MADE IN HOLLAND

Working magic with four seasons // Total solutions for greenhouse farming // The challenge behind the food shortage // Green trade hub // Dutch flowers in China

How do Dutch greenhouses answer the global energy issue?
The Netherlands has a moderate maritime climate with four seasons and a relatively large annual rainfall. Autumn and winter in the Netherlands are cold and wet, and at times it is even cold enough to be able to skate on natural ice. Despite the four seasons, the Dutch enjoy eating both winter and summer produce throughout the year. The leek, for example, is a favourite vegetable and is available all year round because it is grown in full soil during the winter and in greenhouses in the summer.

Spring in the Netherlands is always given a warm welcome, not only by Dutch sun worshippers, but also by a breathtaking sea of floral colours. Anyone lucky enough to cycle through the bulb-growing area of the Netherlands in April will be amazed by the ocean of yellow, red, purple and every other conceivable colour of tulip.

“Dutch tulips from their beds flaunt their stately heads”
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www.hollandtrade.com
The Netherlands is home to all aspects of horticulture, from the laboratory where new crops are refined, the greenhouses and greenhouse systems where these crops are grown under glass, and the fields full of mushrooms, street trees, full-soil vegetables, cut flowers and bulbs, right through to the auction infrastructure and logistics to export all the products. For years, the Netherlands has been a global leader in the horticultural industry because the Dutch market gardener is not afraid to adapt. As well as being in business for himself, the Dutch market gardener is also prepared to work together for a common interest. By Joost van Kasteren

“The Dutch horticultural industry is a total concept,” says Nico de Groot of the Agriculture and Economics Institute (LEI) at Wageningen University and Research Centre. “In a small space, a large amount of added value is created because of the combination of market gardeners, traders, suppliers and logistical service providers. This unique cluster attracts interest from all over the world. Equally, Dutch market gardeners and suppliers fan out across the world to capitalise on the concept – after it has been adapted to the local circumstances, of course.”

The power of the Dutch horticultural industry lies in the ability to adapt to changing conditions. For example, consider the development of the floating greenhouse – an ingenious solution to the problems of a limited land surface area and the growing dependence on water in built-up areas.

GREENHOUSE FARMING IS EVERYWHERE

Less than half a century ago, Dutch market gardeners were still bringing the vegetables they had grown under glass in flat-bottomed boats to markets in Rotterdam, The Hague and Amsterdam. Today, Dutch flowers are sold everywhere from New York to Moscow, and Dutch tomatoes, cucumbers and peppers are sold in supermarkets throughout Western Europe. Dutch base materials – seeds and cuttings – are cultivated in greenhouses all over the world using climate systems that originated in the Netherlands. Even the auction clock used to sell flowers and vegetables is an export product. In short, the results of Dutch greenhouse farming are everywhere.

From cuttings to vegetable snacks
TREE GROWERS LOOK AHEAD
In the wake of the success of greenhouse farming, the total approach is now being employed in other horticultural sectors as well. Tree growers are successfully capitalising on the growing demand for greenery, both collectively and individually. City neighbourhoods are becoming increasingly ‘green’, because greenery creates a more attractive living environment, and the importance of greenery has also been discovered in the working environment. Tree nurseries are capitalising on these developments with ornamental plants in pots and boxes that require little maintenance.

BULB-GROWING AND CUT FLOWERS
Bulb growers are also anticipating the demand by large retailers such as supermarkets and builder’s merchants for a total package. Such retailers want to offer not only greenhouse-grown cut flowers, but also tulips, lilies and other bulbous plants and outdoor flowers such as gladiolus and dahlias. Along with the interest from retailers in selling cut flowers, the popularity of Dutch bulbs should not be underestimated either. Around the world, greenery managers use Dutch bulbs to brighten up their parks, roadsides and other green spaces. Growers abroad also like to use Dutch bulbs to cultivate flowers for their own markets.

“Market gardeners and suppliers are fanning out across the world”

“Dutch street trees make the living environment more attractive”
“My father” started importing Dutch greenhouses forty years ago. Since then, we have grown to become a supplier of high-quality turnkey projects for customers throughout Japan. We offer the complete infrastructure, often including a manager for the first year, and we still bring in almost everything from the Netherlands.

The latest developments come from the Netherlands. Dutch companies and research institutes work closely together, so that all new concepts fit seamlessly into the system, which produces highly efficient solutions. That culture of cooperation is very much unique throughout the world. You could say that the Japanese are very good at producing parts and the Dutch are very good at producing the total system. The Dutch are always focused on the big picture.”

Hiraaki Tomita on ‘the big picture’

“Mushrooms continue to tickle our taste buds”

“VEGETABLES AND FRUIT AS A NICHE INDUSTRY”
For vegetables as well, the selection is only complete if vegetables grown in full soil are also offered alongside greenhouse vegetables. Although technological developments and expansion have led to a significant decrease in cost price, competition is still fierce, and increasing numbers of Dutch growers are therefore specialising in niche products such as rucola and crinkly lettuce, or lettuce packages as a total concept with various types of produce and cut lettuce. Vegetable and fruit snacks – handy packets of small vegetables as a healthy snack on the go – are another specialty in the fresh produce sector.

“MUSHROOMS”
Technological developments and expansion have also cut cost prices in the mushroom growing industry. In response to increasing international competition, mushroom growers are constantly in search of new products to tickle our taste buds.

