EUROPEAN COOPERATIVE PROGRAMME FOR CROP GENETIC RESOURCES NETWORKS

IBPGR

A GUIDE TO THE EUROPEAN FORAGE DATABASES

INTERNATIONAL BOARD FOR PLANT GENETIC RESOURCES

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The International Board for Plant Genetic Resources (IBPGR) is an autonomous international scientific organization under the aegis of the Consultative Group on International Agricultural Research (CGIAR). The basic function of IBPGR is to foster the collecting, conservation, documentation, evaluation and use of plant germplasm and thereby contribute to raising the standard of living and welfare of people throughout the world. Financial support for the core programme is provided by the Governments of Australia, Austria, Belgium, Canada, China, Denmark, France, Germany, India, Italy, Japan, the Netherlands, Norway, Spain, Sweden, Switzerland, the UK, the USA and the World Bank

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Note from the editor

The members of the third meeting of the ECP/GR Working Group, held in Station de Génétique et d'Amélioration des Plantes de l'INRA, Mauguio, Montpellier, France, 9-12 January 1989, reviewed the progress of Institutes acting as European forage databases. There was a general feeling that achievements were considerable, even if sometimes essential data on individual accessions had yet to be documented. The Group also recognized that the distribution of data had mainly been limited to data contributors and/or to the direct participants of the ECP/GR programme. Such a situation was perfectly understandable considering the need to complete, update and correct the databases. This process is still continuing but members decided that the quality of the databases had reached a satisfactory level and that there is no reason for depriving scientists not yet aware of these databases of the benefit of their use. The Group was thinking not only of breeders, but also of researchers in Universities as well as all public users of genetic resources outside Europe with interests on forage materials from temperate countries. Hence the publication of this booklet.

The role of IBPGR was confined to the coordination of the Forage Working Group activities. This means that the editors do not take any responsibilities for actual mistakes, inaccuracies or defects of the databases, but it also means that the merits of the work have to be attributed to the dedication of curators/documentation officers of the Institutes acting as European forage databases and also to the goodwill of the data contributors. We would like to take this opportunity to thank all these scientists and especially those responsible for the databases since they spent considerable time and provided considerable expertise to build up these databases. We hope that the ECP/GR Forage Working Group will continue to be in a position to offer continuingly improving services to users.

I. The ECP/GR programme

The European Cooperative Programme for the Conservation and Exchange of Crop Genetic Resources (ECP/GR) was established in 1980 as a regional European project supported by United Nations Development Programme (UNDP) and executed by the Food and Agriculture Organizations of the United Nations, with 21 European countries participating. The first phase was a preparatory stage in which the programme was specified and the organizational framework brought into operation.

At the end of Phase I in 1981, the European Governments recommended that the ECP/GR should be continued for a second phase of three years' duration, financed jointly by UNDP and participating governments and that the programme should be operated under the aegis of IBPGR as a special project with its own identity and funding. 26 governments participated in this second phase of the programme which was focused around six crops or groups of crops: *Allium* spp., *Avena*, barley, grasses and forage legumes, *Prunus* and sunflower.

In 1985 the Technical Consultative Committee of the Programme recommended a strengthening phase of three more years, to be funded entirely by participating governments. Consequently, Phase III was started in January 1987. The Technical Consultative Committee met again in October 1989 in Szeged, Hungary. Considering the need to ensure regular meetings of Working Groups for the continuous strengthening of on-going activities and considering the new fields of collaborative activities which will be tackled by Working Groups in the future, the TCC unanimously recommended that a Phase IV of the ECP/GR be implemented. A name change was also agreed upon (ECP/GR = European Cooperative Programme on Crop Genetic Resources Networks) which emphasizes the concentration of efforts on current crop networks and new crop networks to be created in Phase IV. Taking account of IBPGR's previous coordinating services, highly appreciated by all involved institutes/experts, the TCC recommended that IBPGR continues the general coordination of Phase IV and executes Phase IV as one of its Special Projects.

II. The Forage Working Group

The first meeting of the Forage Working Group was convened at the Fodder Crops and Pastures Institute, Larissa, Greece, February 1984. It decided to limit itself to the most important grasses and legumes forages within Europe for better efficiency and considered that the inventory of individual forage accessions held in dispersed Institutes across Europe was a prerequisite for the development of any further common activities, such as collecting or evaluation. 8 passport descriptors were selected and Institutes/organizations were identified to assume responsibility for the registration and processing of the preliminary passport data.

The first lists or inventories for diverse genera/species were distributed at the occasion of the second meeting of the Working Group held at the Oak Park Research Centre, Carlow, Ireland, October 1985. Members decided to add additional passport descriptors in order to increase the usefulness of the databases to the breeders.

Each database being dealt with by different Institutes, the catalogues published until 1986 were varying in formats, classification of accessions, number of descriptors used and even sometimes descriptor states were different from one catalogue to another. Some standardization therefore became necessary and in 1986 a standardized format was agreed by all the people responsible for the databases (see next paragraph). In addition, it was agreed to use a list of standard acronyms for genebanks, collecting institutes and donor names. This list, implemented by Dr. J. Serwinski of the Plant Breeding & Acclimatization Institute, Radzikow, Poland, includes the names and addresses of about 2000 institutions in Europe. This list is available on request from IHAR, in computerized or print-out form.

Activities of the ECP/GR Forage Working Group have not been limited to documentation only. Especially since the second meeting in 1985, many other aspectshave been included in relation to the maintenance or enhancement of forage genetic resources. These include *inter alia* identification of urgent needs for collecting missions, publication and promotion of lists of reference varieties for allowing a meaningful comparison of evaluation data.

The Forage Working Group agreed in 1987 on a list of 'Standard Forage Legumes in the Mediterranean Zone' (29 varieties for 17 species) and a list of 'Standard Varieties for Forage Genetic Resources in Northern and Middle Europe' (36 varieties for 14 species, different ploidy levels or earliness and lateness being considered, depending on the species). In 1988 originators of the designated standard varieties for Northern and Middle Europe sent 2-5 kg of seeds of their varieties to the databases having responsibility for the species, so that since 1989 each standard variety can be obtained easily by addressing the Institute responsible for the database for the species under concern. The same procedure is being carried out for standard varieties of forage legumes in the Mediterranean zone. Names of these standard varieties are provided in the sections reserved to each database.

III. Standardized content and sorting order of the databases

Each species database records information on accessions belonging to three groups: advanced cultivars, landraces and semi-natural (ecotypes) or wild. The list of descriptors relevant to each group is provided below, whereas the full definition of each descriptor is provided in Annex I.

Advanced cultivars and breeder's lines

1. ECP/GR number
2. Genebank designation
3. Accession number
4. Accession status
5. Name of accession
6. Origin country
7. Donor institute
8. Donor number
9. Breeding/Maintaining institute
10. Breeding method
11. Ploidy level
12. Subtaxa
13. Seed availability

In the published catalogues, the accessions are listed by alphabetical order of cultivar's name or breeder's line designation.

Primitive cultivars/landraces

1. ECP/GR number
2. Genebank designation
3. Accession number
4. Accession status
5. Name of accession
6. Origin country
7. Collecting Institute
8. Collecting number
9. Collecting date
10. Donor Institute
11. Donor number
12. Ploidy level
13. Subtaxa
14. Seed availability

and the following maintenance descriptors:

1. Country of regeneration
2. Year of regeneration
3. Year of last regeneration
4. Method of regeneration
5. Number of times accessions regenerated.

