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**FloraCulture
International**

SEPTEMBER - OCTOBER 2018

AUTOMATION

**Robots: the new face
of horticulture?**

FLOWERTRIALS®

**An early summer
must-see**

RESEARCH

**The continuing
saga of Impatiens
Downy Mildew**



EVERY CLOUD HAS A FLORAL LINING

Landing at Miami International Airport, FCI is granted exclusive access to its cargo area to see where 90% of all flowers imported into the US pass through

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CHANGE IS THE ONLY CONSTANT IN LIFE

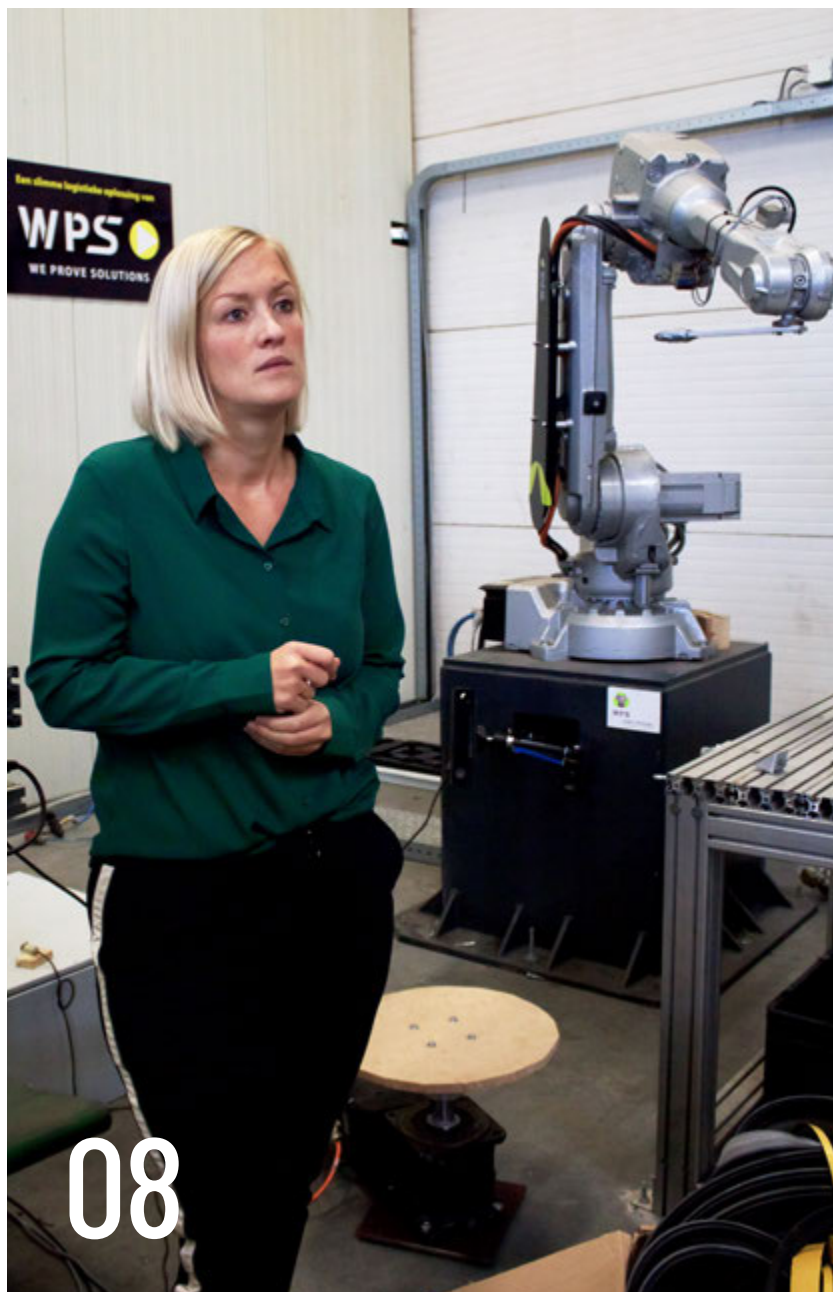
Change is the only constant in life. With this in mind FloraCulture International announces a new look for its 28-year old publication. We present a new look, clearer structure, an ongoing Vis-à-Vis interview segment and a more analytical and reflective content.

Ever wonder what happens to the 253,806 US tons of petals that arrive every year at Miami International Airport (MIA)? FCI's US correspondent, William Armellini was granted exclusive access to America's biggest flower hub. He was given a VIP tour of the MIA cargo area and discovered how the airport will manage future growth as increasingly more passengers compete with cargo for valuable airport real estate. The cover story is part of an extensive overview of America's floral wholesale business, including company profiles, an infographic, basic numbers and their background. This first redesigned issue of FloraCulture International includes an interview with Ben Powell who is the newly appointed president of the WF&FSA. Pages 18-27.

AIPH's International Vision Project (IVP) is touted as 'the first global research of established and emerging global hot spots for ornamentals'. IVP has identified the working-age population in North-America as one of three target groups which have the scale and spending power to reshape global demand. However, the future working-age population in America consists of Generation X, Millennials and Digital Natives'. As it is generally accepted that they will earn less than their parents, the question arises whether future Americans will be able to sustain their appetite for non-essentials such as flowers? Joep Hendricks and Dr. Charlie Hall, Professor and Ellison Chair of the Department of Horticultural Sciences at Texas A&M University, lead the investigation on page 39.

The European Court of Justice (ECJ) has ruled that organisms obtained by new mutagenesis breeding techniques are to be classified as genetically modified organisms (GMOs) within the meaning of the GMO Directive. Lawyer Hidde Koenraad wanted to examine the case in greater depth and invited major stakeholders in the debate, such as the European Seed Association, the European farmers' group Copa- Cogeca and Dümme Orange, to share their vision. Page 40.

