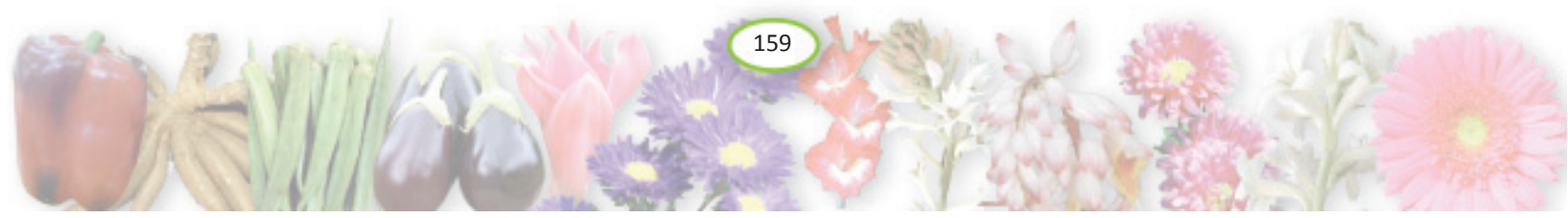
Dr.K.Vijay Prakash,SMS(Vety.Sci.) attended diagnostic field visit at Nallajerla on 02-08-2012. The problem identified as Anorexia of black cattle very less milk yield. They were advised Calcium supplementation and Rumen Bolus.

Dr.K.Vijay Prakash,SMS(Vety.Sci.) attended diagnostic field visit at Chodavaram on 26-09-2012. The problem identified as Anorexia of black cattle very less milk yield. They were advised Calcium supplementation and Rumen Bolus.

Sri N.Veerabhadra Rao, SMS(Fisheries) conducted diagnostic field visit on fish culture at Rachuru, Sitharampuram on 15.10.2012. The problems identified that "Argulus in Rohu fish and recommendations made that application of Di- chlorovas (80% solutions) 250 ml. per acre and Iver Methrin 150 g. per ton feed for one week.

Sri N.Veerabhadra Rao, SMS(Fisheries) conducted diagnostic field visit on fish culture at Sitharampuram on 23.10.2012. The problems identified that "Mixobolus Parasite in Gills of Catla Sps and recommended that application of 40kg salt per acre.

Dr.E.Karunasree, Programme Coordinator, Sri N.Veerabhadra Rao, SMS(Fisheries) and Sri Ch.Kiran Kumar, SMS(Soil Science & Agril.Chemistry) conducted diagnostic field visit on RP Bio-226 at Velivenu, Pulla & Ravulaparru on 26.10.2012.





Dr.K.Vijay Prakash,SMS(Vety.Sci.) attended diagnostic field visit at Chodavaram on 04-10-2012. The problem identified as Anorexia of black cattle very less milk yield. They were advised Calcium supplementation and Rumen Bolus.

Dr.K.Vijay Prakash,SMS (Vety.Sci.) attended diagnostic field visit at Telikicherla on 11-10-2012. The problem identified as Allergic Mastitis and advised for decreasing Allergic condition of animal.

Dr.K.Vijay Prakash,SMS (Vety.Sci.) attended diagnostic field visit at Nallajerla on 15-10-2012. The problem identified viral fever.

Dr.K.Vijay Prakash,SMS (Vety.Sci.) attended diagnostic field visit at Ananthapalli on 17-10-2012. The problem identified viral fever.

Dr.K.Vijay Prakash,SMS (Vety.Sci.) attended diagnostic field visit at Chodavaram on 26-10-2012. The problem identified viral fever.

On 09-11-2012 Sri Ch.Kiran Kumar, SMS (SSAC), Dr.N.Emmanuel, Assistant Professor and Dr.P.Ashok, Scientist(Hort.) conducted field diagnostic visit in Coconut Orchards at Telikicherla and identified Budrot disease, Boran deficiency recommended suitable management practices(Chemical and Mechanism).



Sri Ch.Kiran Kumar, SMS (SSAC), Dr.N.Emmanuel, Assistant Professor and Dr.P.Ashok, Scientist (Hort.) conducted field diagnostic visit in Blackgram at Chodavaram and identified Yellow Mosaic Virus and leaf eating caterpillar recommended application of Dimethiate @2gr./lit.

Dr.E.Karunasree, Programme Coordinator, Dr.K.Vijay Prakash, SMS (Vety.Sci.) conducted nine Animal Health camps for the year 2012-13 in KVK operational area and treatment for medical, Gynecological, De worming and vaccinations was done.



Sri Ch.Kiran Kumar,SMS (SSAC) and Dr.P.Ashok,Scientist (Hort.) was field diagnostic visit in Vegetable gardens at Prakashrao Palem and recommended 3% Borax on Ridgeguard to induce female flowers.

Sri N.Veerabhadra Rao, SMS(Fisheries) conducted diagnostic field visit on fish culture at Prakasaraopalem on 22.11.2012.

Sri.N.Veerabhadra Rao, SMS(Fisheries) visited fish ponds for diagnostic purpose.



Sri N.Veerabhadra Rao, SMS(Fisheries) field diagnostic visit at Gundugolanu on 03.01.2013. In this visit Ecto parasites load observed in Roopchand cultured ponds and recommended that Sanitizer application (Bromin) 1 lit per acre at 4 feet depth.





Sri N.Veerabhadra Rao, SMS(Fisheries) field diagnostic visit at Rachuru on 08.01.2013. In this visit Low grow rate observed in Rohu fish, recommendations were made that need of supplementary Pelleted feed to the Rohu fish.



18-01-2013 Sri Ch.Kiran Kumar, SMS(SSAC), Dr.K.Vijay Prakash, SMS(Vety.Science) and Sri P.Ashok, Scientist visited Mango orchards located at Kadiyadda regarding mango flower induction by application of Potassium Nitrate solution.

18-01-2013 Sri Ch. Kiran Kumar, SMS (SSAC), Dr.K.Vijay Prakash, SMS (Vety. Science) and distributed OFT (Soil test based fertilizer application in Maize) inputs and explained the increased fertilizer use efficiency in Rabi maize fields.

18-01-2013 Sri Ch.Kiran Kumar, SMS(SSAC), Dr.K.Vijay Prakash, SMS(Vety.Science) and Sri P.Ashok, Scientist conducted field diagnostic visit in Mango and Maize fields and recommended Potassium Nitrate for flower induction in Mango and identified Maize shoot borer and given recommended spraying of Chloripyriphos @ 2ml/lit.

On 02.02.2013 Dr.K.Vijay Prakash, SMS(Vety.Science) conducted Animal Health camp at Ravulaparru for selection of beneficiaries for ATMA Demo on Fertility improvement of Buffaloes through OV-SYNCH protocol.



Maize Field at Chodavaram Village with Deficiency Symptoms

Sri Ch.Kiran Kumar, SMS(Soil Science & Agri.Chemistry) conducted On farm trail on Soil test based fertilizer application in Rabi Maize On 05.02.2013at Chodavaram Village and recommended for application of 2gms Zinc Sulphate per liter of water.

On 06.02.2013 Sri Ch.Kiran Kumar, SMS(Soil Science & Agri.Chemistry) and Dr. N.Emmanuel, Assistant Professor conducted field visit in Papaya orchards and identified Papaya fruit fly and recommended for spryaing of Malathian @ 2ml/ lit of water.

Dr. K. Vijaya Prakash SMS (Vety.Sci) conducted FMD Vaccinations in Chodavaram and Telikicharla Villages on 5th and 7th February, 2013 for 154 animals.

Dr.E.Karunasree, Programme Co-ordinator & Dr.K.Vijay Prakash, SMS(Vety.Science) conducted Animal Health camp at Settipeta On 06.02.2013 for selection of beneficiaries for OFT-I fertility improvement through OV-SYNCH protocol.



Animal Health Camp at Vil: Settipet



Participation of KVK Scientists in Aqua Aquaria 2013 at Vijayawada

Dr.E.Karunasree, Programme Co-ordinator & Sri N.Veerabhadra Rao, SMS(Fisheries) Participated in Aqua – Aquaria, 2013 Conducted on Latest Fisheries Technologies at Vijayawada On 09.02.2013.

On 11.02.2013 Dr.K.Vijay Prakash, SMS(Vety.Science) attended for OFT-II introduction of Co FS-29 a new fodder sorghum variety at Chellavarigudem.(Broadcasting of seed).

On 13.02.2013 Sri.N.Veerabhadra Rao SMS (Fisheries) participated & Paper presented in State Level Seminar on “Recent trends in Aqua Culture” at Pentapadu organized by Department of Zoology, D.R.G.Govt. Degree & P.G.College,Tadepalligudem, West Godavari District.

On 19.02.2013 Sri,N.Veerabhadra Rao, SMS(Fisheries) visited Shrimp & Fish ponds as diagnostic visit at Alllavaram & Seetaramapuram.

On 22.02.2013 Dr.E.Karunasree, Programme Co-ordinator & Sri N.Veerabhadra Rao, SMS(Fisheries) conducted demonstration on “Control of Argulus in Rohu fishes” at Rachuru.





Dr.E.Karunasree, Programme Co-ordinator participated as resource person and Lecture delivered for “**State Level Training on Cashew production technology**” On Preparation of Value added products with cashew apple on 15.02.2012 and 16.03.2013 conducted by KVK Pandirimamidi, East Godavari District.

In put distribution in Chodavaram Village On 18.02.2013 Dr.E.Karunasree, Programme Co-ordinator & Sri Ch.Kiran Kumar, SMS(Soil Science & Agri.Chemistry) under ATMA Demonstrations Rabi 2012-13 on performance of Bio fertilizer in Blackgram.

On 22.02.2013 Dr.E.Karunasree, Programme Co-ordinator & Dr.K.Vijay Prakash, SMS(Vety.Science) conducted ATMA Demo first injection on Fertility improvement of Buffaloes through OV-SYNCH protocol at Ravulaparru.

On 12.03.2013 Dr.M.B.N.Rao, Director of Extension, Dr.YSRHU Visited adopted villages and OFT Fields of KVK, Vrgudem along with the technical team of kvk, Vrgudem and suggested recommendations. Also visited the guava Nursery and orchards at Kadiyadda and discussed on cultivation practices with farmers and collected the information on different guava varieties.

On 13.03.2013 Dr.K.Vijay Prakash, SMS(Vety.Science) conducted Animal Health camp at Pullalapadu for selection of OFT animals for Fertility improvement through OV-SYNCH protocol. Dr.M.B.N.Rao, Director of Extension, Dr.YSRHU, Dr.E.Karunasree, Programme Co-ordinator and Sri N.Veerabhadra Rao, SMS(Fisheries) were participated.



On 14.03.2013 Dr.E.Karunasree, Programme Co-ordinator & Sri N.Veerabhadra Rao, SMS(Fisheries) is distributing inputs for FLD of fisheries.

On 15.03.2013 Sri Ch.Kiran Kumar, SMS(SSAC) participated in the workshop on “Capacity building on Rice Knowledge Management Portal” at DORR, Hyderabad.

On 22.03.2013 Sri Ch.Kiran Kumar, SMS(SSAC) participated in the workshop on “Soil Test based in Nutrient Management” at ZPD, Hyderabad.

On 22.03.2013 Dr.E.Karunasree, Programme Co-ordinator, participated in One day training programme on Aromatic Plants cultivation organized by Herbal Research Station, Rajendranagar, Hyderabad.

On 24.03.2013 Dr.E.Karunasree, Programme Co-ordinator & Sri N.Veerabhadra Rao, SMS(Fisheries) visited OFT ponds and recorded the results.

Thirty five Farmers from Palakollu division visited KVK,V.R.Gudem on 28.12.2012 through ATMA,West Godavari Dist. and learned about fodder varieties, Organic manures and bio fertilizers usage etc.

Farmers from Tanuku and Marteru Agricultural divisions of West Godavari Dist. visited KVK,V.R.Gudem, interaction programme with the scientists of KVK, HRS, BRS and HC & RI, V.R.Gudem was conducted and information about latest technologies was disseminated to about 220 farmers through ATMA,W.G.Dist.

On 16.04.2013 Dr.E.Karunasree, Programme Co-ordinator, Sri N.Veerabhadra Rao, SMS(Fisheries) and Dr.K.Vijay Prakash, SMS(Vety.Sci.) interact with farmers visited KVK, Venkataramannagudem as exposure visit under ATMA, Narsaraopeta division, Guntur.





Mango Research Station, Nuzvid

Smt D. Aparna, Scientist (Hort) & Head i/c, MRS, Nuzvid participated in field visits for advising farmers during mango flowering and fruiting stages organized by Dept of Horticulture at Mylavaram, Reddygudem on 20-3-13.

Smt D. Aparna, Scientist (Hort) & Head i/c, MRS, Nuzvid participated in field visits for advising farmers during mango flowering and fruiting stages organized by Dept of Horticulture at Nuzvid, Thiruvuru on 22-3-13.

Smt D. Aparna, Scientist (Hort) & Head i/c. MRS, Nuzvid conducted field survey in neelam cyclone effected horticultural crop fields in Mylavaram, tiruvuru, gampalagudem, Nuzvid, musunuru, chaatrai, Bapulapadu, Hanuman Junction, Agiripalli, Nunna, Visannapeta, Reddygudem, A.Konduru, G.Konduru, Ibrahimpatnam, vuyyuru, kankipadu, and thotlavalluru mandals of Krishna district.

Horticultural Research Station, Venkataramannagudem

Nallajarla & Tadepalligudem Mandals	Dr. R. Rajyalakshmi	Survey of flood affected areas (Neelam cyclone)	7.11.12
Dubacharla Devarapalli & Kovvur Mandals	Dr. R. Rajyalakshmi	Survey of flood affected areas (Neelam cyclone)	9.11.12

AICRP on MAP & Betelvine, Venkataramannagudem

S. No.	Name and Designation	Place of visit
1.	P. Rama Devi, S(PP) P. Sunitha, S (Ento.)	Guava gardens at Kadiyadda on 1.05.12
2.	P. Rama Devi, S(PP)	Agakara field at VR Gudem on 8.8.12
3.	P. Rama Devi, S(PP) P. Sunitha, S (Ento.)	Flood affected vegetable gardens in Nallajarla and Tadepalligudem mandals on 7-11-12
4.	P. Sunitha, S (Ento.)	Flood affected vegetable gardens in Dwaraka tirumala mandal, Devarapalli mandal & Dommeru on 9-11-12
5.	P. Rama Devi, S(PP)	Betelvine gardens affected by Phytophthora foot rot on 17.11.12 Gopalapuram.
6.	P. Rama Devi Scientist (PP)	Betelvine gardens affected by Phytophthora foot rot due to Neelam cyclone with the officials of Department of Horticulture, in Ponnuru mandal on 6-12-12.

SKPP Horticultural Polytechnic, Ramachandrapuram

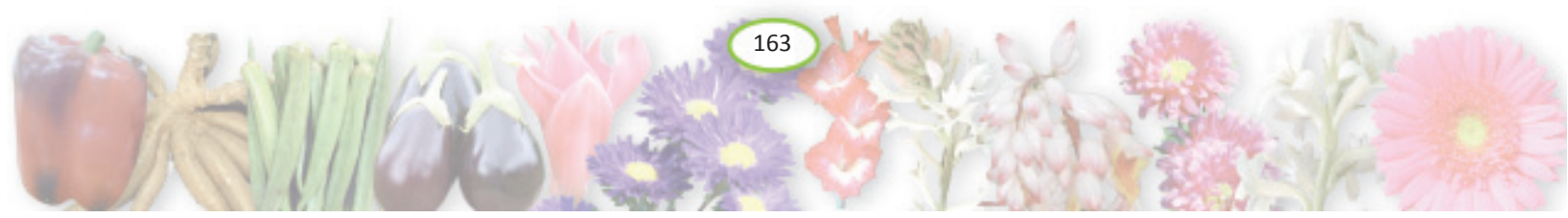
April, 2012: Sri M.Satti Raju, Vice-Principal visited Gonda on 20-4-2012 interacted with farmers and discussed various problems.

May, 2012: Sri M. Satti Raju, Vice-Principal has visited Bendapudi fields on 02-05-2012 and interacted with farmers and discussed various problems.

August, 2012: Sri M. Satti Raju, Vice-Principal has participated D.L.C.C Meetings on 09-08-2012 and interacted with farmers and discussed various problems.

September, 2012: Sri M. Satti Raju, Vice-Principal has participated COCO Seminar on 11-09-2012 at Ambajipeta.

February, 2013: Sri M. Satti Raju, Vice-Principal has visited Mango and cashew plots and interacted with farmers and discussed on filed level problems.



B. TRAINING PROGRAMMES CONDUCTED

Horticulture Polytechnic, Kalikiri

Processed Products of Tomato conducted at Cheruvumundarapalli Village, Kalikiri Mandal, Chittoor District on 24-11-2012. 50 farmers were participated in the programme.



Medicinal & Aromatic Plants Research Station, Rajendranagar

On 21.9.2012 conducted Farmers Training and Awareness Programme at MAPRS, Rajendranagar, Hyderabad

On 22.3.2013 conducted Seminar Cum Training on Aromatic Crops at Auditorium, ANGRAU, Rajendranagar, Hyderabad



Floricultural Research Station, Rajendranagar

The Floricultural Research Station, Hyderabad had organized a one day farmers training programme on " Protected cultivation of flower crops" on 18th of February, 2013 at the station.



The Floricultural Research Station, Hyderabad had organized a one day farmers training programme on " Improved production technology of flower crops" on 26th of March, 2013.

SKPP Horticultural Polytechnic, Ramachandrapuram

Conducted two training programmes are conducted on vegetables and Banana at Baduguvani lanka and Madiki on 01-10-2012 and 19-01-2013 for the benefit of the farmers.

Horticultural Research Station, Anantapuram

Dr. K. Subramanyam, Principal Scientist (Plant Pathology) conducted Training Program to Farmers "Mitigating Bacterial Blight disease of Pomegranate in Andhra Pradesh" under Network Project at Department of Horticulture, Gadwal, Mahaboobnagar on 17-03-2012.

Dr. K. Subramanyam, Principal Scientist (Plant Pathology) conducted Training Program to Farmers "Mitigating Bacterial Blight disease of Pomegranate in Andhra Pradesh" under Network Project at RHTI, Anantapur on 07/08/2012.



Dr. K. Subramanyam, Principal Scientist (Plant Pathology) and Dr. B. Srinivasulu, Senior Scientist (Horti.) conducted one day Farmers Training & Awareness Programmes on “Cultivation of Sweet orange” at Penakacherla on 15-11-2012.

Dr. K. Subramanyam, Principal Scientist (Plant Pathology) and Dr. B. Srinivasulu, Senior Scientist (Horti.) conducted one day Farmers Training & Awareness Programmes on “Cultivation of Vegetables” at Venkatapuram on 10-01-2013.

Dr. K. Subramanyam, Principal Scientist (Plant Pathology) and Dr. B. Srinivasulu, Senior Scientist (Horti.) conducted one day Farmers Training & Awareness Programmes on “Cultivation of Pomegranate” at RHTI, Anantapuram on 05-02-2013.

Krishi Vigyan Kendra, Ramagirikhilla

The following 26 training programmes were conducted to create awareness and train on new technologies in the fields of agriculture, horticulture and other allied aspects based on the identified technological gaps and thrust areas.



Training on Tricoderma viridi preparation



Training on “production technology of marigold”



Training on Wilt management



Training on Tricoderma viridi preparation



Training on “production technology of marigold”



Training on Stem application in cotton



Training on Pest and disease management in different crop



Training on “Mushroom Cultivation”



Training on Zero tillage method of Maize cultivation



Training on Sucking pest management in cotton



Training on Preparation of vermicompost & bio fertilizers and their use in horticultural crops



Training on Drum seeding method of Rice cultivation





Krishi Vigyan Kendra, Pandirimamidi

The technical team of Krishi Vigyan Kendra, Pandirimamidi conducted 42 training programmes on Agriculture, Horticulture, Home science, Fisheries at Pandirimamidi during the year 2012-13.

On & Off campus Training Programmes

Sl.No.	Date	Clientele	Title of the training programme
Horticulture			
1	24.05.2012	PF	Canopy management in Mango, Cashew
2	22.06.2012	PF	New plantation & Rejuvenation in Cashew
3	23.06.2012	PF	Cultivation of Vine Vegetable
4	25.06.2012	PF	New plantation & Rejuvenation in Cashew
5	26.06.2012	PF	New plantation & Rejuvenation in Cashew
6	28.06.2012	PF	New plantation & Rejuvenation in Cashew
7	29.06.2012	PF	New plantation & Rejuvenation in Cashew
8	30.06.2012	PF	New plantation & Rejuvenation in Cashew
9	05.07.2012	RY	Nursery management of vegetables crops
10	10.07.2012	PF	New plantation & Rejuvenation in Cashew
11	12.07.2012	RY	Preparation of vermicompost and their role in horticultural crops
12	01.08.2012	PF	New plantation & Rejuvenation in Cashew
13	11.10.2012	PF	Care & maintenance of mango orchards during flowering
14	19.01.2012	PF	Cultivation practices in cashew
15	14.02.2013 to 16.02.2013	PF	Advance in cashew production technology
16	14.03.2013 to 16.03.2013	PF	Advance in cashew production technology
17	23.03.2013	PF	Pre & post planting management in cashew
Plant Protection			
18	09.04.2012	RY	Use of Bio pesticides
19	20-06-2012	PF	IPM in paddy
20	21-06-2012	PF	IPM in vegetables
21	27-06-2012	PF	IPM in Pulses
22	10.07.2012	EF	Promotion of zero tillage Maize cultivation in tribal area
23	28-07-2012	PF	IPM in Cashew
24	13-09-2012	PF	IPM in Mango
25	05-01-2013	PF	IPM in field crops – Maize
26	09-01-2013	PF	IPM for stem borer management in Cashew
27	22-03-2013	RY	Biopesticides production in tribal area
Home Science			
28	27.07.2012	Farm women	Backyard poultry management
29	08.10.2012	Farm women	Kitchen gardenmanagement
30	07.02.2013	Farm women	Value addition –millets
31	25.03.2013	Farm women	Value addition –millets
32	15.02.2013	Farm women	Value addition –Cashew
33	15.03.2013	Farm women	Value addition –Cashew
34	01.11.2012	Farm women	Orientation programme on incomegenerating activities
35	11.02.2013	Farm women	Orientation programme on incomegenerating activities
36	02.02.2013	Farm women	Low cost supplementary nutritious foods
Fisheries			
37	15.12.2012	PF	Composite fish culture
38	6.09.2012	PF	Composite fish culture
39	28.02.2012	PF	Fish diseases and control
40	30.03.2012	PF	Argulus infection & control in community ponds
Animal Husbandry			
41	22.08.2012	PF	Awareness & vaccination of BQ & HS large ruminants
42	11.02.2013	PF	Awareness & vaccination of BQ & HS small ruminants





Front Line Demonstrations - Promotion of backyard poultry



Front Line Demonstrations 2012-13 Evaluation of paddy variety



OFT - Teamosquitobug management in cashew at Marriwada village



OFT -Induction of flowering in Mango at B.V.Kota village

Sponsored training programmes conducted for the year 2012-13

Sl. No	Date	Title	Duration (days)	Client (PF/R/EF)	Sponsoring Agency
1	22.06.2012 to 10.07.2012	Cashew New Plantation	1	PF	ITDA,Rampachodavaram
2	10.07.2012	Promotion of Maize cultivation in tribal areas	1	PF	DMR, New Delhi
3	16.11.2012	Recent advances in Paddy cultivation	1	PF	ATMA- East Godavari district
4	15.12.2012	Promotion of Maize cultivation	1	PF	DMR, New Delhi & ATMA
5	22.12.2012	Promotion of Maize cultivation under TSP	1	PF	DMR, New Delhi
6	14.02.2013 to 16.02.2013	State level training programme on cashew	3 days	PF	DCCD, Kochi
7	14.03.2013 to 16.03.2013	State level training programme on cashew	3 days	PF	DCCD, Kochi
8	February, 2013	Capacity building training programmes	5 days	PF	ATMA- East Godavari district
9	March , 2013	Capacity building training programmes	5 days	PF	ATMA- East Godavari district
10	21 st to 23 rd February, 2013	Scientific rearing of Goat farming	3 days	PF	ATMA- East Godavari district

HRS, Chintapalle

Ravindra Kumar.K organized the Training Programme on Spices cultivation at HRS, Chintapalli on 16th and 17th March, 2013. Scientists of Dr.YSRHU, ANGRAU, Asst Director of Agriculture, Agriculture Officers, N.G.O organization and tribal farmers have participated in the training programme which was followed by field visit to the tribal farmer’s fields. Pamphlet on “Ginger” released in the training programme. For organizing training programme financial assistance received from DASD, Calicut, Kerala.

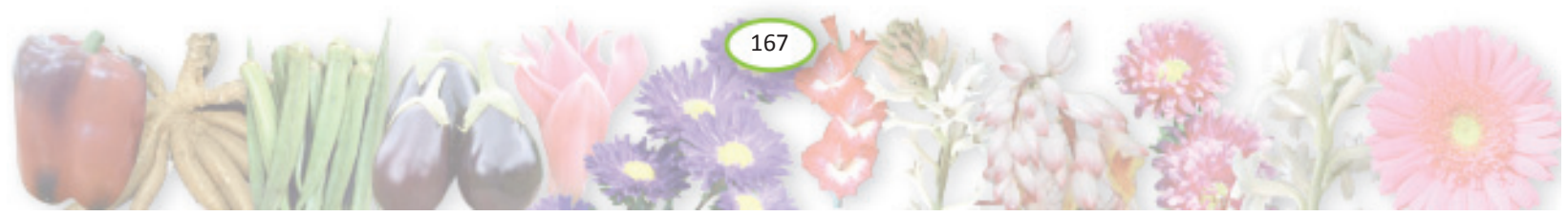
Ravindra Kumar.K organized the Training Programme on Spices and Medicinal Plants cultivation at HRS-Chintapalli on 11th March, 2013. Scientists of RARS, Chintapalli, Asst Director of Agriculture, Agriculture Officers, N.G.O organization and tribal farmer’s fields have participated in the meeting which was followed by field visit to the tribal farmers.

HRS, Mahanandi

Dr.Ch.Ruth, Scientist (Pl.path)& Head conducted one day off campus training programme to farmers about the awareness in Horticultural crops at Thimmapuram on 31-10-2012 along with Agricultural officer, Mahanandi mandal and 50 farmers were participated in the programme.

Dr.Ch.Ruth, Scientist (Pl.path) & Head conducted one day FTA programme 05/01/13 at bollavaram village, Kallur mandal, Kurnool (dt.) along with Horticulture officer, Kurnool(dt.) on pest and disease management in Mango, Guava, Onion and Tomato crops. 50 farmers were participated. Field visit also conducted in tomato crop in Bollavaram village.

Dr.Ch.Ruth, Scientist (Pl.path) & Head conducted field day on Azwan varieties LS-1 and LTA-26 at HRS farm fields, Horticultural Research Station, Mahanandi on 08/01/13.





Farmer's Training and awareness (FTA) programmes in Thimmapuram, Mahanandi mandal



Farmer's Training and awareness (FTA) programmes in Bollavarum, Kurnool (dt..)



Field day on Aizwan varieties LS-1 and LTA-26 at HRS farm fields, HRS Station, Mahanandi

FRS, Sangareddy

A training programme was organized at FRS, Sangareddy, on high density and Meadow orchard in guava on 4-7-2012 under RKVY. Fifty five guava farmers attended the training programme. A field visit was also organized to the High density Meadow orchard guava.

A one day Farmers' Training and Awareness programme was conducted on "Improved Management Practices during Flowering and Fruiting in Mango" on 15-12-2012 at Fruit Research station, Sangareddy.

Horticulture Research Station, Vijayarai

Dr.V.Suchitra has organized one day training programme on cocoa cultivation for the farmers of Vijayarai on 16.10.2012.

KVK, Venkataramannagudem

Dr.E.Karunasree, Programme Coordinator, Smt.P.Chandana, SMS(Horticulture) and Dr.K.Vijay Prakash, SMS(Vety.) were conducted Training programme on "**Azolla cultivation and its uses in Agriculture and Animal Husbandry**" at KVK farm.

Dr.E.Karunasree, Programme Coordinator, Smt.P.Chandana, SMS(Horticulture) and Sri Ch.Kiran Kumar, SMS(SSAC) were conducted Training programme on "**Organic Farming**" at the campus of Krishi Vigyan Kendra, Venkataramannagudem from 23-27 July,2012.



Smt.P.Chandana, SMS(Horticulture), Sri Ch.Kiran Kumar, SMS(SSAC) and Dr.K.Vijay Prakash, SMS(Vety.) were conducted "**Base Level Orientation Training Programme (BLOTP)**" to the farmers of Telikicherla on Agriculture and allied disciplines on 14-08-2012.



Off campus Training programme was conducted on "**Micro nutrient management**" in Horticultural crops on 13.09.2012 at Chodavaram village of West Godavari District by the KVK technical team, Dr.Emmanuel, Dr.Ashok, Assistant Professors, Dr.YSR Horticultural University, Venkataramannagudem participated as Resource persons.

Off campus training programme conducted on "**Culture methods for Fish**" on 27.07.2012 at Badampudi by Sri N.Veerabhadra Rao, SMS(Fisheries).

On campus training programme was conducted on "**Best management practices in shrimp culture**" to the farmer of West Godavari District on 14-09-2012 at KVK, Venkataramannagudem by Sri N.Veerabhadra Rao, SMS(Fisheries).





Dr.E.Karunasree, Programme Coordinator, Sri Ch.Kiran Kumar, SMS(SSAC) conducted Off campus training programme on “Best management practices in Plantation crops”(Oil palm, Coconut & Cocoa.) on 14.09.2012 at Telikicherla village.



Dr.K.Vijay Prakash, SMS(Vety.) conducted On campus training programme on “Cultivation & nutrient management in Perennial Fodder(Co-4) grass” on 22.09.2012 at KVK, Venkataramannudem.

The Technical team of Krishi Vigyan Kendra, Venkataramannudem was conducted “Parthenium Eradication Awareness programme” to the farmers and students of Telikicherla village, Nallajerla mandal on 31-08-2012.

Scientific Advisory Committee meeting was conducted on 27.09.2012 for Rabi, 2012. For this programme Hon’ble District Collector and Magistrate, W.G.District, Line Department officials, Scientists of the Dr.YSR Horticultural University and farmers were participated and discussed about KVK Work done report and Action plan Rabi, 2012 was approved.



Exhibition stall were arranged on the occasion of Hon’ble Chief Minister Sri N.Kiran Kumar Reddy on 18-08-2012. In this stall Horticulture, Agriculture, Fisheries & Animal Husbandry latest popularized technologies were exhibited around 1000 Nos farmers were visited the stall.

Horticultural Research Station, Venkataramannagudem

Dr. M. Rajasekhar Dr. R. Rajyalakshmi conducted training Programme to farmers (Alternate crops and cropping systems to tobacco) at Jangareddygudem on 3.8.2012.

C. TRAINING PROGRAMMES PARTICIPATED

Medicinal & Aromatic Plants Research Station, Rajendranagar

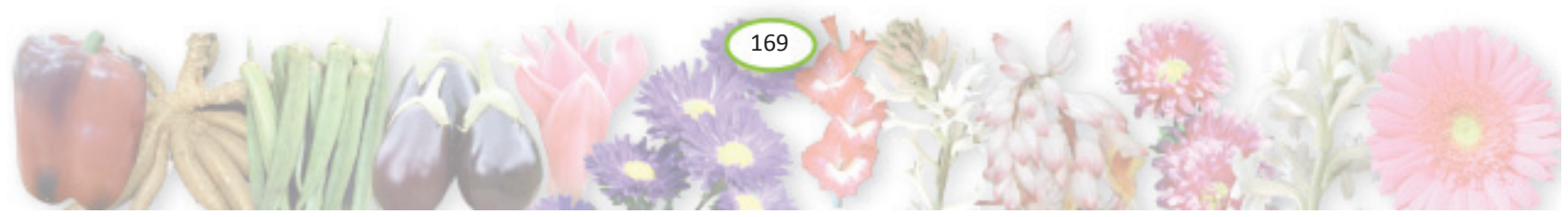
Dr G. Satyanarayana Reddy Principal Scientist (Hort.) and Dr T. Susila Senior Scientist (Hort.) attended Trainers Training on GACP for Medicinal and Aromatic Plants at DMAPR, Anand, Boriavi, Gujarath from 25-29th, September, 2012.

Floricultural Research Station, Rajendranagar

Dr. P. Lalitha Kameswari, Scientist(Hort), participated in the training programme on “Agri commodity futures market” from 16th – 17th Nov, 2012 at School of Agribusiness Management, Rajendranagar, ANGRAU.

Dr. K. Dhanumjaya Rao Principal Scientist(Hort) & Head and Dr. P. Lalitha Kameswari, Scientist (Hort) had participated in ROSE SHOW, 2012 at Jubilee Hall, Public gardens Hyderabad 9th Dec, 2012 and received 13 prizes for FRS, Hyderabad.

The staff of Floricultural Research Station, Hyderabad had participated in the Horti Expo on 25th & 26th of January, 2013 at peoples plaza, Necklace Road, Hyderabad





HRS, Anantapuram

Dr. Natarajan Seenivasan, Sr. Scientist (Hort) participated in 21 days Training Program on “Crop-Weather Dynamics” Sponsored by Dept. of Science and Technology at CRIDA, Hyderabad. 24/08/2012 to 13/09/2012.

Dr. B. Srinivasulu, Senior Scientist (Horti.) participated in NSS Special camp organized by Agriculture Polytechnic, Reddipalli on 26-02-2013.

Dr. B. Srinivasulu, Senior Scientist (Horti.) participated in Agricultural Technology week organized by KVK, Reddipalli on 27-02-2013.