In the published catalogues, the accessions are generally listed by alphabetical order of their names:

Semi-natural (ecotypes) or wild material

1. ECP/GR number
2. Genebank designation
3. Accession number
4. Accession status
5. Name of accession
6. Origin country
7. Collecting Institute
8. Collecting number
9. Collecting date
10. Donor Institute
11. Donor number
12. Ploidy level
13. Subtaxa
14. Seed availability
15. Province/State
16. Location
17. General habitat
18. Specific habitat
19. Grassland habitat
20. Altitude
21. Latitude
22. Longitude
23. Aspect
24. Slope
25. Site physiography

and the following maintenance descriptors:

1. Country of regeneration
2. Year of regeneration
3. Year of last regeneration
4. Method of regeneration
5. Number of times accessions regenerated.

In the published catalogues, the accessions are generally listed in alphabetical order of origin country:

IV. Deviations to standardized contents

Although all forage databases followed the spirit of the format presented above, it should be noted that specificities of crops, as well as diverse experiences of curators responsible for databases have naturally lead to slight variations in the content of the databases and, consequently, to the variation of the catalogues. For example, the Welsh Plant Breeding Station has added in its databases a descriptor "Atlas location" (refer presentation of the database), INRA-GEVES have preferred to list old cultivars/landraces firstly by alphabetical order of country of origin rather than by alphabetical order of name; in FAL, Braunschweig, all named accessions have been listed together; Changins, Switzerland, is providing longitude, latitude and altitude data for some of the landraces collected by themselves, etc. Some databases have not included in their catalogues data relating to regeneration of the accessions or descriptors relating to the site in which the accession was collected ("Aspect", "Slope", "General habitat", etc.) in view of the scarcity of available data for these descriptors. In many cases these slight variations or omissions from catalogues are of significance only for the readers of catalogues/print-outs, as the users of the databases under computerized form will obviously obtain all data which are registered in the databases and will also sort out the data in any order they wish.

THE DATABASE FOR *BROMUS*

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Database content:

The database for genus *Bromus* records 385 accessions of 42 brome grasses. The majority of the accessions are of European origin.

The database registers 12 advanced cultivars/breeder's lines, 91 ecotypes, 137 wild species and 145 other (unclassified) accessions.

Database availability:

The database of genus *Bromus* is available for users in the form of 5 1/4" IBM-compatible floppy disks and a complete print-out.

The following Institutes have provided data:

Zentralinstitut für Genetik und Kulturpflanzenforschung (ZIGuK), Gatersleben, DDR

Station d'Amélioration des Plantes Fourragères (SAPF), INRA, Lusignan, France

INRA-GEVES, La Minière, Guyancourt, France

Fodder Crops and Pastures Institute, Larisa, Greece

Research Centre for Agrobotany (RCA), Tapioszele, Hungary

Istituto del Germoplasma, Bari, Italy

Plant Breeding and Acclimatization Institute, Radzikow, Poland

Aegean Agricultural Research Institute (AARI), Izmir, Turkey

Royal Botanic Gardens Kew, Kew, UK

Table I

Bromus spp.

Bromus species recorded in the database

Species	No. of accessions
B. aleutiensis	2
B. alopecurus	2
B. arvensis	3
B. benekeni	2
B. carinatus	5
B. catharticus	8
B. caroli-henri	1
B. commutatus	1
B. diandrus	1
B. erectus	29
B. fasciculatum	1
B. ferronii	1
B. fibrosus	1
B. grossus	4
B. hordeaceum	10
B. himalaiais	1
B. inermis	190
B. intermedius	9
B. interruptus	2
B. japonicus	12
B. macrostachys	2
B. madritensis	5
B. millis	6
B. maximus	1
B. nubeus	1
B. patulus	1
B. pseudothominii	1
B. racemosus	1
B. ramosus	6
B. rigidus	3
B. rubens	2
B. scoparius	2
B. seclinus	19
B. sitchensis	1
B. sterilis	11
B. squarosus	8
B. syriacus	2
B. tectorums	17
B. uniloides	1
B. villosus	2
B. waldivineus	1
B. willdenowii	2
B. spp.	5
Total	**385**

Table II

Bromus spp.

Bromus accessions classified by country of origin

Country of origin	No. of accessions
Czechoslovakia	12
Greece	36
United Kingdom	18
Hungary	76
New Zealand	1
Germany, Dem. Rep. of	10
Italy	16
Libya	1
Malta	1
India	1
Finland	2
Mongolia	1
Poland	10
Romania	1
USSR	2
China, P.R. of	2
Iran	6
Spain	2
Wallis & Fortuna Islands	1
Algeria	2
other	148
Total	**385**

Standard varieties of *Bromus* in Middle and Northern Europe

Bromus inermis	Szarvasi 52	Hungary
Bromus sitchensis	Lubro	France
Bromus cathartiens	Bellegarde	France

THE DATABASES FOR *DACTYLIS* AND *FESTUCA*

Dr. J. Serwinski, Plant Breeding and Acclimatization Institute, Radzikow, Poland

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Computer/software:

The databases for *Dactylis spp.* and *Festuca spp.* have been installed on an IBM-PC/XT/AT compatible computer under dBase III Plus.

Database availability:

Catalogues, extracted listings, complete print-outs or floppy disks in IBM DOS format can be sent on request.

Database content:

The *Dactylis* database comprises passport data of 2754 accessions and the *Festuca* database that of 2314 accessions.

Catalogues:

Complete catalogues have been published in 1985 and 1987.

Table I

Dactylis spp.

Accessions classified by contributing institute

Institute	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
BELCLOGRVP	2			2
BGRIIPR	32		144	176
CHERAC			122	122
CSKZUBRI	79			79
DDRGAT	10		21	31
DEUBGRC	109		211	320
ESPMADRCC			31	31
FRAINRAMAG	20			20
FRAINRALUS			22	22
GBRRBG			39	39
GBRWPBS			389	389
GRCFCPI	8		66	74
HUNRCA	59		90	149
IRLAFT			55	55
ITAIDG			212	212
ITAIMGV	2		6	8
POLIHAR	42		840	882
TURARARI			165	165
Total	**363**		**2,391**	**2,754**

Table II

Dactylis spp.

Accessions classified by country of origin

Origin country	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
Australia	1		2	3
Austria			4	4
Belgium			9	9
Bulgaria	2		1	3
Switzerland	1		63	64
Czechoslovakia	6		6	12
Germany, Dem. Rep. of	2		58	60
Germany, Fed. Rep. of	4		226	230
Denmark	14		6	20
Algeria			11	11
Spain			214	214
Finland	4		9	13
France	18		59	77
United Kingdom	11		9	20
Greece	3		19	22
Hungary	12		82	94
Indonesia	1			1
Ireland			61	61
Iran			3	3
Italy	5		218	223
Japan	4			4
Libya			2	2
Malta			1	1
Netherlands	9			9
Norway	2		8	10
New Zealand	2		2	4
Poland	9		499	508
Portugal			4	4
Romania	3		3	6
USSR	16		5	21
Sweden	5		10	15
Turkey			181	181
USA	10			10
Yugoslavia	2		4	6
Unknown	217		612	829
Total	**363**		**2,391**	**2,754**

Table III

Festuca spp.

Accessions classified by contributing institute

Institute	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
BELCLOGRVP	2			2
BELHBULG			55	55
BGRIIPR	12		14	26
CHERAC			91	91
CSKZUBRI	100			100
DDRGAT	20		46	66
DEUBGRC	80		99	179
ESPMADRCC	4		7	11
FRAINRAMAG	93			93
FRAINRALUS			22	22
GBRRBG			51	51
GBRWPBS			318	318
GRCFCPI	13		18	31
HUNRCA	157		171	328
IRLAFT			30	30
ITAIDG			118	118
ITAIMGV	1		15	16
POLIHAR	27		726	753
TURARARI			24	24
Total	**509**		**1,805**	**2,314**

Table IV

Festuca spp.