Ron van der Ploeg

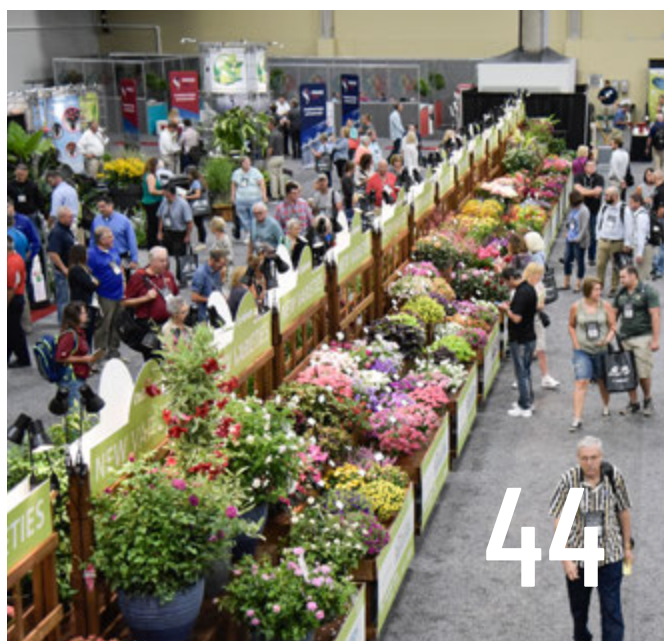




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FloraCulture International is an independent trade magazine with the largest circulation for a world publication of its kind. FloraCulture International is published for the ornamental horticulture industry by the International Association of Horticultural Producers (AIPH). It's published six times per year worldwide. **Editorial Team:** William Armellini, Chris Beytes (editor-at-large), Jill Calabro, Alicja Cecot, Joep Hendricks, Dr. Charlie Hall, John Ingwersen, Hidde Koenraad, Ron van der Ploeg, Kim van Rijssel, John Sutton. **Contact:** info@floracultureinternational.com. **Address:** FloraCulture International, Horticulture House, Chilton, Didcot, Oxfordshire OX11 0RN, United Kingdom. **Worldwide Advertising Office:** Angie Duffree, angie@floracultureinternational.com tel. 0031 (0)6 403 277 35 **Printer:** Drukkerij van Deventer **Graphic design:** Aryen Bouwmeester. **Circulation Administration:** FBW Abonneservice, Postbus 612, 3440 AP Woerden, The Netherlands. **Subscribe:** Sign up now for a free digital subscription www.floraculture.eu/subscribe **Publisher:** Published by AIPH ©2018 FloraCulture International magazine. All rights reserved. Publisher is not liable for the content of the advertisements. Photography by permission of copyright owners.

USA

Turning 90 percent of U.S. households into gardeners

A 'Big Tent,' it turns out, is the perfect place to grow the U.S. horticultural community.

Sharing a love for plants and passion for the ornamental horticulture industry was the overriding theme at the 3rd Meeting of the National Initiative for Consumer Horticulture (NICH) held in Atlanta June 27-29. NICH started as an audacious idea to unite all stakeholders in consumer horticulture and get 90 percent of U.S. households gardening by 2025. Some 80 U.S. green industry leaders and innovators – from academia to commercial growers to associations – pooled their collective brainpower at the meeting and created a strategic plan to achieve that mission. NICH seeks to grow consumer

horticulture, build unified engagement across consumer horticulture and ensure federal, state and other sources of funding. Attendees at the meeting spanned all sectors of consumer horticulture. For Susan Yoder, executive director of Seed Your Future, it was her first experience at a NICH meeting, too. What impressed her most was the collaborative desire and passion for the big picture. Yoder reiterated what many feel, "Without plants, people – and our planet – will not survive. Can we get people to see, appreciate, enjoy, grow, buy and talk about plants? Yes, we can!"

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GERMANY

IPM ESSEN Discovery Centre

Show organiser Messe Essen has announced that the retail area 'hortivation by IPM ESSEN' at the annual IPM ESSEN has changed its name to 'IPM ESSEN Discovery Centre'.

According to Messe Essen the name change reflects the strong bond that exists between IPM ESSEN and the former hortivation show with its inaugural edition taking place in Kalkar, Germany in 2016. Though the name has changed the content of the feature area will remain more or less the same. IPM ESSEN Discovery will gather fashion designers, floral arrangers, trend spot-

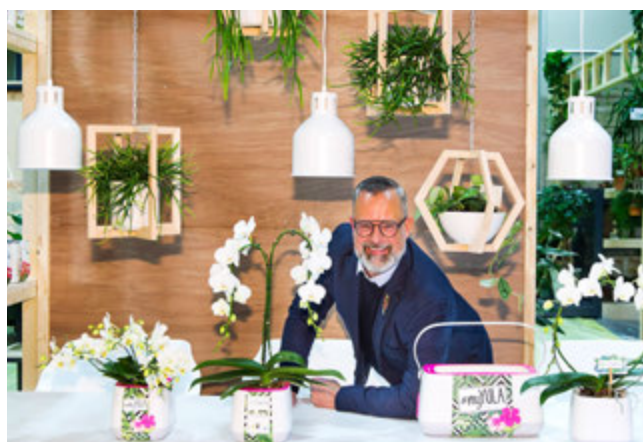
ters, futurists, garden retailers and floral wholesalers. The lay out will allow growers to connect with buyers and retailers from around the world. The format will show how horticulture can profit from societal trends such as communication, fashion and lifestyle and utilize them for all-encompassing solutions. The IPM ESSEN Discovery Centre welcomes back

SWITZERLAND



Syngenta Acquires Floranova

Flower and home garden vegetable seed breeder Floranova has been sold to Syngenta, a leading agriculture company that develops and produces agrochemicals and seeds. Oaklins' dedicated horticulture team together with the local team in the United Kingdom acted as the exclusive financial advisor to the sellers. Floranova, founded some 40 years ago in the United Kingdom, has become well-known in the industry for its strong brand and for meeting the needs of growers in both established and emerging markets. Syngenta, with more than 2,300 employees in the flowers business, is a well-established player in the pot and bedding plants market, serving growers around the globe. It is known for breeding innovative varieties that offer outstanding performance, both for professional growers and retailers alike, in the landscape and the consumer garden segment. Floranova's broad portfolio and international presence will be important to Syngenta in fast growing markets, like China and India. Financial terms of the deal were not disclosed.