Dr. N. Seenivasan, Senior Scientist (Hort) delivered lecture on “Protected cultivation and management of summer Hybrid vegetable crops” for Training Farmers of Anantapur and Kurnool dist, at Regional Horticultural Training Institute, Anantapur. 24/05/2012.

Dr. K. Subramanyam, Senior Scientist (Plant Pathology) delivered lecture on “Mitigating Bacterial Blight disease of Pomegranate in Andhra Pradesh” for Training Farmers under Network Project at RHTI, Anantapur on 21/06/2012.

Dr. N. Seenivasan, Senior Scientist (Hort) delivered lecture on “Nursery Management and vegetable crop production” for Training Prisoners of Open Air Jail, Anantapur” on 26/06/2012.

Dr. K. Subramanya, Principal Scientist (Plant Pathology) delivered lecture on “Crop Management and Mitigating Bacterial Blight disease of Pomegranate” for Training Farmers of Anantapur and Kurnool at RHTI, Anantapur on 29/08/2012.

Dr. B. Srinivasulu, Senior Scientist (Horti.) delivered lecture on “Papaya cultivation” at RHTI, Anantapur on 29-01-2013.

Dr. B. Srinivasulu, Senior Scientist (Horti.) delivered lecture on “Papaya and Guava production technology” at RHTI, Anantapur on 22-02-2013.

Dr. B. Srinivasulu, Senior Scientist (Horti.) delivered lecture on “Muskmelon and watermelon production technology” at RHTI, Anantapur on 25-03-2013.

HRS, Mahanandi

Dr.Ch.Ruth, Scientist (Pl.path) & Head participated in the training programme “Grammena vithanopathi pathakam” dt:07-11-12 in Mahanandi mandal conducted by Department of Agriculture.

Dr.Ch.Ruth, Scientist (Pl.path) explained the diseases in vegetables and fruit crops at HRS, Mahanandi to B.Sc (Ag) students of Agricultural college, Mahanandi, dt:13-02-2013.

Dr.Ch.Ruth, Scientist (Pl. Ppath) & Head participated diagnostic visits in Kurnool district and observed Aizwan fields and soft rot disease in Banana, powdery mildew incidence in chillies, bittergourd Munagala, Veldurthi, Cherukulapadu villages dt:21-11-2012.

HRS, Mallepally

S. No.	Date	Venue	Crop	Scientist Participated/Attended
1	07.05.2012	ADH, Nalgonda	Sweet Orange	Dr. T. Suresh Kumar, Scientist (Horticulture)
2	16.05.2012	HTI, Mahabubnagar	Mango	Dr. T. Suresh Kumar, Scientist (Horticulture)
2	06.07.2012	HTI, Mahabubnagar	Mango	Dr. T. Suresh Kumar, Scientist (Horticulture)
3	18.08.2012	Ramapuram Village, Kodad	Mango	Dr. T. Suresh Kumar, Scientist (Horticulture)
4	24.08.2012	Buvanagiri, Nalgonda	Mango	Dr. T. Suresh Kumar, Scientist (Horticulture)

HRS, Darsi

S.No.	Date	Training programme	Village	Mandal
1	27.12.12	Farmer training and awareness programme to the horticultural farmers	Darsi	Darsi
2	10.02.13	Production technology of chilli	Tanamchintala	Darsi
3	12.02.13	Production practices of sweet orange	Lakshmipuram	Donakonda
4	11.03.13	Production practices of mango	Palur	Kandukur
5	14.03.13	Production practices of mango	Chinnalatrapi	Gudlur





CRS, Tirupati

Dr. L.Mukunda Lakshmi, Scientist(Hort.) and Smt. G.Sarada, Scientist (Ent) participated in training programme on Integrated nutrient management and Insect Pest Mangement in citrus for Acid lime growers of Nellore district (31August, 2012 and 1 september, 2012).

Dr. L.Mukunda Lakshmi, Scientist (Hort.) and Smt. G.Sarada, Scientist (Ent) participated in training programme on "Management Techniques in Fruit and Vegetable production" for trainees of JKS (ZUARI) group (20-07-2012).

Horticultural Research Station, Pandirimamidi

Dr.K.Rajendra Prasad Scientist (Hort) delivered lecture on "Vegetable nursery under Shadenet" at DDH office, Rajahmundry on 21 July 2012.

Dr.K.Rajendra Prasad Scientist (Hort) delivered lecture on "Fertigation through drip for horticultural crops" at Sub collector's office, Rajahmundry on 27 July 2012.

Dr.K.Rajendra Prasad Scientist (Hort) delivered lecture on "nimma thotalo melaina yaajamanya paddatulu" at chinnayagudem, West Godavari, on 9 October 2012.

Er. P.C.Vengaiyah, Scientist (Food Sci. & Tech.) delivered lecture on "Cashew processing" in DCCD sponsored District level seminar organized by KVK Kalvacharla on 30 October, 2012. Er. P.C.Vengaiyah, Scientist (Food Sci. & Tech.) delivered lecture on "Neera processing " in at HRS pandirimamidi on 26 November, 2012.

Dr.K.Rajendra Prasad Scientist (Hort) delivered lecture on "Care and maintenance of young mango and cashew orchards" Creators, NGO Rajahmundry on 7th December 2012.

Dr.K.Rajendra Prasad Scientist (Hort) delivered lecture on "Pest and disease management on cashew and mango orchards" at vedullakunta as a part of departmental training programme on 13th February 2013.

Er. P.C.Vengaiyah, Scientist (Food Sci. & Tech.) delivered lecture on "Cashew processing and marketing" in DCCD sponsored district level seminar organized by KVK Pandirimamidi at ITDA Rampachodavaram on 24 February, 2013.

Er. P.C.Vengaiyah, Scientist (Food Sci. & Tech.) delivered lecture on "Food processing and opportunities of self employment " in training programme organized by KVK Kalvacharla on 14 March, 2013.

Er. P.C.Vengaiyah, Scientist (Food Sci. & Tech.) delivered lecture on "Cashew processing and marketing" in DCCD sponsored State level seminar organized by KVK Pandirimamidi at ITDA Rampachodavaram on 15 March, 2013.

Cashew Research Station, Bapatla

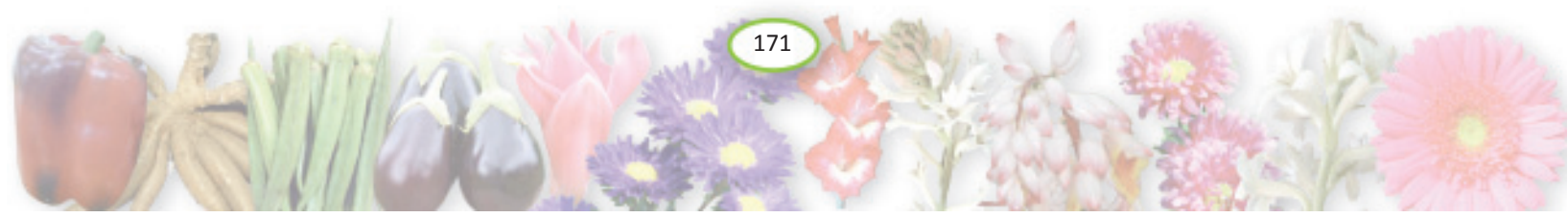
K.Umamaheswararao Scientist (Horticulture) and Head conducted FTAP on cashew production technology at pottusubbaiah palem village of Vetapalem, Prakasam district on 03.12.12 around 60 farmers were attended.

K.Umamaheswararao Scientist (Horticulture) and Head conducted FTAP on cashew production technology and value addition at Pandillapalii village of Prakasam district on 26.03.13 around 60 farmers were attended.

K.Umamaheswararao Scientist (Horticulture) and Head attended the state level training programme on cashew production technology organized by KVK, Pandirimamidi and delivered the presentation on cashew production technology.

SSPG Horticultural Polytechnic, Madakasira

Dr. M Ramakrishna, Principal and Sri. R Preetham Goud, Assistant Professor (Agronomy) have participated in the Programme conducted by Department of Horticulture on Good Management Practices in pomogranate for better yields on 20th June 2012.





College of Horticulture, Rajendranagar

Name of the teacher	Name of the Programme	Name of the Place	Date of Programme
Shri K. Kaladhar Babu, Asst. Professor, CoH, R. Nagar	Hitech Intervention in citriculture	NRCC(Nagpur)	May 7 th -27 th , 2012
	Entrepreneurship Development	Swami Ramananda Tirtha Institute of Socio Economic Research and National Integration, Begumpet, Hyderabad.	18-20 th January 2013
	“Agri Commodity Futures Markets”	school of agribusiness management department ANGRAU, Hyderabad.	16-17 November, 2012
Dr. T. Padmalatha Assoc. Professor	“Agri Commodity Futures Markets”	school of agribusiness management department ANGRAU, Hyderabad.	16-17 November, 2012
Dr SS Vijaya Padma, Associate Professor	“Awareness Programme on Aromatic Crops Cultivation, Processing and Marketing”	workshop at University Auditorium, ANGRAU	22-03-2013
Dr. A. Girwani, Assoc. Professor	Flower Growers	Auditorium of ARI, R'nagar organized by Floricultural Research Station, R'nagar	26-03-2013

FRS, Sangareddy

Date	Place	Purpose	Name of the Resource person
01-04-2012	RARS, Palem, Mahaboobnagar Dist.	Training Programme on “Water management in Horticultural crops”	Dr. A. Kiran Kumar, Sr. Scientist (H)
09-10-12	AP Horticultural Training Institute, Red Hills, Hyderabad	Pest and Disease Management of Fruit Crops	Dr. K. Jyothimai Madhavi Scientist (Pl.Path)
11-10-12	MRS, Nuziveedu	Integrated Management of Guava Wilt	Dr. K. Jyothimai Madhavi Scientist (Pl.Path)
15-10-12	AP Horticultural Training Institute, Red Hills, Hyderabad	Pest and Disease Management of Papaya	Dr. K. Jyothimai Madhavi Scientist (Pl.Path)
10-12-12	Mini conference Hall, O/o commissioner of Horticulture A.P, Hyderabad.	Packing material under quality Management Programme	Dr. A. Kiran Kumar, Sr. Scientist (H)
14-12-12	Training Institute, Hyderabad	Storage Structure for Horticulture crops	Dr. A. Kiran Kumar, Sr. Scientist (H)
18 th and 19 th of March, 2013	Meeting Hall, Administrative Office, Venkataramannagudem	Two day Review cum Orientation Programme on RTI Act	Dr. K. Jyothimai Madhavi Scientist (Pl.Path)

Horticultural Research Station, Anantharajupet

Smt. C. Madhumathi Scientist (H) & Head, attended training programme on “Importance of drip and fertigation in banana cultivation, as resource person held at Mettameedapalle, Rajempet Mandal conducted by NFCL on 30-08-2012.





Smt. C. Madhumathi Scientist (H) & Head, attended training programme on “Rejuvenation of old mango orchards”, as resource person held at T.V.Rchapalli, Nandalur Mandal and Apparajupet, Penagalur (M) conducted by ADH-2, Department of Horticulture, YSR Kadapa district on 15-09-2012.

Smt. C. Madhumathi Scientist (H) & Head, attended training programme on “Production technology of turmeric and onion”, as resource person at Horticultural training center, Kadapa on 21-9-2012.

Smt. C. Madhumathi Scientist (H) & Head, attended training programme on “Rejuvenation of old mango orchards”, as resource person held at Surapurajupalli, Rly. Kodur (M) and C.M. Rachapalli, Obulavaripalli (M) conducted by ADH-2, Department of Horticulture, YSR Kadapa district on 20-10-2012.

Smt. C. Madhumathi Scientist (H) & Head, attended training programme on “Rejuvenation of old mango orchards”, as resource person held at T.V.Rchapalli, Nandalur Mandal and Apparajupet, Penagalur (M) conducted by ADH-2, Department of Horticulture, YSR Kadapa district on 15-09-2012.

Smt. C. Madhumathi Scientist (H) & Head, attended training programme on “Papaya cultivation – Nursery management”, as resource person conducted by The Associate Dean, HC & RI, Anantharajupet on 27-11-2012.

Smt. C. Madhumathi Scientist (H) & Head, attended training programme on “Mango production technology”, as resource person conducted by The Associate Dean, HC & RI, Anantharajupet on 03-03-2013.

Horticultural Research Station, Aswaraopet

Sri M.Ravindra Babu, Scientist (H) & Head, Horticultural Research Station, Aswaraopet attended 21 days National Training Programme on “**Advances in Production Technology of Fruits Crop**” from 8th -28th August, 2012 conducted by centre for Advance Faculty Training (Fruits), Department of Horticulture, MPKV, Rahuri, Maharashtra.

Training programme on Mango Cultivation at Ammapalem Vemsoor Mandal on 22.11.2012 organized by M.P.D.O., Vemsoor, Khammam Dist.

Training programme on Mango, Turmeric & Chilli cultivation at Yaraguntapadu Vemsoor Mandal on 30.11.2012 organized by M.P.D.O., Vemsoor, Khammam Dist.

Training programme on Mango Cultivation at Adasarlpadu, Vemsoor Mandal on 01.12.2012 organized by M.P.D.O., Vemsoor, Khammam Dist.

Training programme on Mango Cultivation at K.G.Mallela, Vemsoor Mandal on 06.12.2012 organized by M.P.D.O., Vemsoor, Khammam Dist.

Training programme on Mango & Chilli cultivation at Marlapadu, Vemsoor Mandal on 08-01-2013 organized by M.P.D.O., Vemsoor, Khammam Dist.

Training programme on Mango cultivation at Buchireddypallem, Errupalem Mandal on 20-02-2013 organized by Dept. of Horticulture, Khammam Dist.

Training programme on Mango cultivation at Chandrupatla, Kallur Mandal on 26-02-2013 organized by Dept. of Horticulture, Khammam Dist.

Training programme on Mango cultivation at Karaigudem, Penuballi Mandal on 16-03-2013 organized by M.P.D.O., Penuballi, Khammam Dist.

Participated in Kisan Mela organized by ATMA, Sathupally Division on 26-03-2013 as Resource Person.

Horticultural Research Station, Kovvur

On 31.8.12, Dr.B.V.K.Bhagavan, Principal Scientist (Hort), attended one day Brainstorming Session on “Pilot Basin Studies for IWRM in Yerrakalva basin” at Data Complex, Irrigation Guest House, Eluru of West Godavari district.

From 24.9.2012 to 27.9.2012 Ms. R. Naga Lakshmi, Scientist (Hort), undergone training on “Germplasm conservation, Climate change mitigation & E-net working under the aegis of AICRP on Tuber Crops” at CTCRI, Trivandrum, Kerala.





Dr. M. M. Naidu, Sr. Scientist (Hort) SG and Dr. T. Rajasekharam, Scientist (Plant Pathology) participated training programme on “Advances in gene identification and marker development’ conducted at NRCB, Trichy from 1st to 10th October 2012.

On 30.10.2012, Dr. M. M. Naidu, Sr. Scientist (Hort) SG, attended the district level seminar on cashew at KVK, Kalavacharla.

Dr.B.V.K.Bhagavan, Principal Scientist (Hort) and Dr. T. Rajasekharam, Scientist (Plant Pathology) imparted training to the farmers of Alamuru subdivision of East Godavari district under ATMA trainings on banana crop on 12.12.2012 at HRS, Kovvur.

Dr. M. M. Naidu, Sr. Scientist (Hort) SG has taken practical class on banana at the research station and explained in detailed about their genomic groups to the second year students of Horticulture polytechnic, Ramachandrapuram, East Godavari district on 6.12.12.

Ms.R.Naga Lakshmi, Scientist (Hort) has taken practical class on tissue culture banana to the first year students of Horticulture polytechnic, Ramachandrapuram, East Godavari district on 6.12.12.

Dr. Lakshminaryana Reddy, Dean of Student affairs, DrYSRHU, VR.gudem participated as a Chief guest in the training programme conducted by HRS, Kovvur on “Rythulaku Udyana Pantalapy Avagahana mariyu siskhana karyakramam” at Chidipi village of Kovvur (mandal) on 15.12.12. All Scientific staff of HRS, Kovvur participated and imparted training to the farmers on banana, tuber crops and vegetables that are being grown in Chidipi village.

A training programme was conducted on “Rythulaku Udyana Pantalapy Avagahana mariyusiskhanakaryakramam” at Kalavallipalli village, Chagallu mandal, West Godavari district on 11.1.13. All Scientific staff of HRS, Kovvur participated and imparted training to the farmers on banana and tuber crops.

Ms.R.Naga Lakshmi, Scientist (Hort) has guided the final year B.Sc.(Ag) students of Agricultural College, Rajahmundry, East Godavari district during Internship programme under RAWE programme for 30 days (i.e., from 23.11.2012 to 22.12.2012) on “Tissue culture of Banana”.

Ms.K.Mamatha, Scientist (Hort) has trained the farmers of Kothapeta mandal at Kothapeta on Production technology of banana on 12.2.13.

Dr.B.V.K.Bhagavan, Principal Scientist (Hort) attended State Level training Programme on Advances in Cashew Production Technology from 14th to 16th Feb, 2013 at KVK Pandirimamidi on 14.2.13.

Ms.K.Mamatha, Scientist (Hort) has taken practical class on tissue culture of banana to the third year students of Agricultural College, Rajahmundry, East Godavari district on 23.2.2013.

Dr.M.M.Naidu, Scientist (Hort) SG imparted training to the farmers on improved production technology in banana at Ramavaram, East Godavari district on 22.2.13.

Dr.T.Rajashekhar, Scientist (pl. Path.) has taken practical class on disease of banana, turmeric and tuber crops to the Second year students of Agricultural College, Rajahmundry, East Godavari district on 23.2.2013.

On 5th March, 2013, Dr.B.V.K.Bhagavan, Principal Scientist (Hort), participated as resource person in Model Training Course on “Micro Irrigation Management as a measure to mitigate climate change in major Agriculture and Horticulture crops” at KVK, Venkataramannagudem, and imparted training to Extension officers in State Development Departments and Scientists from ICAR/ SAU’s /KVKs on “Nutrient management through Fertigation in Various Horticultural crops”.

Dr.B.V.K.Bhagavan, Principal Scientist (Hort), imparted training to the farmers at Bobborlanka village of Mopidevimala in Krishna district on “Improved production Technology of Banana, Turmeric and Elephant foot yam” on 16th March, 2013.

Dr.M.M.Naidu, Scientist (Hort) SG imparted training to the farmers at Chintapalli on “Improved production Technology of Spices” on 16th March, 2013.





Grape Research Station, Rajendranagar

Sl.No.	Date	Training Programme	Scientist (Participated)
1	18-03-2013 and 19-03-2013	Attended training programme on RTI at Dr.YSRHU, Venkataramannagudem.	Dr.B.Srinivas Rao
2	2-11-12 to 8-11-12	Analysis of experimental data using SAS at NAARM Rajendranagar, Hyderabad	Dr. D.Anitha Kumari
3	19-6-12 to 9-7-12	Attended 21 days training programme on Principles of Pesticide Management at NIPHM (National Institute of Plant Health Management), Rajendranagar, Hyderabad	Dr. D.Anitha Kumari
4	24-8-12 to 13-9-12	21 days training programme on "Crop- Weather Dynamics" at CRIDA, Santhoshnagar, Hyderabad from 24 th August to 13 th September.	Dr.Veena Joshi,
5	04-10-12 to 13-10-12	10 days training programme on Modern monitoring tools and enhanced Resources use efficiency in rainfed Agriculture at CRIDA, Hyderabad.	Dr. D. Vijaya

Horticultural Research Station, Ambajipeta

Dr. N.B.V.Chalapathi Rao, Senior Scientist (Entomology) attended the raining programme on "Forecasting modeling in crops using weather and Geo- informatics" at Indian Agricultural Statistics Research Institute, New Delhi from 22.08.2012 to 04.09.2012.

Dr. G. Ramanandam, Principal Scientist (Hort.) & Head, attended the orientation training programme on crop improvement at CPCRI, Kasaragod from 27.09.2012 to 29.09.2012.

Smt. E. Padma, Scientist (Horticulture) attended the training programme on "Advance in Arecanut and Cocoa Production" ation with DCCD, Kochi from 11 from 3-6 December, 2012 at CPCRI regional station, Vittal, Karnataka.

The scientist of AICRP on Palms Ambajipeta center imparted training on coconut production and protection technologies to thirty input dealers from Palakollu, West Godavari District on 14.09.2012.

Dr. G. Ramanandam, Principal Scientist (Hort.) participateda, Scientist (Hort.) and Dr.A.Snehalatha Rani, Scientist (Plant Pathology), and addressed the farmers on coconut and its role in human life on the eve of World Coconut Day, 02.09.2012 being celebrated by Coconut Development Board, Hyderabad at KVK, Amadalavalasa of Srikakulam District. A broucher on "Kobbari saagu – Sastriya Yajamanyam" was released which was brought out by the scientist of AICRP on Palms.

Smt. E. Padma, Scientist (Hort.) and Dr. A. Snehalatha Rani, Scientist (Plant Pathology), HRS, Ambajipeta participateda, Scientist (Hort.) and Dr.A.Snehalatha Rani, Scientist (Plant Pathology), and addressed the farmers at Amalapuram on the eve of World Coconut Day, 02.09.2012 organized by Bharatiya Kisan Sangh, Bandarulanka.

Dr. G. Ramanandam, Principal Scientist (Hort.) & Head, HRS, Ambajipeta attended field day cum training on organic farming at Palivela village of Kothapeta mandal being organized by the NABARD under Farmers Training and Technology Fund by the Abhudaya Karshak Parishad, Mukkamala on 30.10.2012.

Dr. G. Ramanandam, Principal Scientist (Hort.) and Dr. A. Snehalatha Rani, Scientist (Plant Pathology) conducted a survey in flood affected areas of East Godavari District of Andhra Pradesh and Dr. N.B.V. Chalapathi Rao, Senior Scientist (Ent.) conducted a survey in flood affected areas of Srikakulam district of Andhra Pradesh as per the directions of the university in Neelam cyclone affected areas and suggested remedial measures for speedy recovery of Horticultural crops.

Dr. N.B.V. Chalapathi Rao, Senior Scientist (Ent.), Ambajipeta attended a district level seminar organized by KVK, CTRI, Rajamundry and delivered a lecture on "Management of pests of cocoa" at Madiki, Alamuru mandal, East Godavari District.





Dr. G. Ramanandam, Dr. N.B.V. Chalapathi Rao, Smt E.Padma and Dr. A. Snehalatha Rani imparted training on coconut production, protection technologies and value added products to IV year B.SC. (Agriculture) students from Agricultural College, Rajamundry, ANGRAU on 20.11.2012.

Dr. N.B.V.Chalapathi Rao, Senior Scientist (Entomology) participated one day training programme on Mango at Mango Research Station, Nuzividu on 18.12.12.

Dr. A. Snehalatha Rani, Scientist (Plant Pathology) participated and presented a lecture on “Diseases of coconut and their management” in the FOCT programme for coconut climbers organized by KVK, Venkatramannagudem on 21.12.2012.

Dr. N.B.V.Chalapathi Rao, Senior Scientist (Entomology) and Smt. E. Padma, Scientist (Horticulture) attended one day review meeting of projects at CDB, Kochi Kerala on 22.1.2013.

Dr. G. Ramanandam, Principal Scientist (Hort.) & Head, Dr. N.B.V.Chalapathi Rao, Senior Scientist (Entomology), and Smt. E. Padma, Scientist (Horticulture) conducted one day training & awareness programme on “Management of coconut gardens with special reference to coconut slug caterpillar and cocoa management practices at Sakhinetipalli village of East Godavari district on 4.02.13.

Dr. N.B.V. Chalapathi Rao, Senior Scientist (Ent.), Smt. E. Padma, Scientist (Horticulture) participated one day training programme “Udayana pantalapai Sikshana Karyakramam” on pests and diseases at Kothapeta of East Godavari district being organized by Department of Agriculture on 12.02.13.

Dr.N.B.V.Chalapathi Rao, Senior Scientist (Ent.) gave a invited lecture on IPM in irrigated Agriculture at University Head quarters, Venkataramannagudem in the training programme on micro irrigation on climatic change organized by KVK, Venkataramannagudem on 4.3.13.

Horticulture Research Station, Vijayarai

Dr.V.Suchitra, Scientist (Hort.) has participated in the training programmes organized to the field level workers, AEO's, Adarsha Rythus and growers of Horticultural crops and delivered more than 12 lectures on different aspects of Horticultural crops.

Horticultural College & Research Institute, Venkataramannagudem

Dr.D.R.Salomi Suneetha, Associate Professor (Biochem), Smt. T.Suseela Assistant Professor (Hort), Dr.V.Sudhavani, Assistant Professor (Hort), Dr.R.V.Sujatha, Assistant Professor (Ag.Econ),and Dr.P.Subbaramamma, Assistant Professor (Pl.Physiology) have participated in the Model Training Course on ‘Micro Irrigation management as a measure to mitigate climate change in major Agriculture and Horticultural crops’ at Krishi Vigyan Kendra, Venkataramannagudem for 8 days from 02-03-2013 to 09-03-2013.

Dr.N.Emmanuel participated as Resource person in one day training programme on cocoa cultivation at Vijayarai on 16-10-2012 and delivered lecture on ‘Plant protection in cocoa’.

Dr.R.V.Sujatha, Assistant Professor (Ag.Econ) participated in Orientation Training Programme for NSS Programme Officers at University Training and Orientation Centre, Andhra University, Visakhapatnam from 7 days from 06-11-2012 to 12-11-2012.

Dr.R.V.Sujatha, Assistant Professor (Ag.Econ) participated in training programme on ‘Survey design and data analysis using SAS in Social Sciences’ at NAARM, Hyderabad for 10 days from 28-01-2013 to 06-02-2013.

KVK, Venkataramannagudem

KVK Scientists attended Scientific Advisory Committee meeting(SAC) held at Undi organized by KVK, ANGRAU on 07.08.2012.

Dr.K.Vijay Prakash, SMS(Vety.) attended training programme on “Integrated Livestock farming system for sustainable Rural livelihoods” organized by CVSc., SVVU, Tirupathi from 21.08.2012 to 28.08.2012.

Smt.P.Chandana, SMS(Horti.) attended training programme on “Advanced in Seed production and Seed management practices in Horticultural Crops” organized by IIHR, Bangalore from 21.08.2012 to 28.08.2012.

Sri Ch.Kiran Kumar, SMS(SSAC) attended ZREAC meeting held at Kakinada organized by ANGRAU on 21.08.2012.





Krishi Vigyan Kendra, Venkataramannagudem take up Rural Agricultural Work Experience Programme(RAWEP) for the students of College of Horticulture, Venkataramannagudem from 20.08.2012 to 02.10.2012.



Dr.E.Karunasree, Programme Coordinator, Sri Ch.Kiran Kumar,SMS(Soil Science & Agril.chemistry) conducted On campus training programme on Fertilizer management in Blackgram on 03-10-2012.

Dr.E.Karunasree, Programme Coordinator, Dr.K.Vijay Prakash, SMS(Vety.Sci.) conducted Off campus training programme on Improved Dairy Management in Denduluru and Bhimadolu on 08-10-2012.



Dr.E.Karunasree, Programme Coordinator, Sri N.Veerabhadra Rao, SMS(Fisheries) conducted one day Off campus training programme on “Best Management practices in Fish culture” at Rachuru, Unguturu mandal on 17.10.2012. During the field diagnostic visit to be fish ponds identified that attack of Helmith parasite in Catla fish and recommended application of Delta Methrin(1.25%) @ 150ml per acre.

On 06-12-2012 Dr.E.Karuna sree , Programme Co-ordinator and Ch.Kiran Kumar SMS(Soil Science & Agril.chemistry) conducted On campus training programme on Seasonal management in Mango orchards. In this programme the Dr.M.B.Nageswara Rao, Director of Extension, Dr.YSRHU, Dr.Aparna, Scientist & Head, Mango Research Station, Nuzvidu and Dr.K.Purushotham, Professor and former Director of Research, Dr.YSRHU participated as resource persons and enlightened the mango farmers. Sri Ravi Kumar, ADH-II, West Godavari District participated and explained about the light trap technology in fruit borer management.



Sri.N.Veerabhadra Rao, SMS (Fisheries) participated as resource person in training programme on “Value addition in Fish / Prawn and highgenic handling of fish / prawn culture”on 7-12-2012 at fish seed production farm, Badampudi sponsored by ATMA, West Godavari Dt.

Sri.N.Veerabhadra Rao, SMS (Fisheries) participated as resource person in training programme on Good management practices in fish culture”on 11-12-2012 at fish seed production farm, Badampudi sponsored by ATMA, West Godavari District.

KVK, Venkataramannagudem has conducted six days On campus vocational training programme (1st batch) on “Friends of Coconut Trees” from 17-12-2012 to 22-12-2012 with the collaboration of Coconut Development Board (CDB), Kochi. The Inaugural Session was chaired by Dr.M.B.N. Rao, Director of Extension, Dr.B.Srinivasulu, Registrar as given special message on importance of Mechanization in Coconut tree climbing for harvesting and plant protection measures during the occasion. Six days technical classes were taken up by Dr.M.B.N.Rao, Director of Extension, Dr.Dorajeerao, and Dr.Emmual Assistant Professors, HC & RI V.R.Gudem, Dr.Snehalatha Rani, Scientist, HRS, Ambajipeta, Dr.E.Karunasree, Programme Co-ordinator, Sri Ch.Kiran Kumar, SMS(SSAC), Dr.K.Vijay Prakash,SMS(Vety.Sci.) for the participants.



Dr.E.Karunasree, Programme Co-ordinator, Krishi Vigyan Kendra, Venkataramannagudem has participated in the 7th National Conference of KVKs from 20.11.2012 to 22.11.2012 at Ludhiana.

KVK, Venkataramannagudem conducted six days On campus vocational training programme “Friends of Coconut Trees” from 05-01-2013 to 10-01-2013 with the collaboration of Coconut Development Board (CDB), Kochi.





Dr. M.B.N. Rao Director of Extension, Dr YSRHU, Distributing Certificates to the trainees

Dr.E.Karunasree, Programme Co-ordinator has participated in National seminar on Futuristic Agricultural Extension for Livelihood improvement and Sustainable development at EEI, Hyderabad from 19th to 21st January, 2013.

On 08.01.2013 Dr.E.Karunasree, Programme Co-ordinator, Sri Ch.Kiran Kumar, SMS(SSAC) conducted training programme on "Integrated Weed Management" in Velivenu.

Dr.E.Karunasree, Programme Co-ordinator, Sri Ch. Kiran Kumar,SMS(SSAC) has conducted training on "Vermicomposting, Vermi wash, Bio-fertilizers & bio pesticides as critical inputs in Vegetable crops to the 20 ST farmers of K.R.Puram, I.T.D.A on 23.01.2013. Distribution of 200 Drum stick and Tomato Seedlings were also taken up in Lankapalli and Muddappagudem Villages of buttaigudem mandal.



Dr. E. Karuna Sree PC, Sri. Ch Kiran Kumar SMS KVK, Vrgudem, Dr. K. Sasikala Assistant Professor HC&RI, Vrgudem conducting Training programme Vil. Velivenu



Dr.E.Karunasree, Programme Co-ordinator Sri. Ch Kiran Kumar SMS KVK, V R Gudem conducting training programme at Vil: Lankapalli Mdl: Buttaigudem

Dr. M.B.N. Rao, Director of Extension, Dr. YSR Horticultural University, Venkataramannagudem participated as chief guest for the training programme on Importance of Renewable Energy Sources in present day agriculture at KVK Vrgudem on 25th February,2013.

Conducted Model Training Course on "Micro Irrigation Management as a measure to mitigate climate change in Agriculture and Horticulture Crops" From 02.03.2013 to 09.03.2013 at International Hostel, Venkataramannagudem. The programme was allotted to this Institute by Directorate of Extension, DAC, Pusa, New Delhi. Twenty nine participants from the State Development Departments and Scientists from ICAR/ SAU's /KVKs attended the programme.

Dr. M.B.N. Rao, DE, Dr.YSRHU, Vrgudem and other Guests of Honour During the Inaugural Session of the Model Training Course at KVK, Vrgudem.

On 23.03.2013 Dr.K.Vijay Prakash, SMS(Vety.Science) organized one day training programme on Scientific Dairy Management to Dairy Enterpueners & PKP beneficiaries. Dr. G.V.K.Sharma SAUTC, Mandapeta lectures dealt on important points on Scientific Dairy Management. Dr.M.B.Nageswara Rao, Director of Extension, Dr.YSRHU was chief guest for this programme and Dr.E.Karunasree, Programme Co-ordinator & Sri N.Veerabhadr Rao, SMS(Fisheries) were participated.



05-01-2013 Sri Ch.Kiran Kumar, SMS(SSAC) collection of soil samples from OFT Maize fields, field diagnostic visit in mango orchards located at Jagannapeta identified Mango rust and recommended application of 2grms Wettable sulphur per litre.





KVK, Venkataramannagudem has organized ATMA exposure visit with the collaboration of Department of Agriculture, W.G.District. In this exposure visit 220 Nos. of farmers were attended from the 8mandals of W.G.District on 10-01-2013 at Dr.YSRHU Campus.

11-04-2012 Dr.E.Karunasree, Programme Co-ordinator- ZREAC of Godavari Zone at Tadepalligudem organized by RARS, Marteru.

02-05-2012 Dr.E.Karunasree, Programme Co-ordinator and SMSs- ZREAC of Coastal zone at Vijayawada organized by Dr.YSRHU, V.R.Gudem.

25-05-2012 Dr.E.Karunasree, Programme Co-ordinator and SMSs- Annual action plan workshop of KVKs of Dr.YSRHU, V.R.Gudem

28-05-2012 to 01-06-2012 Farm business management with Main focus on developing the conceptual understanding & skills for the field extension personnel in Agricultural and allied sectors organized by MANAGE at Hyderabad from 28th May, 2012 to June, 2012.