“NEW SOLUTIONS”
New refinements are constantly needed to stay ahead of the competition, which is why there are always new product/market combinations and new supply and service methods. Challenges such as changes in market demand and increasing energy costs mean that new solutions will always be required.
A flexible attitude, the ability to listen to the market and the willingness to work together (in research and development, for example) ensure that the Dutch horticultural sector reacts quickly and comprehensively to those changes so that it is always a step ahead of the competition. <<
Dutch greenery wins gold

The town of Uden in the south of the Netherlands brought home the gold this year from the international Entente Florale – the annual European competition for the greenest towns and villages. Eleven other European countries took part in the competition, each of which nominated their greenest town and village. The aim of the Entente Florale is to encourage towns and villages to promote the quality of life of their inhabitants by smartly deploying trees, bushes, plants and flowers, and by designing green spaces as play and recreation areas.

info@ententeflorale.nl

www.ententeflorale.nl

Sino-Dutch cooperation cucumber genome

The Green Genetics Centre of Excellence (TTI GG) facilitates joint research projects by companies and knowledge institutes in the fields of plant genetics, plant physiology and phytopathology. Under the flag of TTI GG, Dutch companies and universities are aiming to work together with the Beijing Genomics Institute and the Institute of Vegetables and Flowers in Beijing to analyse and perfect the DNA sequence of the cucumber to make it more usable in the development of new cucumber varieties. The participants expect the project to start in early 2009. info@groengenetica.nl

www.groengenetica.nl

Covenant makes software link possible

Dutch growers are investing heavily in machines, equipment and software to optimise production lines and climate systems, but unfortunately growers have discovered that the software link does not always work perfectly in practice. To eliminate this problem, twenty-four companies have decided to work together under the Horiti Data Communication covenant, which was signed at the 2008 Hortifair. From now on, these companies will be offering growers the possibility to link up the software used by various machines. What is unique in this covenant is that companies work together to give each other insight into their machines’ software, which essentially means insight into the secret tricks of the trade behind the machine. The companies can then link machines to each other using standard technologies.

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About this publication

The Made in Holland sector specials provide information on specific Dutch sectors, such as Delta Technology, Design and Horticulture. Centres of excellence and commercial companies are given the chance to comment on the latest developments in the sector and on their products and services. Made in Holland does not have regular subscribers, but instead reaches a new foreign readership with each issue. The publication is translated into multiple languages and is circulated worldwide. Additional information on this publication can be obtained from the Netherlands’ diplomatic representations abroad.

www.madeinholland.com

Made in Holland

Green city, better life

The Dutch designer Niek Roozen, together with his Chinese colleague Zhu Shengxuan, is designing the central park of the World Expo 2010 in Shanghai, China. Eight design teams from around the world competed for the assignment, but it was the Roozen team’s ‘Green City’ philosophy that most appealed to the jury, especially because it is in keeping with the motto of the World Expo: Better City, Better Life. Greenery is important for the quality of a residential area, as well as for health, relaxation and a cleaner environment. The park will still be open to the public after 2010. info@niekroozen.com

www.niekroozen.com

Enjoying Dutch botanical fruit

Next year, a Geschmäckhaus will appear in several large German cities. This is a kind of tasting establishment where the German consumers will have the opportunity to taste Dutch botanical fruit and find out about the cultivation of sweet peppers, aubergines, tomatoes and cucumbers. German consumers are critical about Dutch botanical fruit, although they are actually among the best in the world: they spend the most number of hours in the sun and are safe thanks to biological pest control and the completely controlled environment in Dutch greenhouses.

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Specialists in breeders’ rights go international

The Netherlands Inspection Service for Horticulture (Naktuinbouw), the world’s largest inspection service for variety testing of vegetables, is assisting Indonesia in setting up the breeders’ rights inspections and the organisational structure of the breeders’ rights office in Jakarta. The Inspection Service is also assisting the Chinese Ministry of Agriculture, especially by providing technical training in breeders’ rights. communicatie@naktuinbouw.nl

www.naktuinbouw.nl
The Netherlands is still a global horticultural centre. Michiel Gerritsen, who is secretary of the organisation that promotes the collective interests of the Dutch horticultural sector, explains just what makes this sector so unique. “The strength lies not only in the quality of the individual companies, but also in the clustering together of the companies in close proximity to one another.”

Interview

Clustering

Productive cooperation with Russia

Grow2gether is a platform, established as a public-private initiative to provide structured solutions from the Netherlands to, and in support of, the Russian greenhouse sector. Grow2gether covers three main areas, i.e. knowledge transfer, technology & technological solutions, and trade infrastructure. In the upcoming years, for example, the Dutch government will facilitate the establishment of a Holland Greenhouse Centre for demonstration and training purposes, as well as several Russian sector-enhancing activities and events, such as seminars, trade missions, excursions and the like. Furthermore, grow2gether is committed to assisting in the trade infrastructure requirements that will accompany the expected strong growth in the Russian greenhouse sector. info@grow2gether.nl

Floral beauty in Manhattan

In spring 2009, the International Flower Bulb Centre, working together closely with renowned Dutch landscape gardener Piet Oudolf, will bathe New York in the glow of bulbs – and this time in a very unusual spot: a two-kilometre-long, former overhead railway line in Manhattan called “The High Line”. Piet Oudolf will be responsible for the permanent plants, bushes and trees. The “High Line” has been disused since 1980 and the area looks abandoned, but it will now be given a new lease of life as a park, with a view across the Hudson River and the skyline of New York.