Accessions classified by country of origin

Origin country	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
Andorra			1	1
Australia	2		1	3
Austria			1	1
Belgium	5		11	16
Bulgaria	4		1	5
Canada	2			2
Switzerland			49	49
China, P.R. of	1			1
Czechoslovakia	13		11	26
Germany, Dem. Rep. of	5		31	36
Germany, Fed. Rep. of	21		110	131
Denmark	23		4	27
Algeria			11	11
Spain	3		15	18
Finland	7		2	9
France	39		86	125
United Kingdom	14		20	34
Greece	1		12	13
Hungary	57		142	199
Ireland			30	30
Italy			116	116
Japan	2			2
Morocco			2	2
Netherlands	91			91
Norway	1		41	42
Poland	10		479	489
Portugal			1	1
Romania	4		39	43
USSR	7		17	24
Sweden	8		8	16
Tunisia			3	3
Turkey			31	31
USA	10			10
WBE(?)			1	1
Yugoslavia	2		3	5
Unknown	177		526	803
Total	**509**		**1,805**	**2,314**

Standard varieties of *Dactylis glomerata* in Middle and Northern Europe

Early	Floreal	France
Intermediate	Hera	Poland
	Lidacta	FRG
Late	Baraula	Netherlands

Standard varieties of *Festuca arundinacea* in Middle and Northern Europe

Early	Manade	France
Late	Clarine	France
	or	
	Barcei (palatable)	Netherlands

Standard varieties of *Festuca pratensis* in Middle and Northern Europe

Early	Barpresto	Netherlands
	or	
	NFG	FRG
Intermediate	Benfesta	DDR
	or	
	Cosmos	FRG
Late	Bundy	Netherlands

THE DATABASE FOR *LATHYRUS*

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General description of species within the database:

The genus *Lathyrus* belongs to tribe *Viciae* of the Legume family. The species in which we have been interested all belong to section *Lathyrus* of the genus (Kupicha, 1983). These species are the following:

1. *Lathyrus sativus L.* (grass pea, khesary, gwaya, etc.), which has been cultivated since Neolithic time from South Europe to India, through North Africa and Ethiopia. It is particularly important in India where the culture occupied 1.6 million ha. in 1981. It grows well on poor soils, dry or swamped, and consequently is well adapted to desherited regions. Its seeds, however, contain a neurotoxin, "BOAA" (a non-proteic aminoacid) which is the cause of lathyrism, a disease afflicting many thousands of poor people in Bangladesh, India and Ethiopia. Low BOAA content lines have been selected in India, Bangladesh and Canada (Campbell, 1988).

2. *Lathyrus cicera L.* (dwarf chicklingvetch) is generally considered as the wild type of *L. sativus* (Jackson et al., 1984).

3. *Lathyrus tuberosus L.* (earch chesnut) is a perennial, pan-European species, the tubers of which are sometimes consumed and are very protein rich (Hossaert-Palauqui and Delbos, 1983).

4. *Lathyrus sylvestris L.* (flatpea) is equally perennial and grows wild in Western and Northern Europe. In the mountains of the Pyrenees and the Alps it has been found up to an altitude of 1800 m. It was once cultivated as a forage. Flatpea has excellent soil stabilization qualities. Improved varieties have been selected at the beginning of 20th century: "Wagner", Latcho", etc.

5. *Lathyrus latifolius L.* (everlasting pea) is related to *L. sylvestris* and is supposed to hybridize with it (Davies, 1958). The vegetative forms are very similar but flowers of *L. latifolius* are bigger and more numerous for each inflorescence. It can also be used as a soil stabilising plant.

6. *Lathyrus heterophyllus* is very similar to *L. latifolius* except that the leaves are often more 2-folialated.

Computer software:

DBase III Plus

database availability:

Catalogues, extracted listings, floppy disks of 5 1/4".

References

Campbell, C. 1988. World germplasm resources of *L. sativus*. In *Lathyrus* and Lathyrism II. Third World Medical Research Foundation. New York

Davies, A.J.S. 1958. A cytotaxonomic study in the genus *Lathyrus*. Ph.D. thesis, Manchester University.

Hossaert-Palauqui, M., Delbos, M. 1983. *Lathyrus tuberosus L.* Biologie et amélioration des plantes. J.A.T.B.A. XXX, 49-58

Jackson, M.T., Yunus, A.G. 1984. Variation in the grasspea (*Lathyrs sativus L.*) and wild species Euphytica 33, 549-559

Kupicha, F. 1983. The infrageneric structure of *Lathyrus*. Notes. Royal Botanic Gardens Edinbourgh, 41, 209-244

Table I

Lathyrus sativus

Accessions classified by contributing Institute

Institute	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
FRAIBEAS		179		179
INTICARDA		246		246
NAA		76		76
Other		7		7
Total		**508**		**508**

Table II

Lathyrus sativus

Accessions classified by country of origin

Origin country	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
Afghanistan		4		4
Bulgaria		10		10
Czechoslovakia		12		12
Cyprus		44		44
Germany, Dem. Rep. of		5		5
Spain		8		8
Ethiopia		120		120
France		54		54
Greece		37		37
Hungary		5		5
India	2	13		15
Iran		15		15
Nepal		76		76
Poland		10		10
Portugal		6		6
USSR		25		25
Tunisia		38		38
Turkey		8		8
Other		16		16
Total	2	506		508

Table III

Lathyrus cicera

Accessions classified by contributing institute

Institute	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
FRAIBEAS			34	34
INTICARDA			139	139
Total			**173**	**173**

Table IV

Lathyrus cicera

Accessions classified by country of origin

Origin country	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
Canada			12	12
Cyprus			4	4
Spain			10	10
Greece			59	59
Syria			80	80
Other countries			8	8
Total			**173**	**173**

Table V

Lathyrus tuberosus

Accessions classified by contributing institute

Institute	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
FRAIBEAS			232	232

Table VI

Lathyrus tuberosus

Accessions classified by country of origin

Origin country	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
Czechoslovakia			3	3
Germany, Dem. Rep. of			4	4
Germany, Fed. Rep. of			20	20
Denmark			9	9
France			117	117
United Kingdom			4	4
Hungary			65	65
Romania			6	6
USSR			2	2
Yugoslavia			2	2
Total			232	232

Table VII

Lathyrus sylvestris

Accessions classified by contributing institute

Institute	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
FRAIBEAS			633	633
GBRRBG			3	3
USA		1	1	2
Total		**1**	**637**	**638**

Table VIII

Lathyrus sylvestris

Accessions classified by country of origin

Origin country	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
Belgium			1	1
Switzerland			20	20
Czechoslovakia			3	3
Germany, Dem. Rep. of			2	2
Denmark			7	7
Spain			93	93
France			496	496
United Kingdom			8	8
Romania			1	1
USSR			1	1
USA			1	1
Yugoslavia		1	1	2
Total		**1**	**634**	**635**

Table IX

Lathyrus latifolius

Accessions classified by contributing institute

Institute	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
FRAIBEAS		1	283	284
United Kingdom			1	1
INTICARDA			3	3
USA		1		1
Total		**2**	**287**	**289**

Table X

Lathyrus latifolius

Accessions classified by country of origin

Origin country	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
Belgium			3	3
Switzerland			25	25
Germany, Dem. Rep. of			6	6
Spain			2	2
France		1	231	232
United Kingdom			3	3
Hungary			2	2
Romania			2	2
USA			2	2
Other countries			2	2
Total		**1**	**278**	**279**

Table XI

Lathyrus heterophyllus

Accessions classified by contributing institute

Institute	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
FRAIBEAS			79	79
GBRRBG			1	1
Total			**80**	**80**

Table XII

Lathyrus heterophyllus

Accessions classified by country of origin

Origin country	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
Belgium			1	1
Bulgaria			1	1
Switzerland			1	1
Spain			1	1
France			76	76
Total			**80**	**80**

THE DATABASES FOR *L. PERENNE, L. MULTIFLORUM* AND *T. REPENS*

B.F. Tyler, Welsh Plant Breeding Station, Aberystwyth, UK

Curators:

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Computer/software:

The databases have been constructed using DATATRIEVE/FMS software on a Digital Vax 11/750 and follow the standardized content agreed in 1980, with only a few variations.