Dutch TV celebrity, trend watcher and garden stylist Romeo Sommers (pictured) who will be responsible for creative idea generation and implementation.

IPM ESSEN 2019 will take place at the Messe Essen exhibition centre January 22-25, 2019. For more information please visit www.ipm-essen.de

WELCOME

FloraCulture International (FCI) encourages partnerships with like-minded organisations, companies and associations worldwide. This month, we are pleased to welcome Growing Media Europe AISBL which has recently signed an FCI partnership agreement.



Growing Media Europe AISBL is an international non-profit organisation representing the producers of growing media and soil improvers. Part of their mission is to exert influence over EU

policy on manufacturing and trade of growing media. Working closely with its member companies and associate members, Growing Media Europe AISBL is the leading voice within the industry providing scientific information as well as technical expertise on the use of growing media products. Its role is to bring together leading experts to help inform public policy debates, engaging with politicians, policymakers and regulators in and outside European institutions. Moreover, the Brussels-based industry association strives to promote the value of its products, highlighting their importance in the greater economy.

The growing media market represents

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an industry with an annual turnover of € 1.3 billion and is responsible for 11,000 jobs across Europe. The association's work emphasises its close relationship with the horticultural industry,

which is estimated to have an annual turnover of € 60 billion, providing for over 750,000 jobs.

The most common growing media constituents include peat, coir pith, woodfibers, bark and composted material such as green waste. Mineral constituents like perlite, pumice, clay and vermiculite are also used. Growing media are often formulated from a blend of such raw materials, usually enriched with fertilizers, lime and sometimes biological additives in order to achieve the correct balance of physical, chemical and biological properties for plants to grow. Having the right growing media mix is as important for optimal plant growth as water and fertilisers.

ITALY

Packed schedule of events to mark 2018 Orticolario

Italy's top home and garden show Orticolario returns October 5-7 promising a jam-packed schedule of events.

This year's theme is 'Play' and the star of Orticolario 2018 will be Salvia. Orticolario will welcome a host of both familiar and new faces including its guest of honour, Roy Lancaster, Vice-President of the English Royal Horticultural Society (RHS). Mr Lancaster is a plant

hunter, writer and journalist. He will be presented with the 2018 'Per un Giardinaggio Evoluto' (AVANT GARDE-ning) award. Incorporating Salvia plant displays, eight unique show gardens will be vying for the coveted Foglia d'Oro award.

WWW.ORTICOLARIO.IT



PROTECTING YOUR CULTIVAR IN CHINA OR NOT?

Kim van Rijssen works for Plantipp BV, a Dutch company specialising in royalty management. Kim spent eight years in Beijing.

Last spring we presented Japanese breeder Ryoji Irie with a Chinese PBR certificate for his *Hydrangea macrophylla* You&Me® Miss Saori® ('H2002'). This two-toned variety won the 'Plant of the Year 2014' award at the RHS Chelsea Flower show.

Should you protect your cultivar in China or not? You could say no for obvious reasons. China isn't known for respecting IP. The country is a challenge to control: Beijing alone has a larger population than the Netherlands. And as Ms. Alanna Rennie of the CIOPORA writes in FloraCulture International, there's the so-called farmers' exemption. This Chinese regulation allows certain farmers to propagate PBR-protected plants. Even though our Chinese lawyer says that it doesn't allow them to sell the plants, it makes PBR harder to manage. Then there's the limited list of genera that can be protected. Cultivars within the genus *Hydrangea* can be protected, but less well-known genera can't.

However, China has put awareness about IP and enforcing its protection high on their agenda. To illustrate, I used to be able to find free pirated movies on any respectable Chinese video streaming website. Now you need a paid subscription to watch a movie. China seems to be moving from a country known for production ('Made in China') to a country that wants to be known for innovation. In horticulture, I've met plenty of Chinese growers who would prefer a controllable market with stable prices and a certain quality standard. When I discussed PBR years ago, it wasn't a well-known phenomenon. Now when I visit trade fairs, you see Chinese exhibitors proudly presenting their PBR certificates. The first lawsuits against PBR infringement have been won. I expect this awareness to grow now that the Chinese government has made PBR applications free of charge.

China's horticultural industry is quickly moving forward, but will you receive long-term royalty income from China? Can you enforce PBR protection? It's too early to say. Is it worth investing in PBR protection in China? I'd say yes. The key is to find the right Chinese partner to build a strategy that benefits the breeder (and grower) short-term and long-term when IP protection in China is stronger in practice.



Getting to know WPS' new CEO

FloraCulture International sat down with WPS new CEO Digna van Zanten to learn more about her background and hopes for WPS. Digna shared the latest developments and trends in greenhouse automation, her insights on what the future of greenhouse horticulture looks like and the most powerful innovation lessons she has learned as a child.

AUTHOR: RON VAN DER PLOEG PHOTOS: DIMITRIOSFOS

FloraCulture International: Digna, you have been appointed as the company's new CEO, effective August 1, 2018. What is your priority for the company?

Digna van Zanten: "Customers and employees are all important priorities. It's important to engage with them. How do they see WPS, are there any issues that need to be addressed and where can we improve? I would prefer clients and employees who are really enthusiastic about the company. 'Simply satisfied' is simply not enough."

What three words would you use to describe yourself?

"According to my operations manager: driven, optimistic and entrepreneurial."

Name an industry professional who inspires you.

"I take inspiration from people such as Eduard and Richard ter Laak who demonstrated entrepreneurial spirit by establishing an orchid farm in Guatemala. Equally inspiring are René and Marco Hendriks from OptiFlor and the way they market their orchids. But let's not forget Ann Beekenkamp and Jos Looye who both run companies that really distinguish themselves in the marketplace."

You are also a wife and mother. How do you balance life and work?