21-06-2012 Sri N.Veerabhadra Rao, SMS(Fisheries) and Dr. K.Vijay Prakash, SMS(Vety.science)- Workshop in Agri clinics and Agri business centres by NABARD, Eluru.

21-06-2012 to 24-06-2012 Dr.E.Karunasree, Programme Co-ordinator- Annual Zonal workshop of KVKs, Zone-V at KVK, Babaleswar, Maharashtra.

07-08-2012 Dr.E.Karunasree, Programme Co-ordinator and SMSs (SSAC & Vety.Sci.)- Scientific Advisory Committee meeting at KVK, Undi

21-08-2012 Sri Ch.Kiran Kumar, SMS(SSAC)- ZREAC on Godavari zone for Rabi, 2012 organized by RARS, Marteru at Kakinada.

21-08-2012 to 28-08-2012 Dr.K.Vijay Prakash, SMS(Vety.Sci.)- Integrated Livestock & farming system for Sustainable Rural Livelihoods at SVVU, Tirupathi.

28-08-2012 to 01-09-2012 Dr.E.Karunasree, Programme Co-ordinator- Participated in Market led Extension training programme at NIAM, Jaipur.

18-10-2012 Dr.E.Karunasree, Programme Co-ordinator- Scientific Advisory Committee meeting at KVK, Pandirimamidi.

07-11-2012 Dr.E.Karunasree, Programme Co-ordinator- Scientific Advisory Committee meeting at KVK, Ramagirihilla.

20-11-2012 to 22-11-2012 Dr.E.Karunasree, Programme Co-ordinator- 07th National conference of KVKs at PAU, Ludhiana.

15-03-2013 Sri. Ch. Kiran Kumar SMS (SSAC) Work Shop on Rice knowledge management portal at DRR, Hyderabad.

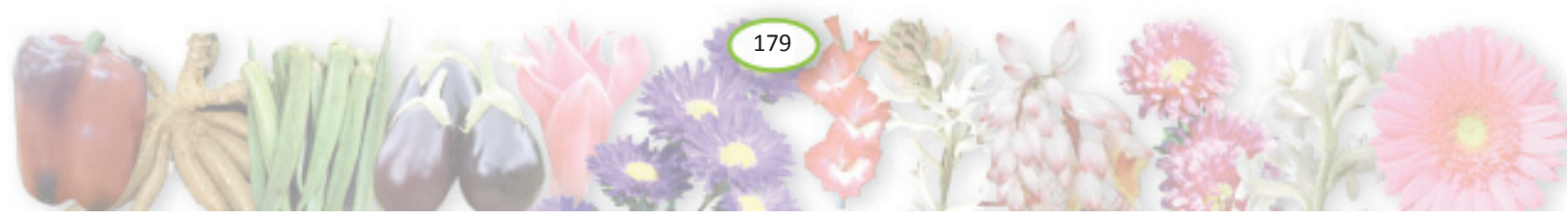
23-03-2013 Sri. Ch. Kiran Kumar SMS (SSAC) Work shop on Soil Test based crop recommendations at ZPD, Zone V, Hyderabad.

Vegetable Research Station, Rajendranagar

Dr.N.Hariprasad Rao, Principal Scientist (Hort.)

Accompanied Dr.M.Lakshminarayana Reddy, Dean of Horticulture, Dr.YSRHU on 24 November, 2012 and visited the four villages where the students from College of Horticulture, Mojerla are attended to villages under RAWEP and reviewed the progress of the programme.

Visited four villages around Vikarabad where the students have been kept as a part of RAWEP on 06-10-2012 to review the progress of the programme.





Dr.M.Vijava, Principal Scientist (Pl.Path):

Attended training programme on “Plant Quarantine Procedures for Imports & Exports” from 19-23rd November, 2012 at NIPHM, Hyderabad.

Dr.R.V.S.K.Reddy, Principal Scientist (H)

Attended training programme as resource person on “Integrated Nutrient management in vegetables” and Integrated pest management in vegetables” for farmers of Medak and Ranga Reddy districts on 19-06-2012 at HTI, Hyderabad as resource person.

Attended training programme as resource person on “Vegetable cultivation” for farmers of Ksheerasagar village of Mulugu mandal, Medak district on 20-06-2012 organized by DAATTC, Medak.

Attended training programme as resource person on “Recent trends in vegetable cultivation” to farmers of Nalgonda and Ranga Reddy districts at HTI, Hyderabad on 22-06-2012.

Attended meeting on “Empanelment and Rate fixation of hybrid vegetable seed supply to farmers” by Department of Horticulture on 21-06-2012 and 22-06-2012 at Commissionerate of Horticulture, Hyderabad as University nominee as per the instructions of Director of Research, DR.YSRHU.

Attended farmers training programme as resource person at Marpalli, RR District on Vegetable cultivation organized by Department of Horticulture on 19-08-2012.

Participated training programme as resource person on “Comprehensive A.P.Seed bill” as a member of seed committee on 15-12-2012 at Secretariat in the chambers of Principal Secretary, Department of Agriculture and Cooperation, Govt, of Andhra Pradesh.

Participated training programme as resource person on “Organic farming in vegetables” as resource person on 18-12-2012 at HTI, Hyderabad to farmers of Medak and Ranga Reddy districts.

Participated training programme as resource person meeting on “Co-Marketing of Vegetable Seed” at Commisionerate of Agriculture on 18-12-2012 as a nominee of Director of Research, Dr.YSRHU.

Attended training programme to urban dwellers and gave lecture on “Nutrition gardens in urban areas” on 15-03-2013 and gave a lecture on “Kitchen gardening and roof top vegetable gardening” on 24-03-2013 at HTI, Hyderabad organized by Dept. of Horticulture.

Dr.B.K.M.Lakshmi, Scientist (Pl.Path.)

Attended XII Annual group meeting and Technical programme of work discussions (2012-2012) at Maharana Pratap University of Agricultural & Technology, Udaipur, Rajasthan. On 18-6-2012 to 20-6-2012.

Attended 21 days Training programme on “Crop - Weather dynamics” at CRIDA, Santhoshnagar, Hyderabad from 24th August to 13th September 2012.

Attended Training programme on “Germplasm Conservation, Climate change mitigation & E- net working” held at CTCRI, Sreekariyam, Thiruvananthapuram from 24th to 27th September 2012.

Attended as a resource person and given training programme on “Pest and disease management in fruit crops at HTI, Department of Horticulture on 6th October and 10th October 2012.

Dr. P. Madhavi Latha, Scientist (Agro.)

Participated in two days training programme on Agri Commodity future market organized by School of Agribusiness Management, ANGRAU on 16th to 17th of November, 2012.

Horticultural Research Station, Lam

2-4-2013 Dr. L.Naram Naidu, Principal Scientist (Hort) attended pre seasonal workshop of dept of Agriculture at RARS, Lam

12-4-2013 Pre ZREAC of coastal Zone II conducted at HRS, Lam





2-5, May, 2013 Dr. L.Naram Naidu, Principal Scientist(Hort), Dr.C.Sarada, Senior Scientist (Hort) and Smt.A.Rajani, Scientist (Hort) attended XXXI Group meeting of AICRP on Vegetable Crops at CCK HRKV Palampur, H.P

9-5-2013 All the scientists of HRS, Lam attended district level rythusadassu at police parade grounds Guntur.

18-5-2012 All the scientists of HRS, Lam attended ZREAC meeting of coastal zone at Lam

21-5-2013 Dr.C.Venkata Ramana, Scientist (Hort) participated as chilli crop specialist in the ZREAC meeting of Telangana zone held at Khammam as per the instructions of Principal Scientist (H) and Head, HRS, Lam

24-5-2013 Dr.C.Venkata Ramana, Scientist(Hort) participated as chilli crop specialist in the ZREAC meeting of Rayalaseema zone held at Khammam as per the instructions of Principal Scientist (H) and Head, HRS, Lam

24-5-2013 to 13-6-2013 Smt.T.Vijaya lakshmi, Scientist (Path) attended 21 days training course on "Production protocol for bio agents and quality assessment and quality management of microbial pesticides" at NIPHM, Hyderabad.

28-5-2013 Dr.C.Sarada, Senior Scientist (Hort) attended ATMA action taken plan meeting at Guntur

4-6-2013 Dr. L.Naram Naidu, Principal Scientist(Hort) attended Brain storming session on 3rd party evaluation of RKVY at Admn. Staff College & Institute (ASCI), Hyderabad

10-6-2012 to 12-6-2012 All the scientists of HRS, Lam attended state level technical programme of work at DR.YSRHU, VRGudem

19th to 20th June, 2013 Dr. L.Naram Naidu, Principal Scientist (Hort) attended CSS Review meeting at CRSS, Jogudan, Gujarat.

Mango Research Station, Nuzvid

Smt D. Aparna, Scientist (Hort) & Head i/c, MRS, Nuzvid participated in Best Performing Farmer Clubs meeting conducted by NABARD at Vijayawada on 17-4-12.

Smt D. Aparna, Scientist (Hort) & Head i/c, MRS, Nuzvid participated as a resource person in training program on mango at RHTI, Eluru on 17-4-12, 24-4-12, 27-4-12, 4-5-12, 6-6-12, 19-6-12, 22-6-12, 4-7-12, 10-7-12, 17-7-12, 26.7.2012, 6.8.2012, 9.8.2012, 17.8.2012, 11.10.2012, 19.10.2012, 30.10.2012, 15.11.2012, 11.12.2012, 5.2.2013 and 13.2.2013.

Smt D. Aparna, Scientist (Hort) & Head i/c, MRS, Nuzvid participated as a resource person in Rythu Sikshana Karyakramam on NSP command crop areas conducted by Department of Agriculture on 18-7-12 at Reddygudem mandal.

Smt D. Aparna, Scientist (Hort) & Head i/c, MRS, Nuzvid participated as a resource person in Rythu Sikshana Karyakramam on NSP command crop areas conducted by Department of Agriculture on 19-7-12 at A.Konduru and Gampalagudem mandals.

Smt D. Aparna, Scientist (Hort) & Head i/c, MRS, Nuzvid participated as a resource person in training program on mango at RHTI, Eluru on 20-7-12.

Smt D. Aparna, Scientist (Hort) & Head i/c, MRS, Nuzvid participated as a resource person in Rythu Sikshana Karyakramam on NSP command crop areas conducted by Department of Agriculture on 24-7-12 at Musunuru mandal.

Smt D. Aparna, Scientist (Hort) & Head i/c, MRS, Nuzvid participated as a resource person SAC meeting organized by KVK, Garikapadu at Garikapadu on 3-8-12.

Smt D. Aparna, Scientist (Hort) & Head i/c, MRS, Nuzvid participated as a resource person in Rythu Sikshana Karyakramam on NSP command crop areas conducted by Department of Agriculture on 14-12-12 at Nemali.

Smt D. Aparna, Scientist (Hort) & Head i/c, MRS, Nuzvid participated as a resource person in Rythu Sikshana Karyakramam on NSP command crop areas conducted by Department of Agriculture on 21-12-12 at A.Konduru and Kalimerlathanda.

Smt D. Aparna, Scientist (Hort) & Head i/c, MRS, Nuzvid participated as a resource person in training program on mango at RHTI, Eluru on 27-12-12.





Smt D. Aparna, Scientist (Hort) & Head i/c, MRS, Nuzvid participated as a resource person in Rythu Sikshana Karyakramam on NSP command crop areas conducted by Department of Agriculture on 29-12-12 at Singannagudem and Yanamadala.

Smt D. Aparna, Scientist (Hort) & Head i/c, MRS, Nuzvid participated as a resource person in training program on mango organized by Pragathiseela Yuvajena Seva committee, Kondaparva on 1-2-13.

Smt D. Aparna, Scientist (Hort) & Head i/c, MRS, Nuzvid participated as a resource person in training program on mango fruit borer management organized by Dept of Horticulture at Edulagudem, Gollagudem, Shobhanapuram on 15-2-13.

Smt D. Aparna, Scientist (Hort) & Head i/c, MRS, Nuzvid participated as a resource person in training program on mango fruit borer management organized by Dept of Horticulture at Vadlamanu, Mallavalli on 16-2-13.

Smt D. Aparna, Scientist (Hort) & Head i/c, MRS, Nuzvid participated as a resource person in training program on mango at RHTI, Eluru on 5-3-13.

Smt D. Aparna, Scientist (Hort) & Head i/c, MRS, Nuzvid participated as a resource person for field visits and to give advices to the farmers on mango organized by NESTHAM, NGO at Edara, Seethampuram, Shobhanapuram on 14-3-13.

Horticultural Research Station, V.R.Gudem

Name of the Scientist	Training details	Date
Dr.P.Ashok, Sci (Hort.) AICRP Tuber Crops	“UGC faculty re-training programme under the scheme of the college with potential for Excellence-Phase-II’ Training was given on Land scaping, grafting and green house management	From 15 th to 18 th October 2012 at Andhra Loyala College, Vijayawada
Dr.P.Ashok, Sci (Hort.) AICRP Tuber Crops	Training on Seed treatment in Tapioca	03.07.2012, Peddapuram
Dr.P.Ashok, Sci (Hort.) AICRP Tuber Crops	Conducted OFD on Tapioca fertilizer management	Telikicherla, 23.08.2012
Dr.P.Ashok, Sci (Hort.) AICRP Tuber Crops	Meeting was conducted on Vegetable nursery with KVK scientists	Chodavaram 13.09.2012
Dr.P.Ashok, Sci (Hort.) AICRP Tuber Crops	Visited Tapioca fields along with Dr.S.Ramanathan, Pri. Scientist, CTCRI observed mite and CMD incidence and recommended control measures to famerers	Peddapuram 31.10.2012
Dr.P.Ashok, Sci (Hort.) AICRP Tuber Crops	Cucurbit fields and Brinjal and given recommendations on fertilizer management	Prakasaraopalem 6.11.2012
Dr.P.Ashok, Sci (Hort.) AICRP Tuber Crops	Training on Mango orchard recommended micro nutrient spray for flowering	Jaggfinapeta, 18.01.2013
Dr.P.Ashok, Sci (Hort.) AICRP Tuber Crops	Training on coconut seedlings which were suppressed with maize intercrop	22.01.2013 Avupadu

AICRP on MAP & Betelvine, V.R.Gudem

S. No.	Name and Designation	Topic
1.	P.Rama Devi, Scientist (Plant Pathology)	Participated in 21 days training programme on “crop weather Dynamics” at CRIDA, Hyderabad from 24.8.12 to 13.9.12
2.	P.Rama Devi, Scientist (Plant Pathology)	As resource person attended training programme on betelvine cultivation on 6-12-12.
3.	P.Rama Devi, Scientist (Plant Pathology) P. Sunitha, Scientist (Ento.)	Attended training programme to “Coconut harvesters” on coconut diseases & pests and their management on 8.1.13.





HRS, Chintapalle

Ravindra Kumar.K attended the Conference on “Lively hood and environmental security through resource conservaton-2012” (LESRC-2012) at OUAT, Bhubaneswar, Orissa and presented the posters on Orchids. Symposium was held from 5th- 7th April, 2013.

Ravindra Kumar.K and Sesha Kiran .K Participated in the Pre - Zonal Research and Extension Advisory Council meeting (Pre ZREAC) held at HRS, Kovvur on 12th April.2012 and presented results of 2011-12.

Ravindra Kumar.K and Sesha Kiran .K Participated in the Zonal Research and Extension Advisory Council meeting (ZREAC) held at Kalabharati auditorium, Vijayawada on 2nd May.2012 and interacted with farmers and formulated the technical programme based on the research gaps.

Ravindra Kumar.K and Sesha Kiran .K. participated and submitted the results of Horticulture and Plant Pathology experiments conducted at Horticultural Research Station, Chintapalli for the Year 2011-12 during the SLTP meeting held at Rice millers hall, Tadepalligudem from 9th – 11th May, 2012.

Ravindra Kumar.K and Sesha Kiran .K Participated in the *Rythu Chaitanya Yatralu* held at different villages in the G.K.Veedhi and Chintapalli mandals of Visakhapatnam (Dt) and educated the farmers on management practices of economic diseases of Black Pepper, Ginger, Turmeric, Organic Farming, Green Manuring, Biological Control, Management practices to be carried out in Summer to reduce the disease and pest population in the ensuing Kharif season like Deep Ploughing, Soil Solarisation etc., (May 17th- June 3rd, 2012).

K.Ravindra Kumar acted as resource person for “Farmers training programme on cultivation of agency area horticultural crops” organized by Project Horticulture Officer, ITDA, Paderu on 30th June, 2012 held at HNTC, Araku.

K.Ravindra Kumar participated as member for formulating ATMA projects in the agency areas of Visakhapatnam district on 12th July.2012 held at JD office, Visakhapatnam.

K.Ravindra Kumar acted as resource person for “Farmers training programme on cultivation of agency area horticultural crops” organized by Project Horticulture Officer, ITDA, Seetampeta on 23rd July, 2012 held at PMRC Building, Seetampeta.

K.Ravindra Kumar participated as team member in field diagnostic visit conducted at Kokkirapalli and Rajupakala villages on 27th July.2012 and participated in the local farmers training programme and acted as resource person.

Ravindra Kumar.K Participated as resource persons in the Zonal Research and Extension Advisory Council meeting (ZREAC) for Kharif season in the High Altitude and Tribal Zone held at RARS, Chintapalli from 6th-7th August, 2012.

Ravindra Kumar.K and Sesha Kiran .K. participated and submitted the results of Horticulture and Plant Pathology experiments conducted at Horticultural Research Station, Chintapalli for the 11th plan period to QRT on Spices team held at Boiguda, Hyderabad from 22nd - 24th August, 2012.

Ravindra Kumar.K participated and submitted the results of Horticulture and Plant Pathology experiments conducted at Horticultural Research Station, Chintapalli for the year 2011-12 during the XXIII annual group meeting held at IISR, Calicut from 29th September.13 - 1st October.2012.During the Workshop acted as rapporteur for crop management session and also presented Black Pepper crop management experiments results for the year 2011-12.

K.Ravindra Kumar participated as member for formulating ITDA, Paderu schemes in the agency areas of Visakhapatnam district on 11th October.2012 held at ITDA, Paderu.

K.Ravindra Kumar participated in 21 days training programme on “Protected cultivation” held at UAS, Dharwad from 4th to 24th December.12.

K.Ravindra Kumar participated in 18th group meeting of AICRP on Tropical Fruits as a transport committee member held at Dr.Y.S.R.H.University from 8th- 11th February, 2013.

K.Ravindra Kumar participated as resource person in Kisan mela and exhibited different technologies, spice crop varieties during the kisan mela organized by RARS, Chintapalli on 2nd March.2013. During the training programme Ginger “Nadia” seed and Turmeric “Roma” seed distributed to tribal farmers through Sri.P.Balaraju garu, Minister for Tribal welfare.





Ravindra Kumar.K Participated as resource persons in the Zonal Research and Extension Advisory Council meeting (ZREAC) of the High Altitude and Tribal Zone held at PMRC Building, Seetampeta from 22nd to 23rd March.2013.

CRS, Petlur

Sri.D.Sreedhar, Scientist (Horticulture) Attended 2 days training programme on Right to information act during 18th to 19th March, 2013.

Sri.D.Sreedhar, Scientist (Horticulture) conducted one day training programme on Preparation of *Trichoderma viridae* and *panchagavya* along with RAWEP students in Mopur vellampalli village on 17th Nov, 2012.

D. METHOD DEMONSTRATIONS

Horticulture Polytechnic, Kalikiri

Preparation of Bordeaux paste, Mixture, Cheshunt compound at Sanyasivandlapalli on 7.3.2013.



Krishi Vigyan Kendra, Ramagirikhilla

Total of the following 8 method demonstrations were conducted to impart skill on the latest technologies covering 308 farmers.

S.No.	Title
1	Method of transplantation in SRI Cultivation
2	Sowing of rice seed with Drumseeder
3	Seed Treatment in chillies
4	Stem application in cotton, Installation of sticky traps
5	Zero tillage maize sowing
6	Grafting in mango
7	Tomato staking
8	Pruning in mango



Method demo of installation of Yellow sticky traps in cotton



Method demo of installation of White sticky traps in cotton



Method demonstration on seed treatment



Method demonstration of stem application in cotton

Krishi Vigyan Kendra, Pandirimamidi

Sl.No.	Date	Title of the programme
1	15.12.2012	Zero tillage Maize
2	17.07.2012	Pruning in Cashew
3	22.09.2012	SRI cultivation of Paddy
4	15.02.2013	Grafting techniques in Cashew





Horticultural Research Station, Ambajipeta

S.No.	Technique	Date	Village
1.	Demonstrated basal stem rot disease and created awareness among the farmers for its control	24.05.12	Vijayarai of West Godavari dist.
2.	Demonstrated application of <i>Trichoderma viride</i> along with neem cake for the <i>Ganoderma</i> infested trees.	30.07.12, 31.07.12	Jagati and Borivanka of Srikakulam Dist.
3.	Demonstrated application of <i>Trichoderma viride</i> along with neem cake for the <i>Ganoderma</i> infested trees.	28.02.13	Kalvacaharla of East Godavari Dist.

CRS, Petlur

Sri A.Ramanjaneya Reddy, Scientist (Soil Science) conducted method demonstration on the preparation of 1% Bordeaux mixture and Bordeaux paste in theerthampadu village along with RAWEP students on 30-10-2012.

Sri A.Ramanjaneya Reddy, Scientist (Soil Science) conducted method demonstration on the preparation of Vermicomposting in theerthampadu village along with RAWEP students on 8-11-2012.

Horticultural Research Station, V.R.Gudem

Dr.P.Ashok, Sci (Hort.), AICRP Tuber Crops conducted Method demonstration on Seed treatment in Tapioca on 03.07.2012 at Peddapuram.

Horticultural Research Station, Pandirimamidi

Dr.K.Rajendra Prasad Scientist (Hort) given method demonstration on "Drip irrigation, Fertigation and its maintenance to horticultural crops" to the farmers of Gadarada (RAWEP) village on 21 December 2012.

Dr.K.Rajendra Prasad Scientist (Hort) given method demonstration on "Rubber latex tapping and its processing" to the RAWEP students at pujaripakala on 28 December 2012.

AICRP on MAP & Betelvine, V.R.Gudem

Method demonstration on preparation and application of 1% bordeaux mixture as soil drench against betelvine *Phytophthora* foot rot management at Gopalapuram on 17-11-12.

HRS, Chintapalle

ASSESSMENT OF TECHNOLOGIES DEVELOPED AT HORTICULTURAL RESEARCH STATION, CHINTHAPALLI, VISAKHAPATNAM (Dt) (2012-13)

Technology: Management of *Phytophthora* foot rot of black pepper caused by *Phytophthora capsici*

Recommendation: Foliar application of Potassium phosphonate (0.3%) + Soil application of *Trichoderma harzianum* @ 50 g/vine (MTCC-5179) with 1.0 kg of Neem cake thrice i.e., before onset of monsoon (May), during rainy season (June-July) and during 2nd fortnight of August.

The above recommendation was demonstrated in black pepper plantations of the farmer's plantations. Following are the list of farmers and the site of conduct and dates of imposition of Potassium Phosphonate on the foliage and Soil application of *Trichoderma harzianum* along with 1 kg of neem cake.

Sl.No.	Name of the Farmer	Location	Dates of imposition of chemicals
1	Pottukoori Lakshmaiah	Rinthada, G.K.Veedhi	20-04-2011 (1 st spray)14-10-2011(2 nd spray)
2	Bhaskar rao	Sankada, G.K.Veedhi	11-10-2011(1 st spray)12-03-2012(2 nd spray)
3	Mallipadal Kankipati	Rampula, G.K.Veedhi	25-11-2011(1 st spray)15-10-2012(2 nd spray)
4	1)Balaraju Mottadam 2)Veerayyadora Mottadam	Addara veedhi, G.K.Veedhi	10-02-2012(1 st spray)17-10-2012(2 nd spray)



Owing to cultivation of black pepper in heavy soils and high rainfall conditions, high incidence of *Phytophthora* foot rot and slow decline was noticed. Hence, an initiative was taken to create awareness among the tribal farmers on the recommendations for the effective management of the disease. Andhra Pradesh Forest Development Corporation has an area of 10,000 acres under black pepper. Coffee is cultivated as an intercrop in Black pepper plantations. Hence, the current recommendations were communicated to the officials of APFDC, Coffee Board and ITDA, Paderu. Divisional Manager, Assistant Estate Managers of APFDC, Liason Officers of Coffee Board and Horticulture officers, Technical Assistants of ITDA, Paderu have participated in the technology assessment trials. Current recommendations of disease management and organization of demonstrations have been widely publicized through local news papers for bringing awareness among the growers of black pepper. The demonstrations are currently in progress and not have been concluded. Sprayings have been delayed due to continuous rains in rainy season.

FEED BACK

Due to illiteracy of the tribal farmers, they were not aware of the disease and reasons for the death of the pepper vines. Farmers are of the opinion that yellowing of foliage and defoliation is due to natural process of ageing of the leaves and mortality was supposed to be due to drought and delayed rains. These misconceptions were prevalent even in the progressive farmers. Hence, the scientific staff of HRS, Chintapalli have enlightened the farmers on the ill effects of the disease and suggested for taking up of recommended practices for combating the disease. To be more practical, preparation, formulation and spraying of Potassium Phosphonate on the foliage was personally monitored. The farmers were also taught the multiplication of *Trichoderma harzianum* in FYM & Neem cake. After multiplication, *Trichoderma harzianum* was applied at the base of vines.

E. GROUP DISCUSSIONS

Krishi Vigyan Kendra, Ramagirikhilla

Five group discussions were conducted on soil reclamation, green manuring, Bt cotton varieties, cultivation of watermelon and cultivation of summer vegetables.

Grape Research Station, Rajendranagar

Interaction meeting with farmers, scientists and officials of the Department of Horticulture was conducted at Andhra Pradesh Horticulture Training Institute, Hyderabad, A.P. on 18-01-2013 by Grape Research Station, Rajendranagar. Dr. P.G. Adsule, Director, National Research centre for grapes, ICAR, Pune interacted with grape growers, Scientists and officials of Department of Horticulture.



Horticultural Research Station, Ambajipeta

Group discussion was organized to the farmers at Srikakulam on 16.01.13 along with local Agriculture & Horticultural officers and noticed the incidence of Black headed caterpillar and briefed the control measures.

AICRP on MAP & Betelvine, V.R.Gudem

Participated as resource person for the interaction with farmers on insect pest management of Mango at KVK, VR gudem on 23.2.13.

Citrus Research Station, Tirupati

Prof. K. Gopal, Principal Scientist, Dr. K.M. Yuvaraj, Senior Scientist (Hort), Dr. L. Mukunda lakshmi, Scientist (Hort) & Smt G. Sarada, Scientist (Ento) have attended Pre-ZREAC meeting for rayalaseema zone of Andhra Pradesh at Vijayawada on 2-5-2012.





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Prof. K. Gopal, Principal Scientist, Dr. K.M. Yuvaraj, Senior Scientist (Hort), Dr. L. Mukunda Lakshmi, Scientist (Hort) & Smt G. Sarada, Scientist (Ento) participated in Quinquennial Review meeting from 9-10th July, 2012.

Prof. K. Gopal, Principal Scientist, K.T.V. Ramana Principal Scientist(Hort), Dr. L. Mukunda lakshmi, Scientist (Hort) & Smt G. Sarada, Scientist (Ento) have attended 18th Group Discussion of AICRP (TF) held at Dr.YSRHU, VR Gudem from 8th 11th February 2013 and presented the results of technical programme 2011 -12.

Vegetable Research Station, Rajendranagar

Dr.M.Vijaya, Principal Scientist (Pl.Path.):

Attended Technical support Group Meeting of State Horticulture Mission on 08-07-2011 at Commissionerate of Horticulture, Hyderabad.

Attended State Horticulture Mission's Technical Support Group meeting on 14-10-2011 at Commissionerate of Horticulture, Hyderabad.

Attended State Horticulture Mission's Technical Support Group meeting on 18-11-2011 and 25-11-2011 and 27-03-2012 at Commissionerate of Horticulture, Hyderabad.

Dr.R.V.S.K.Reddy, Principal Scientist (H)

Attended ZREAC meeting of Coastal and Rayalaseema regions on 02-05-2012 as resource person on vegetables held at Vijayawada.

Attended meeting of vegetable seed price fixation committee meeting on 30-05-2012 at Commissionerate of Horticulture, Hyderabad as per the instructions of Director of Research, Dr. YSRHU, VR Gudem.

Attended Technical support Group Meeting of State Horticulture Mission on 24-06-2011 at Commissionerate of Horticulture, Hyderabad.

Attended State Horticultural Mission's Technical Support Group meeting at Commissionerate of Horticulture, Hyderabad on 08-07-2011 and 22-07-2011.

Attended panel discussion on the identified theses for formulating approach / strategy for the state on 12th Five year plan organized by Centre for Economic and Social studies (CESS), Hyderabad and gave presentation on "Strategy for vegetables" on 28-07-2011.

Attended State of Horticulture Mission's Technical Support Group meeting at Commissionerate of Horticulture, Hyderabad.on 09-09-2011 and 23-09-2011.

Attended State of Horticulture Mission's Technical Support Group meeting on 12-08-2011 and 20-08-2011 at Commissionerate of Horticulture, Hyderabad.

Attended State of Horticulture Mission's Technical Support Group meeting on 14-10-2011 at Commissionerate of Horticulture, Hyderabad.

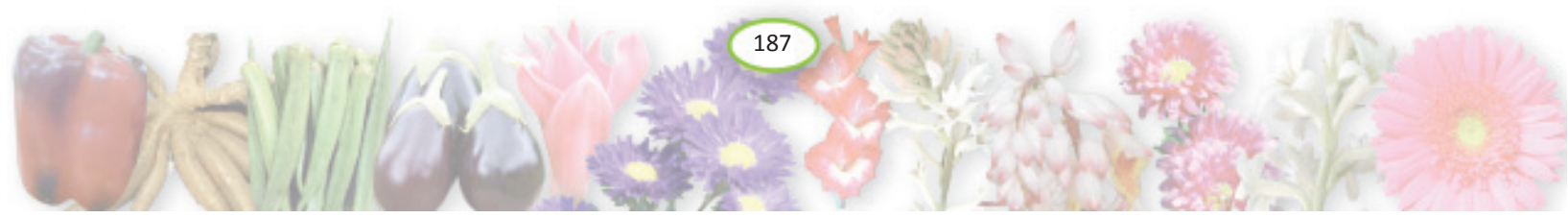
Attended State of Horticulture Mission's Technical Support Group meeting at Commissionerate of Horticulture, Hyderabad, on 11-11-2011, 18-11-2011 and 25-11-2011.

Attended Technical support group meeting of SHM at Commissionerate of Horticulture on 13-01-2012 and 30-01-2012.

Attended Mass media meeting at Commissionerate of Agriculture on 04-02-2013 to discuss the programmes for March, 2013 to be broadcasted by AIR and Doordarshan.

Attended Mass media meeting at Commissionerate of Agriculture on 04-03-2013 to discuss the programmes for April, 2013 to be broadcasted by AIR and Doordarshan.

Attended Technical support group meeting of SHM at Commissionerate of Horticulture on 27-03-2012.



F. FIELD DAYS

Krishi Vigyan Kendra, Ramagirikhilla

Five field days were conducted under Front Line demonstration (FLD) programmes to show the visual impact of components demonstrated by inviting FLD farmers and also other farmers of the village where FLD was conducted.

S.No.	FLD in which field day was conducted
1	Sucking pest management in cotton
2	Wilt management in chillies
3	Field day on tomato
4	Field day on watermelon
5	Field day on mango

Krishi Vigyan Kendra, Pandirimamidi

Sl.No.	Date	Activity
1	11.10.2012	Field day on Maize – HQPM - 1
2	26.11.2012	Field day on Paddy – MTU-1075,JGL-3855,RP-Bio-226
3	19.03.2013	Field day on Maize – 30V92
4	20.03.2013	Field day on Maize – 30V92
5	16.12.2012	Field day on Black gram – PU-31

Krishi Vigyan Kendra, Venkataramannagudem

On 14.03.2013 Dr.E.Karunasree, Programme Co-ordinator and Sri N.Veerabhadra Rao, SMS(Fisheries) conducted on control of Argulus in Rohu fish culture by chemical method at Rachuru.

On 24.03.2013 Dr.E.Karunasree, Programme Co-ordinator and Sri N.Veerabhadra Rao, SMS(Fisheries) conducted field day in performance L-Vannamei at different stocking densities in Sitharampuram village.

On 12.04.2013 Dr.E.Karunasree, Programme Co-ordinator, Sri Ch.Kiran Kumar,SMS(SSAC) and Dr.K.Vijay Prakash, SMS(Vety.Sci.) conducted field day on OFT-soil test based fertilizer application in Rabi Maize alongwith department of Agriculture and shown the result demonstrations in farmers field and followed group discussion with farmers regarding various production aspects of Rabi Maize.



Horticultural Research Station, Kovvur

Dr B.V.K.Bhagavan, Principal Scientist (Hort) and Dr. M.M.Naidur, Sr. Scientist (Hort) attended to the Kisanmela on 2ndMarch, 2013 at Chintapalli.

Horticultural Research Station, Ambajipeta

Field day was organized on making organic compost using coirpith waste and vermi compost using coconut leaf on 22nd December, 2012.

Field day was organized on 12th February, 2013 on coconut based integrated cropping system model.



CRS, Tirupati

Prof. K. Gopal, Principal Scientist, K.T.V. Ramana Principal Scientist(Hort), Dr. L. Mukunda lakshmi, Scientist (Hort) & Smt G. Sarada, Scientist (Ento) conducted field day at Ramachandrapuram, Chittor district on 11-01-2013.