The major variation is that two rather than three separate files are maintained, advanced and primitive cultivars are stored in the same file rather than separately. This change was brought about by differences of opinion from contributing Institutes as to the status of particular cultivar accessions which led to the same cultivar occurring in both files. This was obviously unsatisfactory when searches were made.

Another variant, the inclusion of the descriptor ATLAS LOCATION is particularly important when latitude and longitude are not available, as is often the case. ATLAS LOCATION is the nearest gazeteer entry to the collection location found in a nationally recognized atlas (which should be specified). The WPBS entires are located in the Times Atlas (6th/7th Edition). This facility avoids considerable frustration by the recipient of seed samples who may be concern ed with eco-geographic research and receive locality-data known only to the sender. The use of ATLAS LOCATION gives the recipient the means of reasonable approximation of the origin.

Database availability:

Supplies of the catalogues are now severely limited but the database is freely available on VAX compatible magnetic tape and IBM AT/XT compatible discs.

Databases content:

All three databases have a reasonably good coverage of old, new and primitive cultivars with 350, 160 and 200 unique entries of *L. perenne*, *L. multiflorum* and *T. repens* respectively. However, the numbers of wild and semi-natural *L. perenne* ecotypes (2,200) is far in excess of *L. multiflorum* (100) and *T. repens* (240). This partly reflects the greater breeding interest in *L. perennne*.

Catalogues:

Second editions of the three catalogues were published in November 1987 and printed copies have been distributed to all participating Institutes.

Notes:

The construction of computerized databases to document all forage grass and legume holdings in European Institutes was started in 1984.

The three databases organized by WPBS, *Lolium perenne*, *L. multiflorum* and *Trifolium repens* represent the most important forages grown in UK and NW Europe and as such could play an important role in the future, as well as the present, as source material for breeders in these regions.

The eco-geographical coverage of the accessions of the three species, compared with their known distribution is of considerable importance, and an ongoing investigation usring UNIRAS graphics software aims to map the holdings in order to identify gaps in collection.

The databases are updated at irregular intervals depending on the volume of the input of new accessions. A third updated edition is anticipated for the end of 1989 and geographical mapping of the accessions in 1990.

Table I

Lolium perenne

Accessions classified by contributing institute

Institute	Advanced cultivars Breeder's line Named; Status not recorded	Primitive cultivars/ Landraces	Ecotypes (semi-natural) and wild Un-named; Status not recorded; Botanical Garden Sample	Total
BELCLOGRVP RVP, Merelbeke	6	9		15
BGRIIPR, Sadovo	9			9
CSKZUBRI, Zubri	116	1		117
DDRGAT, Gatersleben	7		5	12
DEUBGRC, Braunschweig	95	9	254	358
ESPINIALO, Badajoz	6			6
FRAINRAMAG, Surgeres	120			120
GBRNIKROT, Nickerson RPB	3			3
GBRRBG, Royal Bot. Gardens			20	20
GBRWPBS, Aberystwyth	189	15	1,089	1,293
GRCFCPI, Larissa	20	2	9	31
IRLAFT, Carlow			215	215
ITAIDG, Bari			28	28

.../...

Table I (cont'd)

Lolium perenne

Accessions classified by contributing institute

Institute	Advanced cultivars Breeder's line Named; Status not recorded	Primitive cultivars/ Landraces	Ecotypes (semi-natural) and wild Un-named; Status not recorded; Botanical Garden Sample	Total
ITAMGV, Perugia	1		13	14
NLDCGN Wageningen	29		131	160
POLIHAR, Radzikow	18		882	900
TURARARI, Izmir			39	39
Total	**619**	**36**	**2,685**	**3,340**

Additional accessions from BELCLOGRVP, DEUBGRC, GBWWPBS and GRCFCPI will appear in the third edition

Table II

Lolium perenne

Accessions classified by country of origin

Origin country	Advanced cultivars Breeder's line Named; Status not recorded	Primitive cultivars/ Landraces	Ecotypes (semi-natural) and wild Un-named; Status not recorded; Botanical Garden Sample	Total
Australia	3		6	9
Belgium	9	5	16	30
Canada	1			1
Switzerland			36	36
Czechoslovakia	6		62	68
Germany, Dem. Rep. of	3		8	11
Germany, Fed. Rep. of	23		225	248
Denmark	31			31
Spain			9	9
Finland	2			2
France	5		52	57
GBE	5	3	121	129
GBI	3			3
GBS	1			1
GBW	20		96	116
Greece			14	14
Hungary	1		7	8
Ireland	7		519	526
Italy	3		97	100
Japan	2			2
Luxembourg			3	3
MAD			2	2
Netherlands	112		36	148
Norway			13	13
New Zealand	8		12	20
Poland			813	821
Portugal			1	1
Romania		1	38	39
USSR	1	12	9	22
Sweden	5			5
Turkey	6		68	74
USA	11			11
Total	**268**	**21**	**2,263**	**2,552**

Table III

Trifolium repens

Accessions classified by contributing institute

Institute	Advanced cultivars Breeder's line Named; Status not recorded	Primitive cultivars/ Landraces	Ecotypes (semi-natural) and wild Un-named; Status not recorded; Botanical Garden Sample	Total
BELCLOGRVP RVP, Merelbeke	2			2
CSKTROUBSK, Troubsko	92	4	3	99
DDRGAT, Gatersleben	9	1	2	12
DEUBGRC, Braunschweig	18			18
FRAINRAMAG, Surgeres	25			25
GBRRBG, Royal Bot. Gardens			37	37
GBRWPBS, Aberystwyth	18	37	42	97
GRCFCPI, Larissa	16		17	33
HUNRCA, Tapioszele	98	3	35	136
ITAIDG, Bari			16	16
ITAMGV, Perugia	3		27	30
TURARARI, Izmir			67	67
Total	**271**	**45**	**246**	**562**

Additional accessions from DEUBGRC, GBWWPBS and GRCFCPI will appear in the third edition

Table IV

Trifolium repens

Accessions classified by country of origin

Origin country	Advanced cultivars Breeder's line Named; Status not recorded	Primitive cultivars/ Landraces	Ecotypes (semi-natural) and wild Un-named; Status not recorded; Botanical Garden Sample	Total
Argentina	1			1
Australia	2			2
Belgium	2			2
Canada	2			2
Switzerland			1	1
Czechoslovakia	10			10
Germany, Dem. Rep. of	1		6	7
Germany, Fed. Rep. of	7		1	8
Denmark	18			18
Finland	1			1
France	6		3	9
GBE	3		5	8
GBW	9			9
Greece			34	34
Hungary	5	3	34	42
Ireland	1			1
Italy	4		61	65
Japan	1			1
Netherlands	10		2	12
New Zealand	2		1	3
Poland	6		1	7
Portugal			2	2
Romania		1	1	2
USSR	4	1	1	5
Sweden	7	1		8
Turkey				80
USA	10			10
Yugoslavia			3	3
Total	**112**	**6**	**156**	**274**