"My husband is a bell pepper grower and, as such, also an horticultural entrepreneur. As a mother of two children I try not to multitask too much as I prefer to focus either on my family or work. I prefer to do one thing at a time. Bottom line: try to stay as organized as you can in your private life and use appropriate daycare for your children. Luckily we live in the era of home delivery which can save a lot of time. Meanwhile, it is important to stay in shape as you work long hours. The point is:

when you are in your 30s or 40s you normally would like to make a move in your career but this often coincides with being a mum of young kids that need attention."

How important is the issue of gender balance in horticulture and why?

"Generally speaking, Dutch women who want to have a career are offered plenty of opportunities. Of course, the government can take an active role in promoting gender equality but ultimately women should be truly motivated and that's not always the case. Some women prefer to spend as much time possible with their kids. More often than not, at the beginning of some meeting, I was overlooked, with no eye contact at all. You have two options: either you put the blame on yourself or tell yourself that you cannot take responsibility for another person's behaviour. But sometimes you need to go the extra mile. Eventually this will only make you stronger. It's been some time since wise men discovered that gender equality at all levels of a company adds value. Recently I received a message from a CEO of a large company telling me how proud he felt that the company's current management team is 50/50 male/female ratio. In our sector, men should realise that the majority of their products are purchased by female consumers. As such, to answer the question what women are really looking for when buying fresh produce or flowers: you need female co-workers. But I am not sure whether there will ever be complete gender equality."

Back to your job. What are the most tangible benefits of automated greenhouse production?

"In the changing face of today's society and the ever-growing skills shortage that plagues our industry, automation offers a solution to reduce employment



costs. Labour shortages increasingly force greenhouse workers to do many hours of overtime to meet the company's goals. Having greenhouse jobs go unfilled also influences lead time, delivery and ultimately customer satisfaction. This makes automation in greenhouse production a business necessity."

And what are the barriers to automation in greenhouse production?

"Introducing state-of-the-art technologies in greenhouses requires its own operation and maintenance and the question is whether companies will be able to find the technical talent they need. Moreover, the horticultural industry clearly sees the potential automation has to enhance productivity, but it's mostly the price tag that stops growers from buying new technology. In some cases fears can arise of being too reliant on technology and, thus, potential loss of flexibility."

Overall there's vertical integration in the horticultural supply chain with increased cooperation between breeders, propagators, growers, wholesalers and retailers. How can automation solutions improve communication among such a big and diversified group?

"Individual identification of potted plants throughout the entire crop cycle - from potting until shipping - used in combination with data analysis, will lead to more control over the supply chain. Key questions as to which cutting delivered the best growth performance and the highest quality in end products will be at your fingertips. Some of our customers have hired a data analyst to answer these types of questions based on data gathered by us and other suppliers. Growers are now able to build bridges between breeders and retailers. And it's exactly this kind of knowledge and information that will convince the future's smartest growers to install a newer and better supply chain."

"I believe failing is intrinsically linked to innovation"

Bringing together operational technology (OT) and information technology (IT) is key to successfully implement automation in greenhouse production.

What solutions do you have to help your customers?

"At WPS we recommend Radio Frequency Identification (RFID) or barcodes for use in transporting and handling systems for potted plants. Both tools are used in combination with tailor-made software. Industrial cameras collect a wide variety of data, providing a kind of blue print of each plant. WPS uses this data for logistic purposes in order to ensure timely and correct delivery of plants. But this data can also be used in combination with crop information."

How can greenhouse growers achieve notable cost savings and production increases in a basic greenhouse utilising automation?

"Good question. WPS focuses on mid-tech and high-tech. SmartFlo offers an automation solution for mid-tech companies. Not only can it reduce labour costs, it also allows growers to use their greenhouse space more efficiently and increase crop density. Growers can actually walk on these conveyor belts which stand out for their modular design, maintenance-friendly and user-friendly character. Implementing Smartflo, customers can automate step by step at their own pace while significantly reducing costs. Smartflo is also suitable for outdoor use."

How important is it that an automation company understands the horticultural business?

"All this reminds me of my mother writing the word fail in capital letters on our kitchen wall. I believe failing is intrinsically linked to innovation; it doesn't matter how experienced and educated you are in your business. My mother's FAIL referred to First Attempt In Learning. This perspective puts less pressure on the innovation issue and allows you as a business owner to decide whether to acquire more knowledge or hire an expert in order to be successful. All innovation comes with insecurity and quickly learning from your mistakes is the best course of action. However, things are easier said than done! Meanwhile, I do believe that you can significantly reduce business risks by teaming up with a consortium of different growers and an automation supplier."

What does the future of greenhouse automation look like?

"Our industry is fortunate enough to possess products which will see an increase in demand in the coming years. Surrounding yourself with natural, feel good products and safe food are trends that are here to stay. The way we produce these products and the people behind them will change dramatically. Compared to 20 years ago, you definitely need a different skill set as the sector continues to embrace new technologies. All this makes my job so exciting; the fact that you're making a valuable contribution to the further development of this sector."