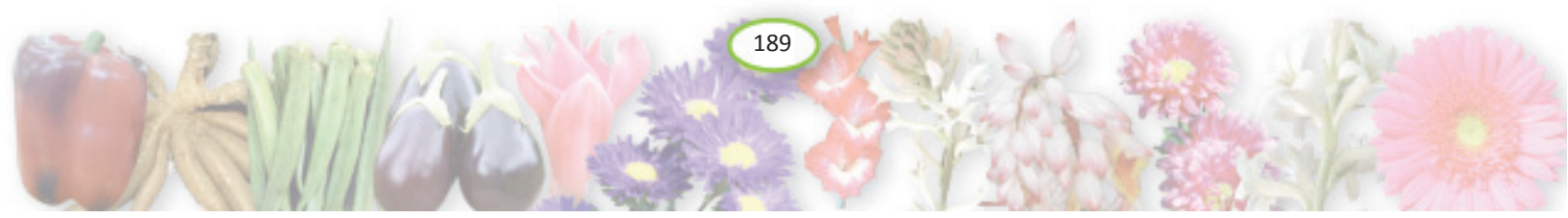


G. MASS COMMUNICATION

(Press notes, TV coverage, Radio scripts etc.)

a. Radio Programmes:

Date	Topic	Name of the Scientist
30-05-2012	Participated in Live phone in programme at AIR, Hyderabad	Dr. T. Susila, Scientist (Hort.) MAPRS, Rajendranagar, Hyderabad.
30-07-2012	Sugandha pantalu	Dr.G.Sathyanarayana Reddy, Principal Scientist & Head, MAPRS, Rajendranagar, Hyderabad
13-04-12	Production technology of gaillardia for summer cultivation	Dr. P. LalithaKameswari, Scientist (Hort.)
15-09-12	Chemanthisagu	Dr. P. LalithaKameswari, Scientist (Hort.)
15-12-12	Asparagus sagu	Dr. P. LalithaKameswari, Scientist (Hort.)
08-01-13	Cultivation of china aster	Dr. P. LalithaKameswari, Scientist (Hort.)
05-02-13	Polyhouseo pula sagu	Dr. P. LalithaKameswari, Scientist (Hort.)
13-04-2013	Uiilisagu	Smt. G. Jyothi, COH, R'Nagar
07-05-2013	Sukhsma neeti paddatilo udyana pantalasagu	Smt. G. Jyothi, COH, R'Nagar
24-4-2012	Mamidi Kothalu Jagrathalu Egumathulaku Patinchalsina Nanyatha Pramanalu.	Dr. M. Raj Kumar, Principal Scientist (H)
27.6.2011 (Hort)	Mirapasagulo melakuvalu	Dr. M. Raghava Rao, Principal Scientist
18-01-13	Mamidilo poota mariyu pinde samyamlo teesukovalisina sasya rakshana charyalu	Dr.K. Jyothirmai Madhavi, Scientist (Pl.Path)
23-1-2013	Crop regulation in Pomegranate (Danimmalo Kapu niyantrana) and Green leaf and seed purpose coriander Saagulo melakuvalu	Dr.M.Raghava Rao, Principal Scientist (H) & Head.
18.12.2013	"Mamidi Putha Samyam lo theesukovalasina jagrathalu" All India Radio Kothagudem	Sri M. Ravindra Babu, Scientist (H) & Head
25-4-2012	Vesavi kooragayalalo melakuvalu	Veena Joshi
13-10-2012	Draksha sagu lo sasya rakshana charyalu	Anitha Kumari
15-10-2012	Drakshalo melakuvalu nanyathaku Suchanalu	Veena Joshi
21.08.12	Cocoa pantanu aasinchu tegullu – varshakalamlo teesukovalasina jagrathalu	Dr.A.Snehalatha Rani, Scientist (Pl.Path.)
22.08.12	Kobbarini kothaga aasisthunna purugula yajamanyam	Dr.N.B.V.Chalapathi Rao, Senior Scientist (Ent.)
17.09.12	Kobbarini kothaga aasisthunna purugula yajamanyam	Dr.N.B.V.Chalapathi Rao, Senior Scientist (Ent.)
02.10.12	Kobbarilo anthara pantagaa cocoa yajamanyam	Dr. G. Ramanandam, Principal Scientist (Hort.)
10.10.12	Kobbarilo anthara pantagaa cocoa yajamanyam	Dr. G. Ramanandam, Principal Scientist (Hort.)
28.11.12	Prasthutham kobbarini assistunna Purugulu – Nivarana Charyalu	Dr. N.B.V. Chalapathi Rao, Senior Scientist (Ent.)
20.12.12	Kobbarilo rakalu mariyu yajamanya paddathulu	Smt. E. Padma, Scientist (Hort.)
16.01.13	Mamidi mariyu Jeedimamidi thotalalo Putha, Kapu Dasalalo tesukovalsina Jagrattalu	Dr. G. Ramanandam, Principal Scientist (Hort.)
20.01.13	Mamidi mariyu Jeedimamidi thotalalo Putha, Kapu Dasalalo tesukovalsina Jagrattalu	Dr. G. Ramanandam, Principal Scientist (Hort.)



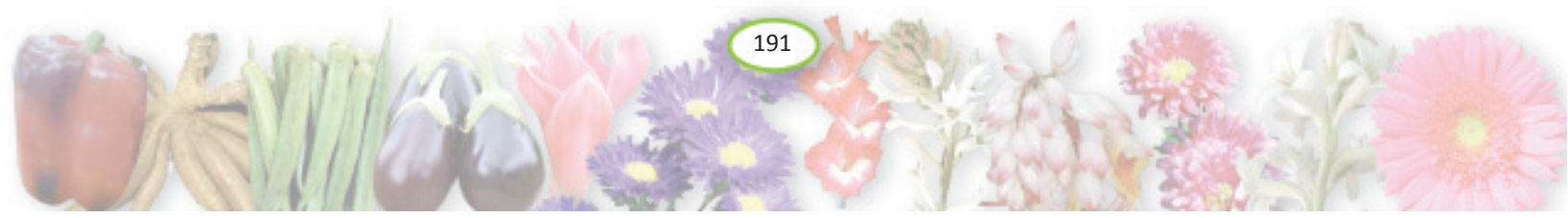


Date	Topic	Name of the Scientist
13.02.13	Kobbarilo Eriophyid Nalli mariyu Nalla Mukku purugu Yajamanyam	Dr. N.B.V. Chalapathi Rao, Senior Scientist, (Ent.)
5.02.13	Kobbarilo Eriophyid Nalli mariyu Nalla Mukku purugu Yajamanyam	Dr. N.B.V. Chalapathi Rao, Senior Scientist, (Ent.)
28.02.13	Kobbari Saagu Yajamanyam	Smt. E. Padma, Scientist (Hort.)
19.03.13	Kobbari Saagu Yajamanyam	Smt. E. Padma, Scientist (Hort.)
16.01.13	Mirapa egumatulalo patinchalsina nanyata pramanaluMirapa lo melina yajamanya padhatulu	Dr.K.Umajyothi, Professor (Hort.)
20.01.13	Poola thotalu-Upaadhi Ushna Mandala Orchid poola sagu-UpadhiVaaniyya saralilo poola naaru madula nirvahana	Dr.C.Chandrasekhara Rao, Associate Professor (Hort.)
13.02.13	Pandlalo poshaka viluvaluPandlu kooragayallo purugu mandula avaseshalu Sampoorana aarogyaniki aaku kooraluAarogya viluvalanu kapade sugandha dravyalu	Dr.D.R.Salomi Suneetha, Associate Professor (Pl.Bio-chemistry)
5.02.13	Kobbarilo vesavi YajamanyamKobbarilo anthara pantaga Cocoa	Dr.A.V.D.Dorajee Rao, Assistant Professor (Hort.)
16.01.13	Gulabi saagulo nanyamaina poola digubadiLilly saagulo digubadini prabhavitham chese amsalu	Smt.T.Suseela, Assistant Professor (Hort.)
20.01.13	Pachchi rotha yeruvula pramukhyatha Prastut trunamlo sendriya vyayasayam yokka pramukhyata	Dr.K.Sasikala, Assistant Professor (Agron)
13.02.13	Mamidi kotha anantharam thesukovalisina jagrathalu	Dr.V.Sudha Vani, Assistant Professor (Hort.)
5.02.13	Cocoa pantanu aasinchu purugulu-tegulluvaati yajamanyamCocoa cheeda peedalu-samagra sasya rakshana	Dr.N.Emmanuel, Assistant Professor (Ento)
28.02.13	Mirapa egumathulu-Nanyatha koraku teesukovalasina jagrattaluSoya vutpattulu-VupayogaluMamidi egumathulu-kotha ananthara jagrattalu	Dr.R.V.Sujatha, Assistant Professor (Ag.Econ)
28.02.13	Vividha pandla thotallo Boron lopa lakshanalanivarana charyaluPandirikuragayala sagulo patinchalsina melakuvalu	Dr.P.Subbaramamma, Assistant Professor (Pl.Physiology) Smt. K.Usha Kumari, Assistant Professor (Hort.)
8-4-2013	Mirapalo egumathiki anuvina nanyatha pramanalu	Dr. L.Naram Naidu, Principal Scientist (Hort)
6-6-2013	Mirapa rakalu – Narumadi yajamanyam	Dr.C.Venkata Ramana, Scientist (Hort)
27-12-12	Mamidilo sakaalam lo pootha, pinde vachutaku chepattavalasina charyalu	Smt. D.Aparna, Scientist (Hort) & Head
28-3-13	Mamidilo pinde perugu samayamlo naanyatha perugutaku theesukovalasina yajaamaanya paddathulu	Smt. D.Aparna, Scientist (Hort) & Head
7.7.2012	Pasupu saguku anuvaina rakalu, melaina yajamanya paddatulu	Dr. R.Rajyalakshmi, Scientist (Hort.)
24.5.2012	Kuragayala narumadilo yajamanyam	Dr.P.Ashok, Sci (Hort.) AICRP Tuber Crops
22.10.12	Karrapendalam sagu - Melakuvalu-Interview	Dr.P.Ashok, Sci (Hort.) AICRP Tuber Crops
25.06.2012	Rendava Samvastaram Tamalapaku totalalo Yendutegulu, Yajamanyam".	P. Rama Devi Scientist (PP)
17.7.2012	Thamalapaku thota ni aasinche purugulu mariyu sasyarakshana padhathulu.	P. Sunitha, Scientist (Ento.)





Date	Topic	Name of the Scientist
10-11-12	Tamalapaku thotallo veru kullu thegulu chepatta valasina nivarana charyalu	P. Rama Devi Scientist (PP)
14.12.2012	Thamalapaku thota ni aasinche purugulu mariyu sasyarakshana padhathulu.	P. Sunitha, Scientist (Ento.)
5.3.2012	Vesavilo Tamalapaku sagulo theesukovalsina jagarthalu	B. Tanuja Priya, Scientist (H)
19-12-2012	Rabi kuragayala sagulo sasyarakshana	Dr.M.Vijava, Principal Scientist (PP)
17-01-2013	Teegajati Kuragayala Sagu Melakuvalu	Dr.M.Padma, Principal Scientist (Hort.)
16-01-2013	Peratithota pempakamu-avashyakata	Dr.M.Padma, Principal Scientist (Hort.)
26-9-2012	Rabi kuragayala pantalu	Dr.R.V.S.K.Reddy, Principal Scientist (Hort.)
20-02-2013	Vesavi kuragayala sagu-melakavalu	Dr.R.V.S.K.Reddy, Principal Scientist (Hort.)
	French Chikkudu Saagu	Dr. M. Tirupathi Reddy, Scientist (Hort.)
	Capsicum cultivation and plant protection	Dr. K. Sireesha, Scientist (Ento.)
9-11-2012	Daniyala Sagu	Dr. P. Madhavi Latha, Scientist (Agro.)
13-3-2012	Vesavi Dumpakurala sagu	Dr.B.K.M.Lakshmi, Scientist (Pl.Path.)
17-12-2012	Kanda Cehma Dumpa kurala sagu	Dr.B.K.M.Lakshmi, Scientist (Pl.Path.)
3-4-2013	Important Management Techniques in Summer Jasmine	Dr.M.Ramakrishna, Professor (H)
21-8-2012	Pest and Disease Management in Chilli Crop	R.Preetham Goud, Asst. Professor (Agro.)
3-5-2012	Aratilo vesavilo teesukovalasina jagrathalu	Dr.B.V.K.Bhagavan, Principal Scientist (Hort) & Head
14-5-2012	Allam sagulo Melakuvalu	Smt R.Naga Lakshmi, Scientist (Hort)
21-9-2012	Kandalo Antara Pantaga Pasupu, Allam Saagu Yajamanya Padhathulu	Smt R.Naga Lakshmi, Scientist (Hort)
19-11-2012	Pasupu allam pantlalalo pantakotha anatharam chepattavalsina charyalu	Dr. M. M. Naidu, Scientist (Hort) SG
28-12-2012	VasaviloTeegajatiKooragayalaSagu	Ms.R.Naga Lakshmi, Scientist (Hort)
10-5-2012	Cultivation of spices in the high altitude and tribal areas of Andhra Pradesh	K.Ravindra Kumar
12-09-2012	Inter cultivation practices and fertilizer management in major spice crops to be taken up in Kharif season	K.Ravindra Kumar
16-11-2012	Post harvest technologies in fruit crops	K.Ravindra Kumar
15-02-2013	Cultivation of fruit crops in the agency areas of Visakhapatnam district	K.Ravindra Kumar
11-6-2012	Pest and Disease Management of Horticultural Crops	Dr. K. Subramanyam, Principal Scientist (Plant Pathology)
25-6-2012	Different Management problem in Fruits, Vegetables and flower crops	Dr. Natarajan Seenivasan, Senior Scientist (Horticulture).
9-7-2012	High Yielding Techniques in Horticultural Crops (Plant Pathology)	Dr. K. Subramanyam, Principal Scientist
27-8-2012	Pest and Disease Management in Horticulture Crops	Dr. K. Subramanyam, Principal Scientist (Plant Pathology)
17-9-2012	Pest and Disease Management in Fruits, Vegetables and flower crops	Dr. Natarajan Seenivasan, Senior Scientist (Horticulture).
11-2-2013	Pest and disease management on Horticulture crops	Dr. B. Srinivasulu, Senior Scientist (Horti.)





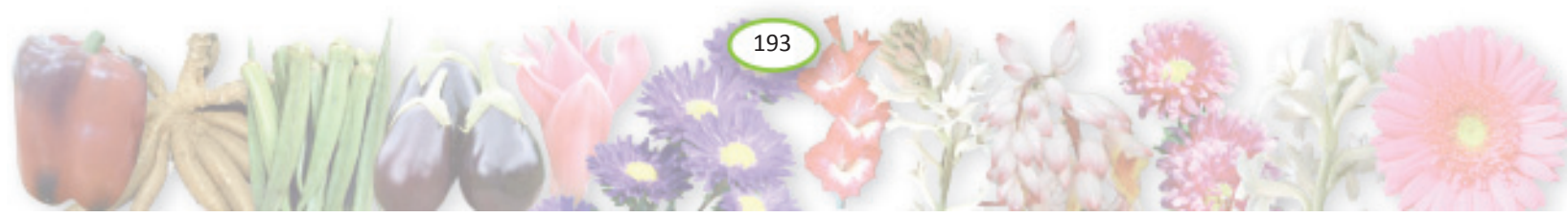
b. Television Programmes

Date	Topic	Name of the Scientist	Recorded by
12-10-2012	Rejuvenation of Old and Senile Mango Orchards'	Dr.G.Sathyanarayana Reddy, Pr. Scientist, MARPS, Rajendranagar	Door Darshan
22-09-12	Gladiolussagulomelakuvalu	Dr. P. LalithaKameswari, Scientist (Hort.)	Sapthagiri TV
15-11-12	Cultivation of marigold	Dr. K.Dhanumjaya Rao, PS(H) & Head	Sapthagiri TV
12-12-12	Chamanthi kothalo melakuvalu, marketing vivaralu	Dr. P. LalithaKameswari, Scientist (Hort.)	Sapthagiri T.V.
29-12-12	Mallesagulo Adhikadigubadulaku soochanalu Scientist (Hort.)	Dr. P. LalithaKameswari,	Sapthagiri TV
23-01-13	Andhra pradeshlo pula sagu vati pramukyatha	Dr. K.Dhanumjaya Rao, PS(H) & Head	Sapthagiri TV
06-02-13	Aster sagulo melakuvalu	Dr. P. LalithaKameswari, Scientist (Hort.)	CVR news channel
15-03-2013	Malle sagulo adhika dhigubadulaku soochanalu	Dr. P.LalithaKameswari Scientist (Hort.)	Sapthagiri TV
8-2-13	Export of mangoes – Management	Dr. A. Kiran Kumar, Sr. Scientist (H)	Live in Progremme in Doordarshan
13-2-13	Post harvest management of mango for domestic and export market	Dr. A. Kiran Kumar, Sr. Scientist (H)	State Agricultural Management and Extension Training Institute, Old Malakpet, Hyderabad
13-2-13	Mamidilo pende ralodu karanalo mariyo nivarana charchalo.	Dr. A. Kiran Kumar, Sr. Scientist (H)	Live in Progremme in Doordarshan
28-2-13	Mamidilo pratusta parisdhitilo chepatavalasina yajamaniya padhatulo	Dr. A. Kiran Kumar, Sr. Scientist (H)	Live in Progremme in Sakshi T.V
04-04-2012	Vesavi Pandlathotalalo Neeti Yajamanyam	Dr. A. Kiran Kumar, Sr. Scientist (H)	Phone in Live Programme on Doordarshan Kendra, Ramanthapur, Hyderabad
20-04-2012	Allamu Sagu Yajamanyam.	Dr.M.Raj Kumar, PS (H)	Annadatha ETV
20-04-2012	<ul style="list-style-type: none"> ● Mamidilo Tenka Purugu Yajamanyam ● Pindinalli Yajamanyam ● Vesavi kalamlo mamidi thotalalo Neeti Yajamanyam mariyu Kaya saiju peragadaniki thisukovalasina jagrathalu ● Boppailo Pindinalli Yajamanyam 	Dr.A.Kiran Kumar Sr. Scientist (H)	Annadatha ETV





Date	Topic	Name of the Scientist	Recorded by
08-06-2012	<ul style="list-style-type: none"> ● Mamidilo Rati Mangu Yajamanyam ● Nurserylo Vesavilo cheyavalasina panulu. 	Dr.A.Kiran Kumar Sr. Scientist (H)	Doordarshan.
08-06-2012	Kotha samayam lo mariyu kotha Anantharam thisukovalasina Jagrathalu	Smt. K. Prabhavathi Scientist (SS & AC)	Doordarshan
22-3-2013	Samasyathmaka bhoomulu-vatilo vesukonathagina udyana pantalu	Dr. M. Raghava Rao, Principal Scientist (H) & Head.	ETV
23-3-2013	Mango crop on top working, Types of mangu, Malformation, method of use of paclobutranol, Nursery raising grafting methods, occurrence & control of leaf Webber and Fertilizer and irrigation application at marble size of fruits.	Dr. M. Raghava Rao, Principal Scientist (H)	CVR TV
27-3-2013	Nursery Activities at national level website covered in scrolling	Dr. M. Raghava Rao, Principal Scientist (H)	CVR TV
08.11.2012	Coverage of various activities of FRS, Sangreddy	Sri M. Ravindra Babu, Scientist (H) & Head	CVR News
15.11.2012	"Chikkdu lo kayatholuchu purugu yajamanyam" in Rythe Raju	Sri M. Ravindra Babu, Scientist (H) & Head	ETV
09.02.2013	"Boppayilo yeravula yajamanyam" in Annadata	Sri M. Ravindra Babu, Scientist (H) & Head	CVR News
10.02.2013	"Mamidi Putha Samyam lo Yajamanyam" in Rythe Raju	Sri M. Ravindra Babu, Scientist (H) & Head	CVR News
18.02.2013	"Polyhouse lo Capsicum Saagu" In Rythe Raju	Sri M. Ravindra Babu, Scientist (H) & Head	CVR News
28.3.2013	"Pasupu taavakam, vandatamlo jagrathalu" in Rythe Raju	Sri M. Ravindra Babu, Scientist (H) & Head	CVR News
23-1-2013	"Broccoli Saagu" in Rythe Raju	Sri M. Ravindra Babu, Scientist (H) & Head	CVR News
2-3-2013	Live phone in programme on "Cultivation of Grape"	Dr. B. Srinivas Rao, Principal Scientist (H)	Doordarshan
2-3-2013	"Draksha lo tegulla yajamanyam".	Dr. G. Ram Reddy Scientist (Pl.Path)	Doordarshan
2-3-2013	"Draksha lo Eruula yajamanyam".	Dr. D. Vijaya, Scientist (Soil Science)	Doordarshan
2-3-2013	"Draksha lo kandamtholachu purugunivarana".	Dr. D. Anitha Kumari, Scientist (Ento)	Doordarshan
2-3-2013	"Draksha kothalo teesukovalasina jagrathalu".	Dr. Veena Joshi, Scientist (Hort)	Doordarshan
7-2-2013	Live telecast on Grape cultivation	Dr. B. Srinivas Rao, Principal Scientist (H) & Head	Sakshi TV
03.08.12	Varshakalamlo cocoa pantanu aasinchu tegullu-teesukovalasina jagrathalu	Dr. A. Snehalatha Rani, Scientist (Pl.Path.)	Dooradarshan Saptagiri, Hyderabad
10.08.12	Kobbarilo Adhika digubadulaku soochanalu	Dr. G. Ramanandam, Principal Scientist (Hort.)	Dooradarshan, Hyderabad
22.08.12	Cocoa lo komma kathirimpu	Smt. E. Padma, Scientist (Hort.)	ETV



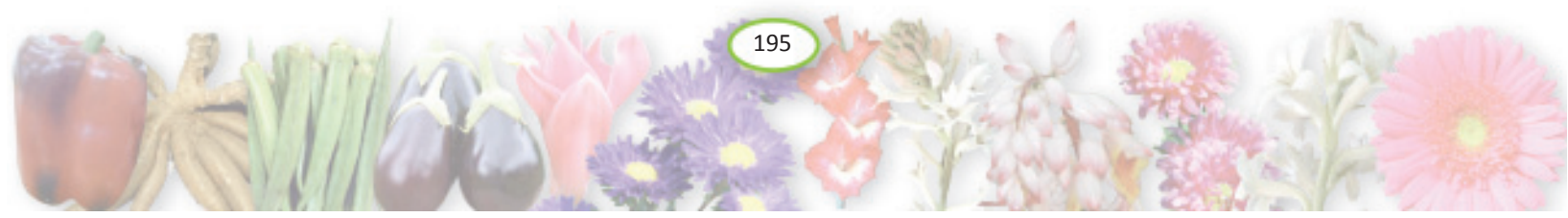


Date	Topic	Name of the Scientist	Recorded by
07.09.12	Kobbarilo Adhika Digubadulaku-soochanalalu	Dr. G. Ramanandam, Principal Scientist (Hort.)	Doora Darshan, Hyderabad
12.09.12	Kommu purugu – yajamanyam	Dr. N.B.V. Chalapathi Rao, Senior Scientist (Ent.)	Dooradarshan Saptagiri, Hyderabad
17.09.12	Kobbarini aasinche nallamacha tegulu – Samagra yajamanyam	Dr.A.Snehalatha Rani, Scientist (Pl.Path.)	Dooradarshan Saptagiri, Hyderabad
28.09.12	Kobbarilo antharapantalu	Smt. E. Padma, Scientist (Hort.)	Dooradarshan Saptagiri, Hyderabad
29.09.12	Kobbarini aasinche nallamutte purugu – yajamanyam	Dr. N.B.V. Chalapathi Rao, Senior Scientist (Ent.)	Dooradarshan Saptagiri, Hyderabad
29.09.12	Kobbarilo sasyarakshana	Dr.A.Snehalatha Rani, Scientist (Pl.Path.)	Dooradarshan Saptagiri, Hyderabad
19.10.12	Cocoa sagulo melakuvalu	Smt. E. Padma, Scientist (Hort.)	Dooradarshan Saptagiri, Hyderabad
12.11.12	Reasons for Button drop in coconut and its control	Dr. G. Ramanandam, Principal Scientist (Hort.)	Doora Darshan, Hyderabad
12.11.12	Measures to be taken for speedy recovery of banana in flood affected areas	Dr. G. Ramanandam, Principal Scientist (Hort.)	Doora Darshan, Hyderabad
3.12.12	Coconut Black headed cater pillar	Dr. N.B.V. Chalapathi Rao, Sr. Scientist (Ent.)	Doora Darshan, Hyderabad
24.12.12	Nutrition management in coconut	Dr. G. Ramanandam, Principal Scientist (Hort.)	ETV
29.12.12	Irrigation and moisture conservation practices in coconut	Dr. G. Ramanandam, Principal Scientist (Hort.)	Doora Darshan, Hyderabad
22.12.12	Cocoa pantanu aasinchu stem canker – teesukovalasina jagrathalu	Dr.A.Snehalatha Rani, Scientist (Pl.Path.)	ETV
22.12.12	Kobbarini aasinchu Nallamacha tegulu mariyu Movvakullu tegulu - teesukovalasina jagrathalu	Dr.A.Snehalatha Rani, Scientist (Pl.Path.)	ETV
2.01.13	Coconut Black headed cater pillar in coconut	Dr. N.B.V. Chalapathi Rao, Sr. Scientist (Ent.)	TV programme
10.1.13	Suitable coconut varieties for Andhra Pradesh State	Dr. G. Ramanandam, Principal Scientist (Hort.)	ETV
25.02.13	Friends of Coconut Tree training programme and its importance to overcome the shortage of coconut climbers in coconut cultivation	Dr. G. Ramanandam, Principal Scientist (Hort.)	Doora Darshan, Hyderabad
25.02.13	Irrigation management in coconut and moisture conservation through mulching (use of coconut leaf, husk and coirpith)	Dr. G. Ramanandam, Principal Scientist (Hort.)	Doora Darshan, Hyderabad
27.02.13	Kobbarilo Samagra Sasyarakshana	Dr. N.B.V. Chalapathi Rao, Sr. Scientist (Ent.)	Doordarshan kendra, Hyderabad
	Scented rose cultivation Jasmine cultivation	Dr.C.ChandrasekharaRao Associate Professor(Hort.)	Hyderabad





Date	Topic	Name of the Scientist	Recorded by
17-6-2013	Lilly poola saagu lo melakuvalu Seasonal measures in cultivation of turmeric Mango pests and diseases management	Smt.T.Suseela, Assistant Professor (Hort) Sri. K. Giridhar, Scientist (Hort) Smt D.Aparna, Scientist (Hort) & Head, MRS, Nuzvid	CVR TV ETV, Doordarshan, I news, HMTV
14.8.2012	Cassava fertilizer management, Weeding and Intercultivation	Dr.P.Ashok, Sci (Hort.) AICRP Tuber Crops	
14.8.2012	Cassava CMD control	Dr.P.Ashok, Sci (Hort.) AICRP Tuber Crops	
18.9.12	Betelvine diseases and management.	P. Rama Devi, Scientist (PP)	Doordarshan
12.9.2012	Thamalapaku thota ni aasinche purugulu mariyu sasyarakshana padhathulu.	P. Sunitha, Scientist (Ento.)	Doordarshan
05-09-2012	Kharif kuragayala sagulo thegulla yajananyam	Dr.M.Vijaya, Principal Scientist (PP)	DD-I
07-09-2012	Kharif kuragayala sagulo thegulla yajananyam	Dr.M.Vijaya, Principal Scientist (PP)	ETV
05-09-2012	Munaga Saagulo melakavalu	Dr.R.V.S.K.Reddv, Principal Scientist (Hort.)	DD-I
07-09-2012	Munaga Adhika digubadike suchanalu	Dr.R.V.S.K.Reddv, Principal Scientist (Hort.)	ETV
19-09-2012	Rabi Kuragayalosagulo melakuvalu	Dr.R.V.S.K.Reddv, Principal Scientist (Hort.)	DD-1
12-07-2012	Cultivation of leafy vegetables	Dr. M. Tirupathi Reddv, Scientist (Hort.)	ETV
12-09-2012	Carrot Saagulo melakuvalu	Dr. M. Tirupathi Reddv, Scientist (Hort.)	DD Saptagiri
06-08-2012	Teegajathi Kuragayalu and sasya rakshna	Dr. K. Sireesha, Scientist (Ento.)	ETV
05-02-2013	Pests and their management in water melon	Dr. K. Sireesha, Scientist (Ento.)	ETV
19-02-2013	Pests on summer vegetables and their management	Dr. K. Sireesha, Scientist (Ento.)	ETV
3-8-2012	Varshadhara kuragayala sagulo neeti yajamanyam	Dr. P. Madhavi Latha, Scientist (Agro.)	DD
3-8-2012	Varshadhara kuragayala sagulo neeti yajamanyam	Dr. P. Madhavi Latha, Scientist (Agro.)	DD
28-08-2012	Cabbage, Cauliflower sagulo adhika digubadiki suchanalu	Dr. P. Madhavi Latha, Scientist (Agro.)	DD
12-12-2012	Broccoli sagu vivaralu	Dr. P. Madhavi Latha, Scientist (Agro.)	DD
22-01-2013	Janavarylo vethukonutaku anukoolamaena tigajathi kuragayula rakala empika	Dr. P. Madhavi Latha, Scientist (Agro.)	DD-1
19-02-2013	Vesavi Kuragayula Sagulo niti yajamanyam	Dr. P. Madhavi Latha, Scientist (Agro.)	DD Sapatagiri





Date	Topic	Name of the Scientist	Recorded by
19-2-2013	Melyna niti yajamanyamtho kurgayulalo adika digubadalu	Dr. P. Madhavi Latha, Scientist (Agro.)	ETV
11-5-2012	Kharif saguku nanyamina narumadiki teesukovalasina Jagratthalu	Dr.B.K.M.Lakshmi, Scientist (Pl.Path.)	DD
18-5-2012	Kharif kuragayala sagullo melakuvalu	Dr.B.K.M.Lakshmi, Scientist (Pl.Path.)	DD-I
21-3-2012	Vesavilo Dumpa kuragayala sagu, melakuvalu	Dr.B.K.M.Lakshmi, Scientist (Pl.Path.)	DD-1
19-5-2012	Coverage of Rythu Chaithanya yathra at Raja Bollaramthanda, Medchal Mandal	Dr.B.K.M.Lakshmi, Scientist (Pl.Path.)	Citi Channel
5-1-2013	Kanda, Chema Dumpa Kurala sagu	Dr.B.K.M.Lakshmi, Scientist (Pl.Path.)	DD
4-5-2012	Vesavilo Arati totala yajamanyam	Dr.B.V.K.Bhagavan, Principal Scientist (Hort) & Head	Doordarshan
22-3-2013	Vesavilo Arati ThotalaYajamanyam	Dr.B.V.K.Bhagavan, Principal Scientist (Hort)	Doordarshan
27-12-2012	Management of micro nutrient disorders in Sweet orange	Dr. L. Mukunda Lakshmi, Scientist (Hort.)	DD8
13-6-2012	Dhanimmalo Sasyarakshana	Dr. K. Subramanyam, Principal Scientist (Plant Pathology)	DD
22-9-2012	Naanyamaina Dhanimma Pantaku Yajamanya Paddhathulu	Dr. K. Subramanyam, Principal Scientist (Plant Pathology)	DD

Krishi Vigyan Kendra, Ramagirikhilla

TV talks on

1. Pest and disease management in Ridge guard,
2. Stem application in cotton



c. Press Notes

Horticulture Polytechnic, Kalikiri

Green House sagu Bhale bagu	Eenadu	14-10-2012
Dharalu thaggina digulu padoddu	Eenadu	25-11-2012
Neti Nunchi Seva Karyakramalu	Eenadu	01-03-2013
100 Mandiki Vydyva Parikshalu	Eenadu	02-03-2013
200 Pasuvulaku Uchitha Vydyam	Eenadu	03-03-2013
Pachadanam – Parisubratapi Avagahana	Eenadu	04-03-2013
Tegullu Nivaranapi Mandula Tayari	Eenadu	08-03-2013

Horticultural Research Station, V.R.Gudem

Dr.P.Ashok, Sci (Hort.) AICRP Tuber Crops and P.Sinita, Sci (Ento)	Uses of Soil testing and Weed management in Elephant Foot Yam	Eenadu W.G.Dt edition on 17.05.2012.
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Guest Lecture

Floricultural Research Station, Rajendranagar

S.No.	Name of the Scientist	Designation	Topic	Beneficiaries
1	Dr. P. Lalitha Kameswari	Scientist (Hort.)	Commercial cultivation of flower crops	Students of college of Horticulture, Anantharajpet on 1/9/12
2	Dr. P. Lalitha Kameswari	Scientist (Hort.)	Cultivation of chrysanthemum gladiolus and tuberose	Farmers from Nalgonda district on 8/11/12
3	Dr. P. Lalitha Kameswari	Scientist (Hort.)	Improved cultivation practices of flower crops	Students of College of Horticulture, Bidar, UHS, Bagalkot on 11-12-12
4	Dr. K.Dhanumjaya Rao	PS(H) & Head	Improved practices on nursery management of flower crops	Field assistants at APARD, Hyderabad on 21-2-13
5	Dr. P. Lalitha Kameswari	Scientist (Hort.)	Production technology of flower crops	Polytechnic students of Horticulture Polytechnic college, Adilabad on 27-2-2013

SSPG Horticultural Polytechnic, Madakasira

Lecture on "Anti Plastics" was delivered by Sri. R.Preetham Goud, Assistant Professor (Agronomy) & NSS Programme Officer on 12th June 2012 at Agriculture Polytechnic, Madakasira.

