

Asparagus AWorld



THE 100% ASPARAGUS MAGAZINE

#1
YEAR 2019



Varieties undergoing innovation

TECHNIQUE

Biodinámica,
más que la bio



DOSSIER

De la gouge
aux robots



REPORT

Why Mexico
is growing



RETAIL

UK asparagus
market nears
£85 million



by **eurofresh**
the way of fresh

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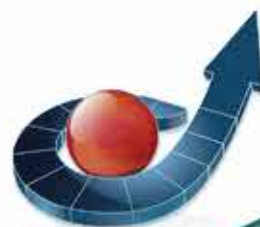
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1 BUSINESS EVENT

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pour s'informer et échanger
sur les enjeux de la filière



CONFERENCES

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avec des essais techniques en intérieur



DEMONSTRATIONS

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de stations de conditionnement

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Aquitaine

Jedi 31 octobre :
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Edito

by Guy Dubon,

Co-editor of Asparagus World
and editor of Réussir Fruits et Légumes



Christian Befve and Guy Dubon,
co-editors

The birth of Homo asparagus

Striking forth from West Africa to gradually spread throughout the world, Homo sapiens undoubtedly consumed young shoots of wild asparagus as he drew near the shores of the Mediterranean, where asparagus officinalis was already acclimated. Discovering agriculture, the ancient hunter-gatherers domesticated asparagus and came to learn how to select the most beautiful plants. Over the centuries, man has carried the asparagus with him across the oceans, establishing the plant all over the world.

For asparagus is a remarkable plant! It grows at all latitudes and in every climate, from deserts to tropical areas of Asia, America, Europe, and Africa - even as far as the islands of the South Seas. Most importantly, however, asparagus is a seductive plant. Discreet, almost secretive, for a period of the year, it emerges abruptly to surprise us with its first shoots and then becomes exuberant with its voluminous foliage before once again rediscovering its intimacy.

With its mysterious, seductive, spellbinding and addictive nature, asparagus captivates. In turn, it has chosen enthusiastic women and men, as well as entrepreneurs and innovators who are both humble and respectful of nature and the environment - passionate and fascinating women and men who are devoted to the taste of asparagus and who live for and from it: thus was born Homo asparagus.

Given that you have just read these few lines, you may well already belong to this species, as do all of those who have participated in the creation of this first edition of Asparagus World. Asparagus World bears witness to the need for the communication, information and exchanges that characterise mankind and, in particular, Homo asparagus.

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Varieties undergoing innovation

There are a great number of asparagus varieties, adapted to all growing conditions throughout the world. Work is being conducted on all of them to raise quality levels and to make them more productive, robust and resistant. In the future, new colours and tastes will be available and the crops will adapt to new technologies.



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De la gouge aux robots

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Asparagus
AWWorld

SARL Publications Agricoles

51, rue Carnus - BP 20131 - 47004 AGEN - FRANCE
Tél. France +33 553 778 367 - Tél. Spain +34 661 324 134
Fax France +33 553 778 371- Fax Spain +34 935 005 254

- Frequency: Annual publication
- Managing Director : Jean-Bernard Pouey
- Co-Editors : Christian Befve, Guy Dubon
- Journalists: Guy Dubon, Julie Butler, Richard Wilkinson, Thomas Kühlwetter, Maria del mar Valenzuela, Belen Barbini
- Translation : Richard Wilkinson, Sandra Mc Lean
- Collaborators: Ciria F. Quispe Samar, Dominique Ruggli, Ana Luisa Olivas Tarango, Christian Befve, Ludger Aldenhoff, Didier Duprat, Christophe Reibel, Michael Koch, Gabriele Orsi, Nadia Venticinque
- Subscription : Rania Bouteumera
- Administration : Maryline Besoli
- Advertising: Pierre Escodo (+33 761 541 522), Maria del Mar Valenzuela, Belen Barbini, Christian Befve (+33 6 862 863 55)
- Mailing: Sud Mailing F47520
- Printer/Impresor : EvoluPrint F31150 Bruguieres
RCS Agen n° 83 B 43 - Siret : B 327 045 605 000 34
Dépôt légal 2nd semestre 2019 - ISSN 2109-3784

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Asparagus brimming with innovations

A great deal of equipment for the cultivation, conditioning and preservation of asparagus is presented at each show and event.




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La production d'asperge au Québec est une course poursuite. Les producteurs québécois montrent beaucoup de dynamisme avec une forte croissance de surface et la promotion de leur produit.




Langages

 *Asparagus World is mainly written in English. Some articles are written in the author's native language and may be translated using applications available on smartphone.*

 *Asparagus World est principalement écrit en anglais. Certains articles sont écrits dans la langue native de leur auteur et peuvent être traduits à partir d'applications disponibles sur smartphone.*

 *ASPARAGUS WORLD esta principalmente escrito en ingles. Algunos artículos estan escritos en el idioma nativo de su autor y pueden estar traducidos a partir de aplicaciones disponibles en Smartphone.*

 *Asparagus World ist hauptsächlich auf Englisch geschrieben. Einige Artikel sind in der Muttersprache ihres Autors geschrieben und könnten von Smartphoneanwendungen übersetzt werden.*

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IAD: A global meeting for asparagus

The next International Asparagus Days (IAD) - the global asparagus meeting point - will take place in Angers, in the Pays de la Loire in France, on 29th and 30th October 2019. Technical visits are also scheduled for 28th and 31st October.

On 29th and 30th October 2019, Angers will be the venue for the next International Asparagus Days, a show entirely dedicated to asparagus, with visits planned to asparagus plantations and canneries near Bordeaux (Nouvelle-Aquitaine) and Angers on 28th and 31st. The event is organised by SIVAL in partnership with Macfrut and Christian Befve, a consultant specialising in asparagus. « *International Asparagus Days is a specialised international event for the whole asparagus sector. After Bordeaux and Cesena, the third edition comes to the Val de Loire, bringing asparagus back to a traditional area of production in France that deserves to be revitalised* », said Bruno Dupont, president of SIVAL. For Renzo Piraccini, president of Cesena Fiera, « *International Asparagus Days is a vertical event that concerns all players in the world of asparagus, from the seed to*



International Asparagus Days expect more than 100 exhibitors and 2,500 visitors from dozens of countries in Angers (France).

the supermarket shelf. »

As highlighted by Christian Befve, the creator of the International Asparagus Days, there is currently an area of 270 000 ha of asparagus in the world, whereas it would take 300 000 ha to meet the total demand. After the crisis of 2010-2012, the market has recovered, with only one accident in 2018 due to the telescoping of European productions. This favourable situation explains the success of previous IAD editions and provides a lot of hope to the organisers of the Angers meeting.

« A global dimension », Bruno Dupont, president of Sival

« International Asparagus Days is an event that gives a global dimension to a traditional regional production of Anjou. It can be a driving force for the relaunch of this high-value-added crop. For us, IAD was the opportunity to collaborate with the organisers of MacFrut in Italy and to create links with SIVAL, a specialised exhibition of fruits and vegetables. The IAD concept, based on specialisation and attracting international exhibitors and visitors with conferences, demonstrations and field visits, is an attractive format that could be transposed to other productions. »



Renzo Piraccini, president of Cesena Fiera, Christian Befve, the creator of the International Asparagus Days, and Bruno Dupont, president of Sival.

Programme



The visits : a programme of visits to businesses is planned: to the south of Bordeaux on 28th October and near Angers on 31st October (registration obligatory).

The exhibition and the equipment demonstrations will take place on 29th and 30th October at the Parc des Expositions d'Angers.

The seminars, held on 29th and 30th October, will focus on topics concerning: asparagus in France and in the world, agro-organic culture, control of production, and evolution of mechanisation and automation. The sponsors will also present their innovations over the two days.

FOR ALL OF THE WORLD'S PRODUCERS

« *We expect more than 100 exhibitors and 2,500 visitors from dozens of countries* », said Morgane Saglio, project manager at Destination Angers, organiser of SIVAL. IAD 2019 will take place in two well-defined periods, with Monday 28th and Thursday 31st October being devoted to technical visits, while the exhibition and the seminars will take place on Tuesday 29th and Wednesday 30th October at the Angers exhibition centre. « *During these two days, we have planned demonstrations of equipment in the halls of the Parc des Expositions on an area of 700 m² specially laid with sand* », said Befve. « *Producing more naturally, controlling costs, achieving greater freshness and quality are common trends for all producers throughout the world* », said Christian Befve. These will be the focus of the many information sessions and exchanges possible during IAD 2019. *AW*

Huelva subsidising asparagus farming



Carmen Castilla from the Provincial Council of Huelva and Manuel Piedra from the UPA (union of small farmers) at a press conference about the subsidies.

Spain's strawberry capital – the province of Huelva – is diversifying via asparagus. The provincial council sees green asparagus in particular as a form of sustainable local agriculture generating income and jobs. It says the benefits will far outweigh the euros 100,000 budget for new

grants of euros 2,000/ha up to a maximum of euros 6,000 per asparagus farm. Huelva is in Andalucia, Spain's top asparagus-growing region, with 9,600 ha of planted area last year and exports of over 15,530 tons worth euros 42.7 million, mainly to countries such as Germany, France and Denmark. *Aw*

Interaspa Praxis 2019



Machines for asparagus and other cultures will be shown at Interaspa Praxis on 4th and 5th September 2019.

On 4th and 5th September the next issue of Interaspa Praxis takes place at the Oelkers Farm in Wenzendorf, just between Bremen and Hamburg. There will be shown a wide range of machines for the sector of spe-

cial cultures like asparagus, strawberries and all kinds of softfruits, stonefruits and christmas trees. An exhibition offers an overview to the latest developments in the sector. *Aw*
More infos : www.interaspa.eu

Explanatory Videos

Asperges de France AOP, the organisation of French producers, aims to provide information to department heads and has created four videos to that end. The first video explains the different colours of asparagus. The second specifies that asparagus is a spring vegetable and uniquely consumed at Easter celebrations. The third will be all about the various means of preparation to show that asparagus is not only for eating cold in

vinaigrette. The fourth video is about the French Origin. These videos are available on the internet site of Asperges de France and its social networks.

Asperges de France AOP represents 30% of French production. It is predicting 5600 tonnes of asparagus for 1000 ha this year. The planted area has stabilised this year after steadily increasing over the past 4-5 years. Areas planted in green asparagus continue to grow. *Aw*



The first video explains the different colours of asparagus.

UK asparagus growers gathering in York

The Asparagus Growers Association Biennial Conference takes place Tuesday July 16 at Lakeside Conference Centre on the world renowned National Agri-Food Innovation Campus (NAFIC) in Sand Hutton, York. Held by the Lincolnshire-based Asparagus Growers Association, registration is now open for exhibitor trade stands and participation. The NAFIC houses institutes including Fera Science Ltd, the Centre for Crop Health and Protection (CHAP), the Institute of Agri-Food Research and Innovation (IAFRI) and the National Bee Unit. Dele-



gates will be given a tour of these outstanding facilities in the afternoon, followed by an asparagus field visit. The event also features a dinner on Monday July 15 at Sandburn Hall, in Flaxton, York. *Aw*
For more information or to register, visit www.asparagusconference.co.uk

World asparagus production on the rise

Asparagus production is growing worldwide: over the last five years, an additional 58,270 hectares have been put into production, rising from 207,280 hectares in 2013 to 265,000 hectares in 2018. At the continental level, the largest production is found in Asia (104,000 ha), followed by Europe (74,000 ha), North America (52,000 ha) and South America (27,000 ha). The continent with the highest growth over the last five years is Asia (+34,800 ha), followed by North America (+17,400 ha) and Europe (+4,500 ha).

» GABRIELE ORSINI

MEXICO

With 29,000 hectares in production (up from 2017 levels), Mexico ranks second behind China among the world's asparagus producers. Production is mainly destined for export, principally to the United States and China. Similar to the US, Mexico's asparagus is mainly green (95%), but unlike the US industry, 90% is marketed fresh. The main producing regions are the states of Sonora, Baja California and Guanajuato.

PERU

With 22,000 hectares cultivated (down from 2017 levels), Peru is ranked fourth among the world's producers of asparagus and is the main supplier of European markets in the off-season period. Production is almost equally divided between green asparagus (40%) and white (60%), but only 40% is marketed fresh, while 10% is frozen and 50% is destined for the canning and processing industry. The main production areas are in the south of the country for green asparagus, while white varieties proliferate in northern areas in the presence of sandy soils.

CHILE

Produced mainly in the Valparaiso region, Chilean asparagus is produced on an area of 3,000 hectares (up from 2017 levels), ranking the country second in South America, albeit some distance behind Peru. Around 98% of production is of green varieties. Only 40% is marketed fresh, while 60% is exported in frozen form.

MOROCCO

Africa's leading asparagus producer, Morocco, has 1,600 hectares in production and has been one of the emerging nations in this sector for the past eight years, especially as a supplier of European markets in the periods immediately preceding or following the season. In Morocco, the majority of asparagus produced is white (80%). Unlike South Africa, the product is entirely marketed fresh.

SOUTH AFRICA

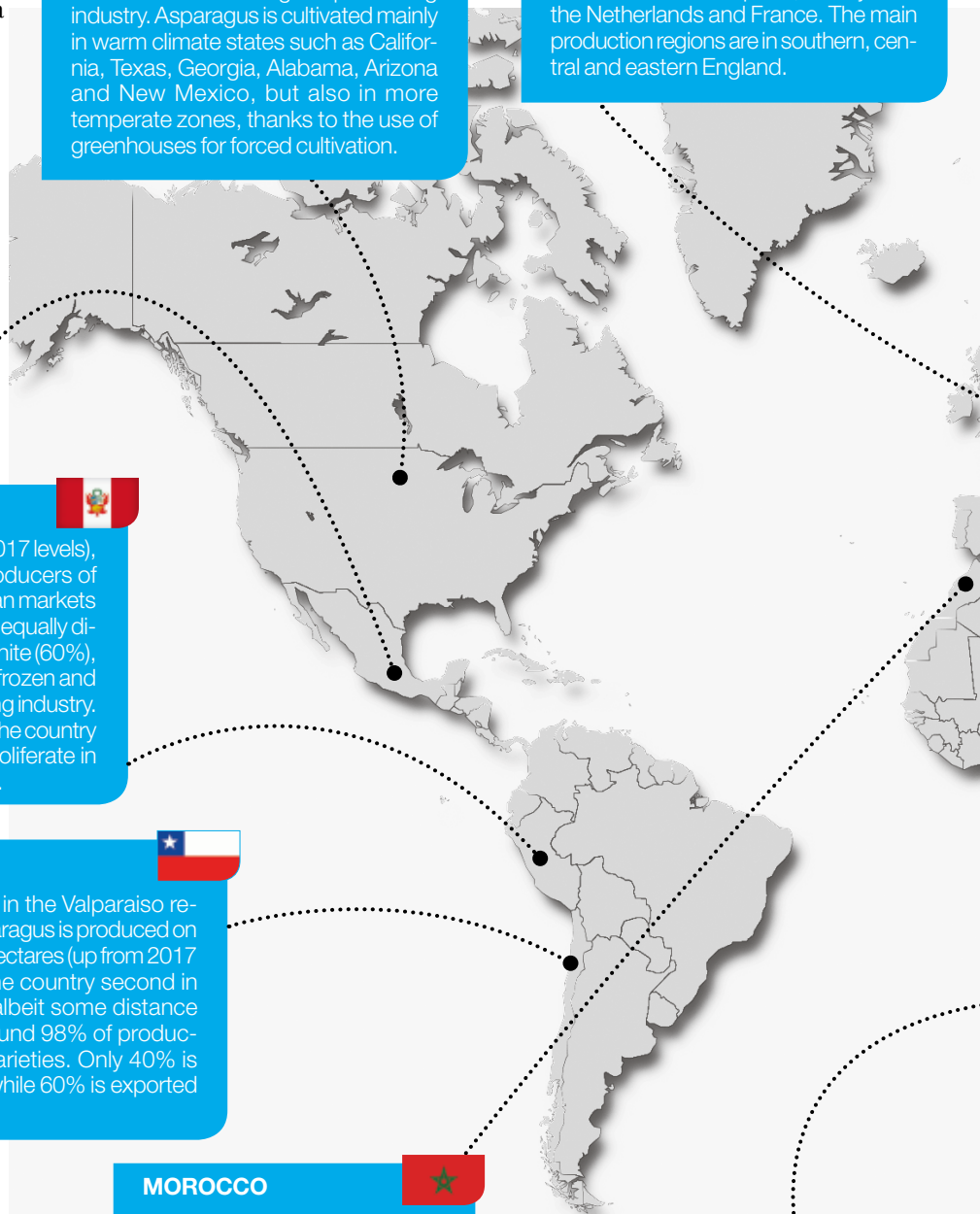
With 1,500 hectares in production, South Africa is the second largest producer of African asparagus and the main producer in the southern part of the continent. Around 80% of production is of white asparagus, with 60% of total output destined for the canning and processing industry and only 30% for fresh marketing. South African asparagus is mainly intended for the domestic market, with small volumes exported to other African countries.

UNITED STATES

Fifth in the world rankings with 21,000 hectares (down from 2017 levels), the United States imports large volumes, especially from Mexico and Peru, to meet domestic needs. About 98% of production is of green asparagus, 50% of which is marketed fresh, while 40% is destined for the canning and processing industry. Asparagus is cultivated mainly in warm climate states such as California, Texas, Georgia, Alabama, Arizona and New Mexico, but also in more temperate zones, thanks to the use of greenhouses for forced cultivation.

UNITED KINGDOM

Considered to be among the best in the world, the asparagus produced in the UK is 100% green varieties. With 2,500 hectares cultivated (up from 2017 levels), this area is barely sufficient to meet domestic demand and requires significant volumes of imports, mainly from the Netherlands and France. The main production regions are in southern, central and eastern England.



FRANCE

With 6,500 hectares in 2018, France is ranked third among Europe's asparagus producers. As around 95% of production is of white varieties, large volumes of green asparagus are imported. Indeed, the domestic market prefers green varieties, while white asparagus is mainly destined for export to other EU countries. The main production region is Le Landes, close to the Loire.

THE NETHERLANDS

Small but highly productive, the Dutch saw their asparagus production increase to 3,800 hectares in 2018, 99% of which is dedicated to white asparagus. Thanks to the development of resistant varieties and the use of greenhouses for forced cultivation, production is constantly increasing and destined for export, especially to other EU countries. Part of the product is supplied frozen (5%) or processed (5%) while the remainder is sold fresh.

GERMANY

Europe's largest producer (third in the world), Germany, has seen its asparagus production grow over the past year to reach 28,500 hectares in 2018. Almost all production (98%) is of white asparagus, with only 2% of green. The main production regions are the northern regions (Lower Saxony, Brandenburg, North Rhine-Westphalia, Schleswig-Holstein) and the central-eastern regions (Thuringia, Saxony), but there is also some asparagus production in Rhineland-Palatinate and Baden. Despite the high levels of production, Germany is unable to meet its domestic needs and often turns to imports, mainly from other EU countries.

GREECE

Curiously for a Mediterranean country, 97% of Greece's asparagus production is of white varieties. Production area has remained stable at 5,000 hectares. Most of the product is marketed fresh, with only 5% frozen. Greek asparagus is mostly destined for export to other EU countries and the Mediterranean area. The main producing regions are Kavala and Agrinio.

CHINA

Despite being the world's leading asparagus producer, with 93,000 hectares, China is unable to meet its domestic needs and resorts to imports from North America (USA and Mexico), South America (Peru), and EU countries, according to Huaxing Chang, Shandong Yuncheng Jiuyuan Agriculture Sci.& Tech. Co. Only 30% of the asparagus produced is sold fresh, while the rest is frozen (10%) or processed (60%). Production of white asparagus is far greater than that of green (70%-30%). Production areas are distributed between Xunzhou, Jiangsu Province, Heze, Shandong Province and Chongmingdao, Shanghai Province.

SPAIN

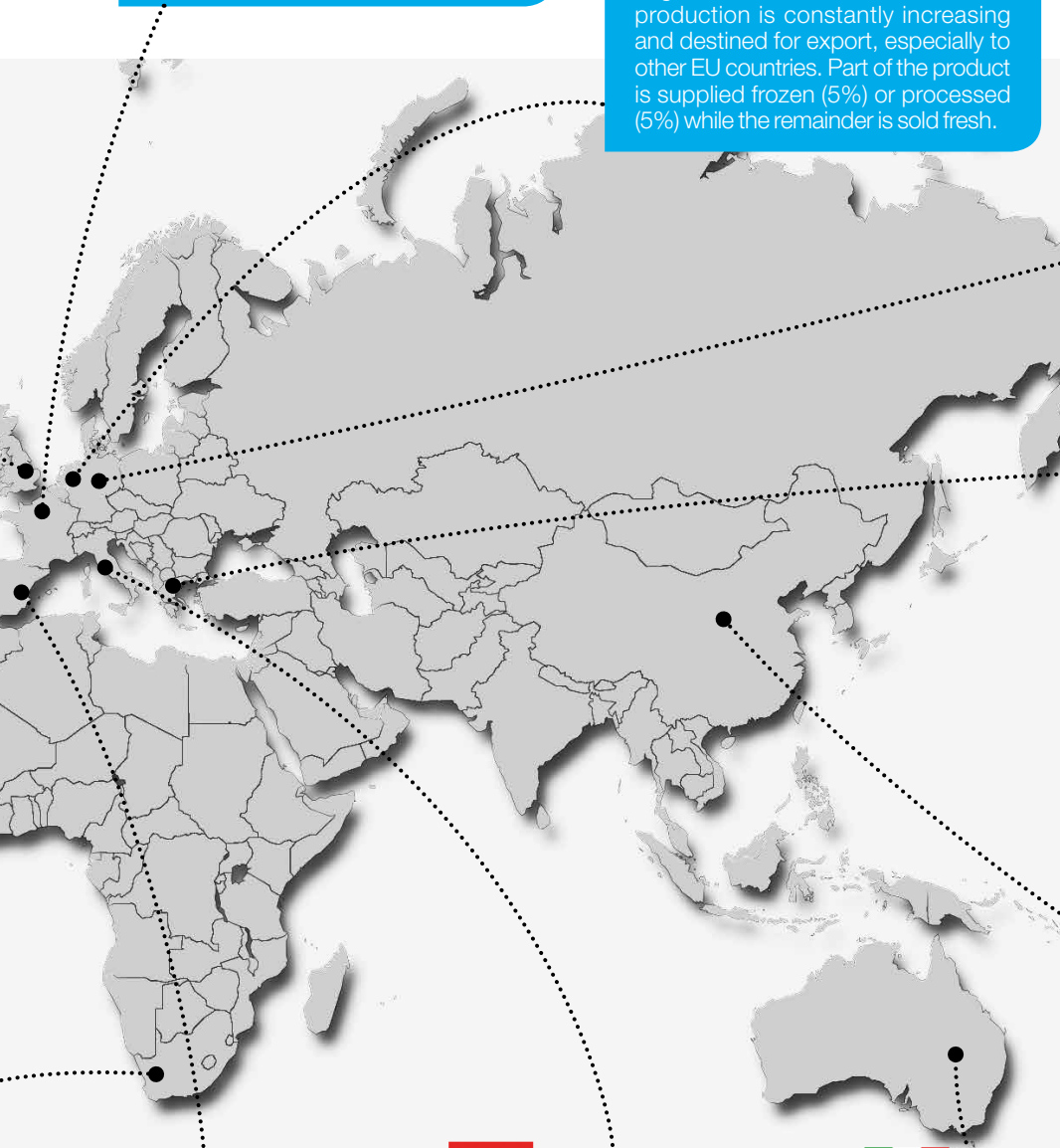
Despite being ranked number two in Europe, the alarm bells are ringing as Spain's asparagus production is in free fall, having seen its area drop to 15,000 hectares in the last year. Although green asparagus is the most in demand in the European markets, this represents only 20% of production. White varieties are mainly destined for the domestic market and are not very profitable. The region with the greatest production is Andalusia, particularly in the areas of Antequera and Granada. Unlike the other large European producers, part of the product is destined for canning and processing or frozen (10%).