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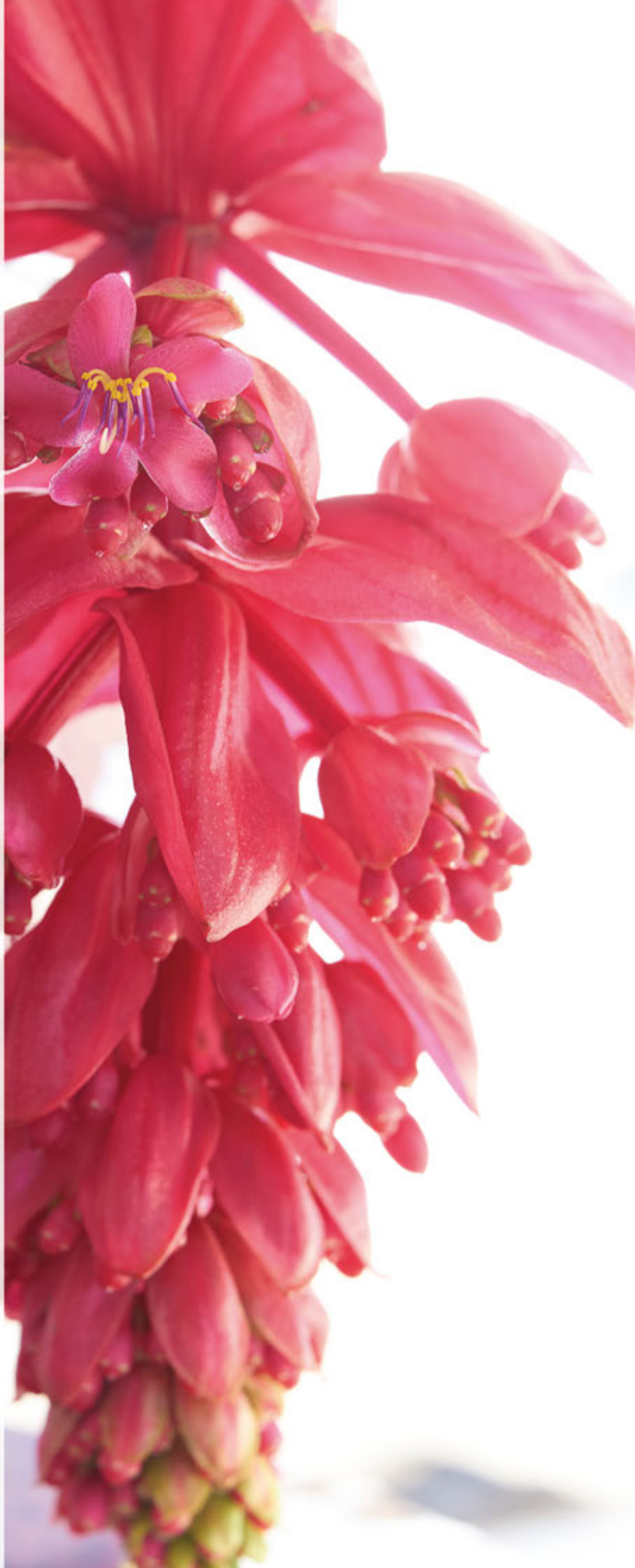
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The Netherlands



Are robots the new face of horticulture?

FloraCulture International discusses the past, present and future of automated/mechanised greenhouse production. Meet the entrepreneurs revolutionising the horticultural scene by introducing cutting sticking robots, automated crop monitoring systems, Kompano de-leafing robots for tomatoes and greenhouse process computers that run with artificial intelligence.

MAREN SCHOORMANS, PRIVA'S VICE-PRESIDENT

"Mobile robots will soon follow"

Fixed in place robots are now being used to automatically stick cuttings at rooting stations but

Maren Schoormans, Priva's Vice-President Strategy & Commerce Horticulture, expects that mobile robots will soon follow. Currently, greenhouse robots perform de-leafing and harvesting jobs (strawberries) but they're also used for scanning crops for pests, diseases and plant deficiencies.

Tight control over the value chain is gaining momentum in many business sectors in order to guarantee supply chain speed, trace product, increase customer trust and achieve business growth. Overall there's vertical

integration in the horticultural supply chain with increased cooperation between breeders, propagators, growers, wholesalers and retailers. However, Schoormans believes this will only happen when there's mutual benefit among supply chain partners or when at the end of the chain (consumers, retailers) transparency is required. "Some retailers will set up 'closed', dedicated produce chains that will enable them to reduce risks (ensure supply and quality). Currently,

the fresh produce and ornamentals business is comprised of many growers, traders and wholesalers that don't exchange data or information. But in the future a much more transparent system will arise, one that allows large sales volumes as well as small batches, accompanied by clear information regarding quality and sustainability. This will lead to more feedback, reviews and reliability scores of vendors and buyers."

Schoormans said that one of Priva's most promising solutions is Priva Kompano, the de-leafing robot for tomatoes. "We hope to introduce production versions in the coming year and after that we will add more features and tasks to the machine. Today, our FS Performance system allows growers to manage their operations (labour, production, packaging) in an easy and reliable way. Often overlooked and taken for granted as it works in relative silence: our greenhouse process computer Connex. It includes control logic and a user interface that has evolved over the past couple of decades. There's an option to run it by artificial intelligence allowing growers to get the most out of their crop production, while using resources (water, energy, crop protection) in the most efficient way possible. Each year we add new functionality to the system and at

the moment we're in the final stages of testing a new set of controls for ventilation, heating and irrigation that make it easier for growers to maximize growth and development for their crops."

Giving her final thought on greenhouse automation Meiny Prins, Priva's CEO, said, "Of course, technology will replace some jobs. It already has for centuries. But we also know that new technology creates new opportunities and new jobs as well. And with a world population that is growing so fast that we can't provide enough food for everyone. We should consider all solutions that enable growers to generate a higher yield and better quality and contribute to a healthy future. We owe it to future generations."

Schoormans added, "In the end, everything that can be automated, will be automated. In most countries, there are fewer people available that (want to) work in greenhouses, so we don't have to worry about large groups of people becoming unemployed. I am much more worried about other industries and jobs that can be partially automated and especially the speed in which automation will be implemented in the coming decades. Will the society at large keep pace with these developments?"

AUTHOR: RON VAN DER PLOEG

JAN SCHNEIDER, TECHNICAL DIRECTOR MYWAVE-SOLUTIONS

“Automated crop monitoring systems are the future”



Jan Schneider, technical director MyWave-Solutions sees a clear future for automated crop monitoring systems in greenhouse production. “There’s a real need for more tools to automatically monitor pests and diseases, humidity, temperature and light. Real time data would allow growers to stay on top of occurring crop issues and offer many new ways for sharing culture data or other best practices with production facilities worldwide.”

According to Schneider, integrated data management can help make the supply chain more transparent. “There’s software available allowing breeders, propagators and their customer growers to develop comprehensive and reliable inventories of possible (systemic) pesticides on their flowers and plants. This can be a useful tool to demonstrate to garden retailers, supermarkets and DIY stores how plants are produced

and what (bee-friendly) products have been applied.”