Table V

Lolium multiflorum

Accessions classified by contributing institute

Institute	Advanced cultivars Breeder's line Named; Status not recorded	Primitive cultivars/ Landraces	Ecotypes (semi-natural) and wild Un-named; Status not recorded; Botanical Garden Sample	Total
BELCLOGRVP RVP, Merelbeke	3	2		5
BGRIIPR, Sadovo	12			12
CSKZUBRI, Zubri	50			50
DDRGAT, Gatersleben	4		6	10
DEUBGRC, Braunschweig	34	2	74	110
FRAINRALUS, Lusignan	4	2		6
FRAINRAMAG, Surgeres	68			68
GBRNIKROT, Nickerson RPB	2			2
GBRRBG, Royal Bot. Gardens	-		1	1
GBRWPBS, Aberystwyth	76	4	120	200
GRCFCPI, Larissa	11			11
ITAIDG, Bari			17	17
NLDCGN Wageningen	1		2	3
Total	**255**	**10**	**210**	**475**

Additional accessions from BELCLOGRVP, DEUBGRC and GBWWPBS will appear in the third edition

Table VI

Lolium multiflorum

Accessions classified by country of origin

Origin country	Advanced cultivars Breeder's line Named; Status not recorded	Primitive cultivars/ Landraces	Ecotypes (semi-natural) and wild Un-named; Status not recorded; Botanical Garden Sample	Total
Belgium	3	1	11	15
Brazil	1			1
Switzerland	2			2
Czechoslovakia	5			5
Germany, Dem. Rep. of			1	1
Germany, Fed. Rep. of	10		2	12
Denmark	8			8
Spain			8	8
France	11		1	12
GBE	7		3	10
GBI	1			1
GBW	6		3	9
Hungary			7	7
Ireland	1		1	2
Italy	1		68	69
Japan	8			8
Netherlands	38			38
New Zealand	8		12	20
Poland	7			7
Portugal			2	2
Romania		1		1
Sweden	2			2
Total	**119**	**2**	**110**	**231**

Standard varieties of *Lolium perenne* in Middle and Northern Europe

Early	2n	Mantilla	UK
		or	
		Cropper	Netherlands
		or	
		Liprior	FRG
	4n	Bastion	Netherlands
Intermediate	2n	Sisu	Denmark
		or	
		Talbot	Netherlands
	4n	Citadel	Netherlands
Late	2n	Vigor	Belgium
		or	
		Maprima	DDR
		or	
		Liparis	FRG
	4n	Condesa	Netherlands

Standard varieties of *Lolium multiforum* in Middle and Northern Europe

Wasterworld	2n	Barwester	Belgium
		or	
		Liwega	FRG
	4n	Barpectra	Netherlands
		or	
		Jivet	CSSR
Alternative	2n	Asso I	Italy
	4n	Billion	Netherlands
Non alternative	2n	Lemtal	Belgium
	4n	Lipo	Switzerland
		or	
		Lolita	CSSR

Standard varieties of *Trifolium repens* in Europe

Ladino	Lune de Mai	France
	or	
	NFG Gigant	FRG
Hollandicum	Olwen	UK
	or	
	Grasslands Huia	New Zealand
	or	
	Lirepa	FRG

THE EUROPEAN DATABASE FOR *MEDICAGO* (ANNUAL SPECIES) AND *TRIFOLIUM SUBTERRANEUM*

F. González López, Servicio de Investigación Agraria, Badajoz, Spain

Curator:

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Computer/software:

All data are maintained on an IBM AT Computer.

Database availability:

The data can be sent on request either on IBM DOS compatible disks or print-outs.

Database content:

The database contains 2,447 records of *T. subterraneum* and 1,246 records of *Medicago* (annual).

Catalogues:

The second edition of *Trifolium subterraneum* and *Medicago* (annual species) catalogues was available in December 1988.

Records are sorted by their status (in three main formats) following the recommendations made by the ECP/GR group of IBPGR/FAO in 1987 with the following specifications:

Format 1 has been classified by alphabetical order of cultivars name or breeding's line, coming first the unnamed breeder's line.

Format 3 has been classified firstly by subspecies in *T. subterraneum* and by species in *Medicago*. This list appears unfilled for those ecotypes that have not been classified yet. Likewise, when under Complementary Information appers: "Ex 100 A", it means that this accession proceeds from "100" and has been separated to form this new line.

Notes:

With the publication of the catalogues, we have fulfilled the objectives of compiling information from the different databases of the Mediterranean area making them available to Centers, Institutions, and research workers interested in the conservation and improvement of genetic resources, one of the most important issues of humankind today.

This Center assumes the responsibility of maintaining the *Trifolium subterraneum* and *Medicago* (annual species) database and will be pleased to accept any further information that Institutes and researchers may sent in order that the catalogues may be kept up to date.

With the aim of keeping this database active and able to fulfill its objective, we would like to encourage Institutions and research teams working with *Trifolium subterraneum* and annual medics to require any other information they wish.

Small quantitities of seeds of certain accessions and "standard" varieties are available on request.

Table I

Trifolium subterraneum

Accessions classified by contributing Institute

Institute	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
AUSCSIRO	2		26	28
DDRGAT	5		7	12
DEUBGRC	15	21		36
ESPINIALO	136	5	2,057	2,198
GRCFCPI	11			11
ITAIDG			10	10
ITAIMGV			2	2
TURARARI			12	12
USAPIO	6		132	138
Total	**175**	**26**	**2,246**	**2,447**

Table II

Trifolium subterraneum

Accessions classified by country of origin

Origin country	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
Australia	42	4	1	47
Cyprus			15	15
Greece	7		72	79
Morocco	2		48	50
Portugal	6		220	226
Spain	96		1,541	1,637
Tunisia	2		40	42
Turkey			18	18
Other	4	1	21	26
Unknown		20	287	307
Total	**159**	**25**	**2,263**	**2,447**

Table III

Medicago (annual)

Accessions classified by contributing Institute

Institute	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
AUSCSIRO			18	18
DDRGAT	1	2	79	82
DEUBGRC		1		1
ESPINIALO	14	1	457	472
GBRRBG			94	94
GRCFCPI	1	2	26	29
ISRIGB			348	348
ITAIDG			14	14
ITAIMGV			2	2
TURARARI			186	186
Total	**16**	**6**	**1,224**	**1,246**

Table IV

Medicago (annual)

Accessions classified by country of origin

Origin country	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
Cyprus	2		170	172
Greece		1	142	143
Israel		1	353	354
Italy			24	24
Portugal			57	57
Spain			173	173
Turkey			191	191
Other	8	4	70	82
Unknown	6	1	43	50
TOTAL	**18**	**6**	**1,222**	**1,246**

Standard varieties of *Trifolium subterraneum* in the Mediterranean zone

	Daliak	Australia
	Woogenelupp	Australia
	Clare	Australia
	Trikkala	Australia

Standard varieties of *Medicago* (annual species) in the Mediterranean zone

Medicago littoralis	Harbinger	Australia
Medicago polymorpha	Circle Valley	
	Serena	
Medicago rugosa	Paragosa	Australia
Medicago scutellata	Robinson	Australia
Medicago truncatula	Sephi	Australia

THE DATABASE FOR *MEDICAGO* (PERENNIAL SPECIES)

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Computer/software:

The database is established on a DIGITAL VAX 11-750 using DATATRIEVE software.