WORLD-RENNOWNED HORTICULTURAL EXPERTISE

Greenport(s) Nederland: mainport for horticulture

The Dutch horticultural sector is concentrated in a number of clusters known as “Greenports”, which are comparable to the logistical “main ports” such as Schiphol Airport and the Port of Rotterdam. Like these main ports, the Greenports are areas with a concentration of companies that are strongly linked to one another, bringing together growers, auctioneers, retailers and horticultural suppliers. Greenports are often also home to knowledge institutes and refiners and growers of plants and seeds. Because all the important players are in such close proximity to one another, an extensive exchange of knowledge is fostered, and companies and knowledge institutions encourage each other to deliver the very best level of performance.

Autmeer Greenport,
- an area with a heavy concentration of florists
- Duijn and Veere Greenport
- which is famous internationally for its bulb fields and the Keukenhof
  (the world’s largest flower garden)
Boskoop Greenport,
- the heart of the tree and shrub-growing sector
Westland/Overveen Greenport,
- the Netherlands’ largest greenhouse farming cluster
North of Limburg/Venlo region Greenport,
- tree nurseries and glasshouses. Venlo’s main product is mushrooms.

www.greenportsnederland.nl

Greenhouse concepts from the Netherlands

It can be hard to keep up with the latest innovations in greenhouse farming. From closed greenhouses and advanced climate and control systems to automation, the technology is becoming increasingly complex. Unfortunately, the sum of the parts is therefore also more complex, whereas in fact growers require a total concept from construction to water purification. Hortix is a new joint venture consisting of nine leading Dutch exporters of greenhouse farming concepts that brings precisely such a total solution within reach. For example, the group recently launched the SeraCulture project in Turkey, which provides support to Turkish growers with their greenhouse systems and growing methods for the Turkish market. Hortix is also developing a demonstration project in Saudi Arabia, where it is using the latest crop optimisation and water conservation technologies.

www.hortix.nl

www.grow2gether.eu

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Interview

// Tough conditions
“Whenever somebody mentions the word ‘horticulture’, most people immediately think of glass greenhouses,” says Michiel Gerritsen. “But that description is much too limited to encompass such a dynamic, multi-faceted industry. In fact, horticulture is a collection of very different branches of industry, which we refer to collectively as the Dutch horticultural sector.”

Nowhere else in the world is that cluster of specialised companies as strong as in the small country that is the Netherlands, which makes the Dutch horticultural sector truly unique. That is especially remarkable because the circumstances here are tough, Gerritsen says. “For decades now, the Dutch market gardener has been forced to operate under difficult conditions, including expensive land, high costs for energy and labour, stringent environmental laws and massive amounts of red tape. Those difficult circumstances, combined with world-renowned horticultural expertise, have brought out the best in the sector.”

// New varieties
The crop improvement labs are the delivery rooms of the horticultural sector, in which new varieties are designed. Now that other countries can deliver high quality at low prices, crop improvement is playing an increasingly prominent role in the Dutch horticultural sector. “Crop improvement requires technical expertise that can’t simply be brought in,” Gerritsen says. “The Netherlands is therefore a global leader in the development of new varieties.”

That development has expanded tremendously. Market research bureaus examine the wishes of consumers and the food industry, and crop improvement experts respond to the demand with new products. “Everything can be influenced, from the production and shelf life. Gathering this information is an enormous task when you consider that the individual flowers that make up a single bouquet of flowers sometimes come from ten different countries. The Dutch horticultural sector would like to work with international partners to develop a uniform tracking system.”

The Netherlands is still the global centre of the flower trade, even now that the world’s bestselling flower – the rose – usually comes from Kenya, where it is sometimes grown by a Dutch grower who has started a company in Africa. The distances have become smaller and competition has become fiercer. According to Gerritsen though, the Dutch horticultural sector need not be concerned about these developments. “Not everything comes from here any longer, but what makes the Netherlands unique is that highly developed cluster of companies in a small space. The developers, growers, retailers, logistical service providers and scientific researchers are what make the Netherlands unique, and will continue to do so in future.”

// Global centre
“The daily flow of millions of flowers and plants that are sold at auction places high demands on logistics,” Gerritsen says. “The location of each specific flower must be clear at any given moment. Our customers are also demanding more and more information about the products, such as the product’s origin, method of production and shelf life. Gathering this information is an enormous task when you consider that the individual flowers that make up a single bouquet of flowers sometimes come from ten different countries. The Dutch horticultural sector would like to work with international partners to develop a uniform tracking system.”

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// Automation
“Global leader in the development of new varieties”

“Global leader in the development of new varieties”

// Automation
“The horticultural sector might not seem the ideal place for robots. Robots can repeat the same task endlessly if you put them in an entirely predictable environment, but what about in a greenhouse? How can a robot distinguish between a sunbeam and a light-coloured twig? Can a robot come up with the idea of brushing aside a leaf in a greenhouse? These types of tasks demand highly complex software and hardware, but robots are nevertheless capable of an increasingly wide range of duties. In many ornamental plant greenhouses, robots have largely taken over the work of humans, and this is another area where Dutch companies are at the cutting edge. Prigrow Tomation is working on a leaf-plucking robot, for example, and Priva is involved in the development of a robot that can tie up sweet peppers. These are just two examples. One day, a robot in a greenhouse will be just as familiar as robots in car factories are today.”

Contact
A commodity board is a regulatory industrial organisation, in which employer and employee organisations work together in a particular sector. The Commodity Board for Horticulture, as an advocate for all Dutch horticultural interests, is dedicated to enhancing the competitive position of the Dutch horticultural sector worldwide. More information is available at www.tuinbouw.nl.
Taking on the food shortage together

A total of 850 million people are starving, mainly because food is unevenly distributed. Moreover, it is expected that our planet will be home to between 9 and 10 billion people by 2050. In fact that many people, we will need to increase production of both high value crops and staple crops.