In today’s horticultural business climate, collaboration, communication and connectivity are essential to success. Digital communication is key to maximising these interactions. However, if components aren’t communicating with one another, there will be gaps, obstacles and claims to effective collaboration. With this in mind Schneider launched its Obvision collaboration/communication platform using a mobile website and app. Schneider: “Breeder X creates a new purple Petunia Z, trials and tests it before it is introduced onto the market. Based on their own trials experience they have gathered a wealth of cultural information. Be it breeders, labs, crop protection experts, propagators or finished product growers, a robust administration programme is vital for critical aspects of the production process which entails monitoring of PGR and pesticide

use. Our tool provides a one-stop solution to register and compare all young plant production-related data. Plant-related issues are fed back into the supply chain to create a framework for continuous improvement. If a plug producer buys the stock material from the breeder to propagate it, he, in turn, will lay down all relevant information regarding crop protection applications. And so will the plug producer’s customer. The ultimate goal is to have a transparent, competitive young plant administration system with detailed information. When new varieties don’t match their description the system serves as a reliable backup for the different actors in the young plant supply chain. Warranty issues can be resolved faster, while there’s no need to run interference on the front end of plant quality. It is also a learning curve for growers proving that overuse of PGRs may negatively impact growth and development, and, ultimately yield.”

RAYMOND VAN DEN BERG, ISO GROUP’S INTERNATIONAL SALES MANAGER

“Not every greenhouse job is fun”



Raymond van den Berg, ISO Group’s International Sales Manager sees the horticultural world as it really is, “Not every greenhouse job is fun. They can be dirty, hard, tedious and physically taxing. To make working in a greenhouse more attractive and suitable for future employees automation is key.”

Artificial Intelligence (AI) is set to disrupt practically every industry imaginable and horticulture is no different. “The combination of robotics, computer vision and machine learning will dramatically change the horticultural business landscape. Take the ISO Group gripper technique which was developed using practical hands-on experience in greenhouse production. Our aim is to develop new machinery for growers to make their greenhouse operations more efficient and help them reduce

labour-intensive tasks,” said Van den Berg. Automation is contributing to a vertical, more transparent supply chain. “The data generated by automation improve overall product quality. For example, growers using our automated cutting sticker, the ISO Cutting Planter 2500, are now gaining more critical insight into the quality of unrooted cuttings. The camera system with built-in artificial intelligence identifies each cutting and examines it in detail. This gives the grower specific data about the quality of the cuttings.” At the moment, the ISO Cutting Planter is taking the horticultural young plant business by storm. The machine can stick a wide variety of unrooted cuttings. Machines using 3D technology and the ISO Plug Planting machine have also proven popular. The ISO Plug Planter comes with robotic arms that pick up Lisianthus plug plants from the tray

and plant them directly into the soil. Van den Berg disagrees that the use of automation is limited to those who can invest in state-of-the-art technology, those growers who have the money. “We as ISO Group try to make our automation solutions user-friendly and low-maintenance, solutions for a broad grower audience.” He mentions the business plan that is prepared for every customer. It focuses on the very interesting ROI. An estimated three to four years are mostly needed for the ISO equipment to pay for itself. And it’s not only about the big players. For example, among our customers is an individual grower who bought our ISO Cutting Planter Machine. The machine has enabled him to do all the planting by himself without needing to hire extra workers. He is happy that there is now more time for what he really likes... growing high quality plants as opposed to human resources.”

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NEW ELLEPOT TECHNOLOGY OFFERS MULTITUDE OF BENEFITS

Building on tried-and-true machinery, Ellepot, the leading supplier of paper pots and machinery is proud to announce the launch of a new machine called the Ellepot Flex20 AIR for producing Ellepots with great aeration and drainage. Read on to discover how revolutionary technology combines superior performance with environmental responsibility.

Established in 1992, the Ellepot name has been synonymous with quality, durability and reliability. From simple semi-automatic machines to today's superior technology and engineering, Ellepot has truly become a world-class provider of propagation/liner systems. Over the past five years the company has invested considerable time, money and resources into yet another state-of-the-art Ellepot technology in response to grower demand – extending its ability to provide flexible, high-speed and top quality Ellepot manufacturing solutions. Young plant producers have already predicted that the brand new Ellepot Flex20 AIR is set to take the industry by storm. The investment has already generated considerable interest from both existing and prospective customers.

REVOLUTIONARY TECHNOLOGY

Roots are absolutely vital to a plant's health. With this in mind Ellepot designed the Flex20 AIR machine which has been thoroughly beta-tested. Based on revolutionary technology, the machine handles the growing media so gently that the airy, soft and fragile structure is left fully intact. It is now possible for customers to produce

softer pots, allowing a faster and easier sticking of cuttings or fragile seedlings. Ellepot engineers say that when using the new machine there was a 10 to 20% better airflow through the paper pots, resulting in faster root growth. The combination of moisture, air and the right paper and also help to create the perfect micro-climate for plants, stimulating overall root growth.

RELIABLE AND FLEXIBLE

The machine is highly reliable and flexible. A core of soil is drawn by vacuum from the hopper into 20 feed tubes (pipes) surrounded by eco-friendly paper. The paper tube is filled with growing media and then cut into Elle plugs in various lengths and diameters. A quick and easy conversion of the machine into other diameters is merely a question of changing the adjacent 'tower' to cater to 40 mm (young plants) and 60 and 80 mm pots (shrubs). The machine is capable of producing a whopping 45,000 Ellepots per hour! When it comes to paper Ellepot offers a choice of over 18 different types, all of them decomposable and ecofriendly, to meet the needs of customers worldwide.

EASY TO OPERATE

Cost-effective and fully automatic the Flex20 AIR is friendly and safe to use. It has an intelligent touch screen interface on widescreen displays. Handling of the panel is intuitive which makes for easy operation. Ellepot engineers told FCI that the panel can be used to display and alternate complete filling programmes, providing real-time information, for example on air porosity, composition, length or filling patterns. The only manpower needed is someone to keep an eye on the soil hopper and paper reels, changing and filling as required. With an Ellepot production line that includes a sticking crew, robot or transplant line, it is possible for one person to operate two Flex20 AIR machines at once.