ITALY

Despite not being the world's largest asparagus producer (7th), Italy has come to the attention of the market thanks to the very high quality of its product, which is generating great demand on the world's markets. Production remained stable in 2018 and totals 6,500 hectares, more than half of which are located in Puglia, while the rest are located in Veneto, Tuscany and Emilia-Romagna. Around 85% of production is of green asparagus, while the remaining 15% consists of white asparagus, mainly produced in the north-east of the country. Approximately 90% of the product is sold fresh.

AUSTRALIA

With just 2,000 hectares cultivated (equal to last year), Australia ranks first among the asparagus producers of Oceania. All of production is of green varieties, with most product sold fresh (85%) and 10% processed. Most of the asparagus is destined for export, mainly to Asian markets.





Varieti innova

There are a great number of asparagus varieties, adapted to all growing conditions throughout the world. Work is being conducted on all of them to raise quality levels and to make them more productive, robust and resistant. In the future, new colours and tastes will be available and the crops will adapt to new technologies.

The seeds are the means of multiplication of asparagus varieties and contain all their genetic heritage.

es undergoing tion

Asparagus has benefited from a worldwide cultivation boom, and the growing number of breeding companies has driven a rise in new varieties.

100% MALE VARIETIES

As asparagus is produced all over the world and at different latitudes, varieties are developed according to the climatic zones. There are three climatic regions for asparagus production:

- 1) colder areas or temperate climate zones, such as the countries of northern Europe (Germany, the Netherlands, France) and North America (US, Canada);
- 2) intermediate areas, which correspond to the Mediterranean climate (Spain, Italy, Middle East, California, Mexico, Australia);
- and 3) warm areas (Peru, Philippines).

The varieties acclimated to these different areas are characterised by their cold temperature requirements (below 7°C) during the rest period of the asparagus. This need is expressed in the number of hours required by the plants below this temperature limit. « *Cold-zone varieties require about 1,000 hours of cold, those in intermediate zones between 500 and 600 hours, and those in tropical areas do not need cold,* » said Jamie Petchell, manager at Global Plant Genetics. Breeding programmes are increasingly geared towards either the production of green asparagus (the most cultivated in the world) or white asparagus (mainly in Europe and for canning). The new varieties are rarely for both uses, although there are already many dual-purpose varieties available. On the other hand, most of the varieties are 100 % male, which increases productivity, improves the quality and homogeneity of spears, and brings added vigour (see box).

TIP REMAINS FIRMLY CLOSED

Nowadays, the improvement in the quality of the spear is a major aim for all breeders. « *A product of the highest quality class will be more important than the total yield of the variety,* » said Maurice Deben, asparagus crop expert at Bejo. Indeed, the final quality has a strong effect on the selling price. More than kilo yield per hectare, the asparagus producer is looking for financial profitability per hectare.

Quality is defined by calibre, straightness, cylindrical shape, colour of the spear, and, especially, tip closure. The tip of the asparagus must remain closed as long as possible under the influence of the heat in the field and the conservation conditions of the pack house, during transport and right up to the vendor's display. « *When the tip remains firmly closed, the farmer can space out crops without losing tip quality and gains in picking yield as there is more asparagus to be harvested per linear metre,* » said Stéphan Pohl, asparagus specialist at Limgroup. This trait is important to consider when anticipating future climate changes, which are generally leading to ever higher temperatures, especially in the intermediate climatic zones. Homogeneity of calibre is another important point. « *The aim is to strive for a spear with a maximum length of 16/22 mm, which corresponds to the strong growth in demand for the 500g pack unit among supermarket consumers,* » said Martial Marsais, asparagus specialist at Planasa.

Appearance and colour are equally important. For green asparagus, the straightness, the lighter or darker green colouring, and the presence of scales all vary from one variety to another. The percentage of anthocyanin changes the intensity of the colour, which can range from light green to dark green, and also to purple. For white asparagus, pearly white, rather than beige, and the fineness of the skin are also quality criteria. ➔



A product of the highest quality class will be more important than the total yield of the variety.



Quality is defined by calibre, straightness, cylindrical shape, colour of the spear, and, especially, tip closure.



100 % male hybrid

In nature, asparagus is a dioecious plant, with both male and female plants. But for production purposes, breeding has gradually veered towards 100% male hybrid varieties because the male plants are more productive and earlier ripening. These result from crossing a female line with a pure line called "super male". These super males are carriers of YY (rather than the usual XY) gamete. These super males are usually obtained from the self-fertilisation of hermaphrodite plants or from the culture of anthers (sexual organs of male flowers).

➔ Early readiness is another important goal when creating new varieties. Some breeders have made it the strong point of their range. « *This is a very important criterion for exporting countries seeking to position themselves before their customers' local production,* » said Planasa's manager.

RESISTANT AND ROBUST PLANTS

An increasingly important issue when evaluating new varieties is their resistance to both soil diseases (*Fusarium oxysporum* f. SP. *asparagi* and *Rhizoctonia violacea*) and foliage diseases (*Stemphylium vesicarium*, *Puccinia asparagi* and *botrytis*). In addition to the resistance genes that can be selected in these new varieties, there are other traits which influence disease tolerance. For soil diseases, the vigour and hardiness of the plant (axial or lateral development of the crown) are sought to stave off the aggressiveness of these fungi which result from weakness. These resistant traits are even more important when it comes to replanting asparagus on asparagus, and this has driven the thinking of Limgroup's breeders. As for foliage diseases, an erect plant with high ramification and an open structure promotes drier vegetation and reduces health

risks. A foliage resistant to lodging and which stays green lengthens the vegetative period of the asparagus and increases the storage of carbohydrates for the next campaign.

Even if the asparagus is already segmented into green and white asparagus, diversification is one of the focuses when developing the varieties of tomorrow. Bejo already offers purple asparagus and even tricolour (green/white/purple) asparagus. Taste quality, especially tenderness and fineness, is an element of prestige that can be highlighted by the creation of a brand or label. Planasa integrates these criteria into its new selection programmes. The return to the more pronounced taste of wild asparagus could also come to represent a new criterion.

Finally, breeders should also take into account the technological evolution in asparagus production, in particular the significant shift towards automated harvesting. Different focuses of improvement are possible: homogeneous calibre, more grouped harvesting, ease of cutting, resistance to shocks. So, there is still plenty of room for new improvements. **AW**

» GUY DUBON



Taste quality, especially tenderness and fineness, is an element of prestige that can be highlighted by the creation of a brand or label.

Ten criteria when choosing variety



1 Productivity: a determining factor, but total yield must be balanced with uniformity of size and percentage of waste (sensitivity to breakage).

2 Productivity also depends on picking yield. Labour is the greatest production cost as this crop is not highly mechanised.



3 Precocity: a varietal criterion influenced to a greater or lesser degree by production techniques (tunnel, mini-tunnel, plastic film). The current trend is towards earlier varieties, which always offer higher prices.

4 Calibre: uniformity is desirable, most commonly 16/22 and 22/30 mm, minimising too small and too large sizes.



5 Harvesting: picking yield is directly influenced by the calibre and the number of asparagus plants to be harvested per linear metre - a determining factor in profitability.

6 Tip: a well-closed tip is the mark of high-end quality that greatly influences the level of financial return and reduces the percentage of unnecessary picking activity.



7 Plant: erect vegetation improves foliage aeration, meaning a potential reduction in the use of fungicides, thus facilitating soil maintenance operations.

8 Resistance: an increasingly important criterion with the reduction of chemical controls and where replanting on asparagus plantations is conducted.

9 Agronomy: current varieties are already showing good adaptation, but the lack of "good asparagus growing land" could lead to more plasticity and vigour.



10 Taste: the flavour and the absence of fibres are important taste criteria that determine consumer satisfaction and the repeat purchase of the product.



Colourful tasty asparagus, all 100% male hybrids

Cold areas, white

- ▶ Prius F1
- ▶ Cumulus F1
- ▶ Cygnus F1
- ▶ Finalus F1

Cold areas, green

- ▶ Canticus F1 (*Bejo 2988*)
- ▶ Spartacus F1 (*Bejo 3022*)

Cold areas, green anthocyanin free

- ▶ Bacchus F1

Cold and intermediate areas, purple

- ▶ Erasmus F1, *The purple salad-asparagus!*

Intermediate areas, green

- ▶ Radius F1 (*Bejo 3025*)
- ▶ Atticus F1
- ▶ Verdus F1

Intermediate areas, green /white

- ▶ Magnus F1

Intermediate and warm areas, green

- ▶ Amadeus F1 (*Bejo 3023*)

▶ bejo.com



» Global plant genetics develops asparagus varieties from several breeders

Guelph Equinox is the result of a selection programme by the University of Guelph, Ontario (Canada), which mainly offers green varieties for colder areas. Guelph Equinox was selected for its closed tip and the length of its stem. Guelph Eclipse offers a larger calibre. Pacific Green from Aspara Pacific (New Zealand) is a green variety adapted to warm and temperate climates with high potential and good quality of spear. Early California is a new creation from Brock (US) with no need for cold. Legend Guelph Equinox has a nice, well-closed tip.



» Planasa the beginning of varietal renewal

Planasa has just launched its new variety of asparagus, Davador. With this genetically new 100% male variety, Planasa seeks to adapt to a very dynamic and continuously evolving market that demands increasingly homogeneous and higher quality products with good presentation. Planasa's asparagus and garlic product manager, Manuel Garcés, said that asparagus cultivation is evolving and becoming more professional, which is why the Davador variety has emerged as a response to the new needs of the market. With its double aptitude, this variety can be cultivated in both white and green forms. It has remarkable precocity, which allows it to gain approximately 10 days compared to other precocious varieties such as Placosep and Darlise. It also has a quality closed tip, making Davador a very attractive asparagus for the final consumer. Garcés promises that Davador will mark the beginning of a renewal process and that in the short term other new varieties will be launched, until the firm's varietal catalogue is almost entirely renewed.



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» **Limgroup** offers a wide range of 100% male hybrid varieties of white and green asparagus for the whole world



In the European market, Limgroup has a strong presence with its successful varieties: Grolim and Backlim for white asparagus production, and Gijnlim for both the green and white markets. Now, Frühlim is a new variety that is suitable for growing white asparagus, ideal for cultivation in mini-tunnels, and has early production and excellent tip closure. Javelim is developed for green asparagus production in temperate regions and for use over a wide geographical area. Javelim is a medium-early variety with a very good spear weight and excellent tip closure. With all these innovations, Limgroup is targeting new markets in America and Japan.

» **Lamboseeds**
The Italian breeder presents the Saent variety

This is a hybrid variety of anthocyanin green asparagus which is very hardy, early and has a very pronounced taste similar to wild asparagus.



» **Apofruit**
New Plant's asparagus varieties are early, green and disease resistant

The varieties marketed this year by Apofruit and New Plant are the result of a forty-year project, in collaboration with the CREA-GB of Montanaso Lombardo. These green asparagus are early varieties, suitable for the climates of northern Italy and northern Europe. They are appreciated on the market for their typical aromas and flavours and the high portion of head. They are not very fibrous products, have large heads (at least 50 percent have extra calibres) and a production capacity that reaches 10 tons per hectare. All selections developed are resistant to rusting and generally very tolerant or resistant to the typical diseases of the species. There are five varieties of asparagus offered. The successful Franco and Hercules are the earliest, while Eros and Jupiter arrive a little later. The most recent selection is Athos, a male hybrid with parental double haploid. Athos is an early variety, with heads that remain closed for a long time; it is characterised by high yield and a high production of large heads. New Plant works with the most advanced varietal innovations and the company is owned by Apofruit, Apoconerpo and Orogel Fresco.



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» **Olter** is now part of Blumen Group S.P.A. and since 2013 has been the European distributor for Walker Brothers Inc

In 2010, this Californian company acquired the germplasm of renowned asparagus varieties such as Grande F1 and Atlas F1 from California Asparagus Seed and Transplant Inc. (Brian Benson). Grande is an early and vigorous green variety with excellent yield, and is early through late in the cutting season, with a high tolerance to fusarium. Atlas is early, used for both green and white production, and maintains a tight head under hot growing conditions.



» **Coviro** focuses on a wide range of varieties

Coviro is an Italian nursery, established in 1978, which produces and markets certified nursery material. The production mainly concerns strawberry plants and asparagus legs. According to sales manager Marcello Sbrighi, most of the varieties produced are hybrid varieties of green asparagus, but the firm also produces varieties with a double white and green attitude. Among these is Vittorio, which is already offering good results in several Italian regions, such as Veneto. The green varieties include Athos (a locally selected variety), Giove, and Eros - the most widespread product in northern Italy. The situation is different in the south of the country, where the focus is on low-cold varieties, many of which are Californian origin, or on Vegalin, which is becoming popular due to its adaptability to Mediterranean climates.



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Over 3,000 100% male hybrids are observed each year in three research stations. The firm's selection programme is very much focused on tip quality, as well as on diversification by colour and taste. Cumulus, Cygnus and Prius are its leading white varieties. Magnus, adapted to the intermediate climate, completes the range and can also be produced in green. Bejo is breaking new ground with Tricolor, the "tasty colourful asparagus" with three-coloured spears (white, green and purple) and a special taste, and which can be used fresh and unpeeled. Erasmus is the first 100% male purple asparagus which can be cultivated in cold and intermediate areas, while Bacchus is a green anthocyanin-free asparagus with a uniform spear, which can be grown in mini tunnels.





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Planting asparagus on asparagus

Planting asparagus on asparagus involves some degree of risk. It is however possible by replanting quickly and by working the soil well. Some French producers have tried the experiment.

The planting of an asparagus crop must, ideally, be done on virgin land, never before planted with asparagus. But the availability of land area in some of the increasingly specialised farms has led to the planting of asparagus after asparagus has already been grown there. However, this practice exposes the new crop to the toxic effect produced by the old crowns (see box) and to an increased risk of developing soil diseases (Fusarium and Rhizoctonia).

AVOIDING CONDITIONS FAVOURABLE TO FUNGUS

In France, Baptiste Richard, technical adviser in vegetables at Fleuron d'Anjou in the Loire Valley, has had to deal with the effects of planting asparagus on asparagus at the farm of one of the cooperative's members. « We put everything in place according to the technical information that we have been able to gather, for there is little experience of this in France », said the technician. According to Richard, replanting was carried out the very next year. It began with deep tillage to break down the crowns. « The ideal thing would be to remove the crowns from the plot », said Richard. It is also advisable to carry out inter-row weeding, use green type fertiliser, and destroy the previous year's asparagus bed. Burying the leaf mass, and especially the root material, provides an ideal soil for very rapid growth. It is also possible to add a sizeable amount of organic matter, manure compost or green waste, as well



Planting asparagus on asparagus requires precautions be taken and influences the varietal choice in favour of vigorous varieties.

drop in size that can be caused by replantation », said Baptiste Richard.

FOURTH REPLANTING ASPARAGUS ON ASPARAGUS

In Alsace, the practice of replanting on asparagus land is becoming ever more frequent. « The farms are medium-sized with limited numbers of asparagus plots and great pressure on the land, limiting the chances of finding new planting grounds », said Philippe Sigriste, an asparagus technician with Planète Légumes. As some asparagus growers have planted asparagus on asparagus without encountering any problems with violet Rhizoctonia, the risk seems limited to some extent. « In the Ne-



Rhizoctonia violacea makes the situation more perilous because it leads to significant crown mortality.

as substantial background fertilisation. Tillage should promote aeration to avoid creating favourable conditions for Fusarium wilt and Rhizoctonia-type fungi. The new planting must be done in the inter-rows that are least colonised by the roots of the previous crop. Widening the plantations to make mounding easier helps inter-row replanting. « Replanting also influences the varietal choice in favour of vigorous, large-calibre varieties, and against early varieties that may be susceptible to the

therlands, where this health problem scarcely exists, if at all, some producers have now reached their fourth replantation of asparagus on asparagus », said Sigriste. On the other hand, the presence of *Rhizoctonia violacea* makes the situation more perilous because it leads to significant crown mortality. Also, Planète Légumes has set up a test to identify what happens when the disease is present in the soil. Silty soils appear to be more conducive to its development than sandy soils. « *The test implemented in 2018 will enable observation of five varieties. It is known that some are more resistant than others. The tests will also involve using five products based on Mycorrhiza and Trichoderma* », said Sigriste. This protocol and work is also being followed by the firm's Dutch counterparts. The first observations will be possible next year.

PNRS LOWER THAN IN THE CONTROL GROUP

In the Central region, several methods of soil disinfection have been evaluated at the LCA station (Vegetable Action Centre). In 2006 and 2012, a white asparagus replanting trial assessed the value of (DMDS = dimethyl-disulfide, unapproved) soil disinfection and a cruciferous-based bio-disinfection (compared to an untreated control group and a control group disinfected with Metam sodium). The emergence of antagonistic fungus (*Trichoderma* sp.) was

The pot plant option

The option to plant plugs rather than crowns has been trialled for some years in Spain, France, Switzerland and Portugal. This consists of planting seedlings from the year of sowing between June and September. The main advantage of this is to compensate for a lack of available crowns. Planting of pot plants allows growing conditions, from June onwards. In some cases, with green asparagus under a tunnel, it allows for a last winter crop. It can also facilitate planting in heavy land. In terms of organisation, the gap between harvesting and planting makes it easier to have the workforce available. Going back to pot plants requires a more precise following-up of the irrigation:

the plug has fewer reserves than a crown. The time saving made in the planting year, makes an extra year of maintenance of the asparagus bed necessary. For well-established early plantations (June), it is sometimes possible to consider a small crop in year 1. Year 2 of planting pot plant allows a larger harvest than in year 1 of a crown plantation. Subsequently, the crop can have 2-3 years of extra production thanks to vertical rooting. They are offered in nurseries, some of which offer several types of pot plant. Be aware that the roots of pot plants should not bunch up « chignon-like » but should keep their pivoting characteristics to facilitate their development.

also observed. Six years after disinfection, the crops in the soil that underwent the different types of disinfection have a root necrotic potential (PNR)⁽¹⁾ greater than or equal to that of the untreated control group. However, in the disinfected soil, a lower PNR was found in the first years of application (4 to 5 years) with higher commercial yields. Nevertheless, the report of the trial states : « *The results are not statistically different and it is advisable to remain cautious in drawing conclusions from the observed differences* ».

⁽¹⁾ A PNR (root necrotic potential) test is used to assess the presence and risk of *Fusarium wilt (Fusarium oxysporum F. Sp. Asparagi)* in the soil. *AV*

»GUY DUBON

5 Precautions for replanting

- 1 As far as possible, remove the crown residues from the old crop to reduce the risk of developing *Fusarium wilt*.
- 2 Employ deep tillage to promote soil aeration and composting of roots.
- 3 Provide consistent organic fertilisation and plant in the inter-rows.
- 4 Prepare the plantation strips using a rotary digger to make a new, deeper, homogeneous, aerated soil profile.
- 5 Plant vigorous varieties and put the plant in a growing situation to compensate for the pressures of pathogenic fungi



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La importancia del fertirriego en el cultivo del espárrago

El manejo del riego (1) y la fertilización (2) en el espárrago es fundamental para lograr un rendimiento óptimo, a pesar que la especie tiene cierto grado de resistencia al estrés hídrico.



Durante la cosecha, el riego funciona básicamente como un termorregulador del suelo que estimula a mejorar la calidad de los turiones.

1 El riego adecuado por cada etapa fenológica

El espárrago es muy eficiente absorbiendo agua del suelo, tiene pelos radiculares absorbentes, por lo que no demanda alta humedad de suelo como algunos cultivos (Palto, Arándanos, etc.), sin embargo, la dependencia de la planta al riego varía considerablemente con cada una de sus etapas fenológicas. El riego es un factor fundamental en la producción del espárrago. Desde el establecimiento del cultivo se requiere regar para conformar adecuadamente una gran cabellera radicular profusa, profunda y vigorosa, en otras palabras «educar» a la planta.

Un sistema de raíces fortalecido ofrece muchas ventajas en la conducción del cultivo y determina la vida útil de la plantación. En la estructura de una corona joven proliferan más los puntos de crecimiento activos necesarios para el crecimiento y expansión de la corona. Cada punto de crecimiento activo es potencialmente un nuevo tallo con sus respectivas yemas.

OPORTUNIDADES DE MEJORA EN EL MANEJO DEL RIEGO DEL ESPÁRRAGO

El exceso de humedad genera hipoxia o falta de oxígeno. Esta condición ocasiona crecimiento ascendente de la corona, que causa a su vez que crezca sin uniformidad en la profundidad. La planta se debilita y emite tallos cada vez más delgados. El síntoma principal es la presencia de

raíces negras (necrosis) que se vuelven grises dentro de dos semanas aproximadamente (momificación).

La hipoxia ocasiona la muerte de nuevos puntos de crecimiento y, por consiguiente, el incremento de la población de tallos es limitado, que se traduce finalmente en bajos rendimientos. Los racimos o grupos yemales – conjunto de yemas agrupadas al pie de un tallo, son la estructura básica de la corona. Este grupo de yemas requiere generar sus propias raíces. Al llegar la décima semana el grupo yemal debe haber formado sus raíces; caso contrario las yemas pierden vigor (Imagen 5), por lo que es un signo fehaciente para evidenciar el exceso de humedad en el suelo. Es necesario recalcar que cada tallo ofrece un racimo con 5 o 6 yemas que durante la cosecha se convierten en promedio en 2.2 o 3.2 turiones aptos para cosecha. Además de la reducción de rendimiento, la hipoxia causa mayor susceptibilidad a enfermedades fungosas – Fusarium ssp., Phytophthora cinnamomi, Rhizoctonia solani – y/o bacterianas, como por ejemplo Erwinia carotovora.

Por otro lado, la deficiencia de humedad ocasiona también menor formación de puntos de crecimiento: los racimos o yemas se deshidratan o mueren, y disminuye el crecimiento radicular. En mis años de experiencia, he llegado a la conclusión que tener tres raíces de reserva por cada tallo (o yema) nos asegura una buena conformación de corona.



Exuberantes raíces conformadas adecuadamente en una plantación joven.