Field Visits

Horticulture Polytechnic, Kalikiri

On 06-03-2013 insect pests and diseases in Tomato, Papaya and Mango gardens at Sanyasivandlapalli.

Kisan Mela

HRS, Mahanandi

The first Kisan Mela was held on dt:07-04-2012 at Horticultural Research Station, Mahanandi. The programme was presided by Dr. K. Gopal , Zonal Research Head, CRI, Rayalaseema Zone, Tirupati. Dr. B. Sreenivasulu, Senior Scientist , (Hort) , HCRI, Anantharajupet, Dr..M.L.N. Reddy, Associate Dean, HCRI, Anantharajpet, Dr. Ch.Ruth, Scientist (Pl.path) & Head, Sri. D.Sreedhar, Scientist (Hort) and Sri. Y.Subba Rao, Scientist, (Ento) of HRS, Mahanandi were participated.



Dr. Muniratnam, In-charge Associate Director of Research, RARS, Nandyal ANGRAU, Dr. Ravindranath Reddy, Associate Dean, Agriculture College, Mahanandi, Dr. R. Gangavar, Senior Technical Officer, NHRDF, Sri. Mallikarjuna Setty, Associate Director of Agriculture, Nandyal, Smt. Sujatha, Horticulture Officer, Kurnool, Sri. Raghunath Reddy, PD, APMIP, Sri. Bojja Dasaratha Rami Reddy, Bojja Venkata Reddy Foundation, Nandyal, Sri. Chandra Sekhar Reddy, President of Nandi Rythu Samakhya were also participated.

In technical session, Dr. M.L.N.Reddy, Associate Dean, Dr. B. Sreenivasulu, Senior Scientist, (Hort) HCRI, Anantharajpet and Smt. T. Vijayalakshmi, Scientist, Lam, Guntur interacted with farmers about the production and plant protection aspects of Horticultural crops Mango, Onion and Chillies in Kurnool district.

In this programme farmers Hussain, Eswariah from Mahanandi Mandal and they demanded about the production of tissue culture with sugandham variety. Quiz programme was conducted to farmers and prizes were distributed to the winners. Certificates were issued to the participation of Line Departments.

College of Horticulture, Rajendranagar

Kisan mela was organised by RAWEP students (girls) on 29.12.12 at Kalimula village, Medak district. It was inaugurated by Dr Rajkumar, Head and Principal Scientist, FRS, Sangareddy.



H. RYTHU SADASSUS

Krishi Vigyan Kendra, Ramagirikhilla

Participated in 5 Rythu sadassu programmes covering 1287 farmers in 5 divisions of the district.

Krishi Vigyan Kendra, Pandirimamidi

On 13.05.2013 Dr. A.Srinivas, Programme Coordinator, Krishi Vigyan Kendra, Pandirimamidi participated in divisional Rythusadassu organized by department of Agriculture at Jaggampeta division East Godavari district.

On 14.05.2013 Sri. V. Govardhan Rao, SMS (Plant Protection) participated in divisional Rythusadassu organized by department of Agriculture at Krishinunipalem division East Godavari district.

On 20.05.2013 Dr.A.Srinivas, Programme Coordinator, Sri B.Bhaskar Rao, SMS (Horticulture), Sri V.Govardhan Rao, SMS(Plant Protection), Dr.K.Dhanasree, SMS(Home Science) participated in divisional Rythusadassu organized by department of Agriculture at Rampadhodavaram division East Godavari district. Exhibition stall has been displayed on latest technologies for the benefit of farmers.

Horticultural Research Station, Mahanandi

Dr.Ch.Ruth, Scientist (pl.path) & Head and Sri. D. Sreedhar, Scientist (Horticulture) HRS, Mahanandi participated in 50th Anniversary of Nandi Rythu Samakhya, Nandyal HRS, Mahanandi arranged exhibition stall and sale Udyanapanchangam books 2012 for the benefit of the farmers dt:22-06-2012 and Local MLA and MP , Nandyal and farmers visited the exhibition stall.

College of Horticulture, Rajendranagar

RAWEP students of College of Horticulture, Rajendranagar. Organised Rythu sadassu on 7-1-2013 at Vaddireddigudem village of Gurrampodu mandal, Nalgonda (Dist)

Vegetable Research Station, Rajendranagar

Dr.M.Vijaya, Principal Scientist (Pl.Path.), Dr.N.Hariprasada Rao, Principal Scientist (Horti.), Dr.RVSK Reddy, Principal Scientist (Hort.), Dr.B.K.M.Lakshmi, Scientist (Pl.Path.), Dr.M.Thirupathi Reddy, Scientist (Hort.) and Dr.P.Madhavi Latha, Scientist (Agro.) visited the villages viz., Chittigidda, Karelli, Mulamada and Keshavapalli of Vikarabad mandal for Rythu sadassu programme conducted by RAWEP students on 17.12.2012.

Horticultural Research Station, Ambajipeta

Sl.No.	Date	Topic	Village	Scientist participated
1.	27.04.12	Surveyed the on and observed the incidence of basal stem rot disease.	Komaragiripatnam of East Godavari District	Dr. N.B.V.Chalapathi Rao & Dr. A. Snehalatha Rani
2.	11.04.12	Zonal Research and Extension Advisory Committee meeting for Kharif 2012 organized by Acharya N.G.Ranga Agricultural University	Tadepalligudem, West Godavari District	Dr. G. Ramanandam and Dr. N. B. V. Chalapathi Rao
3.	25.04.12	Field diagnostic survey in villages and observed the incidence of coconut slug caterpillar	Ganti, Kommanapalli and Odalarevu	Dr. G. Ramanandam and Dr. N. B. V. Chalapathi Rao
4.	23.04.12	A review meeting being organized by Abhyudaya Karshaka Parishad, Mukkamala in collaboration with ollabaration y idence of, NABARD	Mukkamala	Dr. G. Ramanandam Principal Scientist (Hort.) & Head
5.	18.10.12	Attended rythu sadassu on Biodiversity vyavasayam at being organized by the Abhyudaya Karshaka Parishat and RAWEP students of College of Horticulture and Research Institute, VR Gudem.	Mukkamala village of East Godavari Dist.	Dr. G. Ramanandam, Principal Scientist (Hort.) & Head and Dr. N.B.V. Chalapathi Rao, Senior Scientist (Ent.)



HRS, Mallepally

Organised Rythu saddassu at Gurrampode village, along with allotted RHWEF students and educated the farmers in various techniques in plant production & plant protection.

S. No.	Venue	Date	Name of the Scientist Participated
1	Gurrampode village, Nalgonda Dist.	05.03.2013	1. Dr. D. Manohar Prasad, Principal Scientist (Horti.) 2. Dr. T. Suresh Kumar, Scientist (Horti.) 3. Ch. S. Kishore Kumar, Scientist (Pl. Path)
2.	Mella Duppalapally, Nalgonda	04.06.2012	Dr. T. Suresh Kumar, Scientist (Horticulture)

HC & RI, Venkataramannagudem

Dr.D.R.Salomi Suneetha, Associate Professor has got letter of appreciation for involvement in organizing the Rythu Sadassu on 'Agriculture-Biodiversity' organized by NABARD, ATTF, Abhyudaya Karshaka Parishat, Mukkamala, Ambajipet.

Krishi Vigyan Kendra, Venkataramannagudem

On 06.04.2013 Dr.M.B.Nageswara Rao, Director of Extension, Dr. YSRHU, V.R.Gudem, Dr. E.Karunasree, Programme Co-ordinator, Sri Ch.Kiran Kumar, SMS (SSAC) and Dr.K.Vijay Prakash, SMS(Vety.Sci.) participated Rythu sadassu at RARS, Marteru.

On 10.05.2013 Dr.E.Karunasree, Programme Co-ordinator, Sri N.Veerabhadra Rao, SMS(Fisheries), Sri Ch.Kiran Kumar, SMS(SSAC) and Dr.K.Vijay Prakash, SMS(Vety.Sci.) participated and stall arranged of KVK in Rythu sadassu at Dr.YSRHU Horticultural University, Venkataramannagudem.



Horticultural Research Station, Lam

Date	Name of the village	Name of the Scientist	Topics covered
22-4-2013	Jonnalagadda	Smt.T.Vijaya Lakshmi, Scientist (Path)	Chilli production technology
22.4.2013	Kammavarialem & Govindapuram	Sri. K. Giridhar, Scientist (Hort)	Production technology of different horticultural crops
23-4-2013	Changiskhanpet & Gopalpuram	Sri. K. Giridhar, Scientist (Hort)	Production technology of different horticultural crops
23-4-2013	Gorantla	Smt.T.Vijaya Lakshmi Scientist (Path)	Package of practices of important vegetables viz tomato, cucurbits and bhendi
24-4-2013	Srungarapuram	Smt.A.Rajani, Scientist (Hort)	Production technology of vegetables
25-4-2013	Narakoduru	Smt.A.Rajani, Scientist (Hort)	Production technology of vegetables
25-4-2013	Tokavaram & Mallavaram	Smt.T.Vijaya Lakshmi Scientist (Path)	Management practices to be taken for the quality chilli
25-4-2013	Endrai & Lemellapudi	Dr.C.Sarada, Senior Scientist (Hort)	Package of practices of chilli
26-4-2013	Pedapalalaluru	Smt.T.Vijaya Lakshmi Scientist (Path)	Chilli production technology



Date	Name of the village	Name of the Scientist	Topics covered
26-4-2013	Lakshmana-gudipudi	Dr.C.Sarada, Senior Scientist (Hort)	Package of practices of chilli
29-4-2013	Nallapadu & Turakapalem	Smt.T.Vijaya Lakshmi Scientist (Path)	Chilli production technology
30-4-2013	Ankireddypalem, Challavaripalem	Smt.T.Vijaya Lakshmi Scientist (Path)	Pest and disease management of different vegetable crops
9-5-2013	Guntur	All the scientists of HRS, Lam	Important horticultural crops of the district
1-5-2013	Vengalayapalem	Smt.T.Vijaya Lakshmi Scientist (Path)	Chilli production technology
2-5-2013	Lalpuram & Lingayapalem	Smt.T.Vijaya Lakshmi Scientist (Path)	Management practices to be taken for the quality chilli
3-5-2013	Pothuru & Obulanaidupalem	Smt.T.Vijaya Lakshmi Scientist (Path)	Pest and disease management of different vegetable crops
7-5-2013	Khambhampadu and Parsha	Dr.C.Venkata Ramana, Scientist (Hort)	Chilli production technology
8-5-2013	Lingapuram and Bholusupadu	Dr.C.Venkata Ramana, Scientist (Hort)	Chilli production technology

Dr.C.Venkata Ramana, Scientist(Hort) attended farmers training programme as resource person on Chilli production technology organized by Dept of Horticulture, Guntur on 6-4-13.

Mango Research Station, Nuzvid

Smt D. Aparna, Scientist (Hort) MRS, Nuzvid participated in Best Farmers club meeting conducted by NABARD at Vijayawada on 17-4-12.

Smt D. Aparna, Scientist (Hort) MRS, Nuzvid participated in divisional Rytu sadassu conducted on 10-5-13 at V.R. Gudem, W.Godavari district.

Smt D. Aparna, Scientist (Hort) MRS, Nuzvid participated in divisional Rytu sadassu conducted on 16-5-13 at Vijayawada division in Krishna district.

Turmeric Research Station, Kammarapally

Participated in **RYTU SADASSU** conducted at Bodhan,Nizamabad and Kamareddy divisions of Nizamabad district and delivered lecture on Production and Protection practices of Turmeric.

I. RYTHU CHAITANYA YATRAS

Medicinal & Aromatic Plants Research Station, Rajendranagar

Dr T. Susila, Scientist (Hort.) has participated in RCY in the following villages from 17th May to 31st May 2012 in Rangareddy district.

Date	Mandal	Village	No.of farmers participated
17-5- 2012	Moinabad	Yenakapalli Himayathnagar	3248
18-5-2012	Moinabad	Aziznagar Bangaliguda	5829
22-5-2012	Shamshabad	Palmakula	47
23-5-2012	Shamshabad	Sultanpalli	26
25-5-2012	Shamshabad	Ramanapur	46
29-5-2012	Shamshabad	Amidullanagar	48
31-5-2012	Shamshabad	Muchinthal	41





Floricultural Research Station, Rajendranagar

Dr.P.Lalitha Kameswari, Scientist (Hort.) participated in the Rythu Chaitanya Yatras from 15-5-2012 to 25-5-2012 at different villages of Shabad mandal and answered the queries of the farmers.

Dr. A.L.N. Prasad, Sr. Scientist (Pl.Phy) participated in the Rythu ChaitanyaYatras at Maheswaram mandal and answered the queries of the farmers.

CRS, Tirupati

Dr.K.M.Yuvaraj, Senior Scientist (Hort.) and Smt. G.Sarada, Scientist (Ent) attended RCY in Madanapalli and Tirupati Divisions (17-05-2012 to 30-5-2012).

HRS, Mallepally

S.No.	Date	Venue	Scientist Participated/Attended
1	28.05.2012	Ouravani Nalognda Dist.	Dr. T. Suresh Kumar, Scientist (Horti.,)

Krishi Vigyan Kendra, Ramagirikhilla

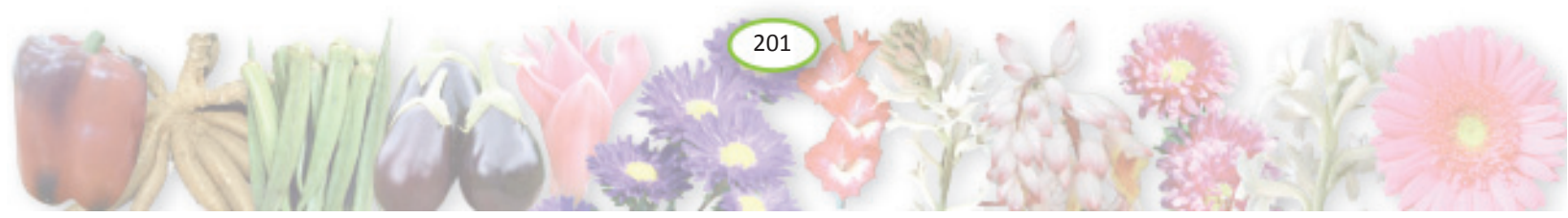
Participated in 23 Rythu Chaitanya Yatra programmes from 10.5.2012 to 30.5.2012 in 4 mandals of Mahadevpur division of Karimnagar district.

TRS, Kammarapally

Participated in **Rythu Chaithanya Yatralu** and suggested farmers about the production and Protection practices of the Horticultural crops.

Krishi Vigyan Kendra, Pandirimamidi

S.No.	Date	Scientist participated	Village/Mandal	Topics covered
1	22-04-2013	Dr.A.Srinivas Sri V.Govardhan Rao	Koyalagudem village, Rakota Rampachodavaram mandal	Kitchen gardening SRI cultivation, Pest and disease management in Paddy, high yielding varieties in Paddy
2	23-04-2013	Dr.A.Srinivas	Peda Geddada village Rampachodavaram mandal	Backyard poultry, high yielding varieties of Paddy, Turmeric, Cashew grafts, women empowerment & Maize cultivations & activities of KVK
3	23-04-2013	Sri V.Govardhan Rao	Indukuru, M.Ravilanka, Lothupalem, Pedha bheempalli villages Devipatnam mandal	Package of practices in Maize, Pest & disease management in Paddy, high yielding varieties in Paddy
4	24-04-2013	Dr.A.Srinivas	Busigudem village Rampachodavaram mandal	Backyard poultry, high yielding varieties of Paddy, Turmeric, Cashew grafts, women empowerment & Maize cultivations & activities of KVK
5	24-04-2013	Sri V.Govardhan Rao	Devaram, Pothavaram villages Devipatnam mandal	Package of practices in Maize, Pest & disease management in Paddy, high yielding varieties in Paddy
6	25-04-2013	Sri V.Govardhan Rao	Sarbhavaram, Uppayyapalem, Kambalapalem villages Devipatnam mandal	Package of practices in Maize, Pest & disease management in Paddy, high yielding varieties in Paddy
7	26-04-2013	Sri V.Govardhan Rao	Pudipalli, Gonduluru, Anguluru, Nelakota	Package of practices in Maize, Pest & disease management in Paddy, high yielding varieties in Paddy





S.No.	Date	Scientist participated	Village/Mandal	Topics covered
8	27-04-2013	Sri V.Govardhan Rao	Bandapalli, Tatiwada villages Rampachoda varam mandal	Package of practices in Maize, Pest & disease management in Paddy, high yielding varieties in Paddy
9	29-04-2013	Dr.A.Srinivas	Marriwada village Rampachodavaram mandal	Backyard poultry, high yielding varieties of Paddy, Turmeric, Cashew grafts, women empowerment & Maize cultivations & activities of KVK
10	29-04-2013	Sri V.Govardhan Rao	Devipatnam, toyyuru, Ganugulagondi, Agrahram, Yenugulagudem villages Devipatnam mandal	Package of practices in Maize, Pest & disease management in Paddy, high yielding varieties in Paddy

HRS, Mahanandi

Dr.Ch.Ruth, Scientist (Pl. Path) & Head participated in Rythu chaithanya yatra prgramme in Mahanandi Mandal and explained the package and practices of Banana , turmeric crops.

Date	Place of visit
14-05-2012	Thimmapuram
16-05-2012	Gopavaram
17-05-2012	Gajulapalli
19-05-2012	Srinagaram
21-05-2012	Mahanandi
24-05-2012	Abbipuram

HRS, Pandirimamidi

S.No.	Date	Revenue village / Habitation	Resource person	Topic covered
1.	14.05.12	Vadapali & Madicherla	Dr.K.Rajendra Prasad Scientist (Hort)	Mango Rejuvenation & Cashew Production
2.	15.05. 12	Koyyalagudem	Dr.K.Rajendra Prasad Scientist (Hort.)	Cashew Rejuvenation & Turmeric production
3.	16.05. 12	Bandapailli	Dr.K.Rajendra Prasad Scientist (Hort.)	Rain water harvesting and its management cashew
4.	18.05. 12	Tamarapalli & Burugubanda	Dr.K.Rajendra Prasad Scientist (Hort)	Cashew Production Turmeric production
5.	21.05. 12	Vootla	Dr.K.Rajendra Prasad Scientist (Hort.)	Precautions after Harvest in Cashew
6.	25.05. 12	I.Polavaram & Irlapalli	Dr.K.Rajendra Prasad Scientist (Hort.)	Mango Rejuvenation & Cashew Production
7.	25.05. 12	Musurumilli & Bornagudem	Dr.K.Rajendra Prasad Scientist (Hort)	Mango Rejuvenation & Cashew Production
8.	29.05. 12	Folkspeta	Dr.K.Rajendra Prasad Scientist (Hort.)	Cashew Production & Marigold production technology
11.	30.05. 12	Rampa & Nadiveedhi	Dr.K.Rajendra Prasad Scientist (Hort.)	Mango Rejuvenation & Cashew Production
12.	31.05. 12	Marrivada & Daramadugula	Dr.K.Rajendra Prasad Scientist (Hort)	Precautions after Harvest in Cashew





VRS, Rajendranagar

Dr.R.V.S.K.Reddy, Principal Scientist (H) Attended Rythu Chaitanya Yatra from 14-05-2012 to 30-05-2012 in villages of Moinabad mandal, Vikarabad mandal, and Nawabpet mandal.

Dr. Hameedunnisa Begum, Senior Scientist, (Hort.) Participated as a resource person in RCY programme from 14-05-2012 to 31-05-2012 in difference villages in Shabad mandal.

Dr. K. Sireesha, Scientist (Ento) attended Raythu Chaitanya Yatra from 15-05-2012 to 31-05-2012 at Sankarapalli mandal.

Dr. Veena Joshi, Scientist (Hort.) Participated in Raitu Chaitnya Yatra from 14th to 31st May 2012 at Maheswaram and kandukuru mandals.

Dr. P. Madhavi Latha, Scientist (Agronomy) attended Rythu Chaitanya Yatra from 12-05-2012 to 31-05-2012 at Shamshabad mandal, clarified the doubts of farmers in vegetable cultivation regarding nursery management, seed selection, weed management, fertilizer management and pest and disease problems.

Dr. B.K.M. Lakshmi, Scientist (Pl.Path.) Participated in Raitu Chaitnya Yatra from 15-05-2012 to 31-05-2012 in Shameerpet and Keesara mandals.

FRS, Sangareddy

Dr.M.Raghava Rao, Principal Scientist (Hort), Dr.A.Bhagwan, Senior Scientist (Hort), Dr. A. Kiran Kumar, Sr. Scientist (Hort), Sri B.Mahender, Scientist (Pl.Path) and Smt K.Prabhavathi, Scientist (SS & AC) have attended the RCY, 2012.

Krishi Vigyan Kendra, Venkataramannagudem

S.No.	Date	Scientist participated	Village
1	22.04.2013	Sri Ch.Kiran Kumar, SMS(SSAC)	Telikicherla
2	23.04.2013	Sri Ch.Kiran Kumar, SMS(SSAC)	Chodavaram
3	23.04.2013	Dr.E.Karunasree, Programme Co-ordinator	Kondrupolu & chinnatadepalli
4	25.04.2013	Sri Ch.Kiran Kumar, SMS(SSAC)	Koyyalagudem
5	25.04.2013	Dr.K.Vijay Prakash, SMS(Vety.Sci.)	Koyyalagudem
6	26.04.2013	Sri N.Veerabhadra rao, SMS(Fisheries)	Unguturu, Narayanapuram
7	26.04.2013	Dr.K.Vijay Prakash, SMS(Vety.Sci.)	Achannapalem
8	26.04.2013	Sri Ch.Kiran Kumar, SMS(SSAC)	Kaldari, Chodavaram
9	27.04.2013	Dr.K.Vijay Prakash, SMS(Vety.Sci.)	Pothureddypalem
10	01.05.2013	Dr.E.Karunasree, Programme Co-ordinator	A.Gokavaram
11	01.05.2013	Sri Ch.Kiran Kumar, SMS(SSAC)	A.Gokavaram
12	01.05.2013	Sri N.Veerabhadra rao, SMS(Fisheries)	A.Gokavaram
13	03.05.2013	Sri N.Veerabhadra rao, SMS(Fisheries)	Rachuru, Sithampuram

MRS, Nuzvid

Smt D. Aparna, Scientist (Hort), MRS, Nuzvid participated in Rythu Chaitanya Yatra's in Reddygudem, Mylavaram, G.Konduru, Vissannapeta, Chaatrai mandals, Krishna Dt from 25-5-13 to 30-5-13.

Name of the Scientist	Date& Villagevisited	Issue
Dr.P.Ashok, Sci (Hort.) AICRP Tuber Crops	15.05.2012 Neeladripuram	Identified coconut gummosis and bag worm and recommended control measures
Dr.P.Ashok, Sci (Hort.) AICRP Tuber Crops	17.05.2012 Pattim palem	Scorching on leaves of E.F.yam due to weedicide spray
Dr.P.Ashok, Sci (Hort.) AICRP Tuber Crops	19.05.2012 Ramannagudem and Peda tadepalli	CMV in cucumber and papaya mealy bug was observed
Dr.P.Ashok, Sci (Hort.) AICRP Tuber Crops	25.5.2012 Dubhacherla	Explained control of Red palm weevil in oilpalm and coconut



**AICRP on MAP & Betelvine, V.R.Gudem**

P. Rama Devi, S(PP) B. Tanuja Priya, S(H) P. Sunitha, S (Ento.) participated in RCY from 15.05.2012 to 31.05.2012 in Tadepalligudem & Nallajerla mandals.

HRS, Kovvur

From 17th to 30th May, 2012 all scientist of HRS, Kovvur participated in Rythy Chaitanya Yatra in the following centres.

Center	Name of the participant	Date
Sanjeevapuram	Dr. T. Rajasekharam	17.5.12
Dommeru	Smt R. Naga lakshmi	17.5.12
Hukumpeta	Dr. T. Rajasekharam	18.5.12
Vemulur	Smt R. Naga lakshmi	18.5.12
Pallantla	Dr.M.M.Naidu	19.5.12
Nandamur	Smt R. Naga lakshmi	19.5.12
Chagallu	Dr. B V K. Bhagavan	21.5.12
Rampalem	Dr. T. Rajasekharam	21.5.12
Pasivedala	Smt R. Naga lakshmi	21.5.12
Jaganathapuram	Dr. T. Rajasekharam	22.5.12
Thogummi	Smt R. Naga lakshmi	22.5.12
Bheemoli	Dr. T. Rajasekharam	23.5.12
Chidipi	Smt R. Naga lakshmi	23.5.12
Karicherlagudem	Dr. T. Rajasekharam	29.5.12
Dondapudi	Dr. T. Rajasekharam	30.5.12

J. VILLAGE ADOPTION PROGRAMME**Krishi Vigyan Kendra, Ramagirihilla**

Adopted 4 villages viz., Nagaram, Kajipalli, Kalvacherla and Rathnapur. Conducted PRA for identification of resources, problems, technological gaps, possible solutions there by implementation of KVK programmes.

Horticultural Research Station, Ambajipeta

Eighteen RAWEP students (Girls) from College of Horticulture, Venkataramannagudem were trained at HRS, Ambajipeta regarding production and protection technologies of coconut and its inter crops under the guidance of Dr.G.Ramanandam Principal Scientist (Hort.) & Head, Dr.N.B.V.Chalapathi Rao, Senior Scientist (Ent.), Smt. E.Padma, Scientist (Hort.), Dr.A.Snehalatha Rani, Scientist (Pl.Path.). The students were positioned in two different villages (Gangalakurru & Mukkamala) for learning field experiences on local horticultural crops.

Krishi Vigyan Kendra, Ramagirihilla**On Farm Testings (OFTs)**

Six On Farm Testings were conducted under technology assessment in different agricultural and horticultural crops. The results are as follows.

Horticulture**OFT 1: Introduction palak variety All green:-**

Yield increase of 1.79 t/ha over local variety Ld better (10.04t/ha) was recorded.



OFT 2: Spraying of potassium nitrate @10g/l to induce uniform flowering and fruiting in mango:-

Yield data was not yet obtained.

OFT 3: Introduction of marigold variety pusanarangi ginda:-

Increased yield of 2.39 t/ ha over local variety, Sadan (7.12t/ha) was recorded.

Plan protection

OFT 1: effective management of midge in chillies:

On farm testing on effective management of midge in chillies was conducted by spraying of Carbosulphan @ 2ml/l followed by Chloropyiphos @ 2.5 ml/l at flowering stage. The assessed technology was showed effective with 73.96% reduction of damage and increased net profit of Rs.23000/ ha over framers practice of acephate @1g/l.

OFT 2: Evaluation of performance of multi tolerant fine grain rice variety, JGL – 11727 vs BPT – 5204 :

The assessed variety JGL-11727 performed well with cost saving of Rs.4800/ ha towards pest management and increased net profit of Rs.14400/ha over BPT – 5204 with yield increase of 650 Kg/ha.



Field view of OFT Rice variety, JGL-11727

OFT 3: Management of grain discolouration in rice:-

Foliar spraying of proferonophos @ 2m/l was done at boot leaf stage for panicle mite control and recorded 2.2% of damage where as 6.4% damage was recorded in farmers practice.



Long healthy panicles of OFT Rice variety, JGL-11727



Prunig of Mango with normal secateur



Prunig of Mango with long handle secateur



Damage caused by midge in farmers practice



Damage fruits collected on a single plant in control plot

Front Line Demonstrations

(FLDs): Nine Front Line Demonstrations were conducted with new and recommended technologies identified to solve the location specific problems in major crops. The performance of FLDs is as follows.

Horticulture

FLD 1: Weed management in Tomato: Spraying of Pendimethalin @5ml/l at 24 hrs after transplanting and Metribuzin @ 1.5g/l at 15 – 20 DAT was done and cost saving of Rs.7400 / ha compared to hand weeding was obtained.

FLD 2: Nutrient Management in Tomato: Foliar spraying of Mgso4 @ 2g/l + Zinc sulphate @ 5 g/l + Borne 1g/ l for 3 times during flowering was done and yield increase of 36.78% over control (299 q/ ha) was obtained.

FLD 3: Boron Management in Water melon: Foliar spraying of Borax @ 3g/l at 3 - 4 leaf stage and at 50 DAS was done and yield increase of 20.3% over control (270 q/ ha) was achieved.





Field view of FLD tomato plot at fruiting stage



A happy FLD farmer in his good bearing tomato field



Spraying of Pendimethalin as pre-emergence herbicide in tomato under FLD



Spraying of Metribuzin as post emergence herbicide in tomato

Plan protection

FLD 1: Sucking pest management in cotton: Sucking pest management in cotton by using stem application with imidacloprid at 20, 40 and 60 DAS was done and cost saving of Rs.2500 / ha was achieved.



Stem application by women farmer in FLD field



Method demonstration of Stem application



Field view of FLD-Sucking pest management in Cotton



Installation of sticky traps in FLD field



Severe jassid infestation in Farmers Practice



Healthy growth after stem application in FLD field

FLD 2: Wilt management in chillies: Wilt management in chillies by using *Tricoderma viridi* @5kg/ ha + neem cake 25 Kg + 225 Kg vermicompost was done and only 8% of wilt incidence was observed in FLD compared to 32% incidence in farmers practice which resulted in yield increase of 1000 Kg / ha.



Field view of FLD- Control of wild in chillies

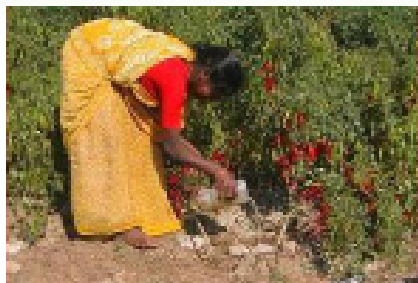


Treated FLD plot without wilt incidence



Preparation of *Tricoderms viridi* for application





Drenching with C.O.C after wilt incidence



Field view of FLD & Farmer Practice by side



Severe incidence of wilt in Farmers Field

FLD 3 : ICM in soybean: ICM in soybean was conducted with JS – 335 variety and obtained net profit of Rs.11000 / ha.

FLD 4 : Drum seeding method of rice: Drum seeding method of rice was demonstrated and saved cost of cultivation of Rs.6600/ha.



Sowing of seed with Drum seeder in FLD field



Field view of FLD - Drum seeding of Rice

FLD 5: Zero tillage method of maize: Zero tillage method of maize cultivation was conducted and saved cost of cultivation of Rs.5800 / ha.



Marking with rope for sowing of Maize after rice



Field view of Zero Tillage Maize at knee height stage



Paddy stubbies spread as mulch and saved water



Healthy crop with uniform spacing and good girth

FLD 6: Zinc deficiency management in Rice: Foliar spraying of zinc sulphate @ 2g/l for 2times was demonstrated and achieved increased yield of 600 Kg / ha over control 4600 Kg / ha.



Poor growth due to Zinc deficiency in Farmers Practice



Farmers are happy with their healthy FLD fields

Krishi Vigyan Kendra, Pandirimamidi – Instructional farm development

Backyard Poultry Unit

Established Backyard poultry demonstration unit to take up the technology of scientific backyard poultry production with improved variety Vanaraja and the birds were given timely vaccination, treatment etc., up to 30 days. Krishi Vigyan Kendra supplied 6000 no's of Vanaraja (30 days old) 600 tribal families in agency area of Rampachodavaram division in East Godavari District. The tribal women received 50% financial assistance from ITDA, Rampachodavaram to all the beneficiaries.



Distribution of Vanaraja birds to tribal farm women



Distribution of Vanaraja birds to tribal farm women through





S.No.	Name of the Mandal	No.of. Families covered	No.of Birds supplied
1	Rampachodavaram	270	2700
2	Maredumilli	79	790
3	Devipatnam	45	450
4	Gangavaram	55	550
5	Addateegala	47	470
6	Y.Ramavaram	74	740
7	Rajavommangi	30	300
	Total	600	6000

Cashew Grafts Production Programme at KVK, Pandirimamidi

To supply of quality cashew grafts to the farmers Krishi Vigyan Kendra, Pandirimamidi started Cashew grafts production nursery unit with support from ITDA-Rampachodavaram under E.Godavari District under M NREGS, 2011-12. In this programme 50,000 root stocks were raised, 41,650 root stocks were grafted and 18,960 no’s of Cashew grafts were supplied to tribal farmers through ITDA Rampachodavaram.



Cashew Grafts Production Unit



Dr.M.B.Nageshwara Rao, DE, Dr.YSRHU-Visit to Cashew Nursery

One Lakh Cashew grafts production at Krishi Vigyan Kendra, Pandirimamidi is initiated through ITDA – MNREGS - 2012-13. Two lakhs seedlings were raised, 1,66,600 root stocks were grafted and 80,000 Cashew grafts will be ready to distribute to tribal farmers upto August-2013.

Aquaculture in Bhupathipalem Reservoir in Rampachodavaram division

Bhupathipalem Reservoir Scheme is a Medium Irrigation Scheme across Seethapalli Vagu near Bhupathipalem (V) in Rampachodavaram (M) of East Godavari (D). It is proposed to serve an ayacut of 12100 acres (4897 Ha.) in two mandals of Rampachodavaram and Gangavaram. In addition 31 tribal villages will get drinking water facility enroute canal length of 31.5 Km. Due to construction of this project 3 villages namely Gandhinagaram, Kothapakalu, Suddagommu and 147 tribal families were affected. To improve the socio – economic conditions & livelihood income of the effected 147 tribal families through Reservoir Management on 15 December, 2012 Two lakhs Fish Fingerlings stocking was done with financial support from ITDA, Rampachodavaram & Department of Fisheries, East Godavari District.