Together with local businesses and supported by the strong knowledge infrastructure in the Netherlands, Dutch companies are developing methods that could be used to cultivate high value crops in Asia and Africa. The development of these high value crops, such as vegetable crops, contributes to the global food needs and the economic development in developing countries.

In a joint statement, the Netherlands Ministry of Agriculture, Nature and Food Quality (LNV) and the Directorate-General for International Cooperation (DGIS) emphasise the role of the agricultural sector in international developmental cooperation.

A number of Dutch companies

1 // Bejo develops high-quality hybrid vegetable seed in India that is affordable for Indian farmers. www.bejo.nl

2 // East West Seed uses modern technologies to develop typical Asian tropical vegetable varieties and in that way contributes directly to horticultural development in Southeast Asia. www.eastwestseed.com

3 // Enza Zaden (Enza Seeds) develops vegetable crops in India, Indonesia and China, such as tomatoes, cucumbers, hot pepper, sweet pepper and onions. In China, Enza Zaden has set up a demonstration farm in Shandong and a large R&D centre near Beijing. www.enzazaden.nl

4 // Rijk Zwaan Together with Afrisem in Tanzania, Rijk Zwaan develops improved varieties of local African vegetables, such as tomatoes, aubergines, hot peppers and cabbage, using local crop advice. www.rijkzwaan.nl

5 // Syngenta produces vegetable seed and flower cuttings in Kenya and the local population reaps the rewards, including in the form of high-quality jobs. www.syngenta.nl

Dr H.J.M. (Huub) Löffler is a researcher in sustainable production and food safety and is an associate of the Wageningen University and Research Centre, which is a leading life sciences research institute.

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At work

Photo: Rijk Zwaan / Eltjo Thijs
Facts & Figures

The Netherlands is the **world trade centre** for plant base materials. The country’s mild climate, 500 million customers in its backyard and increasingly high-quality production methods have created an exceptionally strong cluster.

### 40%
The suppliers to the greenhouse farming sector, the greenhouse farmers and greenhouse farm builders are global market leaders in their field. 40% of their turnover comes from exports.

### 2,000
The tulip, the traditional symbol of the Netherlands, was extremely popular in the early 17th century in a phenomenon now referred to as ‘tulip mania’. The bulbs were sold at very high prices, the most expensive of them costing more than EUR 2,000 in today’s money.

### 14.7 billion
The horticultural sector had exports in 2007 of EUR 14.7 billion, including re-exports. Of this amount, EUR 6.5 billion was made in sales of flowers, bulbs and trees, while food horticulture was responsible for EUR 8.2 billion.

### 52%
Of the fresh vegetables that Europe exported in 2006, 52% was produced in the Netherlands.

### 245 million
In 2007, the Netherlands produced EUR 245 million worth of mushrooms. Banken Champignons (“Banken Mushrooms”) in the Dutch Betuwe region handles 650 tons of this business every week, which translates to 2.6 million trays of mushrooms.

### 1,800
Of the 1,800 new plant varieties that enter the European market each year, 65% originate from the Netherlands. In addition, Dutch breeders account for more than 40% of all applications for community plant variety rights.

More than 40% of all flowers and plants grown worldwide are Dutch varieties.

FloraHolland is the world’s largest auction company for cut flowers and plants. Each weekday, FloraHolland sells 43.2 million flowers and 4.8 million plants. The company employs 4,500 people.

In 2007, FloraHolland auctioned 1.5 billion tulips.
“The Netherlands is one of the largest producers and international dealers of fruit and vegetables and seeds”

The Netherlands is a major place where supply and demand come together, for both transhipment and re-export of horticultural products. One good example is the flower auction FloraHolland, the world’s largest trade centre for flowers and plants. To deliver tulips to New York on time, for example, an optimum infrastructure is essential. In the form of Amsterdam Schiphol Airport, the Port of Rotterdam and the Betuwe Railway Line, the Netherlands already has three major trump cards in this regard. Schiphol Airport is Europe’s third largest freight handling airport, Rotterdam is Europe’s largest port and ranks third largest in the world. The Betuwe line is a railway line exclusively for freight transport that links Rotterdam directly to Germany and on to Eastern Europe. In addition, the Dutch horticultural sector is developing increasingly intelligent transport methods, as a result of which product quality remains excellent. The three distribution channels and the favourable location of the Netherlands with regard to the European hinterland make the Netherlands the link with the rest of the world.

www.schiphol.nl  www.portofrotterdam.com  www.agrologistiek.nl

At work  www.hollandtrade.com
Is the horticultural sector harmful to the environment?

Ten to fifteen years ago, large amounts of pesticides and ground disinfectants were used, which sometimes resulted in pollution. Since then, cultivation under glass has been made essentially clean by the use of biological pest control and by growing at the substratum level. Practically all ornamental plant companies hold an Environmental Plan for Ornamental Plant Cultivation (MPS) certification. In other crops as well, such as bulbs and trees, the use of synthetic substances has decreased substantially.

Has the greenhouse farming sector felt the impact of rising energy costs?

The recent increases in the price of fossil fuels form a new challenge that market gardeners are tackling with fervour, such as by generating their own electricity or by storing excess solar heat in summer for use in the soil ready for winter. Using this technique, some market gardeners can even supply heat to others. Other market gardeners use geothermal heat to warm their greenhouses.

Why do you find Dutch people in all corners of the world?

A strong entrepreneurial spirit is characteristic of the Dutch horticultural sector. Whether it is growers or suppliers, retailers or transporters, they see opportunities everywhere that they strive to capitalise on with their ingenuity and hard work. Their direct method of conducting business can take some getting used to, but that also means that they live up to their agreements and that they settle their accounts on time.