Con un manejo de riego ajustado, se observa crecimiento de nuevas raíces en racimos necróticos –dentro de dos a tres semanas – y el crecimiento de los racimos laterales – en el transcurso de la campaña.

EL RIEGO ADECUADO POR CADA ETAPA FENOLÓGICA

El crecimiento de los turiones se basa en las reservas de agua y nutrientes de las raíces, por ello, durante la cosecha, el riego funciona básicamente como un termorregulador del suelo que estimula a mejorar la calidad de los turiones. Lo recomendable es regar cada tres días, además de tener en cuenta las evaluaciones de campo.

Al término de la cosecha hay que recuperar la humedad del suelo en todo el perfil de raíces, el volumen de riego requerido se basa en las evaluaciones de campo. Durante el crecimiento inicial – elongación de los primeros tallos – la planta experimenta escasa transpiración; por lo que aún es bajo el consumo de agua y nutrientes. A medida que el tallo crece, la planta es menos dependiente de sus reservas hídricas y más dependiente de la humedad del suelo.

Durante la apertura de filocladios y la floración, la demanda de agua y nutrientes incrementa. En adelante, recomiendo mantener el coeficiente de cultivo (KC) sobre 100% (Kc igual o mayor a uno). La emisión del segundo brote incrementa la demanda de agua y nutrientes en proporción a la nueva biomasa foliar, normalmente considero aumentar 30% al KC en el momento de mayor demanda.

La alta demanda hídrica continúa y se estabiliza durante la etapa de llenado y maduración de las bayas, ya que la planta regula su consumo. Durante la maduración plena, se inicia la restricción hídrica. Se recomienda tener mucha observación y usar indicadores como los grados Brix, el llenado de las yemas, el color de las yemas, etc.



Etapas de crecimiento y ramificación e inicio de apertura. El cultivo experimenta un consumo creciente de agua y nutrientes.



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2 Fertilización del cultivo de acuerdo a la fenología

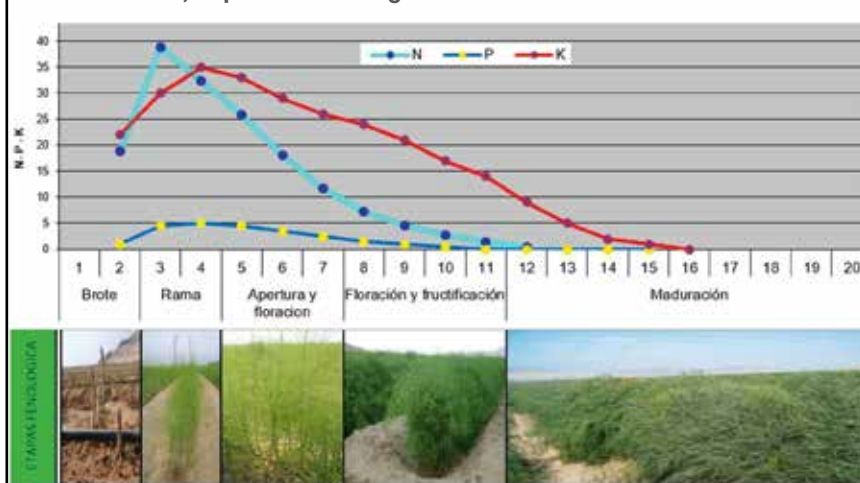
Para gestionar el plan de fertilización del cultivo adecuadamente, se requiere conocer la extracción total de nutrientes y la absorción por cada etapa fenológica. Este trabajo consiste en la extracción semanal de plantas representativas del campo con sus respectivas repeticiones y la determinación de la concentración de los nutrientes en cada órgano (follaje, corona, raíz, etc.) por medio de análisis cuantitativos en función de la materia seca; a estos cálculos se agrega la eficiencia de cada nutriente y del fertilizante y en conjunto determinan la absorción semanal. Los trabajos de extracción en la empresa Camposol S.A. – El primero en Perú – marcan la referencia para cualquier condición de clima del país, siempre y cuando se considere la misma etapa fenológica.

Durante la cosecha y el crecimiento del nuevo brote el consumo de nutrientes es mínimo, porque depende de las reservas guardadas en las raíces. A medida que se desarrollan las estructuras, la demanda incrementa hasta la etapa de maduración, cuando la necesidad de N es mínima.

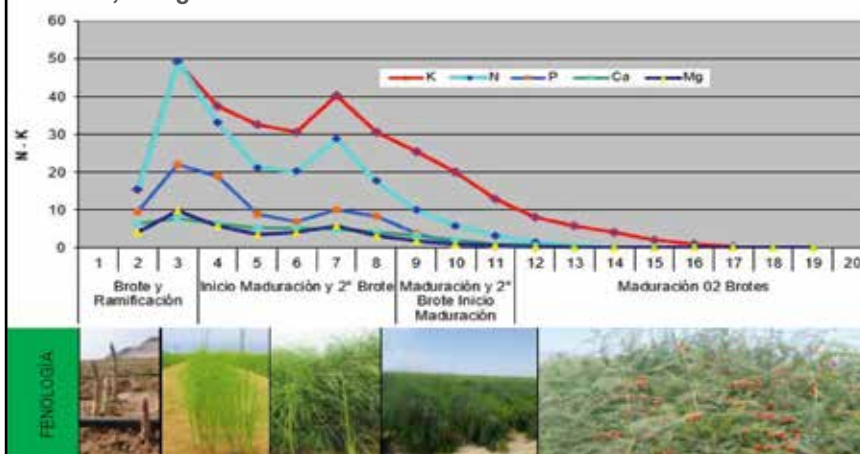
La curva de distribución de absorción de nutrientes para plantas con un solo brote se muestra en el gráfico 1. La extracción total va a depender de la estructura de la planta: aumenta conforme incrementa el vigor de la planta, sin embargo, la distribución será la misma.

En el caso de tener dos o más brotes, el requerimiento nutricional de los nuevos brotes se suma al requerimiento de los brotes anteriores en el momento de emergencia del nuevo brote, tal y como se refleja en el gráfico 2.

Gráf 1 - Extracción semanal de macronutrientes variedad Atlas, expresados en kg/ha



Gráf 2 - Extracción semanal de nutrientes con 2° Brote Invierno, en kg/ha



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1 + 2 Conclusiones

Podemos concluir de la experiencia vertida que el manejo adecuado del riego y la fertilización en el espárrago es fundamental para lograr un rendimiento óptimo, a pesar que la especie tiene cierto grado de resistencia al estrés hídrico.

Este tipo de estrés genera menores cosechas y una conformación no deseada de la estructura de la planta. El exceso o defecto del riego ocasiona, además, posibles problemas sanitarios fungosos o bacterianos.

El riego adecuado depende de la etapa fenológica. La lámina necesaria es mínima durante la cosecha y aumenta con la emergencia del segundo brote. Por último, se estabiliza durante la pinta de la baya y comienza a disminuir cuando la planta madura completamente.

La fertilización requiere ser enfocada por cada etapa fenológica y se requiere el análisis de la extracción de nutrientes semanalmente. La curva de absorción se encuentra validada como una referencia para condiciones del país. Cada brote aumenta el requerimiento nutricional al momento de su emergencia, en función del vigor del mismo. *AW*

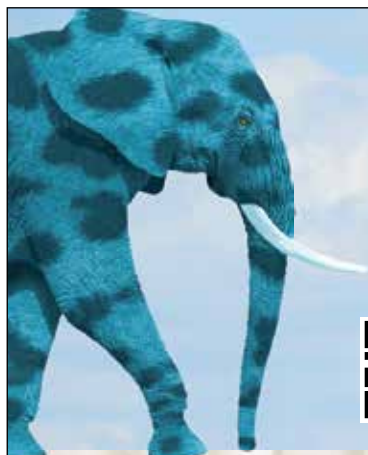
Abstract

Good irrigation management and fertiliser application are vital for asparagus plants to reach their optimal performance levels. However, they do in fact show a certain degree of resistance to water stress. A lack of water leads to smaller harvests and to undesirable plant growth. Similarly, too much or too little irrigation can cause fungal or bacterial disease problems. Adequate irrigation depends on the phenological stage. The intake required is minimal during harvest and increases with the beginning of the second growth. It stabilises during the colouring of the seeds and begins to reduce when the plant wilts completely.

Application of fertiliser must be targeted in each phenological stage and a weekly analysis is required of nutrient extraction. In Peru, an absorption curve has been validated as a reference for the conditions of the country.



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El uso de microorganismos en el cultivo de espárrago

El cultivo exitoso de espárragos requiere un conocimiento muy detallado de las técnicas de cultivo y especialmente de la nutrición. En un sistema sostenible y rentable, la consideración de los microorganismos del suelo y de la rizosfera es clave para el éxito del cultivo.



Resultados de la Tecnología Regulación de la Dinámica Radicular, aplicación de bioestimulantes y microorganismos, Mayor biomasa y actividad radicular, rendimiento superior en 13% al manejo convencional.

Abstract

In the asparagus, being a crop of high economic value and demand for quality and innocuity of the product, there is a demand to replace some agrochemicals; one alternative has been the use of beneficial microorganisms, addressing problems of nutrition, stimulation, root health and the search for a balance in the soil microbiome. Among the genera most used for these functions are : *Glomus*, *Azospirillum*, *Streptomyces*, *Bacillus* and *Trichoderma*. Studies in asparagus describe that *Bradyrhizobium*, *Nocardioides*, *Rhizobium*, *Streptomyces* are associated to this crop. Additionally, the use of biostimulants help to a better root and exudation activity and optimal colonization of the microorganisms in the soil. There is still more research to be done to achieve the maximum benefits of this technology.



Dominique Ruggli

Suiza, Maestro en agronomía



Ana Luisa Olivares Tarango

México, Maestra en ciencias y biotecnología

El desarrollo y rendimiento del espárrago son afectados por diversos factores, entre ellos la fertilización, la producción de turiones depende de la disponibilidad de recursos que se encuentran en la corona, como carbohidratos y número de yemas, debido a que el número de yemas por planta determina el número potencial de turiones. Estudios recientes en espárrago demuestran una correlación directa positiva entre la densidad de plantas, biomasa radicular y rendimiento de turiones. La absorción de nutrientes durante la recolección es escasa, incrementa cuando los primeros turiones se convierten en órganos aéreos fotosintetiza-

dores. Por otro lado, mantener un buen balance de nutrientes en el suelo y la adición de enmiendas orgánicas y/o biológicas junto con la fertilización debe ser el objetivo de cualquier manejo.

LA DIVERSIDAD DE LOS MICRO-ORGANISMOS Y SUS FUNCIONES

Los fertilizantes químicos correctamente utilizados incrementan la productividad y rentabilidad del cultivo. No obstante, cada año aumenta la cantidad de fertilizantes por aplicar, debido a la menor eficacia de adsorción en el suelo y absorción por la planta, además de que los fertilizantes químicos contaminan el ambiente. Debido

a este tipo de problemáticas, se investiga la diversidad de microorganismos rizosféricos, como las rizobacterias promotoras de crecimiento en plantas afectando directamente su metabolismo, como *Azospirillum*, *Herbaspirillum*, *Enterobacter* y *Azotobacter*. Estas bacterias estimulan los ciclos biogeoquímicos de los nutrientes, principalmente el de nitrógeno (fijando nitrógeno) y fósforo a través de la solubilización de fosfato, producen reguladores de crecimiento (especialmente de fitohormonas, por ejemplo, ácido indolacético (auxina), ácido giberélico (giberelina), citoquininas y ácido abscísico (ABA), pueden producir la enzima 1-aminociclopropano-1-carboxilato (ACC) desaminasa que reduce el nivel de etileno en las raíces manteniendo a la raíz activa) y sideróforos (éstos son moléculas secretadas en condiciones de deficiencia de hierro para secuestrar el hierro de su entorno, son sintetizados principalmente por bacterias Gram

86%

Hasta 86 %
mas tallos
para las
plantas
inoculadas
con micro-
organismos.

negativas, hongos, levaduras y actúan como agentes quelantes específicos de Fe³⁺). También las rizobacterias reducen el ataque de fitopatógenos e insectos. Los mecanismos de acción involucran antibiosis, producción de enzimas líticas, parasitismo, competencia por los nutrientes y espacio e inducción de resistencia. A través de mecanismos directos que ocurren dentro de la planta y afectan su metabolismo por modificación de la expresión genética, así como *Pseudomonas*, *Bacillus* y *Streptomyces* lo hacen a través de mecanismos indirectos fuera de la planta.

LOS MICRO-ORGANISMOS DE LA RIZOSFERA DEL ESPARRAGO

Casos, 2017 realizó un estudio de caracterización de microorganismos nativos asociados al rizoplaneo y rizosfera del espárrago, aislando principalmente *Azotobacter*. Las cepas aisladas fueron inoculadas por aspersión

en coronas de espárrago y se determinó que la re-inoculación con esta bacteria nativa logró fijar nitrógeno, solubilizar fosfato y se incrementó la altura y número de tallos de las plantas, con índices de efectividad de 3.5 a 38.1 % y 8.3 a 86.0 %, respectivamente, en comparación con las plantas no inoculadas. Otro tema interesante, es el uso de asociaciones micorrízicas, tales como *Glomus fistulosum* la cual incrementó significativamente la masa seca aérea y de raíces, la longitud de las raíces primarias y secundarias y la cantidad de P absorbido por las plantas de espárrago. En tema de fitosanidad, las principales enfermedades en el cultivo son causadas por *Fusarium* y *Phytophthora*. Particularmente las especies de *Bacillus* y *Trichoderma harzianum* y *T. viride* son microorganismos antagonistas descritos de estos fitopatógenos. Los bioestimulantes ayudan la colonización de la rizosfera por los microorganismos. ➔

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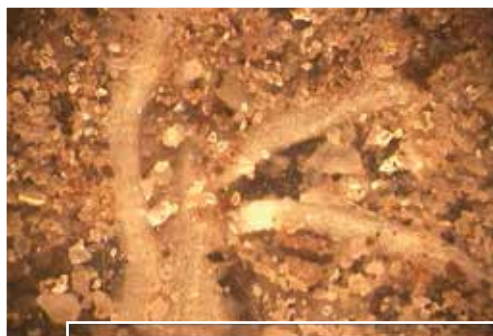
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➔ Recientemente, se han logrado descubrimientos gracias a la metagenómica, ciencia que funde la genómica y la microbiología logrando el estudio del microbioma encontrado en el suelo rizosférico. Particularmente para esparrago, se realizó un estudio de campo en Perú (Arias, 2011) donde se inocularon plantas con bioestimulantes que promovían la mejor absorción de nutrientes por la raíz y a su vez propiciaban un mejor ambiente para la colonización de microorganismos nativos o exógenos. Se encontró que las plantas tratadas con bioestimulantes tuvieron un rendimiento superior en 13 % y la incidencia de *Fusariosis* bajó. El potencial incremento de rendimiento podría estar relacionado a una variación del microbioma. Los géneros más comúnmente encontrados fueron *Bradyrhizobium*, *Nocardioides*, *Mycobacterium*, *Rhizobium*, *Streptomyces*, *Mesorhizobium*, *Microbacterium*, *Pseudomonas* y *Sphingomonas*. Este tipo de investigaciones reafirman la importancia de la formación de consorcios microbianos en el suelo para efectuar funciones de nutrición o sanidad radicular.



Manejo convencional del cultivo de esparrago. Desarrollo deficiente y agotamiento radicular, se nota al color mas oscuro de las raices.



LA APLICACIÓN DE MICROORGANISMOS BENÉFICOS DEBE SER PERIÓDICA

Se recomienda que el ambiente rizosférico sea el idóneo para el establecimiento de los microorganismos nativos o exógenos, recurriendo a un término llamado « Regulación de la Dinámica Radicular » siendo posible con la incorporación de bioestimulantes a base de ácidos carboxílicos aromáticos que promueven la actividad de ciclos del metabolismo primario que incrementan la cantidad de compuestos carbonados como fuente de alimento para los microorganismos y ciclos del metabolismo secundario que favorecen la señalización para el reconocimiento entre la raíz y los microorganismos exógenos. La aplicación de microorganismos benéficos debe ser periódica, por lo menos en 3 o 4 ocasiones a lo largo del ciclo vegetativo. Adi-

cionalmente, la bioestimulación mejora la absorción de nutrientes influyendo en el metabolismo de la raíz, generando transportadores de las auxinas naturales de la planta, manteniendo la generación de pelos absorbentes, estimula el proceso de bombeo electrogénico, además desbloquea nutrientes inmovilizados en el suelo debido a la acidificación de la rizosfera. Dando como resultado la mayor extracción de nutrientes de la solución del suelo y como consecuencia mejor desarrollo del cultivo con finalmente rendimientos más altos y constantes de alta calidad. Aunque ya es una práctica generalizada el uso de microorganismos en el espárrago, aún falta bastante por investigar para lograr los máximos beneficios de esta tecnología. **AW**

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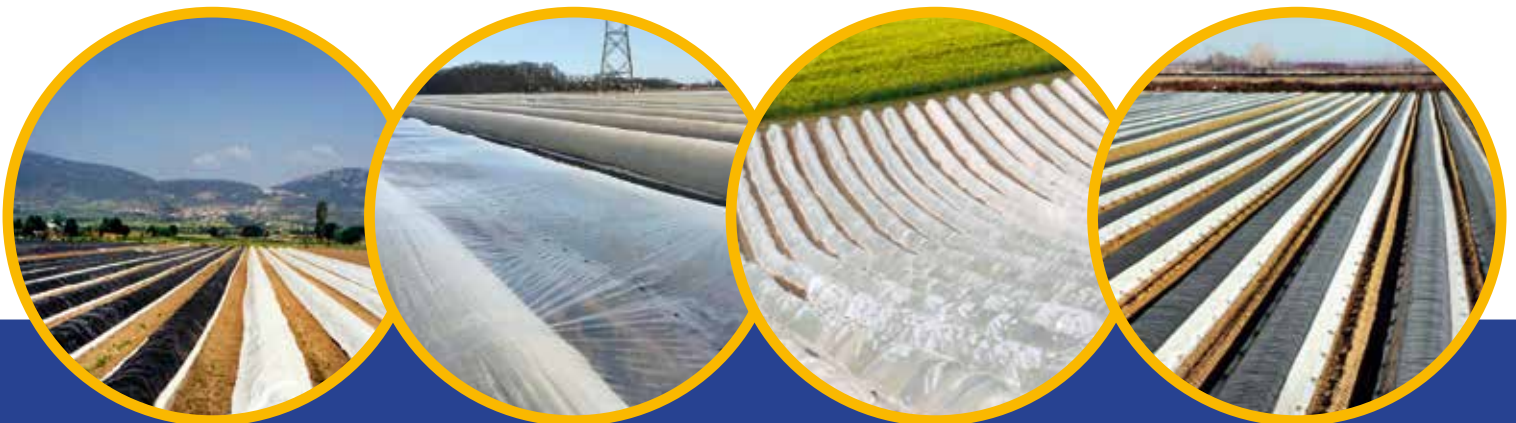
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Biodinámica, más que la bio

Las bases de la agricultura biodinámica han sido desarrolladas por Rudolf Steiner en 1924. Su visión esotérica respeta a los principios de la agricultura biológica, el uso de las sustancias y tiene en cuenta las influencias de los ciclos de la luna y de los planetas. En México y en España, productores de espárragos, como Alfredo Alvarez y Luis San José, explican como la practican.



Alfredo Alvarez es agricultor en la provincia de Querretaro, en México. Cultiva 70 hectáreas de espárragos en agricultura biodinámica, los cuales constituyen un test y una transición posible para las otras 300 ha que cultiva en agricultura convencional. Estas pasarán a la biodinámica en los próximos años. Testimonio...

¿Porqué tomaste esta decisión?

Decidí dedicarme a la agricultura biodinámica cuando tomé conciencia del daño que provocan los agroquímicos en la agricultura convencional. Por eso, hice

una nueva interpretación de los conceptos, las costumbres y conocimientos universitarios que había aprendido. Y así, encontré una nueva forma de cultivar sin perjudicar a la naturaleza, devolviéndole a la tierra



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aquello que, durante muchos años, le hemos extraído. Fue así que decidí cultivar el espárrago, imitando a la naturaleza.

¿Cuál es la diferencia con el cultivo orgánico?

En primer lugar, debo precisar que durante tres años, cultivamos el espárrago de forma orgánica y que actualmente, estamos en una etapa de transición a la agricultura biodinámica. En segundo lugar, vale la pena mencionar que para nuestro calendario astronómico biodinámico, los astros influyen en el suelo y en el desarrollo de las plantas. Por lo tanto, en la agricultura biodinámica, preparamos, adaptamos y cultivamos el espárrago, siguiendo ciclos lunares y cósmicos. En tercer lugar, es importante señalar que producimos nuestra propia composta biodinámica, preparada únicamente con estiércol de vaca y materia orgánica de la misma finca. A esta composta, se le aplican diferentes preparados biodinámicos, en base a plantas como: milenrama (502), manzanilla (503), ortiga (504), roble/encino (505), diente de león (506), valeriana (507) y cola de caballo (508). El preparado biodinámico (500), se trabaja a nivel terrestre y, también, en lo cósmico solar. En cuarto lugar, quiero destacar algunas prácticas como la dinamización del agua -que se aplica a los preparados biodinámicos y en la composta de barril-, así como la integración de los animales de granja.

Abstract

The basics of biodynamic agriculture were developed by Rudolf Steiner in 1924. His esoteric approach respects the basic principles of organic farming, the use of preparations, and takes account of the influence of lunar and planetary rhythms. In Mexico and Spain today, asparagus producers, such as Alfredo Alvarez and Luis San José, maintain these very same principles.



Christian Befve
Consultant

¿Cómo es la tecnología que usan?

Para preparar la tierra, no utilizamos el arado. Únicamente se realizan pasos de cincel cruzado, pues, rastreamos y nivelamos el suelo con sistema láser. Primero, surcamos la tierra a una distancia de 3,30 mts. En la línea donde va estar el surco, aplicamos 10 kg de composta por metro lineal. Luego, lo incorporamos, usando una mezcladora de profundidad. Finalmente, rehacemos el surco para plantar una densidad de 33,000 plantas / ha. Este tipo de trabajo en campo se realiza siempre siguiendo un calendario astronómico biodinámico.

¿Cuántas hectáreas tienen cultivadas?

Actualmente, cultivamos un total de 300 has. de espárrago. De las ➡



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➔ cuales, hay 70 has. que están en transición de orgánico a biodinámico.

¿Cuándo comenzaron? ¿Cuáles son vuestros principales cultivos?

Hortina, es una empresa 100% mexicana que comenzó a producir espárrago convencional hace 12 años. Ya lleva unos 5 años cultivando espárragos en forma orgánica, y unos 3 años en transición hacia la agricultura biodinámica. Nuestro cultivo principal es el espárrago (300 has) pero también cultivamos maíz (10 has), frijol (5 has) y alfalfa (5 has).

¿Qué complicaciones tiene este tipo de cultivo?

El gusto y la pasión por cultivar espárragos libres de agroquímicos, supera toda complicación. Considero que teniendo las herramientas de campo adecuadas, no debería haber complicación alguna.