Inter State Exposure Visit cum Training Programme on Scientific Rearing Practices on Goat farming from 21st to 23rd Feb, 2013

On 19th February, 2013 Inter State Exposure Visit cum Training Programme on Scientific Rearing Practices on Goat farming to Krishi Vigyan Kendra, Hosangabad, JNKVV, Madya Pradesh was flagged and started by Smt C. Nagarani, Project Officer, ITDA, Rampachodavaram & Sri Seetarama Raju, Project Director – ATMA, sponsored by ATMA, East Godavari District, Andhra Pradesh, organized by Krishi Vigyan Kendra, Pandirimamidi, Rampachodavaram, East Godavari District. Total 21 tribal farmers from 7 mandals of Rampachodavaram division of East Godavari district were participated in this programme. This programme was conducted to create the awareness on traditional & commercial rearing practices of goats and to show the different Goat breeds which were suitable for agency area. We are also conducted group discussions with local tribal people to exchange their ideas regarding goat farming & marketing. During the training programme visited Govt. Goat breeding farms at Ketlapur, Itarsi and visited private goat farms.



Interstate Exposure Visit cum Training Programme on “ Scientific Rearing Practices on Goat farming





Krishi Vigyan Kendra, Venkataramanagudem

On Farm Testing and Front Line Demonstrations

OFT-1: Weed management in direct sown paddy: On Farm Trail in Velivenu village was conducted for Rabi 2012-13 in the field of Sri. S. Venkataratnam by Sri. Ch. kiran kumar SMS (Soil Science & Agriculture Chemistry) and Dr. E. karuna Sree Programme Coordinator, KVK, VRgudem. In this trial we suggested for application of Sathi(Pyrhizo sulphuron Ethyl) + 2,4-D Salt is found effective against farmers practice (Hand weeding + Bis pyribac sodium).

OFT-2: Soil test based N, P, K and Zinc application in Maize : The trial was conducted in Chodavarm and Jaggannapet Villages in the fields of N. Subba Rao and Rama krishna respectively by Sri. Ch. kiran kumar SMS (Soil Science & Agriculture Chemistry) and Dr. E. karuna Sree Programme Coordinator, KVK, VRgudem. In this trial we reduced the cost of cultivation by reducing the indiscriminate & excessive use of fertilizers by suggesting optimum fertilizer doses to the farmers.

OFT-3: Performance of bio fertilizers in Black Gram : Telikicharla and Chodavaram Villages of Nallajerla mandal were selected for the trial. Sri. N. Rammohan's and Sri. C. Bulliraju fields were selected for the trial and black gram seed pu-31 was made available to the farmers. Use of Rhizobium Culture for seed treatment and PSB for soil application after multiplication with FYM + Vermicompost. In this trial we suggested integrated nutrient management in Pulses.

OFT-4: Introduction of Fodder Sorghum - Co FS 29 (Nitya Jonna) : The improved fodder variety Co FS 29 was introduced to assess the performance against the Co FS 27 variety in ten locations of 0.20 ha each, namely D. Mutyala Rao, N. Satya Narayana- Vrgudem, V. Subba Rao, G. Ravi – Nallajerla, K. Vikranth Kumar – Dwaraka Tirumala, V.V. Rammohan-Telikicharla, K. Chalapathi Rao- Muddappagudem, S. Rambabu-Gunjagavaram, and A. Mahesh – Beemeswar Rao- Lakkavaram by Dr. K. Vijaya prakash SMS (Vety. Sci.) and Dr. E. karuna Sree Programme Coordinator, KVK, Venkataramannagudem. It was concluded that one main crop with 4 ratoons was recorded with an average yield of 68 Tonnes in five cuttings. Farmers were happy to take to ratoons in Co FS 29 which is not possible in local variety Co FS 27.

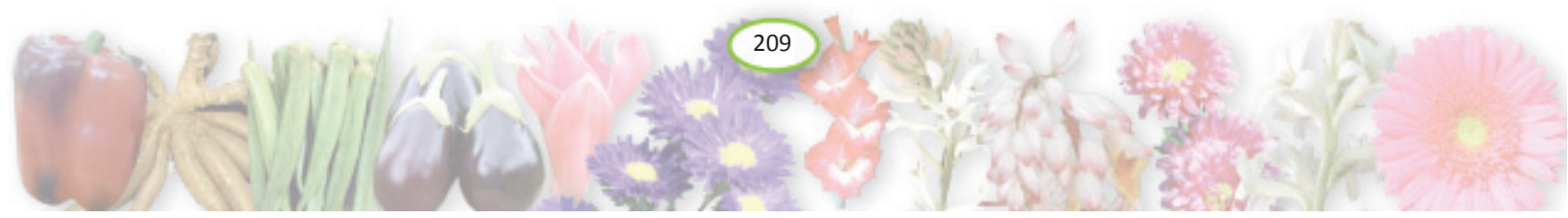
OFT-5: Fertility improvement by Standardized Ovsynch protocol: Twelve animal were selected to test the Ovsynch protocol by conducting 4 animal health camps in Telikicharla, Chodavram, Settipet and pullala padu villages of KVK operational area.

S.No.	Name of the Village	No. of Farmers	No. of animals	Results
1	Chodavaram	3	3	2 animal found positive for the protocol
2	Telikicharla	3	3	No positive results
3	Settipeta	3	3	
4	Pullapadu	3	3	Continuing

OFT-6: Evaluation of cost economics of L. vennami at different stocking densities: OFT was conducted in three locations i.e. M. Rambabu of Alampuram, G.Srinivasarao, Adavikolanu, Nidamaru and B. Raghu of Ramapuram Villages in KVK operational area for the year 2012-13.

OFT-7: Usage of water probiotics in shrimp culture: OFT was conducted in three locations i.e. M. Rambabu, Alampuram, N.Syamnarayana Raju, Ganapavaram, Mohana Rao, Bhuvanapalli Villages in KVK operational area for the year 2012-13. Studies on impact of water probiotics usage in Shrimp culture assessed the growth rate of shrimp, Pathogenic bacteria load and pond pollution weekly. Identified higher growth rate (2.2 to 2.4 grams an average/week from 2nd month onwards), less load of Pathogenic bacteria (20-30 green colonies for CFU), pond pollution (Total Ammonia- 0.1 to 0.25; Nitrate- 0.08 to 0.1 ppm) in Probiotic used ponds, where in control ponds showed less growth rate (1.8 to 2.1 grams an average/week from 2nd month onwards), high load of Pathogenic bacteria (130-170 green colonies for CFU), pond pollution (Total Ammonia 0.30-0.5; Nitrate 0.1-0.3ppm), sudden changes of water quality parameters and plankton crashing, resulting disease outbreak.

The On Farm Trail was concluded showing the positive results of the usage of water probiotics in shrimp culture. The technology is well discussed and demonstrated among the client farmers.





Input Distribution to OFT Farmers
Vil: Chodavaram



Weed management in Direct Sown paddy
Vil. Velivenu



Selection of Animals for OFT Vil: Settipet



CoFS-29 Fodder Seed Broad casting
Vil: Chellavarigudem



Performance of L. Vennami
Vil: Ramapuram



Use of Water Probiotics in shrimp farming
Vil: Allampuram

Front Line Demonstrations

FLD-1: Application of Borax to increase Female flowers in Ridge gourd: The demonstration was conducted in the field of C. Rama Raju Vil: Chodavaram. Recommended Borax @ 3gm/l of water at 2-4 leaf stage in Ridge gourd.

FLD-2: Induction of flowering in Mango variety Benishan: The demonstration was conducted in the field of Rama krishna Vil: Jaggannapet. Recommended pruning + Recommended dose of fertilizers followed by application of 2gm Znso4 + 10gm urea+ 2gm. Borax per liter of water and application of kno3 @ 10gm. Per liter at October and November.

FLD-3: Micro nutrient management in Acid Lime: Recommended application of polyfeed (Micro nutrient mixture- 5gm Znso4, 2gm. Feso4, 2gm. Cuso4, 1gm. Borax, 6gm lime, 2gm Mgso4 and 10 gm. Urea) on new flesh 2-3 times for the effective control of micro nutrient deficiency.

FLD-4: Management of dissolved oxygen depletion in Indian major carp culture: Demonstration of management of water quality parameters through feed management to avoid water pollution and control dissolved oxygen depletion especially during summer and rainy seasons. The demonstration was conducted in the farmers fields of Sri.Ramireddy Sri. Nageswara reddy, and Ch.Srinivasarao of Rachuru village and Sri Venkatareddy and B.V.Krishna Reddy of Sitaramapuram.

FLD-5 was conducted on Argulus control in Rohu fishes by chemical method at fish ponds of B.Narasimha Swamy, Rachuru, Ungutooru mandal. Iver methrin (Ectogourd) medicine was given in two doses @ 500 gm per tonne fish for 5 days for each dose. The observation made was that the given medicine cured Argulus in Rohu fish culture and activeness and increasing growth performance was observed.



Distribution of ivermectrine
(Ectoguard) chemical for control of
argulus in Rohu



Testing Water Quality
parameters Vil: Rachuru



Induction of uniform flowering in Mango Through pruning
+ Recommended dose of fertilizers followed by application of
2gm Znso4 + 10gm urea+ 2gm. Borax per liter of water and
application of kno3 @ 10gm.





On 22.02.2013 Dr.E.Karunasree, Programme Co-ordinator, & Sri,N.Veerabhadra Rao, SMS(Fisheries) conducted demonstration on “Control of Argulus in Rohu fishes” at Rachuru.



FLD-6: Name of the Demonstration: Weed management in direct sown Paddy

Name of the Farmer: Sirigina Venkata Ratnam, S/o. Rathaiah
Village: Kaldari, Tanuku mandal.



Among the three treatments for the control of weeds in paddy seeded through drum seeder the

T1 was found effective with CB ratio of 1 : 2.7 compared to 1 : 2.5 (**T2**) and 1 : 1.4 in **T3**.

T1 – Pyrizosulphuran ethyl 200 grms after 3 days + 2,4D Salt(80%) 400grms after 25 days.

T2 – Ethxy sulphuron 50 grms after 3 days + Bispyribac sodium 80ml after 25 days.

T3 - Hand weeding with 30 members in 3 stages

FLD-7: Name of the Demonstration: Scientific cultivation of Blackgram (YMV resistant variety)

Name of the Farmer: P. Purushotham, S/o. Venkatarao
Village:Telikicherla.

Introduction of PU-31Blackgram variety (Resistant to YMV) as rice fallow pulse during Rabi season and followed integrated nutrient management by application of Bio fertilizer – Rhizobium culture 200gm / kg for seed treatment and 1kg PSB + 100 kg FYM for field application along with 50% RDF (4kgt. Urea + 25kg. SSP) found cost effective and less pest incidence was recorded.

Results of refinement

Application of Bio fertilizers is found effective against farmers practice and reduces the cost of fertilizers



Feedback from the farmer

Farmers are satisfied with the technology

FLD-8: Name of the Demonstration: Application of Micro nutrients in Cucurbits to optimize the yields.

Name of the Farmer: B.Bhaskra Rao, S/o.Govardhan Rao
Village: Prakasaraopalem.

Technology Demonstrated

Application of borax increases the number of flowers of female flowers

Results of refinement: Application of 3gm Boran at two leaf stage and 60 DA S in Ridge gourd to increase female flowers and there by recorded 23% higher yields than control .

Feedback from the farmer

Farmers are satisfied with the technology

Name of the Demonstrations : Soil test based fertilizer application in Maize

Farmer Name : S.Subbarao, S/o Anjaneyulu
Village : Chodavaram.

The STBFR method for calculation of N, P, K compared to RDF and farmers practice was cost effective and Zn deficiency was also controlled.

T.1 (Farmers Practice)**

T.2 Recommended NPK fertilizers (60:40:40 kg/ha.) for Rabi

T.3 Based on STCR equation

Rabi FN = 4.00 T-0.49 SN

F P₂O₅ = 2.15 T-2.58 SP

FK₂O = 2.58 T -0.30 SK





FLD-9: Name of the Demonstrations : Cultivaion of Orгнаic vegetables- Brinjal and Cucumber

Village : Prakasaraopalem, Nallajerla Mandal.

Cultivaion of Brinjal and Cucumber by application of Organic mannures(FYM and Vermicompost) was demonstrated and the crop is in bearing stage.

FLD-10: Name of the Demonstrations : Control of Argulus in Adult Rohu(Labeo Rohita) fish culture by chemical method.

Farmer Name : Bokka Narasimha Swamy, S/o Srirama Murthy

Village : Rachuru, Unguturu Mandal, Ph.No.8897736822

Demonstration initiated on 22-02-2013. The Ecto guard(Iver ethri) medicine was given in feed @ 50grms/tonnes. Two times sampling were done and finally restults were taken on 14-03-2013.

* @ 50 grms / tonne fish for fine (5) days in each spell and continued for two spells.

The results showed that the given medicine was cured Argulus in Rohu fish and fishes were taking feed very actively and growth were observed. Farmers were satisfied on demonstration.

Remarks : Farmers are asking that respect the same demonstration in some more fields.

FLD-11: Name of the Demonstrations: Standardised OVSYNCH Protocol to increase fertility.

Farmer s Name : 1. Kalla Ramachandra Rao
2. Devadi Chinnayya
3. Pydi Syamala

Village: Ravulaparru

Initiated on 22-02-2013



Protocol

22-02-2013	01-03-2013	03-03-2013
Receptal	Lutalyse	Receptal
04-03-2013	05-03-2013	After2 Months
1 st - A.I.	2 nd - A.I.	P.D. Verification

Results : The animals observed heat symptoms and A.I. was done. P.D. verified and 1 found positive.





VI. PUBLICATIONS

(Books, Laboratory manuals, Technical bulletins, Research papers etc.)

A. Research papers

- C.N. Byanna & I.N. Doreyappa Gowda, Studies on Standardization of RTS beverage production from Sweet orange (*Citrus sinensis* Osbeck) Var. Sathgudi and storage Crop Research (An international Journal Vol. 44 (1 & 2): 102-108 (2012)
- C.N. Byanna & I.N. Doreyappa Gowda, Standardization of Sweet orange and Pomegranate blended RTS beverage preparation and its storage. Crop Research (An international Journal) Vol.44 (1 & 2) : (109-115) (2012)
- C.N. Byanna & I.N. Doreyappa Gowda Standardization of recipe for the preparation of nectar from Sweet orange (*Citrus sinensis* Osbeck) Var. sathgudi using sugar substitutes and its storage. International Journal of processing and Post Harvest technology Vol.3(1) : 101-106 (2012)
- C.N. Byanna & I.N. Doreyappa Gowda, Standardization of Ready To Serve (RTS) beverage from Sweet orange (*Citrus sinensis* Osbeck) Var. Sathgudi using sugar substitutes and its storage. Crop Research (An international Journal Vol. 44 (3) : 356-362 (2012)
- C.N. Byanna & I.N. Doreyappa Gowda , Standardization of Recipe for preparation of Nectar from Sweet orange (*Citrus sinensis* Osbeck) Var. Sathgudi and its storage. The Asian Journal of Horticulture (An international Journal) Vol-7 (2) : 252-255 (2012)
- Research paper on **“Effect of different potting media mixtures on growth and flowering of Chrysanthemum (*Dendranthema grandiflora* T.) authored by P. Lalitha Kameswari, Scientist (Hort) was submitted to the Journal Progressive Horticulture and it was accepted for publication.**
- Research paper on **“Comparative performance of tuberose cultivars (*Polianthes tuberosa* L.) and its genetic diversity studies through molecular markers authored by P. Lalitha Kameswari, Scientist (Hort) was submitted to the Indian Journal of Horticulture and it was accepted for publication.**
- T. Susila & M. Bharathalaxmi, Studies on Sustainable inter crops in Banana, Research Paper, Plant Archives 12 (1): 531-532. 2012.
- T. Susila, S. Amarender Reddy, M. Rajkumar, G. Padmaja and P.V. Rao, Effects of sowing date and spraying of brassinosteroid on yield and fruit quality characters of watermelon. World Journal of Agricultural Sciences. 8(3): 223-228. 2012.
- Elmuonzo, K. Uma Maheswari, Anurag Chaturvedi and T. Susila, Nutrient content of selected herbal crops. Journal of Research, ANGRAU 40(3): 97-98. 2012.
- T.Susila and G.Sathyanarayana Reddy, Studies on the performance of endangered medicinal plants – Glory Lilly, *Decalepis hamiltoni* and *Holostemma adakodien*. Proceedings of International conference on Global Scenario of Traditional system of Medicine, Ayurveda, Agriculture and Education, RGSC, Barkachha BHU 21-22 January, 2013. Pp: 472-474. 2013.
- G.Sathyanarayana Reddy and T.Susila, Effect of spacing and organic manures on biomass yield of *Phyllanthus amarus*. Proceedings of International conference on Global Scenario of Traditional system of Medicine, Ayurveda, Agriculture and Education, RGSC, Barkachha BHU 21-22 January, 2013. Pp: 475-477. 2013.
- T. Susila, S. Amarender Reddy, M. Rajkumar, G. Padmaja and P.V. Rao, Studies on Exogenous Application of CPPU and GA₃ on Yield, fruit quality characters and seedlessness in Watermelon. World Journal of Agricultural Sciences. 9(2): 132-136. 2013.
- T.Susila and G.Sathyanarayana Reddy, Influence of IBA and NAA on Rooting of *Adathoda vasica*. Book of Abstracts of National Seminar on Horticulture for livelihood security, Economic prosperity and Sustainable development organized by Department of Horticulture & AMP Mizoram University, Mizoram, from 24th - 26th September, 2012.





- Elmuonzo, K. Uma Maheswari, Anurag Chaturvedi and T. Susila, Nutrient , Anti nutrient content, Antimicrobial and Anti oxidant Activity of selected herbal crops. Proceedings and Abstracts of Current Trends in Food Security to Meet National Nutritional Challenges, 16-17th November 2012 held at Sri Venkateswara University, Tirupathi. 2012.
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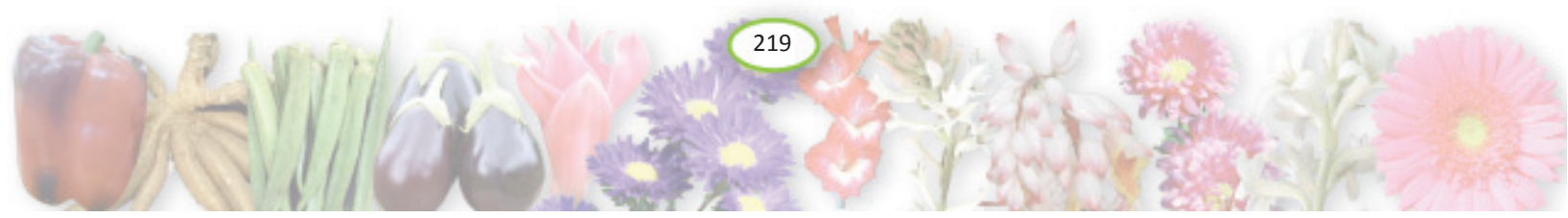


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- T. Susila and G. Satyanarayana Reddy 2012. Vanijyaparamuga sagu cheyadaniki anuvaina Oushadha pantalu. Sedyaphalam, November 2012, pp: 21-22.
- G. Sathyanarayana Reddy and T. Susila 2013 - Sugandhapantalu – Saguku galaavakasulu, Sedy Phalam, February, 2013, PP 24-26
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Floricultural Research Station, Rajendranagar

- Dr P. LalithaKameswari, Scientist (Hort), Nursery management in chrysanthemum Sedyaphalam on Nov, 2012.
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SKPP Horticulture Polytechnic, Ramachandrapuram

- M.Satti Raju, Ch.Chinnabbai, R.Nagalakshmi and P.C.Vengaiah 2013 Nutritional deficiency symptoms and control measures in Banana-pp 27 of Sedyaphalam Monthly Magazine.
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- M.Satti Raju, Ch.Chinnabbai, R.Nagalakshmi and P.C.Vengaiah 2013 Nutritional deficiency symptoms and control measures in Oilpalm -pp 27 of Sedyaphalam Monthly Magazine-December 2012.

SSPG Horticulture Polytechnic, Madakasira

- Mallepula Sagu Dr. M Ramakrishna & Sri. R. Preetham Goud Published in Sedhyaphalam-Agricultural monthly magazine-December 2012.
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Citrus Research Station, Tirupati

- Dr.L.Mukunda Lakshmi, Dr. K. Gopal, Smt G. Sarada, Smt T. Naga Lakshmi & Dr. K. M. Yuvaraj, "Cheeni Nimma Thotallo Rabi Antharapantagas Anapa Saagu" Sedyaphalam, February, 2013; 42-43
- Dr.L.Mukunda Lakshmi, Dr. K. Gopal, Smt G. Sarada, Dr. K. T. Venkata Ramana & Smt T. Naga Lakshmi, "Pachi Rotta Pyrla Saagutho Prayojanalu" Rythunestham, March, 2013; 59.

Vegetable Research Station, Rajendranagar

- Vijaya, M Veena Joshi, P.Madhavilatha & K.Sireesha: Kuragaya pyrlanu asinchu thegullu, yajamanya paddhathulu : 1 (1): Nov.2012, Sedyaphalam PP 35-36.
- Reddy RVSJ & V.Chaitanya : French chikkudu saagulo melakuvalu" : 1(1) : Nov.2012., Sedyaphalam PP:40-41.
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- Vijaya M, K.Sireesha, M.Padma & P.Madhavi Latha : Benda mariyu tomato pyrlanu ashinchu tegullu yajamanya paddatulu, Padi pantallu : Vol-II(12) PP 38-39, December, 2012.
- Madhavilatha P, K.Sireesha, M.Padma and MVijaya, Vesavilo Baby corn Sagu, Vivaralu Vyavasayam, April, 2013.
- Chaitanya V. and Reddy RVSK Rabi kuragayala sagulo melakuvalu. Sedyayaphalam, January, 2013, PP: 19-23.

HRS, Chintapalle

- K.Ravindra kumar, Manyaniki anuvaina Roma Pasupu sagu, Eenadu, Ryte Raju 09-05-2012
- K.Ravindra kumar, Adhika digubadini ichhe Nadia Allam, Eenadu, Ryte Raju 29-03-2013
- K.Ravindra kumar, Allam sagu vivaralu, Krishi, Andhra Jyothi 12-06-2012
- K.Ravindra kumar, Pasupulo rakalu mariyu vati sagu vivaralu, Krishi, Andhra Jyothi 16-6-2012
- K.Ravindra kumar, Miriyapu panta sagu vivaralu, Padipanta, Sakshi 24-08-2012





Fruit Research Station, Sangareddy

- Dr. A. Kiran Kumar, Sr. Scientist (H), Dr. A. Bhagwan, Sr. Scientist (H), Dr. M. Raj Kumar, Principal Scientist (H) & Head, Labhasati Digubadulakosam Pandla thotallo Neeti Vadakam. Rithu Nestham Monthly Magazine, May, 2012 P.No.21
- Dr.A.Kiran Kumar, Sr. Scientist (H), Dr.A. Bhagwan, Senior Scientist (H) and Dr.M.RajKumar, Principal Scientist (H), Pandu Ega Nivarana, Rithunestam, 13th June, 2012 Page.No.
- Dr. A. Bhagwan, Dr. A. Kiran Kumar and Dr. M. Raj Kumar, Kothaga Mamidi thota veyyalanukuntunnara, Rythu Nestham, August, 2012 P.No.27-28
- Dr. A. Kiran Kumar, Dr. A. Bhagwan and Dr. M. Raj Kumar, Mukhyamyna pandla thotalalo samagra eruvula vadakam. Rythu Nestham August, 2012 P.No.46-48
- Dr. A. Bhagwan, Dr. A. Kiran Kumar, Dr.J.Dilip Babu, Dr. M. Raj Kumar, Ch.Sadaiah, T.Sandeepreddy and B. Somraj. Jama thotallo adhika sandrata paddhati. Rythu Nestham September, 2012 P.No.21-22
- Dr. A. Kiran Kumar, Sr. Scientist (H), Dr. A. Bhagwan, Sr. Scientist (H), Dr. M. Raj Kumar, Principal Scientist (H)&Head, Adhika Sandra vidhanam – Jama saguku varam Rythunestam December, 2012.
- Dr. A. Kiran Kumar, Sr.Scientist (H), Prinicpal Scientist (H) & Head and Dr. Bhagwan, Senior Scientist (H), Mamidi poota deshala sasya niti yajamaniyam, kota anantara jagratulu, Agri clinic, Februray, 201.3

Horticultural Research Station, Aswaraopet

- Vesavilo Benda Saagu, M.Ravindra Babu, Scientist (H) & Head, Agriclinic Monthly Magnize, February, 2013.

Grape Research Station, Rajendranagar

- Veena Joshi, M.Vijaya, RVSK Reddy and Dilip Babu Varshadhara kuragayala sagulo melukuvalu, Vyavasayam, July 2012
- D. Anitha Kumari, B.Srinivas Rao, G.Ram Reddy D.Vijaya Mamidi thotalalo polusupurugu nivarana Vyavasayam August 2012
- D. Anitha Kumari, V.Anitha Pandla thotalao pandu eega nunchi kapadukovadaniki soochanalu Annadata September 2012
- Veena Joshi, B.Srinivas Rao, D. Anitha Kumari G.Ram Reddy D.Vijaya Aarogyaniki Draksha Vyavasayam September 2012
- G.Ram Reddy, D.Anitha Kumari and B.Srinivas Rao Seethakalam kathirimpula tharvatha drakshnasinchu pakshikannu tegulu nivarana published in Annadata, November,2012, page No.69.
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- G.Ram Reddy, D.Anitha Kumari and B.Srinivas Rao Seethakalam kathirimpula tharvatha drakshnasinchu booju tegulu nivarana published in Annadata, December 2012. P.No.26.
- Dr. G. Ram Reddy, Dr. B.Srinivas Rao, and Dr. D.Anitha Kumari - Vesavi Kattrmpula tharvata drakshanu asinche tegullu – Sashyarashana – published in Sedyaphalum Dec-2012, P.No.34-35.
- D. Vijaya, B.Srinivas Rao, G.Ram Reddy, D.Anitha Kumar and Veena Joshi – Draksha lo seetakalam katrimpulu taruvatha eruvulu mariyu neeti yajamanyam, Vyavasayam Vol -1, issue – 4, January 2013, P.No. 23-25.
- Veena Joshi, B.Srinivas Rao, G.Ram Reddy, D,Vijaya and D.Anitha Kumari Draksha lo sitakalam kathirimpula tharuvatha aeruvulu mariyu neeti yajamanyam.Vyavasayam Vol -1, issue – 4, January 2013
- B.Srinivas Rao, G.Ram Reddy D.Vijaya, D.Anitha Kumari and Veena Joshi Draksha Pandu pramukhyatha mariyu poshaka viluvalu, Agriclinic March2013 P.No.39-40.
- D,Vijaya, B.Srinivas Rao, G.Ram Reddy, D.Anitha Kumar and Veena Joshi – Vividha udhyana pandla pantala pempakam lo nelala empica , Sedhiya phalam Vol -1, issue – 7, May 2013, P.No. 36-37.





Horticultural Research Station, Ambajipeta

- Kobbarilo naanyamaina mokkala utpathi.(Quality planting material production in coconut) by Smt. E. Padma, Dr. G. Ramanandam, Smt. M. Kalpana, Dr. N.B.V.Chalapathi Rao, Dr. N. Emmanuel and Dr. A. Snehalatha Rani. Published in Bharatiya Kobbari Patrika 8: 4-9 (2012).
- Kobbari – Rakalu (Coconut – Varieties) by Dr. G. Ramanandam, Smt. E. Padma, Smt. M. Kalpana, Dr. N.B.V.Chalapathi Rao, Dr. N. Emmanuel and Dr. A. Snehalatha Rani Bharatiya Kobbari Patrika. 8: 10-18 (2012).
- Naanyamaina Kobbari mokkalanu pranalika badhamga utpathi cheyuta (Production of quality planting material in a systematic manner to meet the demand) Smt. M. Kalpana, Smt. E. Padma, Dr. G. Ramanandam, Dr. N.B.V.Chalapathi Rao, Dr. N. Emmanuel and Dr. A. Snehalatha Rani. Bharatiya Kobbari Patrika. 8: 19-25 (2012).
- Kobbarini nashtaparache kshiradalu (yelukalu, gabbilalu) – nivarana padhathulu (Damage in coconut by Mammels (rats, bats) and their control) Dr. N.B.V.Chalapathi Rao, Dr. N. Emmanuel, and Smt. E. Padma Bharatiya Kobbari Patrika. 8: 26-27 (2012).
- Kobbarini kothaga aasisthunna phelera jaathi gomgali purugu – nivarana charyalu (New incidence of Phelera caterpillar in coconut and its control) Dr. N.B.V.Chalapathi Rao and Dr. N. Emmanuel Bharatiya Kobbari Patrika. 8: 28-29 (2012).
- A study on consumption of tender coconuts in Andhra Pradesh (English) Smt. M. Kalpana, Y.Ramakrishna, A.V.D Dorajee Rao,. Swarna Sedyam.: 51-52 (July, 2012)
- Kobbari Bondam vyardhalatho vermi compost tayari (Y.Ramakrishna, Smt. M. Kalpana, (September, 2012). Annadatha. P: 50
- Dr.B.Gautam, Y.Ramakrishna, Smt. M. Kalpana, (October, 2012). Kobbari Thotallo misrama pantalu, Annadatha. P: 28-30
- “Kobbarini Aasinche Kommu purugu Nivaranalo Jeeva Niyantrana Pramukyatha” (Biological control of Rhinoceros beetle in coconut) by Dr.N.B.V.Chalapathi Rao, Dr. N. Emmanuel and Dr.A.Snehalatha Rani, Annadata March, 2013 (P.no.58-60)

Horticultural Research Station, Vijayarai

- Dr.V.Suchitra, 2012, prepared Package of Practices in the cultivation of Oil Palm, Vyavasaya Panchangam.
- Dr.V.Suchitra, 2012, prepared leaf let on package of practices for cocoa in telugu and released during the one day farmers training on cocoa cultivation.
- Dr.V.Suchitra 2012 prepared leaf let on package of practices for oil palm in telugu and distributed to the farmers who are visiting the station.
- Dr.V.Suchitra 2012 prepared leaf let on Plant protection in oil palm in telugu and distributed to the farmes who are visiting the station.
- Dr.V.Suchitra May 3rd 2012 gave radio talk on Vesavilo Tomato Sagu which was broad casted on May, 17th 2012.

HRS, Vijayarai

- ‘Swot analysis of Arecanut and cocoa cultivation’ A chapter in training manual for ‘advances in Arecanut and cocoa production technology.

HC&RI, V.R.Gudem

- B.Tanuja Priya, P.Sunita ,P.Rama Devi,V. Sudha Vani M.Raja Sekhar,F.Anusha Feb 2013 Pashana bedi sagu,sasyarakshana Rythuvani22 Hyderabad
- Dr.P.Subbaramamma 2013 Vividha pandla thotallo boron lopa lakshanalu-Nivarana. Annadatha Feb,2013
- R.Rajya Lakshmi,V.Sudha Vani and A.Pavani rani. Dec, 2012. Jama saagu. Swarna Sedhyam. 36-38. Hyderabad.





HRS, Lam

Published a popular article on “Vesavilo laabha saatiga kothimeera saagu” in Annadata –May,2013.

MRS, Nuzvid

- “Maamidi egumathulalo melakuvalu” - by Smt D. Aparna Scientist (Hort) in Rythunestahm agricultural magazine April 2012 (P.No 25 - 27)
- “Mamidi pempakamlo paatinchavalasina yaajamaanya padhathulu” - by Smt D. Aparna Scientist (Hort) in Rythulokam agricultural magazine July 2012 (P.No 23 - 25)
- “Maamidilo antharapantalu” - by Smt D. Aparna Scientist (Hort) in Rythulokam agricultural magazine August 2012 (P.No 27 -28)
- “Mamidilo sookshma poshakala paathra mariyu lopala nivarana” - by Smt D. Aparna Scientist (Hort) in Rythulokam agricultural magazine September 2012 (P.No 32 - 33)
- “Mamidithotalalo theesukovalasina jaagrathalu” - by Smt D. Aparna Scientist (Hort) in Rythulokam agricultural magazine November 2012 (P.No 19 - 20)
- “Mamidilo pootha pinde dasalo theesukovalasina jaagrathalu” - by Smt D.Aparna Scientist (Hort) in Rythulokam agricultural magazine December 2012 (P.No 3)
- “Adhika digubadi pondhalante” - by Smt D.Aparna, Scientist (Hort) in Sakshi News Paper Dt 11-1-13
- “Mamidi thotalalo poshaka lopalu - Nivarana” - by Smt D.Aparna Scientist (Hort) in Rythulokam agricultural magazine February 2013 (P.No 18).