Database availability:

We offer to answer any special request for sorting a whole or part of the database.

Database content:

The database contains 1,314 accessions of *Medicago* (perennial) germplasm, conserved in 16 genebanks.

Catalogues:

The fourth edition of the European catalogue of *Medicago* (perennial species) has been published following the recommendations made by the ECP/GR group of IBPGR/FAO in 1987 (RER/81/008).

The accessions are sorted by their status (in three main formats) and, within each format, by various criteria.

Format 1. Advanced cultivars and breeder's lines listed in alphabetical order of cultivar name.

Format 2. Primitive cultivars (landraces, status unrecorded cultivar named) is the first listed in order of country of origin, then in alphabetical order for each country of origin.

Format 3. Semi-natural, wild, status unrecorded cultivar unnamed is first listed in order of country of origin.

Format 4. Unknown accession status will disappear progressively.

Although the catalogue is somewhat defective (spelling mistakes, classification errors, incompleteness and so on), it has been evolving from year to year, and begins to be used successfully by breeders. In agreement with the genebanks concerned, the next years will be devoted to:

- collecting missing plant genetic resources,
- distributing maintenance tasks,
- duplicating a core collection,
- mapping the geographical distribution of landraces and wild species.

Notes:

We kindly invite all the institutes which have collaborated in this work to send to us any modification, addition or deletion that are necessary to update the catalogue.

Table I

Medicago (perennial)

Accessions classified by contributing institute

Institute	Format 1	Format 2	Format 3	Total
BELCLOGRVP		1		1
CSKPIEST	7	2		9
CSKTROUBSK	171	15		186
DDRGAT		1	27	28
DEUBGRC	57	7		64
FRAINRAGVS	60	22	12	94
FRAINRALUS	6		1	7
FRAINRAMPG			6	6
GERRGB	100	35		135
GRCFCPI	221	234	10	465
HUNRCA	5	1	8	14
ITAIDG	5	1	8	14
ITAIMGV	7	1		8
MARHASSAN	1		52	53
POLIHAR	13		2	15
TURARARI		14	198	212
Total	**648**	**343**	**323**	**1,314**

Table II

Medicago (perennial)

Accessions classified by country of origin

Origin country	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
Australia		2(1)		2
Austria			1(1)	1
Belgium		2(1)		2
Bulgaria			1(1)	1
Czechoslovakia		3(3)		3
Germany, Dem. Rep. of		1(1)		1
Germany, Fed. Rep. of		7(2)		7
France		22(5)	2(2)	24
Greece		24	3(2)	27
Hungary		194		194
Israel		1		1
Italy		23(12)	9	32
Morocco		7(7)	54	61
Poland		2(1)	2(2)	4
Romania		2(1)		2
Spain		7(5)	4(4)	11
Tunisia		2(1)		2
Turkey		15	195	210
USA		4(4)	2(1)	6
USSR		2(2)	11	13
Yugoslavia		1(1)	2(1)	3

1st number = total number of accessions
2nd number = number of different accessions

Standard varieties of *Medicago* (perennial) in Europe

Medicago sativa	Aragon	Spain
	Europe	France
	Magali	France
	Moapa	USA
	Vertus	Sweden
	Verko	Hungary or DDR

THE DATABASE FOR *PHLEUM*

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Computer/software:

The database for *Phleum* was developed in 1984 and 1985 on a computer running the CP/M operating system. The database has now been transformed to PC/MS-DOS. The database management system used is dBASE IV.

Database availability:

The database or a part of it can be delivered on diskettes as a dBASE database or in any format that dBASE IV can handle (different ASCII formats and formats for other software packages and older versions of dBASE). Both 3.5" (720 kB or 1.44 MB) and 5.25" (360 kB) diskettes can be used.

Database content:

The database contains passport data from 12 institutes for 1950 accessions.

Phleum pratense	1,804
Phleum alpinum	33
Phleum arenarium	11
Phleum bertolonii	18
Phleum hirsutum	3
Phleum montanum	5
Phleum nodosum	4
Phleum paniculatum	1
Phleum phleoides	12
Phleum subulatum	4
Phleum spp.	55

For 496 accessions it has been recorded if seeds are available, which is the case for 448 accessions.

Catalogues:

The first edition of the *Phleum* list was printed in December 1985.

A second edition of the *Phleum* list will be available in 1991.

Notes:

The Nordic Genebank is updating the database in 1991. Additional data are needed especially for cultivars/landraces and ecotypes/wild material. Furthermore, data from some institutes which have been identified as holding *Phleum* collections are still lacking in the database.

Table I

Phleum

Accessions classified by contributing institute

Institute	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
BELCLOGRVP	1			1
CSKZUBRI	45			45
DEUBGRC	217			217
DDRGAT	12	7	5	24
GBRRGB			46	46
GRCFCPI			9	9
HUNRCA	47			47
IRLAFT			32	32
ITAIDG			13	13
POLIHAR			1,176	1,176
REGNGB	107	6	207	320
TURARARI			20	20
Total	**429**	**13**	**1,508**	**1,950**

Table II

Phleum

Accessions classified by country of origin

Origin country	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
Australia	1			1
Austria			1	1
Belgium	2		8	10
Bulgaria	1			1
Canada	1		1	2
Switzerland		1		1
Czechoslovakia	5		22	27
Germany, Dem. Rep. of	1	2	34	37
Germany, Fed. Rep. of	196		12	208
Denmark	22			28
Finland	11	1	15	27
France	6	2	10	18
United Kingdom	9		42	51
Greece			9	9
Hungary	32		6	38
Ireland			32	32
Iceland	3			3
Italy	3		5	8
Japan	2			2
Netherlands	26		1	27
Norway	78	6	7	91
New Zealand	1			1
Poland	4	1	1,045	1,050
Portugal	1		1	2
Romania	1		1	2
SAR			10	10
USSR	1		7	8
Sweden	17		211	228
Turkey			20	20
USA	4			4
Yugoslavia	1		2	3
Total	**429**	**13**	**1,502**	**1,944**

Standard varieties of *Phleum pratense* in Northern and Middle Europe

Early	Odenwälder	FRG
Intermediate	5 352	UK
Late	Farol	Netherlands

THE EUROPEAN DATABASE FOR *POA*

L. Seidewitz, Institut für Pflanzenbau und Pflanzenzüchtung, Braunschweig, FRG

Curator:

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Database availability:

The database is available as computer print-out or as DOS diskettes either 5.25" (360 KB or 1,2 MB) or 3.5" (720 Kb). Diskettes of the same sizes can also be used for data input into the European *Poa* database. This is especially valid for the incorporation of evaluation data.

Database content:

At present the European database on *Poa* comprises 1,137 records.

Notes:

The author appeals to all countries concerned with collections of *Poa* to report new accessions and not to forget also to report evaluation data.