¿Cuál es el costo por kilo? ¿Supera en % al orgánico y al convencional?

Considero que el costo de producción del espárrago biodinámico y el orgánico son muy similares. Pero, el costo de ambos tipos de cultivos, suele ser 20% más caro que el del espárrago convencional.

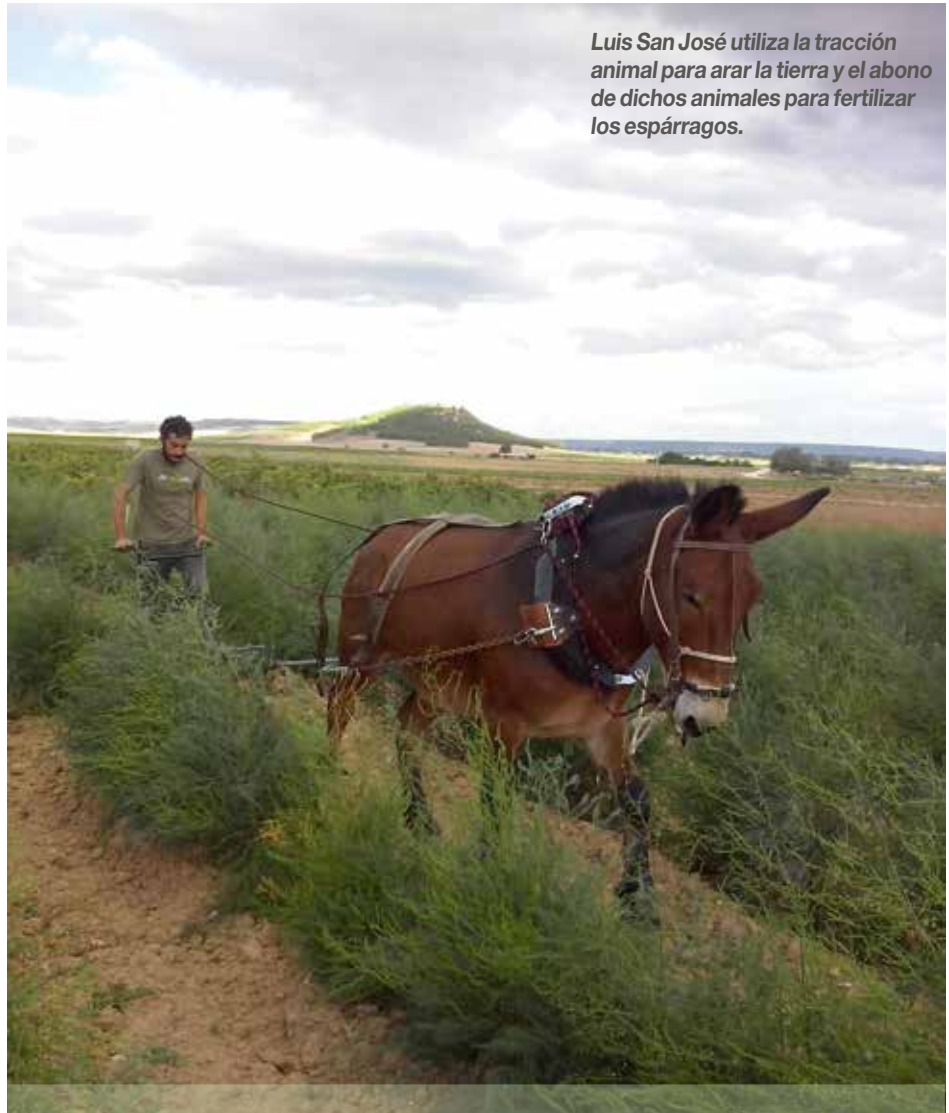
¿Cuál es el precio de venta en el mercado?

El consumidor desea cada vez más espárrago ecológico pero no quiere pagar demasiado por éste. Actualmente, el precio de mercado de espárrago orgánico es 30% superior al precio convencional. Si bien, el espárrago biodinámico puede ser 10% más caro que el orgánico; también vale la pena destacar, que el orgánico representa 10% de la superficie total y el biodinámico solo 0,010% porque es un nicho.

¿Cuáles son los límites del mercado del espárrago biodinámico?

El espárrago biodinámico permite diferenciarse del orgánico, porque se está desarrollando mucho. Ahora bien, si el orgánico es un pequeño mercado y también lo es, el nicho biodinámico. Por eso, hay que tener cuidado para evitar que se sature la oferta.

AW



Luis San José utiliza la tracción animal para arar la tierra y el abono de dichos animales para fertilizar los espárragos.

Los espárragos de Luis San José se encuentran en Tudela de Duero, en Valladolid, en España. Practica el método biodinámico desde hace ya diez años sobre 25 hectáreas. La biodinámica permite adquirir autonomía aprendiendo a utilizar las plantas salvajes que ofrece el entorno y los abonos ecológicos. Los animales también participan en el cuidado y mantenimiento de las parcelas (tracción animal) y la gestión del abono. Testimonio...

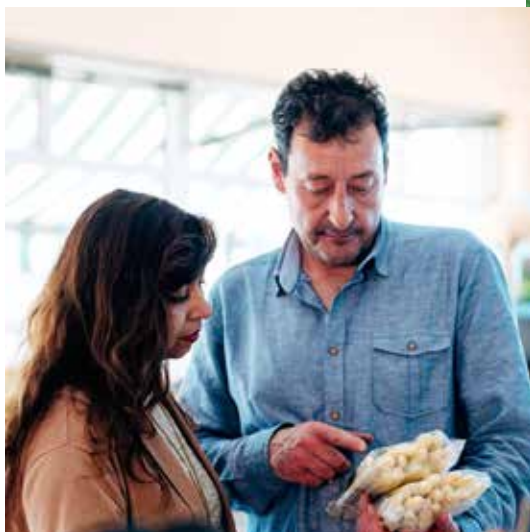
Porqué ha empezado a cultivar en agricultura biodinámica ?

La agricultura biodinámica es un paso por delante de la agricultura ecológica. Más sensible y mucho más profunda, basada en la vida. Decidimos hacer agricultura biodinámica cuando hace unos 15 años llegó a nuestras manos un libro y nos llamó mucho la atención la relación que la agricultura biodinámica tiene con la naturaleza y con los animales, algo que nos ha gustado mucho desde niños. También desde la infancia conocemos el espárrago por tradición familiar. Nuestra tecnología es muy sencilla, basa-

da en la gestión del compost, los abonos verdes y la tracción animal. Actualmente cultivamos unas 25 ha., prácticamente todo espárrago, 22 ha. de blanco y 3 de verde. Hemos hecho muchos cultivos de huerta pero cada vez nos centramos más en el espárrago.

Cuales son las dificultades ?

La biodinámica es algo complejo pero a la vez sencillo; hay que estar muy pendiente de los mejores momentos para aplicar los preparados, lo que algunas veces está reñido con otras actividades de la empresa. No consideramos que producir en bio-



Luis San José practica la biodinámica desde hace ya diez años sobre 25 hectáreas.



Estos cuernos, llenos de boñiga de vaca, son enterrados cuando la luz de la luna es favorable. Serán sacadas para biodinamizar la tierra.

dinámica sea mucho más caro que en bio o convencional, ya que si se hacen bien las cosas se consiguen buenas producciones, de más calidad, que el cliente reconoce y demanda, y también cultivos mucho más sanos.

Vende mejor sus espárragos ?

No hacemos biodinámica por especular con el precio sino porque funciona y parece como si la conociéramos de toda

la vida. En España apenas se conoce y no solemos poner sobrepeso respecto del espárrago ecológico. Se conoce, se valora y se demanda mucho más en el norte y centro de Europa, donde su precio puede llegar a alcanzar entre un 10 y un 20% más que la bio. Hay que dar a conocer a los

consumidores y productores del sur de Europa esta manera de cultivar. Los agricultores, aunque no la practiquen totalmente, sí pueden usar algunos procedimientos de ella para ayudar a sus empresas y poco a poco ir introduciéndose en esta manera de hacer agricultura. *AW*

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Virus infection in asparagus crowns

In Germany various virus infections in asparagus were first documented in the 1960s. Since then, random checks have repeatedly confirmed high infection rates in older crops. Recent more extensive studies of young plants now allow a more practical approach to reduce the negative consequences of asparagus viruses.

A virus attack does not lead to any visual symptoms

Numerous trials have shown the negative effects of these viruses on growths and yield in asparagus plants. Even though affected fields have shown a reduction in yield of up to 50%, very few substantial trials have been conducted on this subject worldwide. The reason may be that testing was very time consuming and previously only possible through indicator plants. Using the ELISA-tests is now a more accurate and simpler method, allowing more extensive research on the subject.



Fill the reagents with the ELISA test

PRINCIPLES ON ASPARAGUS VIRUSES

Although asparagus can be infected by numerous viruses, in Germany

mainly the asparagus viruses 1 and 2 (AV1 and AV2) appear to be most relevant. Some studies have shown that the cucumber mosaic virus can also be of importance but according to recent research it does not yet appear to affect young plants. The way AV1 and AV2 spread has shown to differ greatly. AV1 is mainly transmitted by aphids and can therefore spread very quickly and AV2 is mainly transmitted via seed. Literature also mentions pollen or harvesting knives as possible routes of transmission of AV2.

STUDIES ON ASPARAGUS VIRUSES

The main focus lay on analysing the infection rate of young plants but additionally, container trials evaluated growth of infected plants and some other methodological principles of viruses. Depending on the trial question, individual plants or mixed samples were investigated. To find out the infection rate in young asparagus plants from various single origins, 20 individual plants from each grower were collected and analysed; mixed samples, checking for AV2 infec-

tion, were usually done on groups of 15 plants.

INFLUENCE ON GROWTH

In spring 2014, plants of the same variety with known viral status were planted in 10 l containers with general potting soil in the area of the DLR Rheinpfalz. In autumn, the plants were again checked for virus infection rate and foliage parameters were evaluated. In spring 2015, the root mass was assessed and some plants were replanted into 30 l container with replant soil. No difference at all was found in the development of the foliage, but there was a statistically significant difference in root mass. As also stated in literature, a mixed infection with AV1 and AV2 had shown a particularly detrimental effect on growth (table 1). Additionally, timing of AV1 infection impacts growth: the later in their life span the infection occurs, the lower the growths depression.

INFECTION OF YOUNG PLANTS WITH AV2

In 2014 basic screening, using mixed samples of 20 varieties, discovered 4 varieties from 2 breeders as partially positive. This was confirmed the following year with additional tests. Not all samples were always positive, therefore there were contaminated and uncontaminated samples of seeds of the same variety. Besides, contamination of single samples is evidently so small, that by coincidence only negative plants could be detected in mixed samples of 15 plants. For some individual plant origins the infection rate was determined

Virus status for planting 2015	number plants	sum stalks [cm]	weight crowns [g]
✓ AV2+ AV1	5	424	569 a
✓ AV2+newAV1*	5	438	614 ab
✓ AV1	11	410	657 ab
✓ newAV1*	12	378	722 bc
✓ AV2	10	415	765 cd
✓ without	8	427	834 d

* infestation with AV1 during in the previous year letters show significant differences (LSD 5%)

which ranged from 6.5% to a maximum 30% in the examined plants.

In 2015, in cooperation with the most affected breeders, new methodical principles were developed so in the future affected seed batches could be identified before delivery to growers. To assess transmission of AV2 by knives, samples of white asparagus from many small plots of a variety trial were tested. Not one single contamination could be found that could have come from an infected neighbouring plot. Contrary to statements in literature concerning green asparagus, transmission of AV2 by knives does not appear to play a major role in white asparagus.

INFECTION OF YOUNG PLANTS WITH AV1

After major differences the previous year with up to 90% infections, in spring 2015 a total of 12 origins of asparagus plants were screened. Occasionally even 2 fields of the same origin were sampled. In that year, the range of infection with AV1 was lower with only 0-40%. However, the level of infection rates compares directly to practical experiences in growing crops of different nursery growers. This seems to affirm how

important the virus status of the plants material is.

IN CONCLUSION

The infection rate of young asparagus plants was very different in the 2 trialled years. The problems concerning AV2 should be mostly solved due to testing of seed batches for evidence of AV2. Nursery growers should ask breeders for assurances of AV2 free seeds as it is possible to avoid disadvantages if using virus free plants.

AV1 shows greater differences in infection rates between nursery growers that can impact yields.

Acquiring mostly virus free plants is important for a successful asparagus plantation as any delay in AV1 infection appears to be an advantage when establishing an asparagus field.

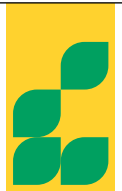
More trials are needed to establish more how to avoid or delay AV1 infection.

Only the financial support of the VSSE, support from individual farms and one breeder by allowing to test their plants and seeds have made

these extensive investigations possible. *AW*
 »DR. LUDGER ALDENHOFF, BDSE E.V. GERMANY



Completely trained foliage proved to be optimal for virus analysis.



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***L'asperge est-elle à l'aube d'une révolution ?
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de sa récolte avec succès, la robotisation
de cette tâche arrive à grand pas.
Est-ce la nouvelle voie de la compétitivité ?***

Confrontés à plusieurs évolutions majeures, à la recherche continue de la précocité, à l'augmentation régulière du coût du travail et à sa raréfaction, les producteurs d'asperge ont fait évoluer leurs pratiques. Au cours des 30 dernières années, la première évolution a été réalisée au niveau des plantations avec l'élargissement des écartements entre rangs qui est passé de moins de 2 mètres à plus de 3,5 mètres. Aujourd'hui, les changements portent sur l'augmentation de la densité sur le rang et l'adoption de nouvelles variétés plus productives (voir page 12). Dans le même temps, au début des années 1990, l'utilisation des plastiques opaques (noir/blanc), des plastiques thermiques à ourlets, les mini-tunels, des serres s'est généralisée.

GAIN DE RENDEMENT ET MOINDRE PÉNIBILITÉ

Toutes ces techniques engendrent une manipulation fastidieuse et chronophage des bâches plastiques. Jusqu'à trois plastiques pour certaines productions en Allemagne. En même temps, la main-d'œuvre est devenue plus onéreuse, plus difficile à recruter. Pour pallier ces difficultés, les agriculteurs ont cherché des solutions pour optimiser chaque heure travaillée, ou la rendre moins pénible (voir encadré page 39). Dans la même période, sont apparues les premières machines d'aides à la récolte. Ces machines soulèvent les plastiques, les reposent sur la butte, permettant ainsi au cueilleur de se consacrer uniquement au geste de la récolte. Elles ont permis un gain de temps de 50 % par rapport

à une manipulation manuelle et ont réduit de manière conséquente la pénibilité, évitant notamment de porter le panier d'asperge. Après quelques tâtonnements (Renard des sables), ces machines ont évolué sous l'impulsion de plusieurs sociétés. Aujourd'hui, elles sont devenues des équipements indispensables à la récolte d'asperge. Engels, constructeur hollandais, a ainsi vendu sa 10 000^e machine Spin lors du dernier salon de Karlsruhe fin 2018 ! Après cette première innovation, M. Engels père, en constante recherche, a développé un système breveté d'arceaux parallèles au rang, et les machines permettant sa mécanisation. Le concept permet de poser le plastique noir/blanc sur la butte et le plastique thermique sur les arceaux avec plusieurs combinaisons possibles suivant les conditions climatiques. Plus de 3 000 ha sont actuellement cultivés avec ce procédé. De son côté, Bagioni, très ancienne entreprise italienne créée en 1857, a développé à partir 1988 les premières machines électriques d'aide à la récolte pour la cueillette des asperges vertes, essentiellement pour le marché italien, apportant un gain de rendement de récolte et une moindre pénibilité non négligeable. Depuis 1998, la société développe une gamme de machine pour la



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17 kg/heure



30 kg/heure



combien de kg/heure ?

maintenant de robotisation de la récolte a permis d'augmenter le nombre de kilos d'asperges ramassées par heure.

manipulation des plastiques en production d'asperges blanches. D'autres fabricants proposent ce type de machines : Ecogreen, etc. Mais le point faible de ces machines a été et est souvent l'autonomie. Toutefois, la généralisation des batteries lithium devrait apporter un plus. Ces machines sont très utilisées en Allemagne, France et Hollande. En Espagne, et surtout en Navarre, berceau de la production d'asperge de conserve, quelques machines ont fait leur apparition.

UNE GESTION DIFFÉRENTE DES CHANTIERS

Dans le même concept, des souleveurs multi-rangs ont été développés. Il s'agit d'une remorque équipée de bras latéraux qui soulèvent les plastiques sur 6 à 10 rangs en même temps. Les cueilleurs suivent la machine et déposent directement les asperges sur un tapis. La possibilité de stocker les asperges dans des bacs remplis d'eau, immédiatement après la récolte, est un avantage de ces équipements en apportant un gain de qualité et de fraîcheur. Teboza a développé une machine, commercialisée actuellement par la société Strauss. Mais souvent les producteurs construisent leur propre machine, adaptée à leur surface. Ces équipements sont ➡

Abstract

From the gouge to the robot

The worldwide labour shortage is the number-one problem facing asparagus production. In addition, new techniques, including plastic tarpaulins, require laborious and time-consuming handling. So the number of kilos of asparagus sold to pay for an hour of harvesting work is steadily increasing. In 1990 in France, it cost 1 kg of asparagus to pay for 1 hour of work. Today, it costs 3.7 kg, and by 2030, the cost will rise to about 4.5 kg. It's the same story in Peru, where it currently costs 2.4 kg of asparagus to pay for one hour of work, but will cost 3.2 kg in 2030. Assisted harvesting increased the number of kilos harvested per hour (see pictures above), and totally mechanical harvesting was introduced in the middle of the 2000s. But the results have not always been conclusive. The unitary harvest of the shoots is the latest evolution and automation is the ultimate phase of mechanisation. Identifying and visualising the spear are the main technical difficulties yet to be overcome. In this direction, Cerescom has developed an electrical detection system based on detecting water, as asparagus consists 92 % of water. In 2019, two machines will go into a full test season.



Didier Duprat
asparagus
consultant



Les premières machines électriques d'aide à la récolte pour la cueillette des asperges vertes sont apparues en Italie dès 1988.

➔ réservés aux parcelles de grandes dimensions, le retournement en bout de parcelle demande un grand dégagement. Les équipes de cueilleurs doivent être très homogènes pour pouvoir suivre la machine avec une cadence régulière... Des souleveurs de plastiques montés sur des quads, ou des microtracteurs sont également utilisés depuis l'arrivée des plastiques à ourlets. Ce sont des fabrications artisanales, performantes, mais la trop grande vitesse d'utilisation de ces outils, provoque une usure trop rapide des plastiques. Un autre inconvénient est la perte des calories de la butte qui reste trop longtemps découverte. En effet, l'organisation classique consiste à débâcher les buttes devant les équipes de cueilleurs et de rebâcher à la fin de récolte, laissant ainsi les buttes découvertes plusieurs heures suivant la longueur des rangs, et on sait que 1°C perdu ce sont 30 kg/ha de production en moins par jour en début de saison. Une gestion différente des chantiers, trois ou quatre cueilleurs par rang diminuent ce problème.

DE LA RÉCOLTE TOTALE À LA RÉCOLTE UNITAIRE

Un autre axe de mécanisation est la récolte mécanique totale. Apparue dans le milieu des années 2000, cette technique consiste à couper

tous les turions à 25/30 cm sous la surface avec des disques ou une lame, récolter l'ensemble des turions avec des tapis et reconstituer la butte. Suivant les conditions climatiques, une récolte est possible tous les 8 à 10 jours. Plusieurs sociétés ont construit des machines (Kirpy, Christiaens, Molly) mais les résultats n'ont pas été toujours très concluants. Trop d'asperges courtes, même après trois ou quatre récoltes, générant une perte de rendement global et une dégradation du prix moyen vendu. Elles permettent éventuellement de rattraper une situation critique par manque de personnel à l'occasion d'un pic de production. Ces machines (Kirpy, Christiaens) permettent de nettoyer et d'aérer la butte, un avantage supplémentaire qui favorise précocité et qualité des turions. Christiaens propose deux machines. Modèle Chrisme sur pneumatiques avec une capacité de 1 ha/jour, et le modèle Chris, doté de chenilles pour des terres plus difficiles, et d'une capacité supérieure. Plusieurs machines fonctionnent en Hollande et en Allemagne. La récolte mécanique et unitaire des turions est la dernière évolution. Pour cela, le repérage et la visualisation du turion ont les principales difficultés techniques à résoudre. De plus, s'y ajoute la nécessité de positionner parfaitement la tête de récolte pour ne pas blesser le turion



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- 6 km
- 10 years (or 800 charging cycles)



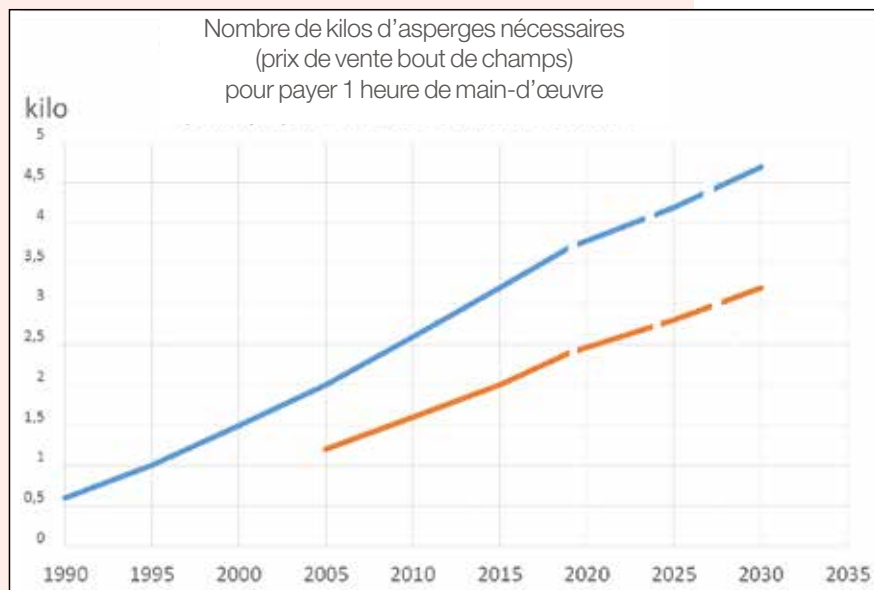
- 40 kg • 6 km • 2 years

- 20 kg
- 15 km
- 10 years (or 800 charging cycles)



Toujours plus de kilo pour payer une heure de récolte


Le nombre de kilo d'asperge nécessaire pour payer une heure de main-d'œuvre ne cesse de progresser partout dans le monde. Les données du tableau ci-joint montrent qu'en France 1 kg d'asperge était nécessaire à rémunérer 1 heure de travail en 1990. Aujourd'hui, un cueilleur doit récolter 3,7 kg d'asperge et dans dix ans il devra récolter près d'un kilo de plus (environ 4,5 kg). Le constat est identique au Pérou où il faut désormais 2,4 kg d'asperge pour payer une heure de travail. En 2005, seul 1,2 kg était nécessaire mais il en faudra 3,2 kg en 2030. Cette augmentation est constante et mondiale. Elle explique également la « délocalisation » régulière de la production d'asperge destinée à l'industrie (conserves et surgelés). Partie d'Europe dans les années 1990, elle est passée par le Pérou, puis la Chine et s'installe aujourd'hui en Afrique de l'Est et en Afrique australe. Cette obligation de compétitivité contraint à faire évoluer les techniques en allant vers une intensification de la production pour rendre la main-d'œuvre plus efficace et proposant plus d'asperge à récolter au mètre linéaire à chaque passage et/ou en mécanisant la récolte avec une assistance toujours plus importante du cueilleur, voire de robotiser cette tâche.



et la griffe, au cours de l'opération de cueille. Tout cela dans toutes conditions climatiques, et avec une vitesse acceptable. L'équation n'est pas simple.