GROWING GREENER

Flex20 AIR does not require high maintenance or highly-qualified personnel. The machine is fitted with LAN connection for Remote HMI Support from the Ellepot service center. This facilitates seasoned technicians assisting growers better, preventing downtime and keep production running smoothly. The Ellepot system was developed and designed to help growers save money, become more efficient and productive and grow greener. Using Ellepot's biodegradable system eliminates plastic use which perfectly fits any sustainable production programme at plant nurseries around the world.

*For more information please contact
Ellepot: info@ellepot.dk*

Peony Progress

The peony is on the way up in the international cut flower trade. 70 million stems were sold in the Netherlands in 2016, 85 million in 2017.

AUTHORS: JOHN SUTTON AND RON VAN DER PLOEG PHOTOS: DIMITRIOS FOS

All this may seem strange for a plant with a naturally short flowering season. Also strange at first sight is the range of countries in which production for export is now being developed most rapidly. These include Canada, Alaska and Scandinavian countries – notably Norway and Finland. There is keen interest also in Poland and Russia. The peony varieties that are important as commercial cut flowers are all derived from the herbaceous species *Paeonia lactiflora*. This is found wild in eastern Siberia, Mongolia, northern China and Tibet, so it is clearly very hardy indeed.



Over 125 varieties were presented this year on the premises of CNB in Lisse.



Marcel Salman (De Grashoek Nurseries): winner of the first Dutch Peony Award.

CNB'S ANNUAL PEONY MEETING

Around 65 growers met at CNB's headquarters for their annual meeting on Tuesday, June 12, 2018. Speaking on a wide range of topics, from business to marketing to social media to millennial mindset, was Henk van Dongen, marketing manager at Fresh Retail. Van Dongen, who has held positions at Royal FloraHolland, Flower Council of Holland and Zurel, highlighted how the ornamental horticulture industry is mostly run by men who only think production mechanics and price, whereas women are more focused on product value. "This is a fact which we all must seriously ponder. Take the Dutch orchid business. Asked about the products they grow, far too many Phalaenopsis suppliers only come up with the usual story about 'double-spike plants in 12 cm pots which retail at €4.95'. In this case, rational communication becomes emotional 'castration' and that's no good for product promotion." Van Dongen encouraged present-day peony

growers to tell their stories as part of brand marketing initiatives. Try to evoke emotion and forge connections. Identify your target market. Who is buying your product and why? Asking his audience whether they have ever tried to really know their customers, only three growers of the 65 present raised their hand.. Following Van Dongen's presentation peony grower Marcel Salman was honoured with two prestigious awards. Members of the specialist jury were unanimous in their decision to award his *Paeonia* 'Henry Bockstoce' with the Dutch Peony Award, which was presented this year for the very first time. Salman also scooped up the award in the peony hybrid category. Growers Jan Dekker, H. van Dongen and Itoh Peony Plus received award certificates for the best *lactiflora* in show ('Pietertje Vriend-Wagenaar'), the best itoh peony ('Bartzella') and the best potted peonies ('Bartzella', 'Cora Louise' and 'First Arrival'), respectively.



Mr. Jules Elie comes in soft pink hues that slowly fade into deep pink. Early to midseason, double flower and 90cm stem length.



'Etched Salmon'.



The early, midseason hybrid peony 'Many Happy Returns' features double, red blooms and is 90cm tall.

The lateness of spring in countries at high latitudes is a positive factor in a global market. International demand can continue to be serviced by them as supplies cease from traditional growing areas.

PRODUCTION AREAS

The Netherlands accounts for about two thirds of the total supply grown in Europe. Total production area is approximately 750ha. In France there are 80 to 90ha down for cut flowers, and there are smaller areas in England, Italy, Portugal and Spain. Israel has about 40ha, grown to target early spring demand in Europe. (These areas are authoritative estimates, not official statistics) The scale of production in the USA can be judged by the fact that the Netherlands exports over a million plants each year to this country, where potted plant cultivation is in large containers. Meanwhile, the peony cut flower production is becoming increasingly professional and larger. In the southern hemisphere, New Zealand (now over 75ha) and southern Chile have both seen the development of cultivation for export in recent years. The Netherlands is the source of most planting stock for almost all these countries. Most of the 1200ha total area devoted to Dutch commercial peony growing is for the production of young plants, with a significant part of the demand from garden plant retailers.

CNB DUTCH PEONY WEEKS

The changing – and expanding – world map of peony production is increasingly reflected in the

visitors to the annual CNB Dutch peony weeks. Over 125 varieties were presented this year on the premises of CNB in Lisse. Visitors are welcomed during the first two weeks of June, with the second week coinciding with the annual FlowerTrials. Ron Hoogeveen, the company's lead peony specialist, says that during the four years since this event was launched, both the total numbers of visitors and the number of countries from which they come have increased year on year. In 2017, there were 500 trade visitors during the eight days of the event. Of these, half came from outside the Netherlands, from twenty other countries.

Currently, the cut flower market is dominated by the double-flowered pink variety 'Sarah Bernardt', introduced in 1895. The runner-up in CNB's Top Ten varieties for cut flower production is an even older variety, the double white 'Duchesse of Nemours'. 'Coral Sunset', 'Red Charm' and 'Alex Fleming' are the next three.

Ron Hoogeveen expects that new varieties bred specially for cut flower production will make an increasing impact in the market. Of those introduced in the last few years, he suggests that between ten and twenty may have special promise.

A plus point for the peony is that freshly cut flowers store well. Maximum safe periods in cool (1.0°C) storage are between ten and fifteen weeks. A CNB experimental project on ULO storage is in progress this year. Results will be released in November.



Ron Hoogeveen, CNB's lead peony specialist.