Why do I see Dutch products in so many different places?

Traditionally, the horticultural sector was geared towards large towns and cities that developed thanks to seaports and airports – as well as a business instinct – into hubs in international logistical networks. The horticultural sector was able to achieve maximum benefits from these developments by setting up logistical chains for conditioned transport. Thanks to the separation of flows of information and flows of goods, the Netherlands is increasingly developing into the director of the global trade in horticultural products.

How accessible is the Netherlands to foreign consumers and suppliers?

In the Dutch horticultural sector, every crop has its own trade organisation, and retailers and wholesalers also have organised representation (see the address list on the back page). In trade organisations, people work together in the development and importing of standards, as well as in joint trade fair presentations, for example. The trade organisations in turn work together on the Commodity Board, which creates a flexible, open network in which foreign companies can quickly find their way.

How is it possible for a heavily populated country to be a global leader in horticulture?

If a large number of people are to live together on a small piece of land, they must be prepared to discuss matters that concern everyone. In the horticultural sector, that translates into the sharing of knowledge, which enables innovation to proceed faster than elsewhere. There is also money available from the Commodity Board for Horticulture for collective research and for tackling problems that concern everyone, such as energy.

Anneke van de Kamp is the Head of Marketing & Innovation for the Commodity Board for Horticulture, which is the organisation that advocates the interests of the Dutch horticultural industry. She has worked for over twenty years in the horticultural industry and was involved in the Environmental Plan for Ornamental Plant Cultivation (MPS) and the improvement of the traceability of vegetables. By Joost van Kasteren <<
Increasingly in Chinese households, you will find flowers on the dinner table, purely for decorative purposes. However, the knowledge of quality, varieties and production is for the most part lacking. This presents an outstanding opportunity for close cooperation between China and the Netherlands, from which both parties can benefit. By Arnoud Veilbrief

1 // Education
Together with two Chinese agricultural universities in Beijing and Kunming, Van Hall Larenstein – part of Wageningen University and Research Centre – is training Chinese students in horticulture and international trade. The Chinese students come to the Netherlands for their practical training and final graduation project.

2 // Plants
Kunming Anthura Horticulture specialises in the cultivation of young anthurium and bromelia plants. The company has modern glass greenhouses covering 1.5 hectares in Songming to produce top-quality young plants, as well as a 5000 m² show greenhouse to introduce new varieties to the market and to offer training to customers.

3 // Roses
Van den Berg grows roses on 3.5 hectares of land in Kunming. In addition to advanced techniques in substrate cultivation, heating and bunching dispensers, Van den Berg is an environmental pioneer in China. Biological crop protection, disinfection and recycling of excess irrigation water to prevent fertilisers from entering the surface water are of paramount importance at Van den Berg.

4 // After-harvest treatment
Chrysal China in Kunming works with Kunming Flower Auction, growers and exporters to expand their knowledge and to train them in after-harvest treatment. Chrysal China also provides technical support in the form of audits and seminars. One year ago, this service was expanded to the Chinese retailers.

5 // Bulbs
Van den Bos Flowerbulbs Kunming processes and distributes lily bulbs from the Netherlands, Chile and China for local flower growers. The bulbs are cleaned and sorted by modern processing machines in the production hall. The cooling cells supplied by Geerlofs ensure that the bulbs are cooled to the proper temperature for transport.

6 // Cooling
Geerlofs Koeltechniek B.V. is a specialist in the design, assembly and construction of cooled storage facilities for the agricultural and food-processing industry. At the production location in Kunming, Geerlofs manufactures high-quality cooling facilities to order for locally grown flower bulbs and other products. Chinese companies provide the materials and components for the cooling facilities.>>

Pioneers in Chinese ornamental plant cultivation

www.hollandtrade.com
China has the market, with the potential for hundreds of millions of flower buyers; the Netherlands has the expertise, as a global leader in ornamental plant cultivation. Renée Snijders, chief representative of the Netherlands Agribusiness Support Office (NABSO) in Kunming, talks about the cooperation between the Dutch and Chinese ornamental plant cultivation industries.

Buying flowers for no specific reason – not because it’s someone’s birthday, but simply because they look beautiful in a vase on the dinner table – is something that more and more Chinese people are doing. The country now has an economically prosperous and growing middle class who currently number approximately 300 million people, all of whom are potential flower buyers.

The main question, of course, is just who will grow all those flowers. Dutch growers deliver the best-quality and the flora Holland flower auction house exports around the world, but China is really far away, and the Chinese would like to grow the flowers themselves. That is why cooperation is the most obvious choice for both countries. The goal is to make Yunnan province the flower centre of Asia.

But are Chinese ornamental plant growers ready for this? Not yet, says Renée Snijders. “Chinese ornamental plant cultivation as an industry does not yet exist – the level of quality and professionalism varies widely. There are many small growers that switch from vegetable growing to flower cultivation if they believe they can earn more, but there is also a growing group of serious business people who make the conscious choice to enter the ornamental plant market. They invest and continually strive to improve quality.” These are the growers that should put China on the map as an exporter of flowers. They are also very open to cooperation with their Dutch colleagues.

Some 15 Dutch growers have already set up shop in Yunnan. These are large growers who have already set up companies in other foreign countries, such as in Kenya. What attracts these growers to China is obvious: the close proximity to the enormous Asian market, high-quality and cheap labour and a favourable climate, although at times they accept difficult and unpredictable circumstances into the bargain. “They are natural pioneers, and they have been through the mill on more than one occasion.”