Table I

Poa

Accessions classified by contributing Institute

Institute	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
BELCLOGRVP	2		27	29
CHERAC			17	17
CSKRUZYNE	82		15	97
DDRGAT	6			6
DEUBGRC	16	1	20	37
GBRRGBK			19	19
HUNRCA			30	30
POLIHAR	6		754	760
TURARARI			7	7
Total	**112**	**1**	**889**	**1,005**

Table Ia

Poa

Accessions where the level of selection has not been specified

Institute	No. of Accessions
DDRGAT	36
DEUBGRC	64
HUNRCA	22
POLIHAR	32
Total	**154**

Table II

Poa

Accessions classified by country of origin

Origin country	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
ATB			1	1
Belgium	3		27	30
CDN	1			1
Switzerland			17	17
Czechoslovakia	7		17	24
Germany, Dem. Rep. of			5	5
Germany, Fed. Rep. of	16			17
Denmark	11		1	12
Finland	1			1
France			1	1
United Kingdom			4	4
Greece			5	5
Hungary	3		30	30
Italy			4	4
Japan	1			1
Netherlands	24			24
Norway	3		3	6
New Zealand			1	1
Poland	6		743	749
Romania	1			1
Sweden	11		1	12
Turkey	2		7	9
USA	8			8
Not specified	14		3	17
Total	**112**	**1**	**870**	**983**

Table IIa

Poa

Accessions to which no level of selection has been specified

Origin	Level of selection not specified
Afghanistan	16
Germany, Dem. Rep. of	10
Germany, Fed. Rep. of	3
Spain	3
France	1
United Kingdom	1
Hungary	6
Italy	1
Ireland	16
Iraq	1
Netherlands	3
Pakistan	1
Sweden	1
USSR	10
Turkey	7
USA	1
Yugoslavia	1
Not specified	73
Total	**115**

Standard varieties of *Poa pratensis* in Middle and Northern Europe

Early	Balin	Denmark
Intermediate	Berbi or Ottos	DDR FRG
Late	Monopoly or Apart	Netherlands Netherlands

THE DATABASE FOR *TRIFOLIUM PRATENSE*

Dr. G. Kleijer, Station Fédérale de Recherches Agronomiques de Changins, Nyon, Switzerland

Curator:

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Database availability:

The second edition of the *T. pratense* catalogue is still available. The database is also available on 5.25" floppy disk, format 360 k DOS, code ASCII, or on magnetic tape, density 1600 BPI, code ASCII, without label.

Catalogues:

The first edition of the European catalogue of *Trifolium pratense* was edited in August 1985 and included data of 1,173 accessions from 14 European gene banks.

In the second edition of December 1988, 1,690 accessions from 17 different genebanks are presented.

In both editions, an effort has been made to group duplicates to which we attributed the same ECP number. This sometimes allows us to correct minor mistakes in spelling and to complete (for duplicates) the passport data. As far as we know, all the European gene banks possessing *T. pratense* have their data included in this catalogue. However, we are ready to make modifications, deletions and additions at any time to have this catalogue up-to-date and as complete as possible.

Table I

Trifolium pratense

Accessions classified by contributing institute

Institute	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
BELCLOGRVP	3	7	2	12
BGRIIPR	5		1	6
CHEFAP	4	8		12
CHERAC	3			3
CSKPIEST	170	24	48	242
CSKTROUBSK	126	9		135
DDRGAT	15	3	31	49
DEUBGRC	52	34	1	87
FRAINRAGVS	82	3		85
GBRRGB			21	21
GRCFCPI	58	9	58	125
HUNRCA	37	211	132	380
ITAIDG			8	8
NGB	47	122	131	300
NLDCGN	15		121	136
POLIHAR	29			29
TURARARI			60	60
Total	**646**	**430**	**614**	**1,690**

Table II

Trifolium pratense

Accessions classified by country of origin

Origin country	Advanced cultivars breeder's line	Primitive cultivars landraces	Ecotypes (semi-natural) wild	Total
Belgium	19	12	1	32
Canada	8	1	1	10
Switzerland	31	34		65
Czechoslovakia	49	1	12	62
Germany, Dem. Rep. of	14		3	17
Germany, Fed. Rep. of	47	9		56
Denmark	60	2	1	63
Finland	20	48	28	96
France	45	4	2	51
United Kingdom	42	8	4	54
Greece	4		54	58
Hungary	18	194	113	325
Italy	19	1	16	36
Netherlands	33	5	121	159
Norway	3	17	54	74
New Zealand	11			11
Poland	47	1		48
USSR	14	3	52	69
Sweden	72	60	48	180
Turkey			76	76
USA	31	2		33
Divers	29	3	3	35
Not identified	30	25	25	80
Total	**646**	**430**	**614**	**1,690**

Standard varieties of *Trifolium pratense* in Europe

Early	2n	Renova or Arpilles or Mekra	Switzerland France FRG
Intermediate	2n	Kuhn	Netherlands
	4n	Temara	Switzerland
Late	2n	Marino	DDR
	4n	Tetri	France

ANNEX I

Definition of each descriptor

ECP/Number: A "sequential" number for each accession starting from one for each species (or forage list from a database). Identified duplicates should receive the same number (refer to *Trifolium pratense* list). Once assigned, this number should never be reassigned to another accession in next editions.

Genebank designation: Standardized acronyms for the collection holding the material, use list of acronyms prepared and distributed by Dr. J. Serwinski, Radzikow, which is recommended by ECP/GR/IBPGR.

Accession number: This number serves as a unique identifier for accessions and is assigned by the curator when an accession is entered into his collection. Once assigned this number should never be reassigned to another accession in the collection. Even if an accession is lost, its assigned number is still not available for re-use. Letters should occur before the number to identify the genebank or national system (e.g. MG indicates an accession comes from the genebank at Bari, Italy; ABY an accession from Welsh Plant Breeding Station, Aberystwyth, UK).

Accession status: Accession status to be used if your list is not splitted in different categories within the same format:

Descriptor states:

1	Advanced cultivars	5	Semi-natural, ecotypes
2	Breeder's lines	6	Wild
3	Primitive cultivars/landraces	7	Status unrecorded; unnamed accession
4	Status unrecorded; named accession		

Name of accession: Designation assigned to breeder's material or designation assigned to an accession.

Origin country: Use 3 letters of FAO/IBPGR Country Code. This is the country of origin of the cultivar (or breeder's line) and does not relate necessarily to the origin of the material that was used in the development of the cultivar.

Donor's institute: Use acronyms recommended by ECP/GR/IBPGR (see under 2.). If a donor's institute is not included in this list of acronyms, please contact this institute for its acronym and inform Radzikow on the new acronym. An updated list of these acronyms will be periodically circulated.

Donor's number: Number assigned to accession by donor.

Breeding/maintaining institute: Use acronyms as in 2. and 6. B (breeder), M (maintainer) should be added as a postscript, when the precise information is available! (e.g. POLIHAR M)

Breeding method: Use following descriptor states:

1	Intrapopulation selection	2	Mass selection (Interpopulation selection)
3	Pair cross	4	Polycross
5	Backcross	6	Polyploidization
7	Mutation	8	Other

Alternatively write the used breeding method in full letters.

Ploidy level: Give the somatic chromosome number.

Subtaxa: e.g. subspecies of *Dactylis glomerata*, *Medicago sativa* and botanical varieties of *Festuca pratensis* and *F. arundinacea*, etc.

Seed availability: Accessions, pending multiplication, may be temporarily unavailable.

.../...

ANNEX I (cont'd)

Collecting institute: Use acronyms as recommended by ECP/GR/IBPGR

Collecting number: Original number assigned by collector of the sample, normally composed of the name or initals of the collector(s) followed by a number. This item is essential for identifying duplicates held in different collections and should always accompany sub-samples wherever they are sent.

Collecting date: Expressed numberically, e.g. March = 03, 1980 = 80

Country of regeneration: Use three letters of FAO/IBPGR abbreviations.