Horticultural Research Station, Venkataramannagudem

- Rajyalakshmi R and Rajasekhar M 2012 Sapota saagu. Mana Rythuvani. June, 2012: P.No.47-48
- Rajyalakshmi R 2012 Boppai saagulo melakuvalu. Mana Rythuvani. July, 2012: P.No.14-16.
- R Rajyalakshmi, M Rajasekhar, B Tanuja Priya and A Pavani Rani 2012 Agency lo Jeedimamidi saagu. Agrigold Swarna Sedyam July, 2012: Page No. 9-11
- R Rajyalakshmi, M Rajasekhar and A Pavani Rani 2012 Pasupu saagulo melaina paddatulu. Agriclinic. August, 2012: Page No. 48-51
- R Rajyalakshmi, M Rajasekhar, A Pavani Rani, AV Subba Rao and N Chandra Sekhar 2012 Bantipoola saagu. Mana Rythuvani. September, 2012: Page No. 5-6&29
- R Rajyalakshmi, M Rajasekhar, A Pavani Rani, AV Subba Rao and N Chandra Sekhar 2012 Glorylilly (Adavinaabhi) saagu paddatulu. Mana Rythuvani. September, 2012: Page No. 7
- P Ashok, K. Sasikala, M Rajasekhar, R Rajyalakshmi, A Pavani Rani and N Chandra Sekhar 2012 Chema saagu mariyu sasyarakshana. Mana Rythuvani. September, 2012: Page No. 28-29
- R Rajyalakshmi and M Rajasekhar 2012 Pramukhyathagala panta Panasa. Agriclinic October, 2012: Page No. 42-43
- R Rajyalakshmi, M Rajasekhar and V Sudhavani 2012 Agency pranthallo mamidisagulo melaina paddatulu. Mana Rythuvani, November, 2012: Page No. 25&26
- R. Rajyalakshmi, V. Sudhavani and A Pavani Rani 2012 Jama saagu. Sedyaphalam. December, 2012: page No.36-38
- R Rajyalakshmi, M Rajasekhar, A Pavani Rani, N Chandra Sekhar and AV Subba Rao 2013 Allamlo sasyarakshana. Agrigold Swarna Sedyam. January, 2013: Page No. 23
- B TanujaPriya, P Ramadevi, P Sunita, M Rajasekhar and R Rajyalakshmi 2013 Tamalapaaku saagu patinchavalasina melakuvalu. Mana Rythuvani, January, 2013: Page No. 6&7





Dr. YSRHU Annual Report 2012-13

- R Rajyalakshmi 2013 Cocoa lo adhika digubadulaku melaina pravardhana paddatulu. Mana Rythuvani, January, 2013: Page No. 8&9
- R Rajyalakshmi, M Rajasekhar, P. Ramadevi, P. Sunita, P. Ashok and N Chandra Sekhar 2013 Allam panta kotha ananthara yajamanyam Mana Rythuvani, February, 2013: Page No. 36&37
- Dr.P.Ashok, Dr.K.Sasikala,Dr.M.Rajasekhar, Dr.R.Rajya laxmi 'Chema sagu mariyu sasya rakshana' Rithu vani September, 2012
- Dr.P.Ashok, Dr.K.Sasikala,Dr.M. Rajasekhar Karrapendalam patchi dumpa mariyu endu mukkala nilva,- Swarnasedyam-March 2013

TRS, Kammarapally

- K.Uma Maheswari- Pasupu Thravvakam ananthram jagrathalu-Enadu Rythe Raju-25.01.12
- K.Uma Maheswari- Kuragayala sagupe avagahana sadassu-Sakshi-10.03.12
- K.Uma Maheswari -S.Narasimha Rao and K.Uma Maheswari -Mamidi Thotalo Labhalu-Eenadu-27.03.12
- K.Uma Maheswari -Sendhriya eeruvulatho pantalu pandinchali-Sakshi-27.03.12
- K.Uma Maheswari -Mamidimokkala yempika-Eenadu Rythe raju-17.05.12
- K.Uma Maheswari- Sendriyamto Adhika digubadi-Eenadu 18.05.12
- K.Uma Maheswari -Rythulu melakuvalu telusukovali-Sakshi-18.05.12
- K.Uma Maheswari -Pasupu sagulo adhunka paddatulu patinchali-Sakshi-19.05.12
- K.Uma Maheswari -Sendriyamtone Pasupku nanyta-Sakshi-25.05.12
- K.Uma Maheswari -Pasupulo Adhunka yantral viniyogam-43(6) 34.35
- K.Uma Maheswari-Nanyamaina Pasupukosam Travakkam taruvatha cheppalsina jagrathalu-Mana Rythu vani-17

C. Participation of Teachers / Scientists in International and National conferences/ symposiums/workshops.

Medicinal & Aromatic Plants Research Station, Rajendranagar

- Dr.G.Sathyanarayana Reddy, Pr.Scientist participated and presented an oral paper on Indian Medicinal and Aromatic crops at 3rd Annual International conference of American Council for medicinally active plants from 23-25 May, 2012 at University of Arkansas, Jonesboro, USA
- Dr T. Susila, Senior Scientist (Hort.) has participated attended Food Safety Seminar Series 2012 conducted by Spinco Biotech, Hubsiguda, Hyderabad on 8-8-2012.
- Dr G. Satyanarayana Reddy Principal Scientist (Hort.) and Dr T. Susila Senior Scientist (Hort.) Participated in "International Expert Consultation on Education for Conservation during CoP11" organized by Network of Indian Universities on Cultural and Biological Diversity (NIUCBD)at NAC Seminar Hall, NAC Campus, Cyberabad, Hyderabad on 16th and 17th October 2012.
- Dr G. Satyanarayana Reddy Principal Scientist (Hort.) participated in the 24th project screening committee (PSC) held on 29th October, 2012 at National Medicinal and Aromatic plants Board (NMPB) , New Delhi and presented the work done and new proposals for extension of the project "Facilitation Centre (FC) at MAPRS, Rajendranagar, Hyderabad.

Floricultural Research Station, Rajendranagar

- Dr. K. Dhanumjaya Rao PS(H) & Head, Dr. A.L.N.Prasad, Sr. scientist(Pl.phy) and Dr . P.Lalitha Kameswari, Scientist (Hort) attended the Annual group meeting of AICRP on Floriculture at Pune, Maharastra from 29th to 31st, January, 2013.





Post harvest Technology Research Station, Venkataramannagudem

Dr.B.Prasanna Kumar, Principal Scientist (Hort.) & Head participated in the Biennial workshop of All India Coordinated Research Project on Tropical Fruits from 8.2.2013 to 11.2.2013 at Dr.YSR Horticultural University, Venkataramannagudem.

HRS, Darsi

S.Narasimha Rao, Scientist (PI Path) attended the 21 days training programme on “*Genomics and Diagnosis of Emerging Phytopathogens in Indian Agriculture.*” from October-03 to October 23rd 2012 at Division of Plant Pathology, Indian Agricultural Research Institute, New Delhi.

FRS, Sangareddy

A.Kiran Kumar, K. Chandra Shekhar Reddy, J. Dilip Babu, M. Pratap and Anurag Chaturvedi Influence of post harvest chemical treatments on shelf life and quality of mango cv.Baneshan harvested at different maturity stages, 7th Post Harvest International Symposium at Kaulalampur, Malaysia held on 25-29th June 2012

A.Kiran Kumar, K. Chandra Shekhar Reddy, J. Dilip Babu, M. Pratap and Anurag Chaturvedi Effect of packaging material on shelf life and quality of mango cv. Baneshan harvested at different maturity stages, 7th Post Harvest International Symposium at Kaulalampur, Malaysia held on 25-29th June, 2012.

Bhagwan.A., Anurag Chaturvedi, Ramesh Chander, Dilip Babu j. Effect of different doses of irradiation on the shelf life and quality of mango cv. Totapari stored at low temperature. 7th Post Harvest International Symposium at Kaulalampur, Malaysia held on 25-29th June, 2012.

Srinivas, Bhagwan. A., Dilip Babu J, Vishnuvardhan Reddy D Synergistic effects of MAP and irradiation on storability of *Achras sapota* cv. Kalipatti at low temperatures. 7th Post Harvest International Symposium at Kaulalampur, Malaysia held on 25-29th June, 2012.

A. Kiran Kumar, J. Dilip babu, A. Bhagwan, M. Raj Kumar Effect of modified atmosphere packaging on shelf life and quality of pomegranate cv. Bhagwa in cold storage. 7th Post Harvest International Symposium at Kaulalampur, Malaysia held on 25-29th June, 2012.

Jyothirmai Madhavi K, Prasadarao RDVJ, Subbarao M and Jain RK, Serological and Molecular Characterization and Diagnosis of Viruses Expressing Similar Necrotic Symptoms in Blackgram and Greengram 2nd World Congress on Virology, Embassy Suites, Los Vegas, USA held during 20-22, August, 2012.

Jyothirmai Madhavi K, Prasada Rao RDVJ, Subbarao M and Lal Ahamed M Diagnosis and Biological and Serological Characterization of Viruses Expressing Similar Necrotic Symptoms in Urdbean and Mungbean” “International Conference on Plant Health Management for Food Security”, during November 28-30, 2012, at DRR, Hyderabad.

Jyotsna M K, Jyothirmai Madhavi K, Anitha K, Siva Prasad Y, Bhaskar Reddy B V and Prasada Rao RDVJ Serological and Molecular Characterization of *Tobacco streak virus* non-systemically transmitting in Cotton in Andhra Pradesh. “International Conference on Plant Health Management for Food Security”, during November 28-30, 2012, at DRR, Hyderabad. 2012

Jyothirmai Madhavi K, Agarwal S, Prasada Rao R D V J, Subbarao M and Jain R K Diagnosis and Molecular Characterization and of Viruses Expressing Similar Necrotic Symptoms in Blackgram (*Vigna mungo* L. Hepper) and Greengram (*Vigna radiata* L. Wilczek) “12th International Plant Virus Epidemiology Symposium (IPVE)” held at Arusha, Tanzania during January 28 to February 1, 2013.

Jyothirmai Madhavi K, Agarwal S, Prasada Rao R D V J, Subbarao M, Lal Ahmed M and Jain R K Detection and phylogenetic relationships of Peanut bud necrosis virus(PBNV) and Tobacco streak virus(TSV) isolates of blackgram and greengram of Andhra Pradesh with the isolates reported in India. National Seminar on “Molecular Markers in Crop Improvement” held at Agricultural College, Bapatla, Acharya NG Ranga Agricultural University on 20-3-2013.





Grape Research Station, Rajendranagar

- Dr.D.Anitha Kumari, Dr G.Ram Reddy, Dr.B.Srinivas Rao Pest Scenario of Grape in Telangana Region of Andhra Pradesh National Seminar On Horticulture For livelihood Security, Economic Prosperity and Sustainable Development September 24-26,2012 Department of Horticulture, Aromatic and Medicinal Plants, Mizoram, University.
- Srinivas Rao Putcha Radhakrishna Murthy and D.Vijaya, Evaluation of Juice and Wine varieties of Grape for yield and fruit quality attributes" poster presentation at 5th Indian Horticulture Congress 4 to 6th November 2012 at Ludhiana, Punjab.
- Veena Joshi, B.Srinivas Rao, Vinod Kumar and R.Subhash Reddy Properties of Juice of different varieties of Grape for wine production under Hyderabad conditions at 5th Indian Horticulture Congress 4 to 6th November 2012 at Ludhiana, Punjab.
- D.Vijaya, and B.Srinivas Rao Influence of rootstocks on nutrient content in petioles of commercial varieties of grapes" at 5th Indian Horticulture Congress 4 to 6th November 2012 at Ludhiana, Punjab.
- D.Anitha Kumari, G.Ram Reddy and B.Srinivas Rao Management of Thrips in Grapes at 5th Indian Horticulture Congress 4 to 6th November 2012 at Ludhiana, Punjab.
- G.Ram Reddy, B.Srinivas Rao and D.Anitha Kumari, Bio efficacy of new fungicide molecules for the management of Downy mildew in Grape. poster presentation at 5th Indian Horticulture Congress 4 to 6th November 2012 at Ludhiana, Punjab.
- G.Ram Reddy, B.Srinivas Rao and D.Anitha Kumari Management Of Powdery Mildew during Last 105 Days before harvest in Grape, at International conference on Plant Health Management for food security" from Nov. 28th to 30th 2012 at Directorate of Rice Research, Rajendranagar, Hyderabad.
- C.Narendra Reddy, D. Anitha Kumari, BKM Lakshmi, D. Jagdishwar Reddy. Residue Dynamics Of Imidacloprid And Hexaconazole On Mango at International conference on Plant Health Management for food security" from Nov. 28th to 30th 2012 at Directorate of Rice Research, Rajendranagar, Hyderabad
- V.Anitha, D. Anitha Kumari A.Girwani Insect pest scenario in Mango in the Southern Telanagan Region of AndhraPradesh- A baseline for pest forecasting and Modelling. poster presentation in the, International conference on Plant Health Management for food security" from Nov. 28th to 30th 2012 at Directorate of Rice Research, Rajendranagar, Hyderabad
- Veena Joshi, B.Srinivas Rao, Vishnuvardhan Reddy and Subhash Reddy, studies on bio-chemical properties of wine from different varieties of grape under Andhra Pradesh conditions in National Seminar on Plant Physiology on 12-14th Dec, 2012, College of Agriculture,Rajendranagar.
- Dr. G. Ram Reddy, Dr. B. Srinivas Rao and Dr. D. Anitha Kumari Management of rust disease in grape in the National Seminar on Plant Physiology from 12 to 14th December 2012at College of Agriculture, Rajendranagar.
- D.Vijaya, B.Srinivas Rao, Petiole Nutrient Status of Thompson Seedless (var) at Bud differentiation and Full Bloom stages in Vineyards around Hyderabad." in the National Seminar on Plant Physiology from 12 to 14th December 2012at College of Agriculture, Rajendranagar
- Dr.Veena Joshi, attended National seminar on Science for shaping the future of India organised by Indian Science Congress Association, Hyderabad at College of Agriculture, ANGRAU, Rajendranagar.
- D.Anitha Kumari , V.Anitha, BKM Lakshmi Evaluation of insecticides for the management of scale insect in mango (*Mangifera indica*) in the National Seminar on Plant Physiology from 12 to 14th December 2012at College of Agriculture, Rajendranagar
- Dr.D.Vijaya and Dr. B. Srinivas Rao Standardization of stage wise irrigation in Thompson seedless grapes grown on Dogridge rootstock in the National Seminar on "Developments in Soil Science 3-6th Dec-2012 organised at PAU, Ludhiana
- B.Srinivas Rao, G.Ram Reddy D.Vijaya, D.Anitha Kumari and Veena Joshi, Strategies for Promoting Wine Grape Cultivation in Andhra Pradesh. National seminar on Futuristic Agricultural Extension for livelihood Improvement and Sustainable Development January 19 -21, 2013, ANGRAU, R'Nagar, Hyderabad, AP





Dr.D.Anitha Kumari, Dr.V.Anitha, Dr.A.Girwani, C.Narendra Reddy Efficacy of various Insecticidal Modules against hoppers in Mango in the proceedings of International Conference on insect science at GKVK,UAS, Bangalore held from 13-2-13 to 17-1-13

Dr.D.Anitha Kumari, Dr A.Ranga Reddy, Dr.G.Ram Reddy, Dr.B.Srinivas Rao Seasonal Incidence and management of thrips on grapesvine In Andhra Pradesh in the proceedings of International conference on insect science at GKVK,UAS ,Bangalore held from 13-2-13 to 17-1-13.

HRS, Anantapuram

Dr. K. Subramanyam and Dr. N. Seenivasan presented past five years research progress of AICRP on Arid Zone Fruits to the QRT (Quinquennial Review Team) at IIHR, Bangalore, on 07/04/2012.

Dr. K. Subramanyam and Dr. B. Srinivasulu participated in 1st Annual Group workers meeting of AICRP on Arid Zone Fruits held at Jhalawar, Rajasthan from 27-12-2012 to 29-12-2012.

CRS, Tirupati

Dr. L. Mukunda Lakshmi, Scientist (Hort), has attended National Consultation Meeting on “High density planting and canopy Management in Horticultural Crops” at TNAU, Coimbatore on 25th, March, 2013.

Dr. L.Mukunda Lakshmi Scientist (Hort), has attended 21 days Training on “Hi-tech Intervention in Citriculture” at NRCC, Nagpur from 7-27th, May, 2012.

HRS, Ambajipeta

Chalapathi Rao, N.B.V, Snehalatharani, A. and Emmanuel, N. 2012. New record of promising entomopathogenic fungi on leaf eating caterpillars of coconut in Andhra Pradesh In: Abstracts of National Symposium on Ecofriendly Approaches to Pest Management for Sustainable Agriculture. OUAT, Bhubaneswar, Odisha 24th – 25th November, 2012. P.51-53.

Chalapathi Rao, N.B.V, Emmanuel, N. and Ramanandam, G. 2012. Status of coconut eriophyid mite and other emerging pest problems in coconut in Andhra Pradesh. In: Abstracts of National Symposium on Ecofriendly Approaches to Pest Management for Sustainable Agriculture. OUAT, Bhubaneswar, Odisha 24th – 25th November, 2012. P.1-3.

Chalapathi Rao, N.B.V, Emmanuel, N and Maheswarappa, H.P. 2012. Impact of olfactory conditioned parasitoid *Goniozus Nephantidis* (Musebeck) in suppression of Coconut Black headed caterpillar *opisina arenosella* walker under field conditions in East Coast of Andhra Pradesh In: Abstracts of Papers PLACROSYM XX, Coimbatore, Tamil Nadu, 12-15th December, 2012.P.119-120.

Kalpana, M. Reddy, R.V.S.K. Gautham, B. Srinivasulu, B. Dorajee Rao, A.V.D. Rama Krishna, M. Padma, E. and Maheswarappa, H.P. 2012. Performance of Pre released F1 Cross combinations of Coconut in Andhra Pradesh. In: Abstracts of Papers PLACROSYM XX, Coimbatore, Tamil Nadu, 12-15th December, 2012.P.30.

Chalapathi Rao, N.B.V. Emmanuel, N and Maheswarappa, H.P. 2012. Performance of medicinal and aromatic crops as intercrops in coconut gardens in East Godavari area of Andhra Pradesh. Impact of olfactory conditioned parasitoid *Goniozus Nephantidis* (Musebeck) in suppression of Coconut Black headed caterpillar *opisina arenosella* walker under field conditions in East coast of Andhra Pradesh In: Abstracts of Papers PLACROSYM XX, Coimbatore, Tamil Nadu, 12-15th December, 2012.P.119-120.

Snehalatha Rani, A. Pushpa Rajyam, B. and Maheswarappa, H.P. 2012. Isozyme based diversity analysis studies of *Ganoderma* isolates of coconut from Andhra Pradesh. In: Abstracts of Papers PLACROSYM XX, Coimbatore, Tamil Nadu, 12-15th December, 2012.P.98.

HRS, Kovvur

Dr.B.V.K.Bhagavan, Principal Scientist (Hort) & Head, has attended to Global Conference on “Horticulture for Food, Nutrition and Livelihood Options”, at Bhubaneswar from May 30th to 31st, 2012.

Dr.B.V.K.Bhagavan, Principal Scientist (Hort) & Head Co-chaired the Research Extension Interface session in XII Group meeting of AICRP on Tuber Crops at MPUAT, Udaipur, Rajasthan on 19.6.2012.





Smt. R. Naga Lakshmi, Scientist (Hort) participated in XII Group meeting of AICRP on Tuber Crops at MPUAT, Udaipur, Rajasthan from 18 – 20th June 2012.

HRS, Vijayarai

Dr.V.Suchitra has participated in the Global conference on Horticulture for lively hood options and nutritional security and global work shop on oil palm, from May 28th to 31st 2012 at OUAT, Bhubaneswar.

Dr.V.Suchitra has participated in 10 days orientation training on oil palm production technology from August, 22nd to 29th 2012 at DOPR, Pedavegi.

Dr.V.Suchitra has participated in 8 days training on Advances in Arecanut and cocoa production technology from December 3rd to 9th 2012, at CPCRI, Vittal.

HC&RI, V.R.Gudem

Dr.K.Umajyotih, Professor (Hort.), Dr.V Sudha Vani, Assistant Professor (Hort.), presented a poster on **“Studies on the effect of plant densities and nitrogen levels on growth and curd yield of cauliflower (*Brassica oleracea var botrytis L.*) cv.Pusa sarad”** at AP Science congress from 14-16th November 2012 at Andhra Pradesh Academy of Sciences, Acharya Nagarjuna University, Guntur, A.P

Dr.K.Umajyotih, Professor (Hort.), Dr.V Sudha Vani, presented a poster on **“Yield and NPK uptake in Vegetable Cow Pea (*Vigna unguiculata L.*) as influenced by plant densities and Phosphorous levels at 100th National Science Congress from Jan 3rd -7th, 2012 at Kolkatt.**

Dr.K.Umajyotih, Professor (Hort) presented a poster on **“ studies on the effect of Planting density and nutrient management in Amaranthus (*Amaranthus tricolour .L*) cv. Arka Suguna”** at A.P at AP Science congress from 14-16th November 2012 at Andhra Pradesh Academy of Sciences, Acharya Nagarjuna University, Guntur, A.P

Dr.K.Umajyotih, Professor (Hort) presented a poster on **“ Different levels of Nitrogen and Phosphorous on growth and seed yield of Coriander (*Coriandrum sativum .L*) cv. Sudha”** at AP Science congress from 14-16th November 2012 at Andhra Pradesh Academy of Sciences, Acharya Nagarjuna University, Guntur, A.P

Dr.K.Umajyotih, Professor (Hort) presented a poster on **“Studies on Morphological characterisation variability heritability and genetic advance in Betelvine (*Piper betel*)** at AP Science congress from 14-16th November 2012 at Andhra Pradesh Academy of Sciences, Acharya Nagarjuna University, Guntur, A.P

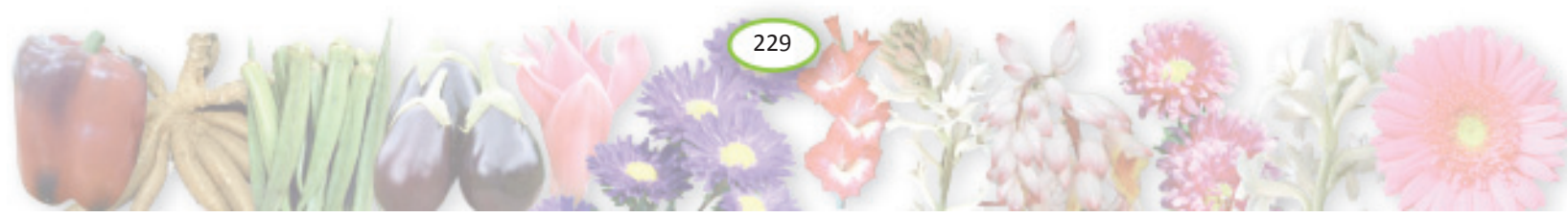
Dr.K.Umajyotih, Professor (Hort) Presented a poster on **“ Studies on the effect of growth regulators and micronutrients on growth and yields of Okra (*Abelmoschus esculentus(L)Moench*) cv. Arka Anakmika** at A.P Science congress from 14-16th November 2012 at Andhra Pradesh Academy of Sciences, Acharya Nagarjuna University, Guntur, A.P

Dr.K.Umajyotih, Professor (Hort) presented a poster on **“Physiological and molecular approaches for development of climate resilient crops.”** 12-14th December at ANGRAU, Rajendranagar

Dr.C.Chandrasekhara Rao, Associate Professor(Hort.) presented paper on **‘Screening of Anthurium genotypes for commercial cut flower production under North East Hill region of India’** in the National seminar on Plant Genetic Research for Eastern and North Eastern India during May 11-12, 2012 at ICAR RC for NEH Region, Umiam, Meghalaya organized by Indian Society of Genetics and Plant Breeding, New Delhi

Dr.C.Chandrasekhara Rao, Associate Professor(Hort.) presented paper on **‘Screening of commercial cultivars of Gerbera (*Gerbera jamesonii*)** under North East Hill region of India’ in the National seminar on Plant Genetic Research for Eastern and North Eastern India during May 11-12, 2012 at ICAR RC for NEH Region, Umiam, Meghalaya organized by Indian Society of Genetics and Plant Breeding, New Delhi

Dr.C.Chandrasekhara Rao, Associate Professor(Hort.) presented a contributory paper on **‘Screening varieties for post harvest value addition of Anthurium and Gerbera’** in the National seminar on Plant Genetic Research for Eastern and North Eastern India during May 11-12, 2012 at ICAR RC for NEH Region, Umiam, Meghalaya organized by Indian Society of Genetics and Plant Breeding, New Delhi





- Dr.C.Chandrasekhara Rao, Associate Professor(Hort.), participated as Chief Guest and delivered guest lecture on '**Post harvest grain storage technology of crops**' in the awareness campaign to the farmers organized by the Central Warehouse Corporation
- Dr.C.Chandrasekhara Rao, Associate Professor (Hort.), participated in the International training on '**Plant genetic resources and seeds: strengthening community resilience**' at M.S.Swaminathan Research Foundation, Chennai.
- Dr.C.Chandrasekhara Rao, Associate Professor(Hort.) participated in XI Agricultural Science Congress on '**Agricultural Education: Reshaping India's Future**' organized by National Academy of Agricultural Sciences in collaboration with ICAR, GOI, The World Bank, Bill &Melinda Gates Foundation, Odissa University of Agriculture and Technology, Bhubaneswar during 7-9 February, 2013-05-28
- Dr.C.Chandrasekhara Rao, Associate Professor(Hort.), attended training programme on Right to Information Act in April at Administrative Office, Dr.YSRHU
- Dr.D.R.Salomi Suneetha, Associate Professor (Biochem.)Participated in 3rd National level seminar on 'Current Regulatory Issues for Herbal Medicines, held at Sri Vasavi Institute of Pharmaceutical Sciences, Tadepalligudem on 20th and 21st April, 2012
- Dr.D.R.Salomi Suneetha, Associate Professor (Bio-chem.)Presented a paper on '**Horticultural Biotechnology-Challenges and opportunities**' in 5th A.P.Science Congress from 14-11-2012 to 16-12-2012 at Acharya Nagarjuna University, Guntur
- Dr.D.R.Salomi Suneetha, Associate Professor (Biochem.) participated in International conference on Biomolecular forms and functions during 8-11 Jan,2013 organized by Indian Institute of Science, Bangalore
- Dr.D.R.Salomi Suneetha, Associate Professor (Biochem.) participated in Seminar cum workshop on 'Recent advances in Computational Biology and CADD' on 12th January, 2013 organized by Schrodinger, Bangalore held at Indian Institute of Science, Bangalore
- Dr.D.R.Salomi Suneetha, Associate Professor (Biochem.) presented an Invited talk entitled '**Tissue culture response of members of Nicotiana and succulents due to the presence of rol genes of Agrobacterium rhizogenes and their homology analysis**' in XXXIV Annual meeting of Plant Tissue Culture Association and National Symposium on Plant Tissue Culture and Biotechnology for Food and Nutritional security organized by Central Food Technological Research Institute(CFTRI), Mysore, Karnataka during 10-03-2013 to 13-03-2013
- Dr.A.V.D.Dorajee Rao, Assistant Professor (Hort.) presented a paper (Oral) on "**Effect of plant density on growth and yield parameters of Garland Chrysanthemum**" at 5th A.P.Science Congress from 14-11-2012 to 16-12-2012 at Acharya Nagarjuna University, Guntur
- Dr. K. Sasikala, Asst Prof. (Agron.) participated in national Seminar on "Secondary metabolites from Horticultural crops – A boon for better life via Biotechnological practices" held at H.C&RI, V R Gudem, West Godavai Dt, A.P from 15-16 February 2012.
- Dr. K. Sasikala, Asst Prof. (Agron.) participated in National Seminar on "Climate change and sustainable management of water resources" held at Gitam University, Visakhapatnam Dt. from 17-18 March, 2012
- Dr. K. Sasikala, Asst Prof. (Agron.) participated in A P Science congress – 2012 held at Acharya Nagarjuna University, Guntur, from 14-16 November, 2012
- Dr.V Sudha Vani, Assistant Professor (Hort.) presented a paper on "**Influence of type of cuttings and IBA concentrations on the propagation of Fig (Ficus carica) CV Poona Fig under open conditions**" at AP Science Congress from 14th to16th Nov at Andhra Pradesh Academy of Sciences Acharya Nagarjuna University 2012.
- Dr.V Sudha Vani, Assistant Professor (Hort.) presented a paper on "**Studies on the effect of plant growth regulators on growth, flower yield and vase life of China Aster (Callistephus chinensis)**" at AP Science Congress from 14th to16th Nov at Andhra Pradesh Academy of Sciences Acharya Nagarjuna University 2012.





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Dr.R.V.Sujatha, Assistant Professor (Agrl.Eco.) participated in 3rd National level seminar on '**Current Regulatory Issues for Herbal Medicines**, held at Sri Vasavi Institute of Pharmaceutical Sciences, Tadepalligudem on 20th and 21st April, 2012

Dr.R.V.Sujatha, Assistant Professor (Agrl.Eco.) Presented a paper entitled "**Export performance and competitiveness of major spices in India**' (Poster) at 5th A.P.Science Congress from 14-11-2012 to 16-12-2012 at Acharya Nagarjuna University, Guntur

Dr.R.V.Sujatha, Assistant Professor (Agrl.Eco.) Presented a paper entitled "**Agricultural sustainability in Andhra Pradesh-District wise analysis** ' (Poster) at 5th A.P.Science Congress from 14-11-2012 to 16-12-2012 at Acharya Nagarjuna University, Guntur.

Krishi Vigyan Kendra, Venkataramannagudem

Dr.E.Karunasree, Programme Coordinator attended training programme on "Market Led Extension" organized by NIAM, Jaipur and MANAGE, Hyderabad at NIAM, Jaipur from 27th to 31st August, 2012.



SSPG Horticulture Polytechnic, Madakasira

Dr. M. Ramakrishna, Principal and Sri. R. Preetham Goud, Assistant Professor (Agronomy) participated in the workshop on "Entrepreneurship Development Programme" conducted by APITCO, from 14th - 16th February 2013 at SSPG Horticulture Polytechnic, Madakasira.

Horticultural Research Station, Venkataramannagudem

Rajyalakshmi R, Vijaya Padma S S and Rajasekhar M. 2012. Studies on Genetic Divergence in Brinjal (*Solanum melongena* L). Oral paper presented at the National seminar on Trends in Agricultural Biotechnology And Environmental Protection, held at Loyola Academy, Alwal, Secunderabad on 24th & 25th February, 2012.

Harshavardhan A, Rajasekhar M, Reddy PSS and Uma Krishna K 2012. Effect of condition, variety, method of grafting in different months on days taken for sprouting and success percent of jackfruit grafts. Poster presented at the 5th Indian Horticultural Congress 2012 held at Pal Auditorium, Punjab Agricultural University, Ludiana from 6.11.12 to 9.11.12.

R Rajyalakshmi, L Naram Naidu, S S Vijaya Padma, K Umajyothi, M Rajasekhar and AVS Rao 2012. Studies on Genetic divergence in brinjal (*Solanum melongena* L.) through Principal component and Cluster Analyses. Poster presented at the AP Science Congress 2012 held at Acharya Nagarjuna University, Guntur, Andhra Pradesh from 14.11.12 to 16.11.12.

R Rajyalakshmi, M Rajasekhar, V Sudhavani, B Tanuja Priya and N Chandra Sekhar 2012 Evaluation of ginger (*Zingiber officinale* rose.) varieties in tribal zone of Andhra Pradesh. Poster presented at the AP Science Congress 2012 held at Acharya Nagarjuna University, Guntur, Andhra Pradesh from 14.11.12 to 16.11.12.

S. Gopipriya, K Umajyothi, B Tanuja Priya, K Sasikala and R Rajyalakshmi 2012 Studies on morphological characterization, variability, heritability and genetic advance in betelvine (*Piper betle* Linn.). Poster presented at the AP Science Congress 2012 held at Acharya Nagarjuna University, Guntur, Andhra Pradesh from 14.11.12 to 16.11.12

R Rajyalakshmi, M Rajasekhar and BVK Bhagavan 2012 Effect of different growth regulators (NAA, GA, Cycocel and Ethrel) and pinching on growth & flowering of African marigold (*Tagetes erecta* L.) cv Pusa Narangi Gaiinda in different dates of planting. Poster presented at the "National Seminar on Physiological and molecular approaches for Development of Climate Resilient Crops (NSPP-2012)" held at Acharya N G Ranga Agricultural University, Rajendranagar from 12.12.12 to 14.12.12.

V Sudha Vani, B Tanuja Priya and R Rajyalakshmi 2012 Effect of pre harvest application of phytohormones on low temperature storage life behavior and quality of baby corn (*Zea mays*l.). Poster presented at the National Seminar on Physiological and molecular approaches for Development of Climate Resilient Crops (NSPP-2012) held at Acharya N G Ranga Agricultural University, Rajendranagar from 12.12.12 to 14.12.12.