These companies are welcome with open arms in China because they bring capital and jobs. Jobs with these companies are highly prized among the local population because they involve certain standards as regards wages, workers’ rights and working conditions. However, according to Snijders, the Chinese are most interested in expertise and high-quality base materials. “Chinese growers want to improve their quality and grow more varieties. Dutch companies are well equipped to provide that, naturally, but at a price, because years of research and substantial sums of money are necessary to develop a strong new variety. What’s more, the level of protection and enforcement in relation to flower varieties is still not adequately regulated in China. If the country truly wishes to reach a higher level as a flower producer and exporter, it must expand its selection and improve the quality – and that is only possible if business is done in a transparent manner. The government has a key role to play in that regard.”

In practice, however, the business climate for Dutch companies in China is already good, Snijders says. Chinese ornamental plant growers are increasingly interested in improving quality through cooperation, because you cannot produce a product of consistently high quality with good base materials alone. “They choose cooperation, which also gives them an interest in the protection of property rights.”

Knowledge transfer also occurs in other ways, however. The Van Hall Larenstein University of Applied Sciences and PTC Plus College will soon be offering training courses in China. Not only students, but Dutch and Chinese benefit from cooperation, says Snijders. “A Dutch grower recently had a greenhouse built in Yunnan by a Chinese company. Not everything went well at the start. But are Chinese ornamental plant growers ready for this? Not yet, says Renée Snijders. “Chinese ornamental plant cultivation as an industry does not yet exist – the level of quality and professionalism varies widely. There are many small growers that switch from vegetable growing to flower cultivation if they believe they can earn more, but there is also a growing group of serious business people who make the conscious choice to enter the ornamental plant market. They invest and continually strive to improve quality.” These are the growers that should put China on the map as an exporter of flowers. They are also very open to cooperation with their Dutch colleagues.

Some 15 Dutch growers have already set up shop in Yunnan. These are large growers who have already set up companies in other foreign countries, such as in Kenya. What attracts these growers to China is obvious: the close proximity to the enormous Asian market, high-quality and cheap labour and a favourable climate, although at times they accept difficult and unpredictable circumstances into the bargain. “They are natural pioneers, and they have been through the mill on more than one occasion.”

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Knowledge transfer also occurs in other ways, however. The Van Hall Larenstein University of Applied Sciences and PTC Plus College will soon be offering training courses in China. Not only students, but also farmers and workers from ornamental plant cultivation companies will be instructed in a wide range of subjects, including the proper handling of base materials, the use of pesticides and preventing plant diseases, as well as subjects such as breeders’ rights. This solid basis raises the general level of expertise to a higher level.

Both the Dutch and the Chinese benefit from cooperation, says Snijders. “A Dutch grower recently had a greenhouse built in Yunnan by a Chinese company. Not everything went well at the start. However, although the Dutch were demanding customers, the Chinese company was nevertheless very pleased with the cooperation. The job raised their technical knowledge to a higher level. The Dutch also learnt from the flexibility of the Chinese, because in Southern China you build a different greenhouse than you would in the Netherlands.”

Netherlands Agribusiness Support Office (NABSO) is an initiative of the Dutch Ministry of Agriculture, Nature and Food Quality, in cooperation with the Dutch agribusiness sector. The Kunming office’s goals are to promote Dutch and Chinese cooperation in the agribusiness sector in general and in the ornamental plant cultivation sector in particular.

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Holländisches Büro für den chinesischen Markt (KAB) in Kunming, China

Renée Snijders and Yang Yang
From NABSO in Kunming.

Netherlands Agribusiness Support Office (NABSO)

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Pragmatic individuals with nerve

When I visit foreign market gardening companies, I am always being asked how the Netherlands became the leading country in the market gardening sector. In the Netherlands, on the other hand, we are always focused on what we have to do to maintain our leading position. I think there is one answer to both questions.

Dutch market gardeners are above all pragmatic individuals with a substantial amount of professional expertise and the nerve to invest and innovate. In addition, many market gardeners have an exceptionally good business instinct. You can go far with that combination of qualities, especially if the natural conditions are not ideal, as is the case in the Netherlands where space is limited and there are four seasons. You therefore have to find a solution to each problem. The ingenuity involved in solving these problems often leads to closer cooperation, which in turn expands the cluster and gives it its own dynamic. That broad cluster then offers enormous export potential.

However, how do we maintain that leading position? At the top you must be constantly alert. The market has changed drastically: the number of companies has greatly decreased, as has the number of purchasing customers. This means that there is more competition between the always highly cooperative Dutch market gardeners. There needs to be an even greater focus on the customer, and the cluster will have to devise creative marketing concepts. Companies must stand out from the competition, with flexible production methods and a diverse range of products and services. This requires not only innovative technology, but also innovation in organisational systems. The tightly knit cluster will therefore have to be transformed into an open and diverse cluster. This transformation will once again require the aforementioned combination of skills. This combination of nerve, ingenuity, cooperation and dynamism is the key to how the Netherlands can maintain its leading position in the market gardening sector. I think it is wonderful to be able to play my part.