LE MAINTIEN PASSERA-T-IL PAR LES ROBOTS ?

Plusieurs robots autonomes ont été développés, (ZZ Comet, Bagioni), tous basés sur la visualisation par caméra. Leurs faibles performances, leur autonomie limitée, la présence humaine indispensable pour les réaligner sur le rang suivant et récupérer les asperges déposées dans un bac, ont limité leur développement. Mais ce sont les précurseurs dans le concept de robotisation de la récolte unitaire et entièrement automatique des asperges. À côté de ces petites unités, sont apparues des machines de plus grande capacité, autonomes ou nécessitant une traction. La « panthère rose » capable de récolter trois rangs en même temps a fait une apparition autant remarquée qu'éphémère dans les aspergeraies. Depuis, d'autres développeurs, deux entreprises hollandaises, ont pris le relais (AVL Motion, Cerescon). La société Cerescon est la plus visible. Cette société a débuté, suite à l'idée de producteurs hollandais, les frères Wermeer, de construire une récolteuse d'asperges. La disparition brutale d'un des frères, Marc Wermeer, aurait pu mettre un terme à l'aventure. Grâce à la détermination du reste de la famille, le travail de recherche et développement a été poursuivi, sous la houlette de Ad Vermeer, directeur technique. L'entreprise a construit plusieurs machines, dont le ➡



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➔ robot de récolte Sparter sur trois rangs, très remarquée au dernier salon de Karlsruhe (voir ci-dessous).

Pour les asperges vertes, une machine a été développée par la société Haws Harvester, mais sa diffusion est confidentielle. Des travaux de recherches sont également menés au Japon dans le cadre du projet Inaho qui tente d'utiliser l'intelligence artificielle pour automatiser la récolte à 90 %. Ces robots de récolte devraient trouver leur intérêt dans la prochaine décennie, car au-delà du coût de la main-d'œuvre, c'est surtout à sa pénurie que les agriculteurs de-

vront faire face. Même dans les principaux pays producteurs d'asperges vertes ou blanches, qui disposent d'une main-d'œuvre importante et peu onéreuse, la concurrence de cultures moins pénibles ou plus rémunératrices (avocat, raisin de table, mangue, myrtille, etc.) engendre des difficultés de recrutement pour les récoltes d'asperge. Sans ces machines, il sera difficile de maintenir les surfaces d'asperges à leur niveau actuel dans toute l'Europe de l'Ouest. Le maintien d'une importante production locale passera sûrement par les robots ! **AW**

» **DIDIER DUPRAT, CONSULTANT ASPERGE**

Les robots ne sont plus pour demain

La récolte entièrement automatique de l'asperge n'est plus un rêve. Le robot Sparter est déjà dans les aspergeraies pour affiner son fonctionnement. D'autres suivront...

Comme de nombreuses autres opérations culturales pour de nombreuses cultures (récolte des fruits, désherbage mécanique, pulvérisation sous serre, packaging...), la robotisation est la phase ultime de la mécanisation. Eu égard à la raréfaction de la main-d'œuvre et son coût, l'asperge n'échappe pas à cette tendance. Après une période d'hésitation dans différents concepts, la récolte automatique et unitaire apparaît possible avec l'arrivée de robots comme « Sparter » du constructeur hollandais Cerescon. L'originalité de cette machine est le mode de détection des turions. Alors que tous les autres prototypes utilisent une caméra qui peut être perturbée par la présence de déchets, de pierres, et déclencher un cycle récolte sans la présence d'un turion, donc une perte temps, Cerescon a développé un système électrique basé sur la détection de l'eau. Et l'asperge est constituée à 92 % d'eau. Un courant électrique est envoyé à la base de la butte et des capteurs détectent les turions. Ensuite le bras de récolte vient se positionner à l'emplacement de l'asperge détectée, cueille le turion sans arrêter l'avancement de la machine. Pas d'interférence de déchets végétaux ou autre, dans la butte. Cette technologie donne surtout la possibilité de cueillir le turion avant qu'il soit sorti du sol. La machine est capable de le détecter jusqu'à 10 cm sous la surface du sol. Cela permet de récolter des turions parfaitement blancs et limite le fleurissement des pointes. Deux têtes de récolte par rang, fonctionnant en alternance, ont une capacité de cueille de 50 turions par minute (données constructeur) soit 180 kg/heure pour un poids moyen de 60 grammes par turion.

Les turions sont déposés par les têtes de récolte sur un tapis, et récupérés par un opérateur pour mise en caisse. Selon les données du constructeur, la version trois rangs de Sparter nécessite

Deux têtes de récolte ont une capacité de cueille de 50 turions/minute.



Le robot détecte le turion, gorgé d'eau, grâce à un champ électrique.

cinq assistants au lieu de 75 personnes pour récolter 50 ha d'aspergeraies. « *Durant la campagne 2019, deux machines vont faire une saison complète, une en Hollande, l'autre en Allemagne, pour finaliser les dernières mises au point techniques. Ensuite, la société prévoit la vente de six machines en 2020, pour une progression à 16 machines en 2021, 32 en 2022 et 64 en 2023, ce qui serait la capacité maximale de production de la Sté Cerescon* », précise Thérèse Van Vinken, directrice générale. Le prix prévisionnel annoncé est environ 320 000 euros pour une machine 1 rang, pouvant récolter 17 ha, 475 000 euros pour une machine 2 rangs pour 35 ha, 620 000 euros pour une machine 3 rangs pour 50 ha. Une autre entreprise Hollandaise AvL Motion B.V développe une récolteuse automatique. Arno van Lankveld, directeur général, prévoit des démonstrations en Hollande pendant la prochaine récolte. Tous les acteurs de la filière suivront attentivement l'évolution de ces machines.

démonstrations en Hollande pendant la prochaine récolte. Tous les acteurs de la filière suivront attentivement l'évolution de ces machines.



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Asparagus brimming with innovations

A great deal of equipment for the cultivation, conditioning and preservation of asparagus is presented at each show and event. Once again this year, visitors to International Asparagus Days in Cesena (Italy), SIVAL in Angers (France), VSSE in Karlsruhe and Fruit Logistica in Berlin (Germany) have been overwhelmed by innovations. Asparagus World brings you a selection of the new products on display.

» Hermeler

Cutting asparagus stalks in the soil

Hermeler has developed a machine that cuts asparagus stalks 10 cm below the ground surface and about 15 cm above the asparagus soil bed. The stalks are cut with two rotary discs. The stalks are picked up by two conveyors, crushed finely and ejected onto the ground between the rows. In this way, the mound is kept very clean and the asparagus is better protected from diseases.



» Mingozi Group

Deep Preparation

The Mingozi Group presents the Rot 1000. This narrow (1 m) rotary spading machine is designed specifically for tilling the soil before planting at a depth of 0.75 m. It also ensures the burial of organic matter deposits without turning over the soil layers. The machine requires a tractor of 120hp.



» Besnard

Graders for all asparagus

With 50 years of experience in asparagus packing, Besnard has just created a specialised washer cutter: the CLA 2000 HD. Thanks to its high flow rate and water pressure (with adjustable nozzles), the machine meets all washing needs. Since 1997, the company has also been offering electronic sorting machines for white and green asparagus, with its Visio Select range that is capable of analysing multiple criteria (length, diameter, colour, appearance defects) at the rate of 10 asparagus per second. The Visio 712 is a new, more compact machine aimed at medium-sized producers. Besnard also offers several models of mechanical washers that feature three or four outlets with water trays for optimal storage and faster throughput.



Once again this year, visitors to shows and events have been overwhelmed by innovations.

» Cosmeco

Special Asparagus bed former

Cosmeco has launched the B70 bed former specially designed for asparagus. The machine is adjustable for height and width and allows the forming of raised beds of up to 70 cm in height and between 0.5m and 0.80m on top of the bed. The rotors are equipped with different types of knives to reduce compaction, improve porosity of the bed and promote the recirculation of air and water for better shoot growth. The machine can also be equipped with various accessories such as lateral swivel discs to either spread the earth or to bring it round for easier bed forming.



» Harlander

Adjustable-frame raised bed former

Harlander has directly integrated a hydraulic adjustable frame in its SDF 168M/HVR. The positioning information is transmitted to it by ISOBUS and GPS mounted directly on the machine. These two original features allow it to improve the working precision to within 2 cm on the line.



» Europlastic

Thermal diffusing Film

Europlastic offers a range of plastic thermal diffusing films - perforated or unperforated - intended for the production of green asparagus. The Asparaclim range allows the grower to benefit from the early effect of a film, while regulating excess temperature. This regulation allows gains in calibre and shoot quality as well as in crop regularity. «The goal is to keep the plastic on the crop as long as possible,» said the manufacturer, who also offers large-width hemmed films (4.50 m) to broaden the thermal effect.



» Strauss

Harvest assistance

Strauss proposes a self-propelled asparagus harvesting assistant. The machine simultaneously raises the film on 14 beds by a row distance of 2m and can also be used for green asparagus crops without the foil guides. The hand-picked asparagus is deposited by the pickers onto a conveyor and brought into to the centre of the machine. There is an optional cut and washing unit before the product is packed into crates and then onto pallets. The water is stored in a 450L tank under the vehicle. There is a space for storing two pallets (optional stacking). Forward movement is by hydrostatic drive, with variable speed, thanks to a 4-cylinder diesel engine. An automatic steering system ensures that the machine always advances parallel to the beds. At the end of the line, the arms are raised to facilitate the turn. The kit can be folded hydraulically. Strauss also offers a trailed version of the machine, for 9 beds, with a water tank of 320 L.





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» Glukon

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This glue, borrowed from the world of marquetry, is effective in sixty seconds after vaporisation and manual pressure on the parts in contact. It is suitable for repairing or fitting all types of tarpaulins, thereby eliminating the need for tying. A 500 ml (€10.95) can is enough to treat between 3 and 4 m². The 13 kg and 22 L tanks increase autonomy to 100 m².





» Bagioni Lithium battery

The Italian manufacturer specialising in the mechanisation of asparagus cultivation now uses lithium batteries to offer lower weight (10 kg), greater range (6 to 10 km/day) and extended battery life (800 cycles of charge). Bagioni's range of K8 support machines is also equipped with a Stop & Go to detect the presence of the collector to ensure greater safety and freedom of harvest. With the K8, Bagioni also offers the «Baleno» option, an accessory kit to facilitate and increase the filling speed of the hemmed plastics.

» Christiaens Agro Systems one machine

In collaboration with Beltech, vision systems designer Christiaens Agro Systems has developed a high-speed sorting and packing system in one machine, the SortiFlex Pack Robot. Although the machine has been specially developed for the mini-cucumber, it can also be used for asparagus. Vegetables are sorted by 3d vision according to their diameter, length, shape or weight. They are immediately conditioned by robots into trays brought by four feeder lines.

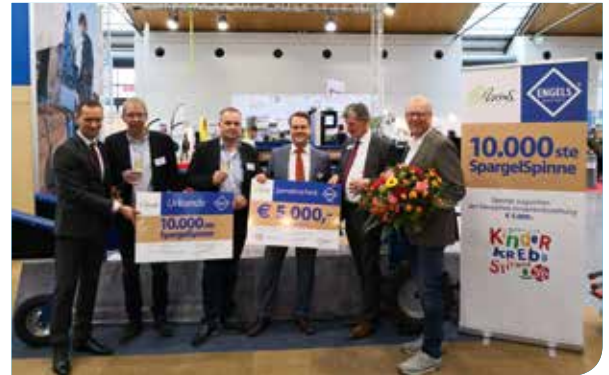
Three trays are made at the same time according to the best combinations.

Its capacity with only one operator is 20 000 units/hour.



» Engels Sells its 10 000th AspergeSpin

At the Spargelhof Werner ExpoSE strawberry and asparagus fair in Karlsruhe, Engels Innovatietechnik BV sold its 10,000th AspergeSpin A1, a harvesting system for the cultivation of asparagus. According to the manufacturer, one person using the machine can harvest an average of 30 kilograms of asparagus per hour, which, combined with an efficient harvesting system, reduces labour costs to only 40 cents per kilogram of asparagus. The revenue from the 10,000th AspergeSpin A1 was donated to the German Child Cancer Foundation.





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- MULTITECH Double film







» Hepro

Peelers for green asparagus and large asparagus

As the consumption of green asparagus is increasing, Hepro is launching a new peeler for green asparagus, the HSM-3000 G. Thanks to a special sensor, the machine peels only the lower third and thus preserves the tip of the asparagus. It is available for flow rates of between 3,600 and 10,000 pieces per hour. Hepro also offers a new large asparagus peeler, the HSM-3000 Jumbo, which allows the peeling of asparagus from 18 to 42 mm in diameter at a rate of 3,600 to 10,000 pieces per hour.



» Arc

Bunching solution

ARC has released its new bunching solution. In a single operation, it is now possible to produce all bunch sizes while instantly attaching a label. This offers multiple gains: packaging is reduced and each bunch can display brand, traceability, barcode and recipes. Already recommended by many users, it is available in two versions: manual and automatic.



» Tenrit

Peeler for Supermarkets

Tenrit offers a whole range of asparagus peelers with a capacity ranging from 200 kg/h to 800 kg/h. The firm's latest model, Tenrit Solo A, is specially designed to be installed in retail outlets, with a water tank equipped with pump and compressor included in the machine. The asparagus passes through eight peeling stations, each consisting of two blades. The blades and rollers can be easily changed. The peel pressure is adjusted using three pressure-regulating valves, which reduces losses in peeling. Tenrit Solo A allows the peeling of asparagus from 8 to 45 mm in diameter and with a minimum length of 100 mm. Its capacity is 3,600 pieces/h, or about 180 kg/h.

» Ocene

Water treatment

France's leading agricultural water treatment company, OCENE, is developing innovative technology in the plant world with the in situ construction of two products. The first, the CATHOLYTE, facilitates the cleaning of asparagus after harvesting, while the second, the ANOLYTE, makes preserving the product easier. What is so original about these products is that they are derived solely from the transformation of a salt water solution by electrolysis, meaning that no chemicals are introduced into the manufacturing process. According to the company, the results obtained from asparagus producers are opening up interesting new prospects.





» Janny MT

Controlled atmosphere crates

Janny offers controlled atmosphere pallet crates for storing and transporting asparagus. One of the modules, available all over the world, allows asparagus to be stored under a controlled atmosphere in a classic cold room. It features six gas-selective membranes and can store 90 kg of white or green asparagus for 25 days without altering the quality, thereby allowing the marketing of asparagus to more distant markets. The modules can be stacked in piles of eight to save floor space. Another model currently available for the American market is a 44 x 48 inch module with 9 selective membranes. It is both stackable and nestable, which reduces by 4 the volume of return transport. One module can be used to transport 120 kg of asparagus.

» Hermeler

Glycol for cooling

With European legislation evolving towards a total ban of fluorinated refrigerants, Hermeler has altered the cooling systems of its cold chambers. All of its installations now include a dual refrigerant circulation circuit. The first is based on the use of natural fluids (ammonia, CO₂). The second uses glycol water in an exchanger where glycol water enters at -3°C and leaves at -7°C.



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Les asperges venues du froid

La production d'asperge au Québec est une course poursuite. Entre un hiver long et des chutes de neige précoces, les producteurs québécois montrent beaucoup de dynamisme avec une forte croissance de surface et la promotion de leur produit.

Avec l'arrivée de nouvelles variétés et de nouvelles techniques, Stéphane Roy croit au développement de l'asperge au Québec.



MAI



JUN



AOÛT



NOVEMBRE

Au Canada, la province du Québec est la deuxième zone de production après celle d'Ontario. Les statistiques de MAPAQ-DDSA chiffrent la surface des plantations d'asperge québécoise à 460 ha, cultivées par 190 exploitations agricoles pour une superficie moyenne de 2,4 ha. Près de 20 % des exploitations produisent des asperges certifiées bio mais elles ne représentent que 26 ha, soit 6 % des surfaces.

UN TURNOVER VARIÉTAL EN COURS

L'Ontario compte plus de 1 600 ha mais sa progression de surfaces est moins importante et n'a été que de +8 % entre 2014 et 2017, selon les données présentées par Mélissa Gagnon, conseillère en production maraîchère, lors d'une journée d'information à Joliette en février 2019. Quant au Québec, « la superficie d'asperges a vu une augmentation de l'ordre de 24 % au cours des quatre dernières années avec l'arrivée de nouvelles variétés issues de l'Université de Guelph en Ontario », précise Stéphane Roy, président du comité des producteurs d'asperge du Québec et copropriétaire des Fermes Horticoles LMR, situées à Saint-Liguori. Un sondage réalisé auprès des asparagiculteurs québécois témoigne du turnover variétal en cours. Ainsi, chez treize producteurs répondants, l'âge des plantations de Guelph Millennium est de 1 à 19 ans, celui de Jersey Giant 6 à 9 ans, celui de Guelph Eclipse 2 ans et Guelph Equinox 1 an. En plus, du renouvellement des vieilles plantations, de nouvelles techniques venues d'Europe ont permis d'améliorer les rendements d'aspergeraies au Québec. Lorsque la province québécoise débute sa récolte d'asperges, au début mai, la production bat son plein en Amérique du nord, dans les

Etats du New Jersey, Michigan, Californie, et Washington. Pour le Canada, la province de l'Ontario débute environ deux semaines avant le Québec.

RECONNAÎTRE L'ASPERGE DU QUÉBEC

Aussi, pour assurer le consommateur québécois d'acheter une asperge produite au Québec, quelques producteurs ont eu l'idée de former un comité pour promouvoir l'asperge du Québec, sur une base volontaire. Depuis quinze ans, ce comité a pour but de donner de l'information sur la situation et les prix du marché en temps réel. « Nous avons la chance d'être supportés par l'Association des Producteurs Maraîchers du Québec (APMQ). Grâce aux cotisations volontaires des membres du comité Asperge et des commanditaires du milieu agricole, nous pouvons donc faire de la promotion au niveau radiophonique, dans les médias, et les affiches publicitaires », assure Stéphane Roy. Le consommateur peut reconnaître l'asperge du Québec ➔

24%

Les surfaces d'asperges au Québec ont augmenté de 24 % au cours des quatre dernières années.

Abstract

Asparagus Production in Quebec

Asparagus production in Quebec is a race against time, with producers having to show their dynamism as they deal with long winters and early snowfalls. The area planted with asparagus in Quebec has increased by 24 % in four years (460 ha in 2018), with the arrival of new varieties from the University of Guelph and improvements in techniques. To compete with production from elsewhere in North America, Quebec asparagus can be identified by its logo and a yellow elastic band.



Guy Dubon
Co-editor of AsparagusWorld

➔ grâce à un identifiant qui le distingue des autres asperges, soit un élastique jaune avec une inscription, produit du Québec, et le logo d'aliment du Québec, que seul le comité asperge peut fournir à ses membres. Quelques producteurs ont également leur propre étiquette identifiant leur ferme. Cette organisation identitaire a permis de mieux coordonner les promotions faites par les grandes chaînes alimentaires et la production québécoise.

DU TRAVAIL COTÉ EXPORTATION

Quant à l'avenir de l'asperge au Québec ? Stéphane Roy pense que « le comité asperge est là pour rester, il y a encore à faire et à développer ». Le nouveau guide canadien alimentaire met plus l'accent sur la consommation de fruits et de légumes, c'est une bonne chose pour la consommation de l'asperge qui est de 0,68 kg/année en moyenne, en partie couverte par des importations (voir graphique). Il faut travailler à augmenter la vente directe aux consommateurs, maintenir et améliorer la position sur les marchés locaux, augmenter la visibilité de l'asperge sur les réseaux sociaux, et la promouvoir sur les marchés culinaires via le développement de nouvelles recettes ou façons d'apprêter ce légume. Selon le responsable, « il y a encore du travail à faire coté exportation. Cette voie a beaucoup de potentiel si c'est fait correctement pour ne pas rater son entrée. Côté production, avec l'arrivée de nouvelles variétés et les techniques améliorées, je pense que les rendements vont aller en augmentation. Je vois d'un bon œil l'avenir de l'asperge au Québec car c'est tellement bon...j'ai hâte d'être au printemps ! » *AW*

»GUY DUBON

Avis d'expert

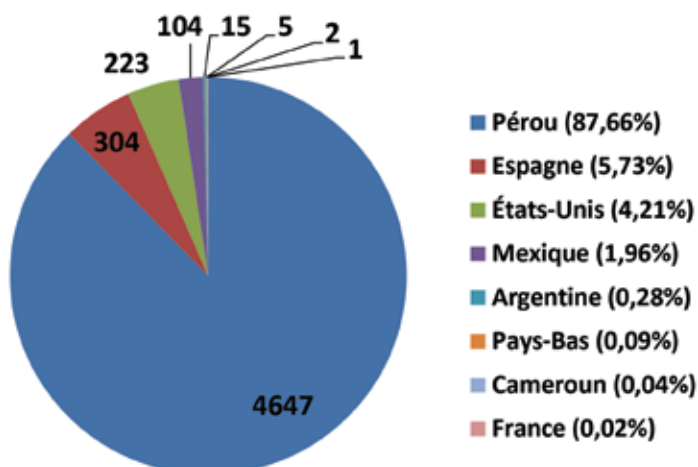
Amélie Lachapelle,
conseillère technique
en production maraîchère

« Tout s'enchaîne très vite »

« Produire de l'asperge au Québec, c'est comme courir un 100 m. Tout s'enchaîne très vite de début mai à mi octobre », compare Amélie Lachapelle, conseillère technique en production maraîchère. Dans la Belle Province, les hivers sont longs, froids (-25°) et neigeux (2 à 3 m de hauteur de neige cumulée). En revanche, le printemps et l'automne sont une période éphémère de quelques jours. « Ici, les changements de saison sont très rapides. Ce qui impose des variétés très vigoureuses à cycle court. Nous devons aussi disposer de système anti-gel pour protéger la récolte de gelées potentielles jusqu'au 15 mai », explique-t-elle. En saison, la production s'effectue sur une période très groupée avec de gros volumes. « Il est possible de produire 4,5 t/ha et atteindre 6,5 t/ha en 5 à 6 semaines de récolte », précise la technicienne. L'important est de savoir quand arrêter, pour donner du temps à la plante pour reconstituer ses réserves lorsque les premières chutes de neige peuvent survenir dès la mi-octobre. « Nous avons à développer des outils pour évaluer ce moment », assure Amélie Lachapelle. En effet, les producteurs québécois ont plutôt avantage à prolonger la saison car l'asperge québécoise est toujours devancée en saison par celle de l'Ontario. De fait, les producteurs n'utilisent pas de film de paillage. En revanche, elle est la dernière à produire dans tout l'Amérique du Nord avant le retour des importations péruviennes et mexicaines.