Year of regeneration: YY

Year of last regeneration: YY

Method of regeneration: Code 1 to 3 as follows:

1. Field - with precaution taken against alien pollination
2. Glasshouse - with precaution taken against alien pollination
3. Open pollination (refer to descriptor 1.15 of Appendix IV of Forages Working Group report)

Number of times accessions regenerated: Number of regenerations since receipt of the accession in the maintaining genebank.

Semi-natural (ecotypes) or wild material

Province/State: Name of administrative sub-division of the country in which the sample was collected.

Location:

1. Location: number of kilometers and direction from nearest town or village or map grid reference (e.g. TIMBUKTU7S means 7 km South of Timbuktu)

2. Atlas: name of atlas or map sheet used to specify 1. above.

3. Atlas location: The place name easily identified in the atlas mentioned in 2. above. This descriptor may save time and effort in identifying the correct area of the exact location in the atlas. Additionally, the exact site location may not be known, but the files may record that the accession was collected in the vicinity of an important village, town. In such a case, descriptors 2. and 3. will only be used.

General habitat: Use codes 1 to 12 as defined or alternatively write in full letters.

1. Forest deciduous
2. Forest evergreen
3. Forest mixed
4. Scrub
5. Parkland
6. Orchard
7. Grassland
8. Moorland
9. Heath
10. Arable
11. Wasteland
12. Other (specify in the NOTES descriptor)

ANNEX I (cont'd)

Specific habitat: Use codes 1 to 6 or alternatively write in full letters.

1. Hedgerow
2. Clearing
3. Path
4. Alongside water, i.e. river, lake, etc.
5. Alongside building
6. Alongside path, road, track, etc.

Grassland habitat: Use codes 1 to 8 or alternatively write in full letters.

1. Abandoned
2. Grazed only (specify intensity)
3. Conservation only (specify)
4. Mainly grazed (specify)
5. Mainly conservation (specify)
6. Zero grazed
7. Lawn
8. Sports turf

Altitude: in meters.

Latitude: e.g. 1030 S. If not possible to give the lat. of the exact location, the nearest atlas location lat. is given and (A) follows atlas location data (e.g. 1030 SA do not refer to the exact site location latitude, but to the latitude of the nearest atlas location).

Longitude: e.g. 1030 S. If not possible to give the lat. and long. of the exact location, the nearest atlas location lat. and long. are given and (A) follows atlas location data.

Aspect: Compass degrees 1-360°. The interest of this descriptor has been questioned by some specialists; this column could be substituted by descriptors for soil pH, bedrock, if the information is available and if so wished by the database.

Slope: Clinometer degrees. The interest of this descriptor has been questioned by some specialists; this column could be substituted by descriptors for soil pH, bedrock, if the information is available and if so wished by the database.

Site physiography:

1. Plain
2. Valley bottom
3. Valley slope
4. Terrace
5. Summit
6. Other (specify)

ANNEX II

Institutes' Acronyms

AUSCSIRO	Commonwealth Scientific and Industrial Research Organization, P.O. Box 1600, Canberra City 2601, Australia
BELCLOGRVP	Rijkscentrum voor Landbouwkunding Onderzoek, Rijksstation voor Plantenveredeling, Burgemeesters van Gansbergelaan 109, B-9200 Merelbeke, Belgium
BELHBULG	Jardin Botanique de l'Université de Liege, Sart Tilman, B-4000 Liege, Belgium
BGRIIPR	Institute of Introduction and Plant Genetic Resources "K. Malkov", 4122 Sadovo, Plovdiv, Bulgaria
CHEFAP	Swiss Federal Research Station for Agronomy, Reckenholtzstrasse 191/211, CH-8092 Zurich, Switzerland
CHERAC	Station Féderale de Recherches Agronomiques de Changins, Route de Duillier, CH-1260 Nyon, Switzerland
CSKPIEST	Research Institute of Plant Production, Bratislava Cesta 122, CK-921 68 Piestany, Czechoslovakia
CSKRUZYNE	Research Institute of Plant Production, 161 06 Praha 6, Czechoslovakia
CSKTROUBSK	Research and Breeding Institute for Fodder Plants, 661 41 Troubsko, Czechoslovakia
CSKZUBRI	Research and Breeding Institute for Fodder Plant, Grassland Research Station, CK-756 54 Zubri, Czechoslovakia
DDRGAT	Zentralinstitut für Genetik und Kulturpflanzenforschung, Correnssstrasse 3, D-0-4325 Gatersleben, Germany
DEUBGRC	Institut für Pflanzenbau und Planzenzuchtung, Bundesallee 50, D-3300 Brausnchweig, Germany
ESPINIALO	Servicio de Investigación Agraria, Junta de Extremadura, Apartado 22, 06080 Badajoz, Spain
ESPMADRCC	
FRAIBEAS	Institut de Biocenotique Experimentale des Agrosystèmes, Université de Pu et des pays de l'Adour, Avenue de l'Université, F-64000 Pau, France
FRAINRAGVS	Institut National de la Recherche Agronomique, GEVES-INRA, La Minière, F-78280 Guyancourt, France
FRAINRALUS	Centre de Recherches de Lusignan, INRA, F-86600 Lusignan, France

.../...

ANNEX II (cont'd)

FRAINRAMAG	Domaine Pluridisciplinaire du Magneraud, INRA, P.O. Box 52, F-17700 Surgères, France
FRAINRAMPG	Station d'Amélioration des Plantes, INRA, Domaine de Melgueil, F-34130 Mauguio, France
GBRNIKROT	Nickerson RPB Ltd., Joseph Nickerson Research Centre, Rothwell, Lincoln LN7 6DT, United Kingdom
GBRRBG	Royal Botanic Gardens Kew, Wakehurst Place, Ardingly, Haywards Heath, West Sussex RH17 6TN, United Kingdom
GBRWPBS	Welsh Plant Breeding Station, Plas Goggerdan, Near Aberystwyth, Dyfed SY23 3EB, United Kingdom
GRCFCPI	Fodder Crops and Pastures Institute, 411 10 Larissa, Greece
HUNRCA	Research Centre for Agrobotany, IPPQ, H-2766 Tapioszele, Hungary
INTICARDA	International Center for Agricultural Research in Dry Areas, P.O. Box 5466, Aleppo, Syria
IRLAFT	An Foras Taluntais, Oak Park Research Centre, Carlow, Ireland
ISRIGB	Israel Gene Bank for Agricultural Crops, Volcani Center, P.O. Box 6, 50-250 Bet Dagan, Israel
ITAIDG	Istituto del Germoplasma, Via G. Amendola 165/A, I-70126 Bari, Italy
ITAIMGV	Istituto di Allevamento Vegetale, Universita' di Perugia, Borgo XX Giugno, I-06100 Perugia, Italy
MARHASSAN	Institut Agronomique et Veterinaire Hassan II, B.P. 6202, Rabat, Morocco
NAA	
NLDCGN	Centre for Genetic Resources the Netherlands, P.O. Box 224, NL-6700 AE Wageningen, The Netherlands
POLIHAR	Plant Breeding and Acclimatization Institute, 05-870 Blonie, Radzikow near Warsaw, Poland
REGNGB	Nordic Gene Bank, P.O. Box 41, S-230 53 Alnarp, Sweden
TURARARI	Aegean Agricultural Research Institute, P.O. Box 9, 35661 Menemen, Izmir, Turkey
USAPIO	Plant Introduction Office, Beltsville Agricultural Research Centre, Beltsville, Maryland 20705, USA