Martien Penning is the son of a market gardener and spent 20 years working as a consultant and project developer in the international horticultural world. In 2003, he established Hillenraad, which is a knowledge-based company offering strategic advice that publishes the ‘Hillenraad horticultural top 100’. Penning is also the originator behind the Horti Business Game – a game that challenges creative and enterprising horticultural talent.
**New products**

**Energy-saving tulip bulbs**
If they use the latest State-of-the-Art system, growers can save between 56% and 87% on energy consumption in tulip bulb storage areas. The system controls ventilation based on ethylene measurements, and a frequency regulator adjusts the circulation. The bulbs are kept in cells with modern dry walls in which there are rounded wing nozzles.

info@javonl.com
www.javo.eu

**Fast pick-up and placement robot**
The Javo ‘Compact’ is a compact pick-up and placement robot that picks up and places plants in a compact movement. The robot achieves a very high rate of operation, because, after the robot has placed the plants in the container, the pick-up fork returns to the pick-up position via the shortest possible route, namely under the conveyor belt.

info@javonl.com
www.javo.eu

**Tastier green peppers**
Green peppers contain less sucrose and are therefore bitterer than the red and yellow varieties. Enza Zaden spent 11 years developing the Sweet Green Pepper, which contains 30 per cent more sucrose than normal green peppers. In addition, with 30 per cent more vitamins, the Sweet Green Pepper is also healthier and it even maintains its green colour for longer.

bd@enzazaden.nl
www.enzazaden.nl

**Apples for connoisseurs**
The Wellant apple is an exclusive piece of fruit that prompts cries of delight from anyone who eats it, which is how the Wellant recently claimed top prize for both taste and appearance in a competition in Germany. The British supermarket chain Marks & Spencer is also so enthusiastic about the Wellant that they have decided to offer the apple as an exclusive variety in their product range.

contact@wellant-apple.com
www.wellant-apple.com

**GreenPower LED string**
With the Philips GreenPower LED string Low-Flux every plant receives an equal quantity and quality of light. The string, which is specifically intended for tissue cultures and plant storage and transportation, is a flexible chain of LED lights that are specially selected for their efficiency as grow lights.

horti-leds@philips.com
www.philips.com/horti

**Purple tomatoes**
Plant Research International at Wageningen University and Research Centre collaborated with the John Innes Centre to develop ultra-healthy tomatoes. The tomatoes are purple because they are rich in a purple antioxidant called anthocyanin, which protects the human body against cardiovascular diseases and certain types of cancer.

erik.toussaint@wur.nl
www.pri.wur.nl

**Cutting labour costs with PrivAssist**
PrivAssist is a tool for recording information about labour, production and diseases as well as general and specific observations. It gives an overview of production and labour information per employee and indicates productivity and costs per activity. PrivAssist is ideally suited for quality control.

contact.priva@priva.nl
www.priva.nl

**Tulip in battle against breast cancer**
A fuchsia-pink tulip called ‘Pink Ribbon’ with a bulb in the shape of the Pink Ribbon logo has been grown at the Keukenhof flower park in the Netherlands. Profits from the sales of the tulip will go to the Pink Ribbon breast cancer charity.

www.pinkribbon.org
www.pinkribbon.nl

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The Dutch greenhouse farming sector is enormously innovative. Improvements in cultivation methods and other technological improvements that benefit market gardeners worldwide are the order of the day. However, the sector is now facing the major challenge of how it can develop from a large-scale energy consumer into an energy supplier. The Dutch government, politicians, research institutions and the business community are working together to turn greenhouses into a sustainable energy source.

By Peter Juijn

Technology report

The greenhouse of the future vegetables and energy

According to Nico van Ruiten, the Chairman of LTO Glaskracht (which is an organisation that represents greenhouse growers) the focus on energy is not new: “Energy conservation has been high on our agenda since the first oil crisis in 1973 when we started using screens to create shade, climate-control computers and a variety of other energy-efficient techniques. In the 1980s, gas-fired combined heat and power installations were introduced, which produced not only electricity and heat, but also CO₂, which plants need to grow. If you blow CO₂ into the greenhouse the crops will grow faster. All of these techniques have been developed further in the meantime, which is entirely logical because energy is one of the major cost items for all growers in the Netherlands and abroad. Energy-saving measures are therefore not only beneficial for the environment, but also extremely important for growers’ profit margins.”

Van Ruiten: “As part of our constant efforts to minimise energy consumption, we started looking around the year 2000 at possible ways of making greenhouses into a sustainable energy source. We are convinced that the greenhouse farming sector, in due course, can become a supplier of sustainable heat and electricity. In order to achieve that goal, we at LTO Noord Glaskracht, together with the Foundation for Nature and the Environment, have developed an action plan that provides for a step-by-step transition. We have also signed a covenant with the national government that gives an enormous incentive to research and development work on energy-saving measures in greenhouse farming, not least because the covenant provides additional funding of approximately eight million euros a year.”
The idea of an energy-producing greenhouse can become a reality

Vine tomato grower Joep Raemakers in the south Netherlands city of Venlo combines an energy storage system with a combined heat and power installation. He generates a net surplus of heat, which he supplies to his neighbours: a nursing home, a school and a swimming pool.

Enthusiastic
Gerda Verburg, the Minister of Agriculture, Nature and Food Quality, is enthusiastic about the sector’s plans: “Innovation is essential for the future of the agricultural industry, and that is why we strongly encourage innovation – not as a goal in itself, but as a means of facing the challenges that the sector can see on the horizon. The manner in which the greenhouse farming sector is dealing with the climate issue is a wonderful example. By means of a targeted innovation process, the greenhouse farming sector is well on its way to changing from a large-scale consumer of fossil fuels into a supplier of sustainable energy.”

Closed greenhouses
“Our approach to creating an energy-producing greenhouse is based on a number of different steps,” Van Ruiten explains. “The first step is to promote the closed greenhouse, which is a greenhouse where surplus solar heat during the summer is not released through the skylights, but rather is saved by heat exchangers as warm water in the soil. This warm water can be used in winter and at night to heat the greenhouse. The cooled water is then stored in a cold well and can be used to cool the greenhouse during the summer. This energy storage system means that no fossil fuels are required for heating purposes.