Importations d'asperges fraîches ou réfrigérées au Québec de janvier 2016 à janvier 2019 (tonnes métriques)



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Spargelhof schält jetzt Grünspargel

Die Betriebsleiter des Spargelhofs Wenner haben es fertig gebracht aus dem ursprünglich landwirtschaftlichen Betrieb, der vor 25 Jahren auf einer Fläche von 2 ha anpflanzte, ein beeindruckendes Unternehmen erwachsen zu lassen.



2017 war Premiere für geschälten Grünspargel im Betrieb Wenner dank einer neuentwickelten Schälmaschine von Hepro.

«**W**ir haben uns immer an der Maxime ausgerichtet, nur das anzubauen, was der Markt verlangt», erklärt Landwirt und Dipl.-Kaufmann Jörg Wenner. Schon vor 25 Jahren, als die ersten Schälmaschinen auf den Markt kamen, erkannte er die Vorzüge dieser Technik und eines der ersten Modelle aus der Serienfertigung von Hepro fand auf dem Spargelhof Platz.

Seit dieser Zeit ist die Entwicklung weit vorangeschritten und drei große Hepro Modelle sind während der Saison zum Schälen von Bleichs-

pargel im Einsatz. Die Kunden im Hofladen und an den 24 Verkaufsständen des Spargelhofes im Umkreis von ca. 100 km um den Hofstandort Hilter haben im Laufe der Jahre die Vorzüge des geschälten Spargels schätzen gelernt.

GROSSER ANTEIL WIRD GESCHÄLT VERKAUFT

Wie kann man es schaffen, dass 80 bis 90 % des Bleichspargels in geschälter Form von den Kunden gekauft werden und der Verkaufanteil ungeschälter Ware weiter abnimmt? Wie kann ein Betrieb eine solche logistische Herausforderung lösen? Das Paar hat ein straffes Konzept entwickelt, das die Einhaltung einer permanenten Kühlkette ebenso voraussetzt wie einen guten Überblick über die Geschehnisse auf Feld und Markt. Hierzu zählen aber auch Wetterverlauf und -prognosen, die Lage der Feiertage oder Wochentage usw. Der Spargel wird eiskalt geschält, dann auf Eis gelegt und zum Kunden transportiert, die

Kühlkette muss komplett eingehalten werden. Kunden erhalten die Empfehlung, den Spargel spätestens am Folgetag zu essen, denn der Spargelhof Wenner verzichtet darauf, den geschälten Spargel einzuschweißen oder zu versiegeln.

«*Unsere Kunden haben das Konzept verstanden. An den meisten Ständen gehen nur noch eine oder wenige Kisten ungeschälter Spargel, manchmal kommen diese noch zur Hälfte zurück. Seit die großen Schälmaschinen im Einsatz sind, verkaufen wir geschälten und ungeschälten Spargel zum gleichen Preis. Dabei entsprechen 700 g geschälter Spargel einer Menge von 1 kg ungeschältem Spargel*», erläutert Jörg Wenner.

SPARGEL WIRD NICHT INS WASSER GESTELLT

Jeden Morgen werden die Verkaufsstände beliefert. Zusätzlich erfolgt in der Mittagszeit eine bedarfsgerechte Nachlieferung. So können die Retouren in der Regel recht gering gehalten werden. Voraussetzung für

Abstract

Peeled asparagus

More than 80 % of Wenner's fresh asparagus is peeled mechanically and preserved using crushed ice. The firm's success is the result of flawless organisation and the balancing of multiple criteria to combine production management and direct sales. The current plan is to achieve the same results with green asparagus.



Thomas Kühlwetter

einen weiteren Verkauf am Folgetag ist, dass der Spargel tagsüber am Stand konsequent gekühlt wurde. Zur Kühlung des Spargels sind vier Eismaschinen zur Produktion von Scherbeneis während der Saison im Einsatz. « *Unsere Ernte muss sich nach dem Verkauf richten, zu große Menge helfen uns gar nicht und das Geschehen auf den Feldern ist eng an den Verkauf gekoppelt* », sagt Jörg Wenner. Das Management für Folien und Tunnel muss permanent an den Verkauf angepasst werden. Nach Ernte und Anlieferung auf den Hof erfolgt eine Vorwäsche und anschließende eine erste Kühlung in einem Schockschrank durch Berieselung mit Eiswasser. « *Der Spargel wird nie unter Wasser gesetzt* », erklärt Jörg Wenner, « *weil nach meiner Meinung der Geschmack darunter leidet. Als Direktvermarkter müssen wir Geschmack verkaufen und nicht nur schneeweiße Stangen* ». Nach mindestens sechs Stunden im Schockschrank ist der Spargel dann auf eine Temperatur von 1-2 °C heruntergekühlt und kann ins Rohwarenlager oder sortiert werden.

Nachdem über viele Jahre mit einer Hermeler Anlage sortiert wurde, hat sich der Spargelhof Wenner 2017 für eine neue, noch leistungsfähigere Maschine des bekannten Herstellers entschieden. Die Greif- und Arbeitswege sind kurz, die Sortierqualität und das Handling stimmen. Mit acht Personen kann 1 t Spargel/Std. sortiert werden, auch höhere



Eineinhalb Jahre Entwicklungszeit hat Hepro investiert, bis die Schältechnik für Grünspargel praxisreif war.

Leistungen sind möglich, dann ist jedoch mehr Personal erforderlich und die Qualität des Spargels muss stimmen.

Zurück zum Schälen: Grundsätzlich wird der Spargel vor dem Schälen in unterschiedliche Kategorien sortiert. Mit zwei großen HSM Maschinen werden der mitteldicke Spargel bzw. dicke und Jumbo-Stangen geschält. Eine HSM-6000, die im Verkaufsraum steht, schält die kleineren Sortierungen. Die Arbeitsabläufe auf dem Hof sind eingespielt, die Aufgaben klar verteilt, die Technik funktioniert.

ERSTMALS GRÜNSPARGEL GESCHÄLT

2017 hat erstmals das Paar auch geschälten Grünspargel im Hofladen und an Ständen angeboten. Auf dem Spargelhof spielt der Grünspargel bislang mit einem Verkaufsanteil von ca. 3 % - gemessen an der Gesamtmenge – bislang noch eine geringe Rolle, doch für die Zukunft wollen sich die beiden Betriebsleiter stärker diesem Produkt widmen und es ein wenig aus der Nische holen. Vielleicht gelingt es, den Verkaufsanteil des Grünspargels auf 10 % zu steigern.

Aufgrund der Besonderheit der Grünspargelstangen, die oft gekrümmt sind, leicht brechen und

einen sehr empfindlichen Kopf haben, war die Entwicklung einer geeigneten Schältechnik schon eine besondere Herausforderung. Schließlich war die beim Bleichspargel bewährte Technik zum Halten der Spargelstange während des Schälen über sogenannte «*Aufnahmetulpen*» kaum geeignet. Darüber hinaus müssen die Stangen des Grünspargels nicht komplett, sondern nur im Bereich der unteren Hälfte geschält werden. « *Für uns war klar, dass wir das Greifsystem neu konzeptionieren mussten, während das Schälsystem nach einigen Anpassungen erhalten bleiben sollte. Wichtig ist, dass beim Greifen keine Druckstellen an den Stangen entstehen* », erklärt Jens Frommann, Geschäftsführer von Hepro.

In der technischen Umsetzung musste ein komplett neues Greifsystem entwickelt werden. Verändert wurde auch der Druck der Halterungen. « *Die Maschine ist erstaunlich gut von Anfang an gelaufen* », sagt Jörg Wenner. « *Während des Saisonbeginns Anfang April häufiger Stangen nach unten fielen, muss zum Ende der Saison kein Mitarbeiter mehr neben der Maschine stehen und Stangen nachschälen. Die Greifer wurden vergrößert. Die Veränderungen tragen dazu bei, dass die Stangen nicht durchrutschen* ».

EINEINHALB JAHRE ENTWICKLUNGSZEIT

Im Vergleich zu ungeschälten Stangen kommt der Abfall beim Grünspargel auf einen Gewichtsanteil von ca. 20 %. Es wird relativ grob geschneitten, um ein sauber geschältes Produkt zu erreichen. Die eingesetzte Technik verwendet sechs Schäleinheiten, die jeweils mit zwei Klingen ausgestattet sind. Wie hoch die Stangen des Grünspargels geschält werden, kann über eine Elektronik eingestellt werden. Verluste können entstehen, wenn eine Stange nicht von den Greifern gehalten wird und wieder zurück auf das Zufuhrband fällt oder dadurch, dass der Kopf abbricht. Diese Verluste sind aber verhältnismäßig gering. Wird die Maschine zu 100 % ausgelastet, können 3 600 Stangen/Std. geschält werden.

« *Geschälter Grünspargel verkauft sich sehr gut, es ist aber wichtig, dass die Kühlkette konsequent eingehalten wird* », betont noch Jörg Wenner. **AW**

»THOMAS KÜHLWETTER



Geschälter Grünspargel kommt bei den Kunden gut an.



Germany faces labour shortage

The difficulty of recruiting seasonal workers is pushing German asparagus producers to offer longer contracts and invest in technical solutions that require less manpower.

56%

56 % of the growers are ready to reduce their areas !

The lack of labour is once again a burning issue in Germany. « The minimum wage will go up to euro 9.19 gross per hour in 2019 and euro 9.35 in 2020. The employer pays an additional 5 % tax », said Simon Schumacher, director of the VSSE Union. It is almost impossible to pass on these increases. Wholesalers prefer to stock up with imported merchandise that is cheaper and available much of the year. Even if the market share of the German asparagus still reaches 80 %, producers are worried because the market share of German strawberries is as low as 60 %.

CALL TO REDUCE PRODUCTION AREAS

Producers supplying large retail outlets are reacting by investing in larger and more efficient equipment and/



A quarter of the asparagus growers are willing to invest in the mechanisation of the workstations.

or by going more high tech. They are on the lookout for new varieties that allow a longer shelf presence

and bigger fruits. But 2018 was one of the worst years for the price of asparagus. In order to achieve a sufficiently high price level, the profession is calling openly for a reduction in production area. According to estimates, the area should reduce over several years from 27 000 to 22 000, or even 20 000 ha of asparagus ! However, for producers who sell all or part of their harvest direct, it is rather a question finding and retaining staff. Many are diversifying into new crops, such as apples or cherries, in order to occupy their workforce for longer. This does not solve the difficulty of recruiting. According to a survey conducted by the VSSE during the summer of 2018 with 354 producers, nine out of ten believe that the conditions for hiring are deteriorating. A quarter of the respondents are willing to invest in the mechanisation of the workstations; 27 % want to intensify production; 35 % are ready to shorten their season, and 56 % are prepared to reduce their areas ! **AW**

»CHRISTOPHE REIBEL

Create bonds to keep your employees

Sarah Grallath and her husband have a business producing 30 ha

of asparagus and 5,000 m² of strawberries. Every year, she employs 100 seasonal workers for seven months in the harvest and 30 workers in sales. Grallath has been busy thinking of strategies for holding onto them: « We began by setting out clear rules. Our rules of procedure set out the schedule for breaks, require the sorting of waste, and what to expect in case of theft or alcohol use. We talk a lot before and after the working day to correct anything that goes wrong. We have empowered the group leaders who form their own teams. New employees are shown a video and we have learned some basic words in Polish and Romanian. We ask them to understand a little German ! We also provide them with numbered bikes to use. We organise evening activities during their stay and send them a card for Christmas. You have to create a bond and trust. Now, two-thirds of them come back every year, and others recommend us. »



»CHRISTOPHE REIBEL

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Wie weiter nach dem Extremjahr 2018

Die extremen Witterungsbedingungen der Saison 2018 haben die Absatzprobleme auf einem, zur Markt Sättigung gekommenen intensiviert.

In Deutschland hat die Ernte von erstem Spargel aus dem beheizten Anbau Ende Februar begonnen. Damit ist der Startschuss gefallen für eine Saison, die mit großer Spannung erwartet wird. Die vorangegangene Spargelsaison 2018 war extrem. Das gilt sowohl für die Witterungsbedingungen mit anhaltend hoher Einstrahlung und hohen Temperaturen, als auch für die Entwicklung von Angebot und Preisen. Über einen langen Zeitraum lagen die Spargelpreise in Deutschland 2018 auf einem niedrigen Niveau. Nun muss sich zeigen, welche Reaktionen darauf erfolgen.

MARKTPREISEN UNTER DRUCK

Mit 133.000 Tonnen wurde in Deutschland 2018 so viel Spargel



Der durchschnittliche Konsum von Spargel ist in Deutschland stabil, um 1,43 Kilo Pro-Kopf pro Jahr.

Abstract

The 2018 asparagus season in Germany was a season of extremes. High Temperatures pushed the harvest to a record level. But for a large part of the season the prices were low, and it was difficult to sell asparagus. Of course, the weather was extreme, but also the expansions of asparagus acreage in the past years were part of the problems. Between 2008 and 2018 asparagus harvest in Germany grew by 4 per cent per year. In the same time the population in Germany only grew by 0.3 per cent per year. The asparagus market in Germany seems to be saturated. Many producers have signalled their intention to restrict the asparagus area based on experience in the 2018 season. Only the course of the 2019 season will show whether the changes will take effect.



Michael Koch
assistant editor of the
horticultural department
of AMI

geerntet wie nie zuvor. Anders als im Jahr zuvor hat die Saison nicht sonderlich früh begonnen. Niedrige Temperaturen im März und fehlender Sonnenschein haben die Entwicklung auch unter den Folienabdeckungen verzögert. Mitte April kam dann die Sonne, und damit dann auch gleich hohe Temperaturen. Unter den Minutunneln ist es schnell so warm geworden, dass sie bereits früh abgenommen werden mussten. Durch die vorangegangene Verzögerung waren viele Spargelflächen in der Entwicklung ähnlich weit, so dass innerhalb kurzer Zeit ein großes Angebot aufgelaufen ist. Das Ertragspotenzial der frühen Anlagen war noch nicht gänzlich

ausgeschöpft, als bereits die späten Anlagen in die Ernte kamen. Anders als in anderen Jahren gab es in der Saison 2018 keine kühlere Phase, in der sich der Markt hätte erholen können. Die Erntemengen blieben durchweg hoch. Von dem großen Angebot ging ein dauerhafter Druck auf den Preis aus.

SCHRUMPFENDER PRIVATVERBRAUCH, ALS SÄTTIGUNG FAKTOR

Die extremen Witterungsbedingungen während der Saison 2018 sind aber nur ein Grund für das schwierige Marktumfeld. In den vergangenen Jahren wurde der Spargelanbau in Deutschland

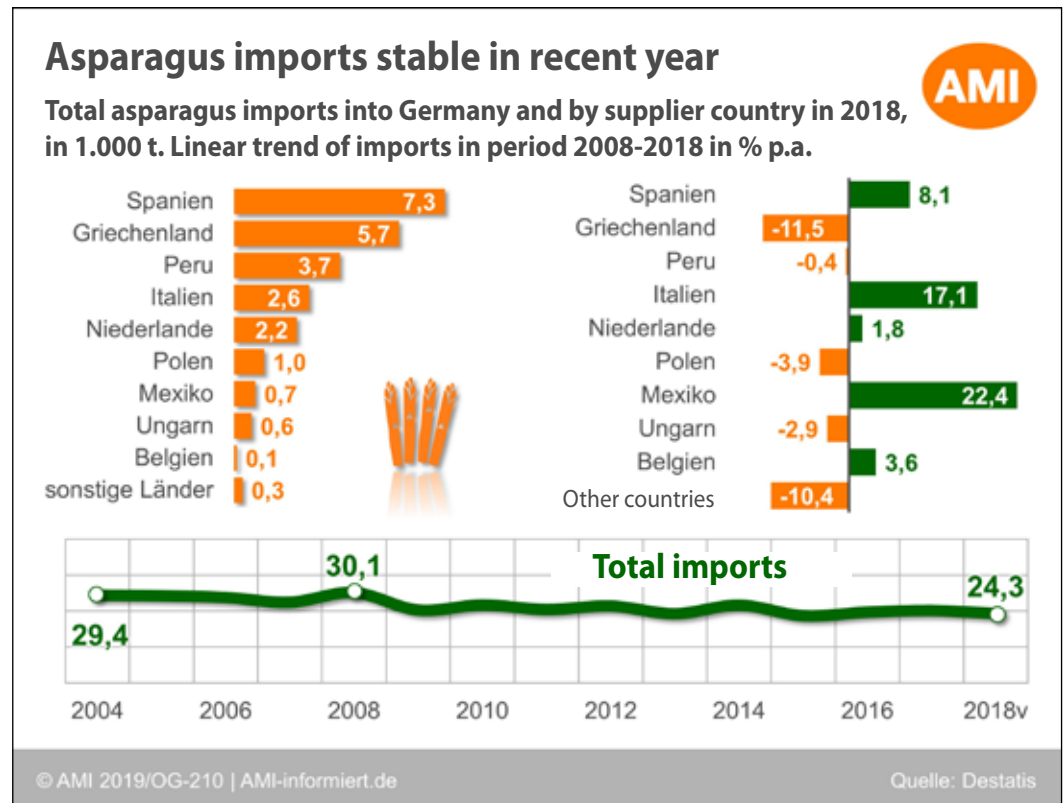
immer weiter ausgedehnt. Zuletzt wurde 2018 auf einer Fläche von 23.408 Hektar Spargel geerntet. Dazu kamen noch einmal 5.106 Hektar Spargelflächen, die noch nicht im Ertrag waren. Zwischen 2009 und 2018 ist die Ertragsfläche um durchschnittlich 3 Prozent pro Jahr gestiegen. Die Erntemenge ist im selben Zeitraum sogar um 4 Prozent pro Jahr gestiegen. Gleichzeitig ist die Bevölkerung in Deutschland in den vergangenen 10 Jahren nur um 0,3 Prozent pro Jahr gewachsen. Die Entwicklungen passen also nicht ganz zusammen, zumal die privaten Haushalte in Deutschland von Jahr zu Jahr weniger Spargel einkaufen. Dafür gehen steigende Mengen in die Gastronomie und in Kantinen. Dennoch scheint der Spargelmarkt in Deutschland eine Sättigungsgrenze erreicht zu haben.

RELATIV NIEDRIGE EXPORTE UND STABILE EINFUHRMENGEN

Während die steigende Produktion in Deutschland zunächst bis etwa 2009 Importe verdrängen konnte, haben sich die Spargelimporte zuletzt bei rund 25.000 Tonnen pro Jahr eingependelt. Aus der Inlandsproduktion und Importen standen dem Markt in Deutschland 2018 rund 157.300 t Spargel zur Inlandsverwendung zur Verfügung. Von dieser Menge müssen Exporte und Verluste abgezogen werden. Nach diesen Abzügen standen dem deutschen Markt rund 119.000 t Spargel als Inlandsverbrauch zur Verfügung. Geteilt durch die Bevölkerung ergibt sich daraus ein durchschnittlicher Pro-Kopf-Verbrauch von 1,43 Kilo. Der rechnerische Selbstversorgungsgrad bei Spargel ist zuletzt nicht mehr weiter gestiegen und liegt stabil bei gut 85 %. Im Export ergeben sich für deutschen Spargel nur begrenzte Möglichkeiten. Mehr als 5.000 Tonnen pro Jahr konnten in den vergangenen Jahren nicht exportiert werden. Die Masse verbleibt entsprechend auf dem Inlandsmarkt.

UNSICHERHEITEN ÜBER DIE AUSWIRKUNGEN DER DÜRRE

Mit Spannung werden die weiteren Entwicklungen erwartet. Es fehlen Erfahrungswerte, wie sich



die Trockenheit und Hitze im Sommer 2018 auf die Spargelpflanzen ausgewirkt haben und was das für das Ertragspotenzial in der Ernte 2019 bedeutet. Viele Produzenten haben signalisiert, aufgrund der Erfahrungen in der

Saison 2018, die Spargelflächen einschränken zu wollen. Erst der Verlauf der Saison 2019 wird zeigen ob die Maßnahmen greifen. *AW*

»MICHAEL KOCH, ASSISTANT EDITOR OF THE HORTICULTURAL DEPARTMENT OF AMI

Dutch growing less white gold

But innovation and products like peeled asparagus are helping boost consumption for Europe's fifth biggest asparagus producer

After several years of growth, the harvested area and production volume of asparagus in the Netherlands both fell last year. The total area for asparagus production was up 1.3 % to 3,860 ha in 2018, but only about 80 % of it – 3,104 ha – was harvested. According to CBS, Statistics Netherlands, the harvested area was thus 6.6 % smaller than in 2017 and the crop volume of 19,000 tons was down 8.7 % year-on-year. Nevertheless, compared to 2013, the total area dedicated to asparagus production, the harvested area and the output were all about 20 % higher. As was the case everywhere, 2018 was, however, a very unfavourable one for the asparagus sector in Europe, with extremely warm and dry weather taking a heavy toll. In its wake, the concentration of production could accelerate in the Netherlands, with fewer but more specialised producers (about 1,000) for the same production areas.

PEELED ASPARAGUS ALREADY REPRESENTS 15 % OF SALES

CBS figures show that the number of companies involved in asparagus has already fallen from 860 in 2007, to 720 in 2013 and then to 610 in 2018. Dutch growers, like others worldwide, are also grappling with a labor shortage and are thus interested in mechanisation and the development of specialised and very dynamic asparagus varieties. The southern provinces of Limburg (over 60 %) and North Brabant (about 33 %) account for the vast majority of the Dutch asparagus area. Most asparagus is extracted from the ground in North Limburg and the



Dutch growers, are grappling with a labor shortage and are thus interested in mechanisation and the development of specialised and very dynamic asparagus varieties.