International

- Rajasekhar M, Rajyalakshmi R, Baburatan P, Naramnaidu L, and Suresh K 2012 Influence of canopy volume on yield and yield attributes of sapota (*Manilkara achras* (Mill.) Forsberg) under high density planting. Proceedings of the "5th International symposium on tropical and sub tropical fruits" held at Guangzhou, China on 18th to 20th June, 2012.
- Rajasekhar M, Reddy Y N and Sudhavani V 2012 Changes in ethylene and polyamine levels and their influence on shelf life in antioxidant treated ripening tomato fruits. Proceedings of the 7th International postharvest symposium held at Kuala Lumpur, Malaysia on 25th to 29th June, 2012.
- Bindu praveena R, Sudhavani V and Rajasekhar M 2012 Influence of low temperature on shelf life and quality of sapota (*Manilkara achras* (Mill.) Forsberg) fruits packed in polybags. Proceedings of the 7th International postharvest symposium to be held at Kuala Lumpur, Malaysia on 25th to 29th June, 2012.
- Sudhavani V, Rajasekhar M and Reddy Y N 2012 Shelf Life and quality of baby corn (*Zea mays* L.) as affected by storage at low temperature in polybags with different gauges and ventilations. Proceedings of the 7th International postharvest symposium to be held at Kuala Lumpur, Malaysia on 25th to 29th June, 2012.
- Naram Naidu L, Haribabu K, Purushottam K, Yuvaraju K M, Rajasekhar M and Ramana C V 2012 Influence of post harvest treatments on the activity of cell wall softening enzymes during ripening of tomato (*Solanum lycopersicon*). Proceedings of the International Post harvest Symposium held from 25th to 29th June 2012. Kuala Lumpur, Malaysia.
- Dr. M. Rajasekhar, Dr. R. Rajyalakshmi, Pre ZREAC meeting of Zone-I, DrYSRHU for 2012, Kovvur on 12.04.12 at Kovvur
- Dr. R. Rajyalakshmi, Current regulatory issues for herbal medicines" at Sri Vasavi Institute of Pharmaceutical Sciences, Pedatadepalli, 20.04.12 to 21.04.12 at Kovvur
- Dr. M. Rajasekhar Dr. R. Rajyalakshmi, ZREAC meeting of Zone-I, DrYSRHU for 2012, Vijayawada, 02.05.12, at Kovvur
- Dr. M. Rajasekhar Dr. R. Rajyalakshmi, SLTP discussions of DrYSRHU at Rice millers Association hall, Tadepalligudem, 09.05.12 to 11.05.12.
- Dr. R. Rajyalakshmi, Food pollutants evaluation for food quality and safety " at IIHR Bangalore, 04.09.12 to 13.09.12
- Dr. R. Rajyalakshmi, AP Science Congress 2012 held at Acharya Nagarjuna University, Guntur, 14.11.12 to 16.11.12
- Dr. R. Rajyalakshmi, National Seminar on Physiological and molecular approaches for Development of Climate Resilient Crops (NSPP-2012), ANGRAU, Hyderabad, 12.12.12 to 14.12.12
- Dr. M. Rajasekhar Dr. R. Rajyalakshmi, 18th group meet and biennial work shop on tropical fruits, 8.02.13 to 11.02.13
- Dr. R. Rajyalakshmi, Pre ZREAC meeting of Zone-I, Dr.YSRHU for 2013, Kowur, 8.04.13
- Dr.P.Ashok, Sci (Hort.) AICRP Tuber Crops Germplasm conservation, climate change mitigation & E-net working under the aegis of AICRP on Tuber Crops held at CTCRI, TVM, Kerala from 24th to 27th September,2012
- Dr.P.Ashok, Sci (Hort.) AICRP Tuber Crops A.P Science Congress held at Guntur from 14th to 16th November,2012 and submitted an abstract on 'Genetic divergence studies on Brinjal
- Dr.P.Ashok, Sci (Hort.) AICRP Tuber Crops National seminar on recent trends in Nanobiotechnology in the protection of Health and Environment held at Andhra loyala College,Vizayawada from 30.11.2012 to 01.12.2012 and submitted a review paper on 'A review on Nanoscience in Post harvest Packing and plant protection'.
- Dr.P.Ashok, Sci (Hort.) AICRP Tuber Crops Participated in 18th Annual Group meeting on AICRP tropical fruits held at Dr.Y.S.R.H.U, Venkatramannagudem from 8th to 11th February,2013





AICRP on MAP & Betelvine, V.R.Gudem

- P. Rama Devi, S(PP) B. Tanuja Priya, S(H) P. Sunitha, S (Ento.), Participated in XX Group meeting of AICRP on Medicinal, Aromatic plants and betelvine at Chowdhary Charan Singh Haryana Agricultural University, Hisar, Haryana from 3.10.12 to 6.10.12
- P. Rama Devi, S(PP) B. Tanuja Priya, S(H) P. Sunitha, S(Ento.), Participated in 3rd National level Seminar on “Current regulatory issues for Herbal medicines. “ at Vasavi College of Pharmacy, Pedatadepalli on 20th 21st April 2012.
- B. Tanuja Priya, S(H) P. Sunitha, S (Ento.), Participated in National seminar on Medicinal & Aromatic plants from 22.2.2013 to 23.2.2013 held at AAU, Anand, Gujarat & presented Posters

Vegetable Research Station, Rajendranagar

- Dr.K.Sireesha, Scientist (Ento.) participated in side-event on “International expert consultation on education of conservation” organized by NIUCBP and NBA, Chennai at Bio-diversity Convention, during Cop-XI 2012-13 held at Hyderabad from 16 to 17th October, 2012.
- Dr.B.K.M.Lakshmi, Scientist (Pl.Path) participated in International symposium on Plant health management and presented a poster on “Study on sensitivity of Mango anthracnose pathogen *Collectotrichum gloeosporioides* to the commonly used fungicides in Andhra Pradesh “from 28th to 30th, November, 2012 at DRR, Hyderabad.
- Karthik Reddy P, R.V.S.K Reddy, S.S. Vijayapadma, M. SujathaV. Chaitanya (2012) - “Combining ability for Fruit Yield and its Attributes in Ridge Gourd (*Luffa acutangula* Roxb.L.)” at 5th Indian Horticulture Congress, 2012, Horticulture for food and Environment Security An International Meet, PAU, Ludhiana on 08-11-2012
- Chaitanya V, R.V.S.K Reddy, S.R.Pandravada and M. Sujatha (2012) - Genetic divergence analysis in dolichos bean (*Dolichos lab lab* L.vax.typicus Prain) 5th Indian Horticulture Congress, 2012, Horticulture for food and Environment Security An International Meet, PAU, Ludhiana on 08-11-2012
- Arun Kumar P, R.V.S.K Reddy, S.R.Pandravada, Ch.V.Durga Rani and V.Chaitanya. Genetic variability, heritability and genetic advance in pole type French bean (*Phaseolus vulgaris* L.) 5th Indian Horticulture Congress, 2012, Horticulture for food and Environment Security An International Meet, PAU, Ludhiana on 08-11-2012
- Adhi Shankar, R.V.S.K Reddy, M.Pratap and M. Sujatha (2012) Exploitation of Heterosis for yield and quality in tomato (*Lycopersicon esculentum* Mill.) at 5th Indian Horticulture Congress, 2012, Horticulture for food and Environment Security An International Meet, PAU, Ludhiana on 08-11-2012.
- Dr.B.K.M.Lakshmi, Scientist (Pl.Path) participated in International symposium on Plant health management and presented a poster on “Study on sensitivity of Mango anthracnose pathogen *Collectotrichum gloeosporioides* to the commonly used fungicides in Andhra Pradesh “from 28th to 30th, November, 2012 at DRR, Hyderabad.

National

- Dr.B.K.M.Lakshmi participated VI Task Force Committee meeting on DBT at TERI, Bangalore and presented DBT project on Microbial consortia formulation...on 28/10/2012.
- Dr. K. Sireesha, Scientist (Ento.) participated 21 days winter school on “Modern approaches in diagnostics and management of pest and diseases in vegetable crops under protected conditions from 5th to 25th November, 2012 at IIVR, Varanasi.
- Dr.K.Sireesha, (Ento.) participated and presented a poster on Chinese cabbage as a trap crop for the pests of cabbage and pest dynamics on cabbage and Chinese cabbage in international conference on plant health management from 28 to 30 November, 2012 at DRR, Rajendranagar.
- Dr.B.K.M.Lakshmi attended symposium on Blending Conventional and modern Plant Pathology for sustainable Agriculture during 4-5th December, 2012 at IIHR, Bangalore.





Dr.Hameedunissa Begum, Principal Scientist (Hort.) participated in National Seminar on “Physiological and molecular approaches for development of climate resilient crops” from Dec. 12th to 14th, 2012 at ANGRAU, Hyderabad and presented one paper as poster.

Dr.B.K.M.Lakshmi, Scientist (Pl.Path.) participated in National Symposium on “Climate change and Indian Agriculture: Slicing Down the Uncertainties” on 22nd and 23rd January, 2013 at Hyderabad and has given oral presentation on “Evaluation of different cultivation practices in elephant foot yam under changing climatic conditions for mitigating disease incidence”

Dr.B.K.M.Lakshmi attended symposium on Blending Conventional and modern Plant Pathology for sustainable Agriculture during 4-5th December, 2012 at IIHR, Bangalore and presented the poster on “Use of Green technology for mitigating anthracnose disease caused by Colletotrichum Gloeosporioides Penz., on mango”.

Dr.Hameedunissa Begum, Principal Scientist (Hort.) participated in National Seminar on “Physiological and molecular approaches for development of climate resilient crops” from Dec. 12th to 14th, 2012 at ANGRAU, Hyderabad and presented one paper as poster.

Horticultural Research Station, Pandirimamidi

G Narasihma Murthy, Scientist (Hort.) and P.C Vengaiah, Scientist (Food Sci. & Tech.), participated in XXlth Annual group meeting of AICRP on Palms held at ACRI, Madurai during 11th to 13th July, 2012 and presented progress of work under AICRP Palms at Horticultural Research Station, Pandirimamidi.

G Narasihma Murthy, Scientist (Hort.) and P.C Vengaiah, Scientist (Food Sci. & Tech.), participated in Plantation crops symposium (PLACROSYM XX) held at Coimbatore during 12th to 15th December, 2012 and presented two research papers.





VII. FINANCE AND BUDGET

The major financial grants to the Dr.Y.S.R. Horticultural University comes from the A.P. Government under Plan by way of grants-in-aid for running the institution. The block grants approved in the budget for the year 2012-13 was Rs.50.00 crores, including salaries grant of Rs. 40.00 crores and other grants-in-aid of Rs. 8.00 lakh.

The ICAR assistance was Rs. 9,50,31,200/- lakh (including NAIP) and the Govt. of India assistance was Rs. 59,79,625/- lakh while the amount received from other agencies was Rs. 81,17,000/- lakh and Departmental sponsored schemes Rs. 2,63,84,000/- lakh.

Thus, the total budget of the University for the year 2012-13 was Rs. 61,55,11,825/- lakh.

VIII. AWARDS AND HONOURS

College of Horticulture, Rajendranagar

Inclusion of Biography of Dr P. Saidaiah in 'Marquis Who's Who in the world 2012'

The prestigious 'Marquis Who's Who in the world', a subsidiary of subsidiary of American biography institute included the biography of Dr P. Saidaiah Pidigam, Assistant Professor, College of Horticulture, Dr YSRHU, Rajendranagar for the year 2012. The faculty and students of CoH, RNagar rejoiced and congratulated him on this achievement.



Dr P. Saidaiah



Copy of certificate

Fruit Research Station, Sangareddy

FRS, Sangareddy was reputed with **three 1st prizes, three 2nd prizes and one 3rd prize** under AICRP (STF) scheme in mango diversity show organized at Bhubneswar. Total 22 mango varieties were displayed in the mango diversity show from FRS, Sangareddy – AICRP (STF). The entries Neelum, Amrapali & Langra have been awarded first prize, the entries Mallika, Fazri & Dashehari have been awarded second prize and the entry Diversity of mango varieties has received third prize.

Grape Research Station, Rajendranagar

V.Anitha, D. Anitha Kumari A.Girwani Insect pest scenario in Mango in the Southern Telanagan Region of AndhraPradesh- A baseline for pest forecasting and Modelling. poster presentation in the, International conference on Plant Health Management for food security" from Nov. 28th to 30th 2012 at Directorate of Rice Research, Rajendranagar, Hyderabad (Received best poster award for the poster.)

Horticultural Research Station, Ambajipeta

Dr. N.B.V.Chalapathi Rao, Senior Scientist (Entomology) presented two poster presentations at National symposium on "Ecofriendly approaches to pest management for sustainable agriculture" conducted at OUAT, Bhubaneswar and organized by Society for plant protection and environment on 24.11.12 & 25.11.12.

"New record of promising entomopathogenic fungi on leaf eating caterpillars of coconut in Andhra Pradesh"

"Status of coconut eriophyid mite and other emerging pest problems in coconut in Andhra Pradesh" which got the best paper presentation award during the symposium.





HC & RI, Venkataramannagudem

Dr.C.Chandrasekhara Rao, Associate Professor was awarded the **Netherlands Fellowship** to attend short course '**Plant Genetic Resources and Seeds-2012**' at Wageningen International (Wageningen UR Centre for Development Innovation) and its Off Campus trainings.

Dr.K.Sasikala, Assistant Professor (Agron) received **Best Publication Award** from Society for advancement of Human and Nature for the research paper entitled "**Biomass production and nutrient accumulation of green manure crops as influenced and by seeding density and phosphorus application**" published in International journal Tropical Agriculture 23 (1&4) :193-197.

Dr.N.Emmanuel, Assistant Professor (Entomology) was awarded with '**Best paper presentation Award**' for research paper on 'Toxic and insect growth regulatory effects of secondary metabolites from vital horticultural crops against the coconut black headed caterpillar *opisina arenoella*' in the National seminar on 'Secondary Metabolites from Horticultural crops-A boon for better life via Biotechnological practices' organized from 15th Feb to 16th Feb, 2012 at Horticultural College and Research Institute, Dr.YSRHU, VRGudem

Horticultural Research Station, Venkataramannagudem

Dr. R. Rajyalakshmi Scientist (Hort.) of this research station is a recipient of best oral presentation award for the oral presentation entitled "Studies on genetic divergence in brinjal (*Solanum melongena* L)" in the "National seminar on Trends in Agricultural Biotechnology And Environmental Protection" held at Loyola Academy, Alwal, Secunderabad on 24th & 25th February, 2012.

Vegetable Research Station, Rajendranagar

Dr.M.Padma, Professor (Hort.) felicitated with the state best teacher award on 05-09-2012 on the eve of Teacher's day in the function organized at Ravindra Bharathi, Hyderabad by Government of Andhra Pradesh. Dr.M.Padma has started her service as Scientist (Hort.) from High Altitude Tribal Area Zone at Chintapalli. She has completed 19years of service and worked for 8 years in research on flowers, vegetables, plantation and spice crops. She has rendered her service in Teaching for 11 years and taught 18 different courses to students of B.Sc (Ag.), B.Sc. (Hort.), CA & BM, M.Sc (Hort.) and Ph.D (Hort). She has guided 13 PG students, published 60 research publications, 45 popular articles to her credit.

Citrus Research Station, Tirupati

Prof. K. Gopal, Principal Scientist awarded "**Sardar Patel Award-2012**" on 20-3-2013 by International Organization, Sardar Vallabhbhai Patel Foundation, New Delhi for his excellence in the field of "**Citrus Research**" displaying benevolent services towards country and countrymen. The award was received on the hands of Shri Ram Naresh Yadav, Honorable Governor of Madhya Pradesh.

Dr. K. Gopal, Zonal Research Head, Citrus Research Station-Tirupati selected for "**Rajiv Gandhi Excellence Award**" for outstanding individual achievements and distinguished services to the nation. Dr. G.V.G. Krishnamurthy, Farmer Chief Election Commissioner of India presented the award in the conference on "National Integration and Economic Growth at New Delhi on 29th August-2012. The award was received in absence.





IX. BUILDING AND CONSTRUCTION PROGRAMMES

Horticulture Polytechnic, Kalikiri

Construction of Office, College and Hostel buildings are in progress.

Post harvest Technology Research Station, Venkataramannagudem

Integrated Pack House cum Cold Storage Unit: The salient features of the Integrated Pack House Unit are the building structured in an area of 342 sq. mt (19m L x 18m W). This unit consists of 1) Pre-cooling Chamber, 2) Cold Storage Chamber, 3) Ripening Room, 4) Processing Hall with grading line system, 5) Air washer, 6) Office room, 7) Lab, 8) Electrical power room, 9) Change room for staff constructed under RKVY Project of Government of India, with an cost of Rs.1.24 crores.

College of Horticulture, Rajendranagar

Farm Development

Total Area – 203.5 acres

1. Irrigation – 4 New borewells were dug one fixed with 7.5 HP & 2nd one with 5 HP
2. 25 acres provided with Drip irrigation
3. Propagation structure – Mistchamber - 1 - propagation
Poly House - 4 - ELP usage
2 - Vacant for cut flowers
Shade net House - 2 - ELP usage

Farm pond- developed for demonstration purpose to the student

Proposed Civil Work

Construction of 1st Floor (under II- Phase Construction) for PG programme – Rs. 1 Crore sanctioned

Construction of processing plants (under ICAR Budget) - 23 Lakhs sanctioned

Construction of Basket Ball court – 5 Lakhs sanctioned

Water Tank – 100,000 Liter Capacity- 30 Lakhs sanctioned

Model Class Room

RFID attendance for students – Model class room with touch screen system

FRS, Sangareddy

Construction of pack house cum cold storage is completed and inaugurated by hon'ble Chief Minister of Andhra Pradesh on 31-10-12.

Foundation stone was laid out for infrastructure development, sanctioned from CM Assurance fund under RKVY, by hon'ble Chief Minister of Andhra Pradesh on 31-10-2012.

Renovation of office and laboratory buildings is completed with the funds allotted during 2008 by the ICAR under MAUF on 31-10-2012.





Horticultural Research Station, Aswaraopet

Establishment of Bio- Control Lab building under State Horticulture Mission Scheme is completed.



View of Bio-Control Laboratory Building, HRS, Aswaraopet



Polyhouse constructed under RKVY

Horticulture college & Research Institute, Anantharajupet

Boys hostel and girls hostel buildings construction is completed and occupied by the students since November-2012.

Staff quarters construction is completed and are ready for occupation.

Major part of academic block construction is completed and occupied since December-2012.

Part of the academic block (Library and auditorium) is still under construction and yet to be occupied.

Vegetable Research Station, Rajendranagar

Procured Solvent free oil extraction unit for use in Post Harvest Technology Lab under RKVY-PHT Project, VRS, Rajendranagar during December, 2012.

Developed pathology laboratory with the purchased equipment.





X. OTHER SIGNIFICANTE EVENTS IF ANY

Medicinal & Aromatic Plants Research Station, Rajendranagar

Dr.G.Sathyannarayana Reddy participated in the 24th project screening committee (PSC) held on 29th October, 2012 at National Medicinal and Aromatic plant Board (NMPB), New Delhi and made a power point presentation before the committees on work done and proposals for extension of the project "Facilitation Centre (FC) for another 3 years at Medicinal and Aromatic Plants Research Station, Rajendranagar.

Dr B. Srinivasulu, Director of Research inaugurated the Training hall at MAPRS, Rajendranagar on 5-11-2012.



Dr L. Janardhana Rao and Dr T. Narsi Reddy members of Monitoring and Evaluation Team visited the research station on 19-11-2012.

On 23-11-2012 Research and Extension Council meeting was conducted in training hall. Dr B. Srinivasulu, Director of Research, Dr M.B. Nageswar Rao Director of Extension, Dr M.Laxmi Narayana Reddy, Dean Horticulture, other members of REC attended the meeting.

Important visitors (VIPS)

Dr Sambasiva Rao Mylavarapu , University of Florida, USA visited MAPRS along with Undergraduate students on 28-6-2012.

Dr Veeraraghava R. Bachi Reddy, Professor and Chair of Plant Sciences Department and Dr.Kit L Chin, Professor, Plant and Soil Sciences (Horticulture) Southern University, Louisiana, USA on 29-11-2012.



Dr.Mylavarapu S.Rao, Professor University of Florida, Gainesville, Florida, U.S.A, Dr.G.Sathyannarayana Reddy Pr. Scientist, MAPRS and Dr. B.Sreenivasulu, Director of Research. Dr.YSRHU met Dr.C.V.S.K.Sarma, Hon'ble Vice-Chancellor in his chambers at A.P. Secretariat and discuss on steps to be initiated for collaboration with the universities of U.S.A. 28.07.2012

Other important events attended by Dr. G. Sathyannarayana Reddy, Senior Scientist & Head

Dr. G.S.N. Reddy participated in Training Programme on lively hoods through Horticulture/ Medicinal and Aromatic plants as a resource person conducted by MRDA foundation, Kurmalguda, R.R.Dist on 23-05-2011. The minister for Horticulture Sri Ram Reddy Venkat Reddy participated as Chief Guest.

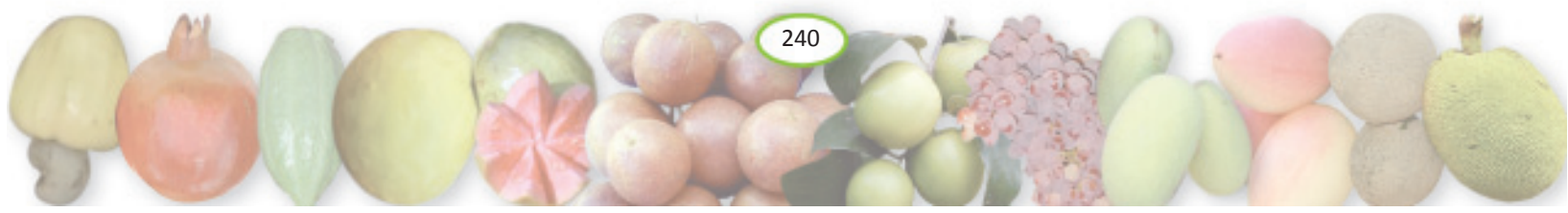
Conducted the Ph.D. final thesis Viva voce and colloquium of in service candidate Smt. T.Padmalaatha at College of Horticulture, Rajendranagar on 22-7-2011.

Conducted final Viva voce exam of M.Sc. (Hort.) of R.Praveen, I.D.No. VHM/ 09-12 of College of Horticulture, Venkataramannagudem on 09-08-2011 & 10-08-2011.

Participated in the Programme Committee meeting as a member of the committee and given the list of programmes proposed by Herbal Garden Scheme for the Quarter October/November/December, 2011 at All India Radio, Hyderabad on 18-08-2011.

Conducted Final Research thesis viva of Aruw Layina, M.Sc. Hort. As major advisor at College of Horticulture, Rajendranagar on 27-10-2011.

Participated in the State level steering committee meeting on National Mission in Medicinal plants 04-11-2011 at 11.00 am at A.P Secretariat, Hyderabad.





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Andhra Pradesh Medicinal and Aromatic plant Board meeting. Dr. D.L. Ravindra Reddy, Hon'ble Minister for Health, released booklet "Directory on Medicinal and aromatic plants" A.P. Secretariat, Hyderabad on 23-11-2011.

Organized "Stake Holders meet" under the project Facilitation Center funded by National Medicinal plant Board, New Delhi at Auditorium, ANGRAU Rajendranagar on 29-11-2011.

Attended the review meeting at Head quarters Dr.YSRHU, Administrative office, Venkataramannagudem on 30-11-2011.

Participated in programme Committee meeting of All India Radio, Hyderabad for the Quarter January, February & March, 2012 and sub the list of programmes proposed from Herbal Garden Scheme at All India Radio, Hyderabad on 03-12-2011.

Participated in Oushadhi 2013 conducted by A.P State Medicinal and Aromatic plants Board, Hyderabad at Peoples Plaza, Neckles Road, Hyderabad on 5-1-2013 to 7-1-2013.

Participated in Horticulture Expo 2013 at Peoples Plaza, Neckles Road, Hyderabad from 26th January to 30th January, organized by Department of Horticulture at Peoples Plaza, Necklace road, Hyderabad from 26-1-2013 to 30-1-2013.

Participated in State level steering committee meeting of A.P. Medicinal Plants Board at L- Block, Secretariat on 20.02.2013

ii). Attended by Dr. T.Susila, Senior Scientist (Hort.)

As a member of advisory committee conducted final Viva voce of Elmuonzo HHM/2010-22 M.Sc. Home Science. PGRC, ANGRAU on 30-7-2012.

To give plan for establishment of Herbal Garden. Army office, Mehdiapatnam, Hyderabad on 31-7-2012.

As a member of advisory committee conducted final Viva voce of Sowmya M.Sc. (FST) PGRC, ANGRAU on 8-8-2012.

As a member of advisory committee conducted final Viva voce of K. Stella RHM/2009-24 M. Sc (Hort.) PGRC, ANGRAU on 6-9-2012.

Participated in Oushadhi 2013 conducted by A.P State Medicinal and Aromatic plants Board, Hyderabad. Peoples Plaza, Neckles Road, Hyderabad on 5-1-2013 to 7-1-2013.

Dr T. Susila, Senior Scientist (Hort.) delivered invited lecture on "Medicinal Plants Wealth of India" in **National Seminar on Cultivation And Marketing of Medicinal Plants organized by** A.P State Medicinal and Aromatic plants Board, Hyderabad. Peoples Plaza, Neckles Road, Hyderabad on 5-1-2013.

Participated in Horticulture Expo 2013 at Peoples Plaza, Neckles Road, Hyderabad from 26th January to 30th January, organized by Department of Horticulture. Peoples Plaza, Necklace road, Hyderabad. On 26-1-2013 to 30-1-2013.

Post harvest Technology Research Station, Venkataramannagudem

Dr. N.Krishna Kumar, Deputy Director General (Hort.) ICAR, New Delhi inaugurated the building complex of "Integrated Pack House and Cold Storage Unit at Post Harvest Technology Research Station, Venkataramannagudem on 8.2.2013 in the presence of Dr.B.Srinivasulu, Director of Research & Registrar, Dr.YSR Horticultural University, Venkataramannagudem.

College of Horticulture, Rajendranagar

Republic Day was celebrated grandly on **26-01-2013** at College of Horticulture, Rajendranagar. Cultural programmes on patriotic issues were organized. The Certificates of Blood Donation have been distributed to the students and staff.





International Women's Day was celebrated with high spirit on **08-03-2013** at College of Horticulture, Rajendranagar. Competitions in Sports, Cultural and Literary events were conducted for all Women Staff members as well as students and all have participated with keen interest. Smt. P. Satya Manjula, Advocate, High Court was the Chief Guest for the function and she insisted for the proper utilization of all laws of constitution by the women for their safety and security in the society. The Chief Guest and Dr. P. Veeranna Goud, Associate Dean, have distributed the prizes for winners and runners of competition and the programme was ended up with National Anthem. Dr SS Vijaya Padma, Associate Professor has coordinated the events.

Superannuation

Sri Sadat Ai Khan, Asst. Professor has retired from services 28 February 2013 on attaining the age of superannuation. Dr P. Veeranna Goud, Associate Dean has felicitated Sri Sadat Ai Khan, Asst. Professor on this occasion on behalf of the staff of CoH, R. Nagar. The staff wished him happy and healthy retired life.

Placement Cell

Two- Students got the post of farm manager in 'Sasya samprada'

Seventeen Students got selected for the post of plantation officer in Ruchi Soya Agro Industries Ltd.

Three Students - Personal communication – Insecticides India Pvt. Ltd.

Inauguration of Rock garden, College of Horticulture, Rajendranagar was inaugurated on 23.11.2012. The Rock garden was inaugurated by Dr Srinivasulu, Registrar i/c. In his inaugural speech, he insisted the necessity of greenery in the present environment as pollution rate is very high causing harmful effects on our mother land and lives.

Fresher's Day

Students celebrated **Fresher day on 20.10.2012** at the College Auditorium to welcome freshers to new college. The celebrations involve self introduction of new comers and involvement of students in different cultural programmes.

Fruit Research Station, Sangareddy

The QRT of AICRP (STF) on mango and guava has visited the Fruit Research Station, Sangareddy on **8th September, 2012**. The QRT was headed by Dr D.S. Rathore, Chairman QRT (2007-12) with the members Dr. O.M Bombawala, Dr, K.K. Jindal, Dr. K.R. Koundal, and Dr.A.M. Gowsami, along with Dr.A.K.Misra, Project Coordinator and Member Secretary. The QRT has reviewed the work done of the AICRP (STF) scheme of Fruit Research Station, Sangareddy for the period 2007-12.

Research monitoring and evaluation team consisting of Dr. L. Janardhan Rao, (Rtd.) Principal Scientist (H), Dr. Narsi Reddy, (Rtd.) Principal Scientist (Pl.Patho) has visited FRS, Sangareddy and evaluated all the ongoing experiments of AICRP (STF) as well as Non-Plan.

RAWEP 2012-13: Thirty Two girl students of 2009 batch of College of Horticulture have been attached to FRS, Sangareddy for their RAWEP Programme and Dr. K. Jyothirmai Madhavi, Scientist(Path) was the scientist incharge. VIVA-VOCE was conducted on 17-1-13 at FRS, Sangareddy.

Bio-control Laboratory: The project was initiated in 2009 and the unit has started operation from 15th March, 2012. The total production of *Trichoderma viride* and *Pseudomonas florescence* formulations were 355 kg and 83 kg, respectively till this date.

Dr.M Raj Kumar, Principal Scientist (Hort) & Head, Dr.M.Raghava Rao, Principal Scientist (Hort) Dr.A.Bhagwan, Senior Scientist (Hort), Dr. A. Kiran Kumar, Scientist (Hort), Sri B.Mahender, Scientist (Pl.Path) have attended "Inauguration of Carbide free Mango Show" at Exhibition grounds, Nampalli on 13-4-2012.

Dr. M. Raj kumar, Principal Scientist (H) & Head along with Dr. A. Bhagwan, Sr. Scientist (H), Dr. A. Kiran Kumar, Sr. Scientist (H) attended ZREAC meeting at Zilla Parishad Hall, Karimnagar on 25-4-2012.

Physical Stock Verification for the year 2011-12 was done by Dr. G.Satyanarayana Reddy, Principal Scientist (H)&Head, Medicinal and Aromatic Research Station, Rajendranagar, Hyderabad on 27-11-12.





The QRT of AICRP (STF) on mango and guava has visited the Fruit Research Station, Sangareddy on 8th September, 2012.



Honourable Chief Minister Sri. Kiran Kumar Reddy's visit to FRS, Sangareddy on 30-10-12.



Farmers' Training Awareness programme on "Maamidi pnde mariyu pootha samayam lo paatinchavalasina malaina yaajamaanya paddhatulu" on 15-12-12.



Activities of RAWEP 2012-13 students, College of Horticulture, Rajendranagar under the supervision of Fruit Research Station, Sangareddy, KISAN MELA conducted at Kalivemula Village.



Hon'ble Chief Whip, Sri T. Jayaprakash Reddy visited FRS, Sangareddy on 8-7-12



Hon'ble Former Union Minister, Sri Ch. Vidya Sagarao visited FRS, Sangareddy on 23-8-12

GLIMPSES OF RESEARCH ACTIVITIES AT HRS, ASWARAOPET



Passion Fruit Trial



Passion Fruit



Capsicum grown under (RKVY)





Broccoli and Red Cabbage Trials (RKVY)



Sprouting Broccoli



Red Cabbage



Musk Melon



High density Mango



Tomato Mulching Trial



Nursery Production (Mango)



Nursery Production (Guava)

Students of Horticultural polytechnic, Adilabad visited HRS, Aswaraopet on 07.03.2013



Grape Research Station, Rajendranagar

Major Events Organised

On 7-7-2012 unveiling the portrait of Father of Viticulture Sri.R.Shankar Pillay was done by Dr.G.Sathanarayana, Rtd. Principal scientist (Hort.) on 7-7-2012 and inauguration of Plant Health Clinic by Dr.B.Srinivasulu, Director of Research, DRYSRHU, Venkatramannagudem at Grape Research Station, Rajendranagar, Hyderabad.

On 9-9-2012 QRT members (Chairman Dr. D S Rathore, Dr. Kaundal, Dr. K K Jindal, Dr A M. Goswamy, Dr.O.M. Bombawale and Dr.A.K Misra Project coordinator) visited Grape Research Station, Rajendranagar and reviewed the work done report of Horticulture, Plant Pathology, Soils Science and Entomology.



RESEARCH MONITORING TEAM

On 19-11-2012 Research Monitoring team consisting of Dr T. Narsi Reddy and Dr.L Janardhan Rao have visited Grape Research Station, Rajendranagar and reviewed work done report of Horticulture, Plant Pathology, Soils science and Entomology.



VISIT OF DIRECTOR, NATIONAL RESEARCH CENTER FOR PUNE (GRAPE)

Dr.PG Adsule Director, National Research Centre For Pune (Grape) along with scientists of Grape Research Station, Rajendranagar visited three situations of grape cultivation.

Type of cultivation	Place	Date of visit
Innovative technology of soil application	Sri Ch.Venkat ReddyKundanpally(V) Keeseara(M)	18-1-13
Organic practices	Sri Swamy ReddyRaikunta(V)Shamshabad(M)	19-1-13
Commercial package of practices	Sri.Rajender ReddyShamahabad(V)Shamahabad(M)	19-1-13

HRS, Kovvur

Celebrated Dr,YSRHU formation day on 26.6.2012 at HRS, Kovvur and felicitated Sri Mullpudi Venkata Mulari Krishna, REAC member, DrYSRHU, who was awarded Udyana Ratna at Global Conference on “Horticulture for Food, Nutrition and Livelihood Options”, held at Bhubaneswar on May 30th, 2012 for adopting improved production technology in horticultural crops and also involved in motivating the farmers about latest production techniques in horticultural crops in general and oilpalm in particular.

Dr.B.V.K.Bhagavan, Principal Scientist (Hort), Dr. M. M. Naidu, Scientist (Hort) SG and Dr. T. Rajasekharam, Scientist (Plant Pathology) visited Neelum cyclone affected fields from 8-12th November 2012 in Visakhapatnam, Srikakulam and Vizianagaram districts respectively and suggested the disaster management practices for vegetables and fruit crops.

Conducted 18th Group Discussion meeting of AICRP on Tropical Fruits from 8th to 11th Feb, 2013 at DrYSRHU campus, VRGudem.

Dr.N.K. Krishna Kumar, DDG (Hort), ICAR, New Delhi releasing the booklet in telugu on Arati Saagu in 18th Group Discussion on AICRP on TF at V.R.Gudem.



Dr.A.S.Sidhu, Project Coordinator and Director, IIHR, Bangalore releasing the pamphlet in english on Management Practices for revival of Flood Affected banana, Turmeric and Tropical Tuber Crops in 18th Group Discussion on AICRP on TF at V.R.Gudem.

HC & RI, Venkataramanagudem



Honourable Chief Minister, Sri Nallari Kiran Kumar Reddy, visit to HC&RI, VR Gudem.



III Inter collegiate sports meet inaugural function



III inter collegiate sports meet valedictory function



Capsicum raised under ELP in poly house



Gladiolus under ELP in poly house



A field view of Banana suckers planted in the instructional farm



Horticultural Research Station, Anantapuram



Dr. S. K. Sharma, Director and Project Coordinator, AICRP on Arid Zone Fruits visited research station and review the ongoing projects



During training programme on sweet orange cultivation at Penekacherla



Field Day organized during RAWF programme



STUDENTS ACTIVITIES





Administrative Office, Dr. YSRHU, Venkataramannagudem