What’s more – and even in the Netherlands where there is such a limited amount of sunshine - the system can produce more heat than is needed in the greenhouse, especially if a combined heat and power installation is used to generate electricity and for CO₂ fertilisation, as in the Greenport greenhouse in Venlo.”

Advantages
“Because the windows no longer need to be opened, a closed greenhouse also has other advantages, such as greater CO₂ concentration, fewer infestations and better management of the soil hydrology. In addition, in a closed greenhouse, you can control production much more effectively, because you also control all the environmental factors, all of which are advantages that make greenhouse farming attractive for warm areas of the world such as the Middle East.” Van Ruiten continues: “Given that a closed greenhouse only offers a solution to the heating problem, we are also examining the possibilities for sustainable generation of electricity and alternative sources of CO₂. Furthermore, we are conducting research into geothermal energy and examining whether LED lights are suitable for energy-efficient lighting.”

Open system
“I am convinced that we can use these various techniques to make the idea of an energy-producing greenhouse a reality, and considering that the sector is well known for its open system of knowledge development in which growers, research institutes and suppliers continuously work together on improvements, the accumulated knowledge and technology will find its way to growers worldwide. I can see opportunities for the energy-producing greenhouse in urban areas in particular, where homes and other properties have to be heated. In those areas there is not only a major demand for intensive food production, but also good potential for bringing energy supply and energy demand into line with one another.”

Harm Maters, who represents greenhouse farming companies in his capacity as Chairman of the Association for Greenhouse Technology Producers (AVAG), also expects that the technology that is now being developed will ultimately translate into expertise that will be universally exportable. “As a global market leader, suppliers in the greenhouse farming sector (from lighting and electronics to climate control) already earn 40 per cent of their turnover from exports. This says a lot about what they can mean for the various markets. We also know from experience that what happens in the Netherlands today will be commonplace in the rest of the world five years from now.”

The electricity-producing greenhouse Wageningen University and Research Centre is conducting research into an electricity-producing greenhouse. An electricity-producing greenhouse is a closed greenhouse with an arched glass roof covered with a special foil that lets through the visible light needed for growing crops, while at the same time reflecting the solar heat onto a row of solar panels that produce heat as well as electricity.
In 2012, the Floriade, the decennial World Horticulture Fair, will be the stage for the theatre of nature, where the visitor gets closer to the quality of life. As an international meeting place and knowledge platform, Floriade 2012 will also see the launching of innovations and ideas from across the world that are ready for the market place. www.floriade.nl
**Dutch Ministry of Agriculture, Nature and Food Quality** [www.minlnv.nl](http://www.minlnv.nl)

**Wageningen University and Research Centre (WUR)** is a leading international knowledge institute in the fields of nutrition, health, nature and the living environment. [www.wur.nl](http://www.wur.nl)

**Plant Publicity Holland** is an organisation that promotes the Dutch tree nursery product both in the Netherlands and abroad. [www.pph.nl](http://www.pph.nl)

**The Green Genetics Centre of Excellence (TTI GG)** is a platform of companies and knowledge institutes in the field of research and education in plant base materials. [www.groenegenetica.nl](http://www.groenegenetica.nl)

**LTO Noord Glaskracht** is an employers’ organisation that represents greenhouse growers in the Netherlands. [www.glaskracht.nl](http://www.glaskracht.nl)

**The International Flower Bulb Centre** promotes flower bulbs in the Netherlands and abroad. [www.bulbsonline.org](http://www.bulbsonline.org)

**Holland Produce Promotion** is a marketing and communication agency for potatoes, vegetables and fruit. [www.agfpn.nl](http://www.agfpn.nl)

**Plantum NL** is the Dutch association for breeding, tissue culture, production of and trade in seeds and young plants. [www.plantum.nl](http://www.plantum.nl) [www.plantumb2b.com](http://www.plantumb2b.com)

**The Flower Council of Holland** promotes floricultural products in the Netherlands and abroad. [www.flowercouncil.org](http://www.flowercouncil.org)

**The Dutch Agricultural Wholesale Board / Flowers and Plants (HBAG)** is the trade council for the agricultural wholesale sector. [www.hbag.nl](http://www.hbag.nl)

**Frugiventa** is the Netherlands’ fruit and vegetable trading platform. [www.frugiventa.nl](http://www.frugiventa.nl)

**AVAG** is the sector organisation of contractors and fitters in greenhouse farming in the Netherlands. [www.avag.nl](http://www.avag.nl)

**The Dutch Produce Association (DPA)** is the sector association of the producer organisations for vegetables, fruit and mushrooms in the Netherlands. [www.dpa.eu](http://www.dpa.eu)

**The Cooperative Netherlands Bulb Centre (CNB)** specialises in auctions, mediation and cooling/preparation of flower bulbs. [www.cnb.nl](http://www.cnb.nl)

**The Royal Dutch Association for Flower Bulb Culture (KAVB)** is the trade organisation of the flower bulb sector. [www.kavb.nl](http://www.kavb.nl)

**Anthos** is the Royal Netherlands Trade Association for Nursery Stock and Flower Bulbs. [www.anthos.org](http://www.anthos.org)

**The VGB** is the Association of the Wholesale Trade in Horticultural Products. [www.vgb.nl](http://www.vgb.nl)

**The NBvB** is the Dutch Association of Tree Nurseries. [www.nbvb.nl](http://www.nbvb.nl)

**The NFO** is the Dutch Fruit Growers’ Organisation. [www.nfofruit.nl](http://www.nfofruit.nl)