« The provinces of Limburg and North Brabant account for the vast majority of the Dutch asparagus area. »

southeast of North Brabant. There is an EU PDO (protected designation of origin) for Brabantse Wal asparagus and to promote asparagus grown in the sandy soil of Limburg, growers have developed a special label called « Echte Limburgse Asperges » (« Real Limburg Asparagus »). Eurostat data shows the Netherlands continues to rank 5th in the EU – behind Germany, Spain, Italy and France – for asparagus harvested area, followed by the UK, Greece and Poland. Dutch production consists mainly of white asparagus grown in the field, but a small percentage is produced under cover, sometimes even in heated greenhouses which allow the Dutch to be in the market from mid-February. Only about 20 % of domestic production is exported. The vast majority of the exports stay in the EU, mainly going to Germany, followed by Belgium and France. Exports to Asia remain modest but have sur-

ged since 2015. The Netherlands still imports a big volume of fresh asparagus, though this has fallen from nearly 16,000 tons in 2010 to 11,600 in 2017. Imports from Peru have been on the decline but it is still the main source, with 6,207 tons in 2017, Belgium 1,798 and the United States 1,180. Much imported asparagus is re-exported, especially to Germany and Belgium. Because Dutch asparagus consumption is still low – with 30 % of the population consuming it 4 times a year – there's room for considerable growth. Peeled asparagus, which already represents 15 % of sales, has seen sharp growth, climbing 40 % in just a few years. This is an increasingly popular product for retailers and peeled asparagus either comes packaged in a tray or peeling machines are provided in-store, allowing sale of a bunch of peeled asparagus for 1.50 euro. **AW**

» JULIE BUTLER

» Teboza

A «pure player» of the asparagus world

Teboza is a «pure player» of asparagus. This Dutch company combines the activity of asparagus crown nurseryman, with that of technical consultant, producer and marketer of asparagus. The company sells 4 000 tons of asparagus 70 % of which in 500 g packs and 30 % in 5 kg packs. According to Will Teewen, its manager, the trend is for sustainable packaging. The cardboard tray replaces the plastic one. He also notes the development of organic production with a growing market and believes in new forms of presentation such as peeled asparagus and peeled + cut (soup) to promote increased consumption.



» Zon

Very early and a long time

Zon is a producer group with 120 members including more or less specialized asparagus producers from a few hectares to 45 ha. In total, Zon groups together 800 ha of mainly white asparagus for a total volume of 4,500 tons and a turnover of 20 million euros (about 7 % of total turnover). Heated greenhouses allow very early harvests from February 15th until the end of June in the open field. Zon mainly sells to the Dutch retail market, mainly packaged in 500 g bunches.



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Why Mexico is growing

Mexico is becoming a major player on the world asparagus market thanks to new production areas and to some great logistical advantages. It also has its sights set on the organic production sector.

280 000

Mexico exports the majority of its asparagus production, which is estimated at 280 000 tons for 2018

The development of Mexico's asparagus production is in full swing. In addition to the traditional growing areas of Caborca and Baja Norte, asparagus have seen a significant boom in other regions, such as Baja California, El Bajío, Sinaloa and Sonora, and are spreading across the country.

YEAR-ROUND ASPARAGUS

In 2018, Mexico had more than 27 700 ha of asparagus half of which was concentrated in the areas of Sonora (15 400 ha, 55 % of the total), Guanajuato (3 650 ha, 13 %), and Baja California (3 400 ha, 12 %). These zones have new land available which has never before been used for the cultivation of asparagus, as well as water availability, as in the



Mexico is able to produce and sell asparagus all year round.

case of Baja California which is irrigated by the Rio Bravo. Other zones are just coming on stream, such as Querétaro (4 %), Michoa-

can and Veracruz. These new zones have great production potentials, reaching 9 tons/ha, compared to the national average of 7.7 tons/ha, and as much as 13.5 tons/ha are predicted in Zacatecas. So, with its different zones, Mexico is able to produce and sell asparagus all year round. In the world, only China, Thailand and Peru



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Proximity to US and Canadian markets



World-wide consumer trend for fresh produce rather than frozen or processed



Low yields compared with competitor countries such as Peru



Delayed payments due to financial problems in importing countries



Minimal consumption on the local market



Increase in the international offer in the medium term

BAJA CALIFORNIA
3.400 ha

12%

55%

SONORA
15.400 ha

BAJA CALIFORNIA SUR
3.400 ha

12%

0,6%

SINALOA

GUANAJUATO
3.650 ha

13%

4%

QUERÉTARO

MICHOACÁN

1%

VENTANAS PRODUCTIVAS EN MEXICO

Estado	Enero	Febrero	Marzo	Abril	Mayo	Junio	Julio	Agosto	Sept.	Oct.	Nov.	Dic.
✓ Sonora	🌱🌱🌱	🌱🌱🌱	🌱🌱🌱						🌱🌱🌱	🌱🌱🌱	🌱🌱🌱	🌱🌱🌱
✓ Baja California	🌱🌱🌱	🌱🌱🌱	🌱🌱🌱								🌱🌱🌱	🌱🌱🌱
✓ Guanajuato	🌱🌱🌱	🌱🌱🌱	🌱🌱🌱		🌱🌱🌱	🌱🌱🌱	🌱🌱🌱	🌱🌱🌱	🌱🌱🌱	🌱🌱🌱	🌱🌱🌱	
✓ Baja California Sur	🌱🌱🌱	🌱🌱🌱	🌱🌱🌱	🌱🌱🌱					🌱🌱🌱	🌱🌱🌱	🌱🌱🌱	🌱🌱🌱

enjoy this advantage. Mexico is therefore becoming a competitor for the other South American producer, Peru. It is gradually making its mark by increasing its plantation areas. In 2016 and 2017, Mexico went from 16 000 ha to 27 000 ha, while Peru decreased from 30 000 ha to 22 000 ha. But Mexico's advantages are not limited to its climates and production zones - the country also enjoys a wide variety of logistical options suited to the export of asparagus.

LOW-COST LOGISTICS

According to Federico Piccone, CEO which produces asparagus in both countries, this competitive advantage is key in the asparagus business. Peru is lacking in air freight links with the United States, but is currently seeing an increase in air freight, with the only alternative being sea transport which significantly increases delivery times (+6 to 8 days). « The cost of air transport has gone from 0.80 dollars to more than 1.00 dollars, if not 1.50 dollars, a cost which is not easily absorbed when



The new zones have great production potentials, reaching 9 tons/ha, compared to the national average of 7.7 tons/ha.

exporting », said Federico Piccone during International Asparagus Days in Cesena. Mexico has every means of export available : by truck across its entire territory to North America, by plane and ship to other destinations, notably the Atlantic ports of Europe. Mexico exports the majority of its aspara-

gus production, which is estimated at 280 000 tons for 2018, according to SIAP. Piccone said, « Mexico's advantage lies in the low cost of its logistics, half that of Peru, with shorter delivery times and the availability of all types logistics. »

ORGANICS ALSO DESTINED FOR EXPORT

Mexico is also setting its sights on the organic produce market. As of now, it is only in 13th position in global organic agriculture, with 1.2 % of its total production area dedicated to this segment. Between 2008 and 2017, there was a growth in organic produce of almost 15 % per year. In 2015, almost 50 000 ha were under organic cultivation. « For Mexico, this represents a very important market, as most of its organic production is destined for export. Although the organic asparagus market is just as volatile as that of conventional produce, Mexico is able to increase its production potential and structure its offer », concluded Federico Piccone. **AW**

» GUY DUBON



La producción en México alcanzó cifras récord

Entre los principales productores de espárrago, México es el país que registra el mayor dinamismo en la producción, colocándose en el segundo lugar como exportador de espárrago fresco, sólo detrás de Perú.

El espárrago en México ha presentado un incremento significativo en los últimos años. En total al año 2018, México cuenta con un total de 27,758 has sembradas, con una productividad promedio de 7.7 ton/ha. Si bien las zonas productivas de antaño son Caborca y Baja Norte la siembra se ha extendido a áreas como Baja California Sur, El Bajío, Sinaloa, Sonora e incluso noreste y sureste del país. La incorporación de estas nuevas áreas le permitió a México contar con una producción anual, y competirle a Perú en sus ventanas comerciales. De acuerdo con el Servicio de Información Agroalimentaria y Pesquera (SIAP), en 2017, la producción fue de 246 mil toneladas, cifra récord para

14,2 %

Entre 2008 y 2017, el crecimiento de las orgánicas aumentó a una tasa promedio anual de 14.2 %.

este cultivo en México. El estado de Sonora aportó 59.7 % del volumen total obtenido. En 2018, la producción continuó en ascenso, ubicándose cerca de los 280 mil toneladas, lo que representó un 15 % más que lo alcanzado el año previo.

EL MERCADO DEL ESPÁRRAGO ORGÁNICO ES VOLÁTIL

La diversidad de México no se limita a climas y zonas, sino también a una amplia variedad de opciones logísticas apropiadas para la exportación del espárrago que incluyen el aéreo, marítimo y terrestre. Su ubicación geográfica le permite tener una cercanía a los principales mercados consumidores como Estados Unidos, que recibe más de la mitad de las exportaciones de espárragos mexicano, y Canadá, y una buena conectividad para llegar con un producto de alta calidad a los mercados asiáticos y europeos. Durante los últimos años, la agricultura orgánica ha tenido un avance significativo a nivel mundial. México ocupa el 13º lugar en el mundo, aportando 1.2 % del

total de superficie destinada para estos fines. De acuerdo con la información proporcionada por el ITC, México destina cada vez más áreas para el desarrollo de la agricultura orgánica. Entre 2008 y 2017, el crecimiento de las orgánicas aumentó a una tasa promedio anual de 14.2 %. Para el 2017, SAGARPA reportó que hay un total de 47,839 hectáreas cultivadas orgánicamente. Esta variable mostró un crecimiento anual de 20.1 % con relación al 2016. Para México, este es un mercado de gran relevancia, ya que la gran parte de lo que se produce de manera orgánica se destina para la exportación. El espárrago por sí solo se ha posicionado como un ítem de prestigio y alta popularidad para todo tipo de consumidores. Si bien el mercado del espárrago orgánico es tan volátil como aquel del convencional y otros productos, las condiciones que tiene México han convertido al espárrago orgánico en un producto que puede enfrentar salir victorioso en momentos críticos del mercado. **AW**

»NADIA VENTICINQUE

» Alpine Fresh

busca alargar la vida de anaquel con nuevas presentaciones

Alpine Fresh es hoy una compañía de 4000 empleados a nivel mundial, con operaciones en 6 países y ventas en los 5 continentes. La empresa se especializa en 2 ítems: berries y espárragos. José Andreu, Jefe de Compras aseguró que “somos el principal exportador de espárrago aéreo de Perú a US. Nuestra finca de 3,460 hectáreas cultivadas es la más grande del mundo dedicada exclusivamente a espárrago. Además, contamos con producción en México e incipientemente, en US”. Los esfuerzos están destinados hoy a incorporar packagings y presentaciones innovadoras para extender la vida de anaquel. “Tenemos un equipo de R&D que se ocupa de investigar y desarrollar nuevas tecnologías y soluciones para darle un valor extra”. Con un crecimiento sostenido de entre el 5% y 10% anual, Alpine Fresh exporta a US, Europa y Asia, entre 17.000 y 18.000 toneladas de espárrago, de las cuales el 60% provienen de Perú. Un enfoque especial se está haciendo en la producción orgánica, la cual espera aumente en los próximos años, junto con la creciente demanda de los consumidores.



» Altar Produce

celebra sus 20 años !

12.000 hectáreas en producción y 12 millones de cajas de 11 libras al año hacen de Altar Produce una de las empresas emblemáticas esparragueras de México. Rocío Aguilar, responsable del departamento de Exportaciones a Europa y Australia, señaló que “tenemos producción de una variedad específica llamada Brock adaptada especialmente para las condiciones climáticas de nuestras zonas de producción, logrando una ventana de abastecimiento de prácticamente 12 meses para nuestros clientes de US y Canadá, a donde destinamos el 65% de las exportaciones”. En importancia le siguen Japón, UK, Australia, España y el resto del mundo. Altar representa el 90% de la participación de mercado durante la campaña mexicana en Asia y UK. En 2018 introdujo una nueva zona de producción, Sonoyta, en el Estado de Sonora, lo que le permitió tener producto suficiente de septiembre a diciembre para ofrecer a Europa. Además, el grupo también cuenta con una compañía de logística que tiene una flotilla de 150 camiones refrigerados y con una empresa comercializadora en US que entrega y distribuye espárragos mexicanos a todo el mundo.





Peruvian asparagus improve access in the US

With 26,000 planted hectares and forty years of specialisation, 99 % of Peru's asparagus production is exported across the world, with the US topping the list of global markets.



Peruvian asparagus yields are very high, with an average of 9.5 to 10 tons produced per hectare.

Peru continues to be the world's number-one exporter of asparagus. « *Asparagus is one of the main export products of Peru's modern agriculture. Most production goes to the fresh segment, followed by the preserved segment and the frozen segment, which is growing rapidly* », said Carlos Zamorano, manager of the Peruvian Institute of Asparagus and Vegetables (IPEH). Founded over twenty years ago, the IPEH is a private institution which currently has eighteen associates that represent 54 % of overall national production. The United States' market is now very much in the sights of Peruvian producers, and is the main market for its fresh green asparagus - over 60 % of the volume is shipped there. Peru is very close to gaining improved conditions of access to this market, elimi-

nating the need for fumigation. « *We have been working on this for years by demonstrating how fumigation greatly harms us, affects the quality of the product, has a direct cost and makes it difficult to obtain value-added presentations. It also greatly reduces our ability to compete in the North American market* », said Zamorano. Should the United States approve the measure, there would be repercussions in many areas.

THE ROAD TOWARDS VARIETAL INNOVATION

« *All of the changes that this new protocol would bring are good. Firstly, the quality of the product would be standardised, which would lead to a more sustainable, responsible and orderly sector* », said Zamorano. For example, if demand increased, producers would re-plant asparagus. In addition, it would encourage the formalisation of the sector since it would require fields and treatment plants to be certified. As things currently stand, as fumigation is required, asparagus is the only Peruvian export product that is not grown in certified fields. Peru could become the new global

pole for asparagus varietal innovation. And why not? They have everything. Thanks to a stable climate and ideal soil, Peruvian asparagus yields are very high, with an average of 9.5 to 10 tons produced per hectare, whereas the rest of the world's producing areas only have about 5. « *We have the know-how, the weather conditions, the commercial windows and the best productivity levels. We have been working for several years to produce Peruvian asparagus that is more resistant, has a longer lifespan and travels well. It is true that some companies are moving forward with private research and varietal innovation. But, we still have a long way to go, since, as a guild, we do not have the capacity to do this work* », said Zamorano. According to the director of the IPEH, the challenges of the sector are, as always, to improve competitiveness and quality. As the shelf-life of asparagus is 20-21 days, it cannot make long distances by sea. Although airfreight is expensive, it is still the best option. « *We aim to increase our tourism because the more planes leaving Peru, the more capacity we will have* », said Zamorano. **AW**
»NADIA VENTICINQUE

» Complejo Agroindustrial Beta fortalece sus líneas de negocio fresco y congelado

Con 2500 hectáreas cultivadas y 30 millones de kilos de producción propia, Complejo Agroindustrial Beta es el primer productor de espárrago verde en Perú, con una oferta todo el año. La línea de fresco representó ventas por USD 80 millones en 2018. USA recibe el 40% de las exportaciones, UK y España le siguen con un 20% cada uno, y el resto se destina a mercados como Brasil, Holanda y Sudáfrica. Beta decidió lanzar una línea de congelado que en 2018 alcanzó los 5 millones de kilos, representando el 50% del volumen total del país, y convirtiéndolo en el mayor exportador de espárrago congelado del Perú. La Planta Congelado cuenta con una moderna infraestructura con una capacidad de producción de 70 toneladas al día. Enzo Pareja Rodríguez, Gerente Comercial, señaló "también estamos trayendo maquinaria de otros países para empacar en origen, con presentaciones en bolsas, flow pack y otras que, si bien no son una exigencia, agregan valor".



» Agrícola Chapi ofrece productos adaptados a los clientes

Desde 1997, Agrícola Chapi trabaja en el Perú afianzando su potencial agroexportador. Durante los últimos años ha estado innovando en las presentaciones finales de exportación de espárrago verde fresco, adaptándose a la necesidad de los clientes. "Hacemos presentaciones especiales, tips, finos, cajas de 12 kilos, empaques con diferentes cintas, colores de cajas, es la única manera que nos ha permitido seguir aumentando nuestro volumen" aseguró Carla Ruiz Laos, Jefa de Producto. Con 400 hectáreas propias, Chapi logró 6 millones de kilos de exportación, revirtiendo lo que se daba en años anteriores, aspirando a alcanzar 9 millones de kilos en 2019. Por la creciente presencia de México en las ventanas comerciales de Perú, Chapi decidió destinar menos volumen a US y buscar nuevos mercados. Así, en 2018 logró ingresar a Sudáfrica, sumándose a países como España, Holanda, UK, Grecia, Australia, Hong Kong, Singapur, México, Argentina, entre otros.



L'Italia cambia le sue strategie commerciali

Con l'unica eccezione del Veneto dove l'asparago bianco rappresenta il 70 % della produzione, in Italia predomina il coltivo dell'asparago verde e una nuova politica di innovazione varietale.

» La Rosa Anticipa il raccolto con colture protette

Nata negli anni '80 a Monselice (Padova), La Rosa si occupa principalmente della produzione, lavorazione e distribuzione di radicchi e asparagi di elevata qualità. E' dotata di proprie strutture per la lavorazione, conservazione e commercializzazione dei prodotti. Secondo il titolare Paolo Queruli il punto di forza dell'azienda sono le acque termali presenti nel territorio: grazie alle coltivazioni protette con l'impiego di queste acque si riscalda il terreno anticipando il raccolto di quattro-cinque settimane. Quest'anno però per via della Pasqua tardiva la stagione si prospetta particolarmente lunga.



» COPA Canino Punta alla certificazione biologica

Nata nel 1976 COPA Canino è una cooperativa composta da 130 aziende agricole situate nel territorio dell'alto Lazio e specializzate nella produzione del caratteristico asparago di Canino. Tra le produzioni secondarie dell'azienda rientrano anche carciofi, orticole, meloni e cocomeri. Il direttore Giancarlo Benella per il 2019 annuncia l'avvio delle pratiche per la certificazione bio sia delle aziende agricole che dell'impianto di lavorazione, seguendo gli input che arrivano dai clienti e dal mondo della GDO. C'è già un 5% della nostra compagnia sociale orientato sul biologico, ma l'obiettivo nel giro di 2-3 anni è di arrivare a un 10-15 % sul totale.



In Italia, le principali zone produttive sono dislocate tra Puglia (50 %), Veneto (16 %), Campania (10 %), Toscana-Lazio (9 %) ed Emilia-Romagna (7 %). In tutte le regioni la tipologia prevalente o unica è quella dell'asparago verde, con l'unica eccezione del Veneto dove l'asparago bianco rappresenta il 70 % della produzione. Inoltre il Veneto è l'unica regione produttrice con un trend in crescita con aumento delle superfici unitarie aziendali a fronte di una situazione stabile in tutte le altre regioni. In Piemonte, specialmente nella provincia di Vercelli dove la produzione di riso vanta una tradizione storica, numerose risaie sono state riconvertite alla produzione di asparagi mentre in alcune zone del Veneto stanno prendendo piede nuovi tipi di im-

pianti in serra protetti con riscaldamento basale realizzato sfruttando le acque termali. Una tecnica che sta attecchendo anche nella zona di Canino, in Lazio, e in Puglia, specie nella provincia di Foggia. Inoltre la maggior parte delle aziende sta adottando una politica di innovazione varietale con l'obiettivo di prolungare il calendario produttivo fino a ottenere asparagi freschi 12 mesi all'anno. Per quanto riguarda l'export dal 2000 al 2017 esso è aumentato da 1,000 a 8,000 tonnellate. Germania e Austria sono i mercati più importanti, e a seguire Svizzera, Svezia, Francia, Danimarca e Gran Bretagna (in contrazione), Est Europa (in ascesa, in particolare Slovenia). Avviato anche l'export verso il Medio Oriente con spedizione da marzo a giugno. *AW*

» OPO Veneto Maggior valore all'asparago bianco

Nata nel 2001 per volontà di due storiche cooperative di Zero Branco e di Sottomarina di Chioggia OPO Veneto ora conta 400 soci diretti singoli e 100 soci indiretti. Alle due cooperative costituenti, si sono aggiunte altre sei realtà associative. Con un fatturato di oltre 40 milioni di euro, è presente nel Nord-Est e in centro Italia. Secondo il direttore marketing Francesco Arrigoni la prossima campagna sarà affrontata puntando sulla promozione del consumo e sulla valorizzazione dell'asparago bianco nelle altre regioni italiane: mentre in Veneto il consumo di asparagi bianchi ha dimensioni importanti, nel resto d'Italia, specialmente al Centro-Sud, la prevalenza è dell'asparago verde e quello bianco ha un consumo marginale.



» Pasquariello Sceglie nuovi formati di imballaggi

Nata nel 2000 l'azienda Pasquariello Giovanni è specializzata nella coltivazione e commercializzazione di ortaggi tipici della provincia di Foggia, principalmente asparagi, finocchi, broccoletti e zucchine. Le previsioni per l'attuale stagione si aggirano sulle 400 tonnellate di prodotto, tutto di buona qualità grazie alle basse temperature e alla neve a bassa quota. Secondo il titolare Giovanni Pasquariello è stato deciso di lanciare un diverso tipo di imballaggio consistente in mazzettini più corti, da 150 grammi di peso, quasi pronti all'uso e capaci di invogliare molto il consumatore. Per questo tipo di imballo si è scelto di impiegare asparagi di calibro inferiore, tra gli 8 e i 12 cm, in modo da raggiungere più facilmente il peso giusto.



Valorizzazione dei prodotti territoriali italiani

La promozione della qualità dei prodotti territoriali viene messa al centro dell'attenzione non solo dagli operatori e la grande distribuzione organizzata, ma anche dal consumatore finale, chi vuole più informazioni sull'origine.

In Italia, hanno grande influenza i consorzi di tutela delle varietà certificate DOP e IGP, che operano come strumenti per la sicurezza alimentare e la valorizzazione dei prodotti territoriali. Si ricordano a tal proposito l'Asparago Bianco di Bassano Dop, l'Asparago Verde di Altedo Igp, l'Asparago Bianco e Verde di Badoere Igp, l'Asparago Bianco

di Cimadolmo Igp e la De.Co dell'Asparago Bianco di Cantello e dell'Asparago Viola di Zambana, ma anche le produzioni agricole tradizionali come l'asparago di Canino, l'asparago piacentino, l'asparago viola di Albenga, l'asparago del Garda, l'asparago santenese, l'asparago selvatico di Colle Sant'Adamo, l'asparago rosa di Mezzago e tanti altri. **Av**

» L'Asparago Bianco di Bassano DOP Punta sull'innovazione

Sin dal 2007 il Consorzio per la Tutela dell'Asparago Bianco di Bassano rappresenta l'unica certificazione DOP nel panorama degli asparagi italiani, un prodotto di altissima qualità e di nicchia apprezzato in tutto il mondo. Con una produzione annua attorno ai 700 quintali, l'Asparago Bianco di Bassano DOP è largamente consumato a livello locale ma negli ultimi anni ha conosciuto un crescente trend di esportazione. Secondo il presidente Paolo Brotto il Consorzio sta lavorando su nuove iniziative riguardanti l'ecotipo della varietà impiegata attraverso la micropropagazione a livello genetico. Nel disciplinare infatti non esistono le varietà commerciali ma solo quelle autoctone e in questo modo sarà possibile ampliare la produzione.



» L'Asparago Piacentino Aumenta la promozione

Iniziata con pochi soci, l'avventura del Consorzio dell'Asparago Piacentino oggi prosegue forte di 17 aziende associate tra produttori e trasformatori i cui prodotti sono distribuiti nelle principali catene della GDO italiana. Le aziende producono asparago verde fresco, ma si sta rapidamente rafforzando anche la gestione del prodotto semilavorato e addirittura disidratato. Secondo la presidente Emanuela Cabrini il Consorzio vuole scommettere sul rapporto con l'alta ristorazione e su una strategia promozionale innovativa in collaborazione con diversi chef del territorio. Viene curata tantissimo la produzione a lotta integrata e i terreni sono caratterizzati da forte presenza di microelementi che favoriscono una naturale bontà dell'asparago che risulta così molto dolce.



» L'Asparago di Badoere IGP Migliora distribuzione in Italia

Con circa 40 associati il Consorzio dell'Asparago di Badoere rappresenta una delle denominazioni IGP dell'asparago italiano nonché l'unica a contemplare sia asparagi verdi che asparagi bianchi. Non mancano sbocchi nell'export all'estero in paesi come Australia e Giappone, sia pure con piccoli quantitativi per via dei ridotti volumi produttivi, mediamente sui 600 quintali all'anno. Secondo il vicepresidente Carlo Benozzi, con il disciplinare di produzione in fase di revisione, l'obiettivo è ampliare il raggio di distribuzione del prodotto. Ecco perché oltre al prodotto lavorato in marzo, tipico della zona, il Consorzio propone un nuovo packaging da 0.5 kg per poter portare il prodotto sfuso direttamente al consumatore della GDO in formati più pratici.





Los consumidores españoles prefieren el espárrago verde

En España, durante el período de contraestación, el principal origen del espárrago importado proviene del Perú, seguido por México.

Además de ser un país productor de espárrago, España es famosa también por ser una puerta de entrada estratégica para la internación de este producto en Europa. Anualmente, durante su período de contraestación, España puede llegar a importar más de 10,000,000 kilos, de los cuales más de 8,000,000 tienen origen peruano. Gran parte

del volumen restante también es americano, principalmente, del Norte de México. A diferencia de lo que sucede en otros países de la Unión Europea, las cifras confirman que el espárrago verde es el favorito de los consumidores españoles ya que su volumen de importación, se mantiene por encima del blanco. *Aw*

»MARIA DEL MAR VALENZUELA

» García Mateo & Sinova

Da garantías de calidad y frescura imbatible

García Mateo & Sinova, con 2,600,000 de kilos, lidera el ranking de importadores españoles de espárrago fresco. El principal origen de los mismos es Perú, donde tienen estrechas relaciones comerciales con agricultores de diversas zonas del país desde hace 25 años, cuando Perú empezó a exportar espárrago a Europa. También, importan de México y Ecuador, a la vez que distribuyen espárrago español, permitiéndoles



así cubrir las necesidades de sus clientes los 12 meses del año. El espárrago supone el 60% del volumen de fruta y verdura que distribuyen, siendo especialmente competitivos en su logística aérea y su manejo de la cadena de frío. El gerente general Sergio Sinova destaca, entre el resto de sus productos, a los berries y asegura que García Mateo & Sinova importa, vía aérea, la mejor fresa que se puede adquirir en Europa de septiembre a diciembre. Fresa cuya calidad y frescura es, simplemente, imbatible.

» Frutas Niqui

Importa más espárrago mexicano

Con 25 años de experiencia, Frutas Niqui se ha posicionado como empresa confiable y, hoy, es un verdadero referente en la importación de productos hortofrutícolas, especialmente cítricos, manzanas y espárragos verdes, provenientes de México, Chile, Argentina, Uruguay, Sudáfrica, Brasil y Polonia. En relación al año anterior, el volumen de espárragos importados de Frutas Niqui aumentó casi 30 %. El gerente general Javier Niqui informó que, en gran parte, esto se debió al boom de la campaña mexicana que arrancó muy temprano con un fuerte incremento del volumen. El mercado europeo reaccionó positivamente y, prácticamente, se triplicó la demanda. Sin embargo, el gerente comercial Miguel Angel Jimenez aseguró que este año 2019 no hay previsiones de crecer, sino más bien, de consolidar la comercialización de volúmenes disponibles.

» Centro Sur

Propone embalaje compostable

El servicio y la calidad que Centro Sur (Cesurca), ha garantizado durante 40 años, permite que puedan ofrecer espárragos todo el año y colocarse top5 del ranking de importadores españoles. En Andalucía, Centro Sur cuenta con 800 agricultores-socios que cultivan 1,000 hectáreas de espárragos y 100 de alcachofas en Granada, Sevilla, Málaga, Jaén. Además de su producción propia, la cooperativa comercializa espárragos de otras zonas como Guadalajara y Cádiz. A lo cual, durante contraestación, se suman 1,000,000 kilos de importación que traen de Chile, Perú y México. Comprometidos con el medio ambiente y los embalajes compostables, el gerente Antonio Zamora prometió que van a sustituir el fajín o cinta plástica que rodea el ramillete del espárrago, por alternativas más sostenibles, como envoltorios de cartón o papel.



Espárragos españoles: más volumen, calidad y calibres

El espárrago andaluz abastece a todos los mercados de la Unión Europea y aumenta sus exportaciones a destinos más lejanos.

» Cosafra Diversifica su oferta

La Cooperativa Agrícola San Francisco S.C.A. (COSAFRA), está formada por 500 socios que reúnen 4000 hectáreas de cultivo de espárrago, Huétor Tajar, Granada. Este año, van a incorporar nuevas referencias para complementar su tradicional oferta de espárrago verde triguero. El presidente Javier Trujillo ha destacado una hortaliza de cultivo invernadero ultra-temprano, llamada Romanesco que es poco conocida, pero tiene gran potencial, debido a sus propiedades nutricionales y alto contenido en fibra, vitamina C, ácido fólico, potasio y fósforo.



» Espárragos de Granada Invierte en microtúneles

Espárragos de Granada es una cooperativa de segundo grado que agrupa a 5 cooperativas de la Vega de Granada que reúnen 600 hectáreas. De los 3,000,000 kilos producidos anualmente, 85 % se exporta fuera de España. Pensando en el futuro, en el plazo de 3 años, la cooperativa se ha fijado como objetivo que 10 % del volumen total esté al cubierto, bajo una malla plástica de invernadero. Para ello, desarrollaron una innovadora tecnología de microtúneles. Según el Director Comercial José Antonio Gómez, esto permitirá desconcentrar la oferta, evitar los picos de exceso de producción y adelantar el calendario de cosecha.



Con 15,000 hectáreas cultivadas en Antequera y Granada, la oferta del espárrago andaluz abastece a todos los mercados de la Unión Europea. Y en los últimos años, también, están aumentando sus exportaciones, vía área, a destinos más lejanos como Canadá, Medio Oriente y Asia. La pasada campaña 2018 fue muy compleja debido al mal clima que retrasó las cosechas andaluzas, incluso hasta mediados de abril, solapándolas con la oferta de otras zonas euro-

peas. Además, las heladas provocaron merma del volumen y calibres más pequeños de lo habitual. Sin embargo, en esta temporada 2019 todo será diferente y los agricultores españoles ya pueden respirar tranquilos. Gracias a que el clima ha sido adecuado, se espera una calidad excelente y calibres más gruesos. A eso, se suma un arranque de campaña en regla con el calendario y un importante aumento del volumen previsto. **AW**

»MARIA DEL MAR VALENZUELA

» Los Gallombares Promete calibres gruesos

Los Gallombares, representa casi la mitad del volumen de espárrago fresco que se produce en Andalucía y lidera el ranking europeo. Fundada en 1995, la cooperativa tiene 550 asociados que cultivan 1,000 hectáreas en Poniente Granadino y la Sierra de Loja. El 70 % de los espárragos son cultivados en montaña, a una altitud de 900 metros, en tierras de secano. Este año, aumentarán 20 % sus volúmenes para llegar a 8,500,000 kilos y habrá calibres gruesos. Según el gerente comercial José Ángel Delgado, van a automatizar los procesos de calibrar, lavar y cortar. Y también aumentarán los cultivos bajo malla, para tener oferta precoz.



» San Isidro de Loxa Invierte en automatización

Cooperativa San Isidro de Loxa es una de las principales empresas productoras de aceite de oliva virgen extra del mundo. Sus 1300 socios-productores, también cultivan espárragos verdes frescos y este año aumentará 30 % del volumen para llegar a 4,000,000 kg. Para lograr óptima calidad, la cooperativa ha invertido en maquinaria de última generación de automatización, que permite un corte y calibrado más preciso. Garantizar la máxima calidad y mantener buenas relaciones comerciales en los mercados tradicionales de la Unión Europea, seguirán siendo las prioridades actuales, según el gerente comercial Germán Rodríguez. Y respecto al futuro, continuarán explorando destinos nuevos como Singapur, Arabia Saudita y Canadá.



UK asparagus market nears £85 million



**Brits spent 17 % more on asparagus spears
in the last year**

Largely thanks to promotions seeing asparagus sold at lower prices, UK consumers bought more asparagus in the last year. The volume of asparagus sold at retail in the UK was up 15 % year-on-year for the 52 weeks to February 24 this year, reaching a total of 10,033 tons. Kantar Worldpanel data also shows that the spend at retail rose 9.1 % YoY to nearly £84.8 million. And relative to a similar period four years ago, the sales volume has increased a significant 14.2 % and the value by almost 28%, with respective compound annual growth rates (CAGRs) of 3.4 % and 6.3 %. Furthermore, figures from the shopper behaviour expert show that the penetration rate for asparagus – 29.8 %, +5 % YoY – is outperforming that for the vegetable category overall but still has considerable potential for future growth.

FINE ASPARAGUS GAINS FAVOUR

Drilling down into the data, it can be seen that at a total of 7,419 tons, asparagus spears account for the bulk (74 %) of the sales volume at retail for the asparagus segment, yet just 57% of the spend, coming in at £48.3 million for the year. Kantar Worldpanel said the spear market

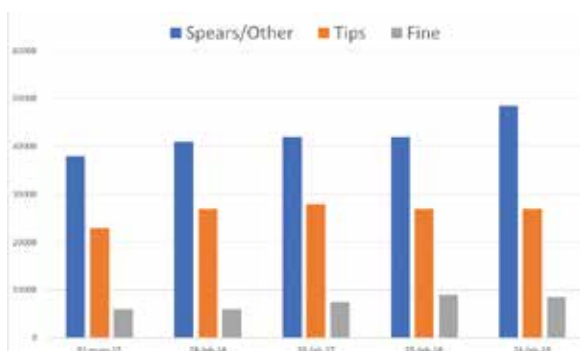
is in double digit growth at 17 % driven by new shoppers entering the market (+£4.2 m) in addition to more frequent trips (+£2.4 m). Compared to four years ago, the spend on spears has risen by 27.8 % and the volume by 11.2 %.

Tips account for the next biggest share of asparagus sales, delivering about a third of the total spend and 19 % of the volume. At £27.4 million, the tips market has logged marginal growth of 1.3 % YoY driven through bigger baskets (+£944 k), but lower prices hindered growth (-£1 m). Since 2015, however, the spend on tips has grown 20.7 % and the volume 24.1 %.

Worth £9 million, the fine asparagus market accounted for only 11 % of the total asparagus spend and sales have declined by 3.6 % over the past year due to shoppers making fewer trips. But Kantar Worldpanel said new shoppers are entering this market, contributing £233,000 in value. Relative to four years ago, the spend on fine asparagus has exploded 55 % and the volume by 23.6 %. Meanwhile, packaged asparagus continues to outsell loose in the UK by a ratio of ten to one in both volume and value. **AW**

»JULIE BUTLER

Spend on asparagus at retail in UK (Kantar Worldpanel data)



The spend at retail rose 9.1 % YoY to nearly £84.8 million.

Barfoots sources globally for UK supermarkets

Based in West Sussex, Barfoots farms in the UK, Senegal, Spain and Peru to supply premium produce all year to UK retailers. It farms over 3,000 ha. in Hampshire and West Sussex, of which 400 ha. is for asparagus. The main varieties are Milenium, Giglim but it also grows the Dutch varieties Backlam, Aspalim and Javelim. New green varieties on trial are Guelph Equinox, Guelph Eclipse and Greenic. Barfoots has invested in cooling facilities on its farms to ensure the best cold chain for the crop. Once harvested, the asparagus goes straight to its Broadlands Farm for initial washing and processing then in refrigerated lorries to the Barfoots packhouse in Bognor Regis for packing into final formats and quality inspection. It is then dispatched to retailers. Harvest to dispatch is about 3 days. The asparagus usually has a 6 to 7-day shelf life from arrival to store. Barfoots is one of the UK's top asparagus importers. In 2018, it imported over 4,000 tons of green asparagus, about 75 % from Peru, 20 % from Mexico, up to 5 % from Europe. Its main market is the UK and 98 % of its asparagus volume is green.

What are your asparagus operations in Peru and Mexico ?

Our local production starts in April (although every year UK production seems to start earlier). Peru would start supplying us from June to early Feb. The main varieties our growers in Peru grow are Early California, Brooks, Atlas and Inkalim. Over the years, we have developed partnership with key growers in the north and south of Peru who manage over 2,600 ha. of asparagus. We also have our own farm in Nazca. This has strengthened our supply in key windows where availability and prices can be challenging. Our Nazca production is packed in the south of Peru and shipped in refrigerated containers via Paita, reaching Dover in two weeks. We use airfreight for specialties such as tips and fine asparagus and a lack of direct links means we have to go through the US or Canada. By having direct relationship with airlines and monitoring live temperature for all shipments, we are able to proactively manage the cold chain. Our supply from Mexico



Pamela Gil Gutierrez, Supply Chain category manager at Barfoots

is from Caborca, in the northwest, where the season starts late in January and runs to early April. Volume from other regions in Mexico is increasing offering other windows of supply competing with Peru.

Why did you start your own farm in Peru ?

Sustainable farming and innovation has always been at the heart of Barfoots. Before developing our own farming operations in Peru we held commercial trials growing asparagus in Senegal that were unsuccessful, largely because the difference between day and night temperatures was insufficient to ensure the asparagus crowns got all the energy needed. Asparagus is our second biggest product in terms of turnover. The US is the largest importer of asparagus in the world and historically, Peru's exports have been driven by the US market. Having our own operations gives us more control over supply and that's important because we negotiate fixed prices with UK retailers. We are now in our 3rd year. In Peru, they can usually harvest twice a year whereas in the UK it's only once and the yields are lower.

What formats do UK retailers ask for ?

Barfoots supplies the main supermarkets in the UK, such as Sainsbury's, Tesco,

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We're especially seeing growth in tips and fine asparagus.”

Waitrose, Lidl, Aldi and Coop, food service and wholesalers. The UK retailers main formats are fine (small diameters), tips (short asparagus 12-18 cm long depending on the retailer) and spears in bundles. With many chains aiming to reduce their packaging, formats are moving from punnets to bags for specialties (tips and fine spec) moving to a reduced and recyclable format and in some chains from bags to bare tag bundles. The visual side is important and packaging requirements are strict, the pack sizes tend to be smaller than in mainland Europe, and the desired diameters are usually below 18 mm. Barfoots has also started supplying some mixed packs from it prepped operations, mainly ready-to-microwave items such as asparagus tips with tender stem broccoli (Bimi). The technical requirements vary. Some chains want SMETA (an ethical audit methodology), M&S asks for Select Farm, Waitrose has LEAF, Tesco has Nature's Choice and Aldi and Lidl, along with various chains, require GLOBALG.A.P.

What is consumer demand like ?

The asparagus sales volume has grown by 16 % in the last year. We're especially seeing growth in tips and fine asparagus. The demand for tips is very useful when there are crop flushes as it helps manage volume. The trimmings are channelled into our bio digester so help generate power for our facilities. British asparagus takes priority, so from May – June, during the height of the UK season, there are very few imports. Local asparagus marks the start of spring and growers and retailers are keen to start as early as possible. While there's been a little bit of consumer interest in trying white and purple asparagus, more out of curiosity, these remain niche markets in the UK, though white asparagus sales there are higher in London, where there are more French and Spanish communities. *AW*

“Meal kits are a small but a growing and very interesting channel”

About 95 % of The Greenery's asparagus volume is white but it also supplies green and purple. Most goes to Dutch supermarkets but 30 % is exported, mainly trucked to markets such as France, Germany, Switzerland, Scandinavia and Spain, but also some to the UK and even by air out of Schiphol to Japan. It works with about 40 growers in Holland and Germany. The asparagus is auto-packed in The Greenery's distribution centre in Breda then delivered to Dutch retailers, often twice daily. The main formats are 5 kg boxes and 500 g flow packs but the company also supplies items such as 'microwave-in-the-bag' products and meal and soup kits.

How do Dutch people use asparagus?

Annual per capita consumption of asparagus in The Netherlands hovers around 800g, which shows there's room for growth when compared to Germany's 1,500g. Eating asparagus is quite common in the south, but in the north, where most of the population lives, people didn't know how to cook it or that you need to peel it so we had a big generic promotion 10 years ago to teach them how to eat and enjoy it and that's really paid off. Now we need to look at reaching younger consumers. Traditionally, asparagus is eaten with ham, cheese sauce, boiled egg and new potatoes and thin asparagus is a



Sjaar Hulsmann, manager of The Greenery's soft fruit business unit

popular cocktail snack, rolled up in ham. Supermarkets generally ask for thick white asparagus of a diameter of 20-28mm with well closed heads and consumers show a clear preference for Dutch product. In the south, where Catholicism is predominant, fresh asparagus consumption traditionally starts around Easter and ends on June 24, the feast day of Saint John. The south is also where most asparagus is grown because of its favourable sandy soil.

What are some examples of your innovation?

Labour is one of the biggest challenges for production, it's getting more and more expensive and hard to get so it's very important that every spear you pick is good. We work with 40 of Holland's biggest and most professional growers and together with them, and an agronomist, we've picked varieties that deliver high yield and good taste, and we take temperatures and soil conditions into account so we can predict the volumes and time our promotions well. We're also involved in Dutch trials that started 8 years ago using machines

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Consumption of asparagus in The Netherlands hovers around 800g, which shows there's room for growth.”

to harvest. That research is now speeding up and we have reason to hope that in 3-4 years we'll have good machines for this. A seamless cold chain is also now more often the case. We have misting at our DC in Breda so the asparagus doesn't dry out and stays chilled right to the loading dock and on all transport. In the past, asparagus was often not kept chilled once on supermarket shelves, but now we've got a lot of retailers to also keep it chilled in-store. We're responding to consumer demand for convenience formats by providing in-store peeling machines and producing our own 'microwave-in-the-bag' products and meal and soup kits. Meal kits are a small but a growing and very interesting channel. We've also got our own online platform, Verse Oogst (Fresh Harvest, www.verseoogst.nl), where we provide recipes and lots of information on our growers and products.

Are organic production and sustainability important to Dutch consumers?

Organic produce is becoming more interesting because some countries have more demand for it. We have some organic production but the acreage is still very small. Twenty years of testing has shown that asparagus is generally a very clean product with no residue in it post-harvest – it's one of the safest products you can eat. A number of our growers are certified under PlanetProof, an independent Dutch sustainability label. We see a lot of interest in sustainability in other countries so expect that in future it will become more common. We should all be doing things in a more sustainable way. Consumers want products that are healthy as well as planet-friendly. Among our initiatives are to decrease use of pesticides and other chemical inputs such as fertiliser. We have also taken a close look at how to ensure a better life for insects, such as using flower borders for bees. *AW*



« Freshly harvested asparagus in three colours in the hands of the grower ».

Asparagus is not widely known among French young people

A study by CTIFL shows that asparagus suffers from a bit of an image deficit among French young consumers. Its «old-fashioned» image could however prove to be an asset for young people in search of authenticity.

In France, a survey carried out by CTIFL among the generation of 25-35 year olds could give cause for concern. One third of the population studied does not consume asparagus. Some say they simply do not like the vegetable, while others never consider putting it in their basket. And the misunderstood price differentials are another cause of confusion for this generation which dissuades them from making the purchase.



The french generation of 25-35 year olds is interested in the «terroir» and «traditional» image of the asparagus.

CONSUMERS ARE «MADE IN FRANCE» ENTHUSIASTS

Nevertheless, the study also reveals opportunities in this market. «It is all about breaking down the image of a solitary, sophisticated vegetable, almost exclusively for steaming, served on weekends during family meals,» notes the CTIFL study. The Internet (sites, blogs or social networks) can be used to reach this hyper-connected generation, prompting them to purchase asparagus. Young people regularly visit cooking recipe sites to find inspiration and techniques - not just for asparagus! Such an



The trend of buying fruit and vegetables produced in France seems to be deeply entrenched in the habits of the French.

New packaging possibilities

«You have to be able to see what you are buying» could be the leitmotif of young adults. Appearance is everything when it comes to trusting a product. Asparagus presented in plastic packaging raises suspicions. At the very least, the packaging should allow the product to be seen. Loose packaging is another possibility to be explored. As asparagus remains an expensive vegetable, small and/or low-income households want to be able to choose the amount of asparagus they buy.

approach could counter the lack of knowledge about the consumption of asparagus and the various possible preparation methods. The trend of buying fruit and vegetables produced in France seems to be deeply entrenched in the habits of the French, and the younger generation are no exception, although there are still some gaps between intentions and reality. The 25-35-year-olds care about the social conditions of agricultural workers and about reducing pesticides in production. They are interested in nutritional qualities and are concerned about their health, and therefore want pesticide-free products. But price can override all of these good intentions, particularly the prices displayed on organic products. The study finds that young

people prefer «Made in France» products, and the more local (regional) the better. They are interested in the «terroir» and «traditional» image of the asparagus. «Old» vegetables are greatly valued in France, and young people want to rediscover them. This is a key angle of attack for winning over this generation of consumers. The asparagus can be promoted by highlighting its many different varieties and colours, and this would create a desire to cook it! Another avenue to explore is to focus on restaurateurs. By and large, asparagus is absent from restaurant menus. Replenishing restaurant tables with asparagus could enhance the product and conquer homes. **AW**

»SOURCE: INFO CTIFL N° 339, MARCH 2018

L' ArtSperge vu par Guy Louis Poncelet



Guy Louis Poncelet a créé son « monde des asperges », un jardin réel, à la fois surréaliste, onirique et fantastique. Ici, on ne trouve pas que de l'asperge mais aussi de la poésie et de l'art. A la ferme la Macédoine, au Québec, s'érigent un peu partout des turions de cocagne. Guy Louis Poncelet y cultive l'asperge depuis 25 ans et vend avec noblesse de l'asperge éco-poétique.
<http://www.allonsaubois.com>

« La première fois que j'ai tracé ce hiéroglyphe géant, je me suis perdu dans mes lettres tellement grosses (25' x 30'), le mot fait 200' (60 m) de long ! C'est mon message lancé au cosmos »

Les asperges vont en vacances et la vie est belle !



Asperges solaires, asperges in vitro et vitraux à la ferme la Macédoine...





Les cigognes apportent les premières asperges.



L'asperges géante de 45', l'asperge en Mâlejusculé ! (près de 14 m).

La démarche artistique de Guy Louis Poncelet sur ses écha-sperges!

Les arcs-à-sperges...





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