'US FLORAL INDUSTRY IS MATURE AND CONSOLIDATING'

The Wholesale Florist and Florist Supplier Association (WF&FSA) last month announced that Ben Powell has been appointed as President effective October 1st. FloraCulture International sat down with him to discuss the current state of the floral wholesale business in America, the *raison d'être* of trade associations and future challenges.

AUTHOR: RON VAN DER PLOEG PHOTOS: WF&FSA AND WILLIAM ARMELLINI

FloraCulture International: Ben would you please briefly introduce yourself?

Ben Powell: "I have had the pleasure of working in the floral industry since 1993. My first exposure to the industry was through a year-long consulting project in Colombia with the Boston-based strategy consulting firm, Monitor Group. I became fascinated with the flower industry and joined the spray rose and mini-carnation grower HOSA. I was in charge of HOSA's Miami business for 5 years before making a leap into the roll-up venture Gerald Stevens. For the past 13 years, I have served on the management team of Mayesh Wholesale Florist where I now serve as President."

What is the current status of the U.S. floral wholesale industry?

"In 2016, the USA was the third world importer of ornamental products after Germany (including live trees, plants, bulbs, roots, cut flowers and cut foliage). Total import value in 2016 was \$2160 million, more than twice of 1997 (\$972 million). The wholesale segment of the U.S. floral industry is mature and consolidating. Like the traditional retail florist, U.S. wholesalers have seen a drop in the number of locations and a flat to declining revenue base in the aggregate. That said, progressive

wholesalers competing well in the healthier segments are performing well. We believe there are approximately 600 wholesale floral locations in the U.S. Wholesalers employ a variety of strategies to source their products, including direct purchases from growers, importers and exporters. Many wholesale florists use a mix of the aforementioned sources."

What causes the number of floral wholesalers to decline?

"The principal reason many wholesalers have struggled is the historical dependence on traditional florists, who have been impacted by the decades long gains by supermarkets and mass retailers and by B2C e-commerce penetration by large national players. Wholesalers who fail to respond to these challenges will continue to swim upstream. Those who identify attractive customer segments and serve them well will prosper."

A good wholesaler brings value to the buyer; a good trade association brings value to its members. How difficult is that?

"WF&FSA has approximately 250-member companies, plus additional 225 branch locations. This includes both supplier and wholesaler members. The association represents more than half of the wholesalers operating in the U.S. No organization - including trade associations - can last for long without bringing value to its constituents. WF&FSA brings value to its membership through education and networking. Our largest event is the Floral Distribution Conference (FDC) held in Miami where we bring together almost 900 industry professionals representing all facets of the wholesale floral marketplace: wholesalers, growers, importers, transportation, logistics, hard goods, greens etc. This year we have been working hard to attract new suppliers to the Conference, including African growers, greens producers and others. We represent a diverse membership and we want to ensure our event reflects that."

What's the biggest challenge you feel WF&FSA faces?

"We need to make sure WF&FSA provides benefits beyond the Annual Conference to ensure our members see the year-long value of joining the association. We provide exceptional networking and education during



Just in time delivery, robust local inventories and knowledgeable sales professionals, are perfect examples of added-value services floral wholesalers can provide.



the Floral Distribution Conference, but we also need to make sure we are providing other services as well. We currently offer multiple research products, additional educational opportunities, blogs, newsletters and more and we want to make sure our members are taking advantage of these services and seeing the value.”

Ben Powell has been appointed WF&FSA President effective October 1st.

What does the accelerating pace of digitalisation/online mean for your business?

“Many florists have been slow to adopt technology. That is a fact. And the same goes for wholesalers. But e-commerce is inevitable. Any company who thinks they can survive without it is making a big mistake. I believe it is one of the key success factors for the future. Order gatherers have done some damage to traditional retail florists. This disruption has been going on for two plus decades and has been the source of frustration for some people in our industry. But it is a reality. It should be noted, however, that plenty of retail florists have built their business models and marketing in a way that FTD and 1-800-FLOWERS are a non-factor.”

What would you say to someone who questioned the need for wholesalers?

“There will always be people who question the value of the “middle man”. Customers who buy from the “middle man” and suppliers who sell to the “middle man” will even question the middle man’s value. But the fact is that logistics, distribution and the last mile will always play a crucial role in the supply chain. Just in time

delivery, robust local inventories, knowledgeable sales professionals, the ability to complete complex wedding and event orders with flowers sourced from multiple regions of the world. These things have value. I don’t see that changing.”

What are the top trade policy and market access concerns for WF&FSA right now?

“WF&FSA has not, at least in recent times, made trade policy or lobbying of any kind a priority. We have enjoyed mostly free and unencumbered flow of imported cut flowers for decades. Wholesale florists, our customers and the end consumer benefit immensely from free trade and we expect and hope this will continue. While we love domestically grown flowers, I believe our industry should be very clear that unimpeded imports are good for us.”

What is being done for floral consumption?

“Promoting more flower consumption overall is something I feel the entire industry can get behind. Many industry leaders have been discussing collaborative efforts to stimulate primary demand for flowers. I look forward to working hard on this in the months ahead with other associations. In the meantime, it is on all of us in the industry to focus on quality products and to do what we can, especially through social media, to promote that wonderful products we sell.”

How supportive is the current government of the floral sector?

“The current government has neither helped nor harmed our industry in any direct or material way. We do, however, benefit when the consumer is healthy and spending money and when unemployment is low. Today, that seems to be the case.”

Does ‘America First’ mean that domestic production is back on the radar?

“American grown flowers are on our radar 365 days a year. While imports play a valuable role in our industry, we benefit immensely from great domestic flowers. Consumers, retailers and wholesale florists all need our domestic flower industry to remain dynamic and innovative.”

To conclude, tell us something more about your forthcoming conference (Miami, October 18–20).

“WF&FSA made a lot of changes for this year’s FDC. Firstly, we made the event members-only to ensure that all companies doing business with WF&FSA wholesalers have been properly vetted through our membership process. We also built a programme to maximize time in the Table Tops to conduct business with suppliers and provide the best networking experience process. Lastly, we have built an exceptional educational panel this year which brings together flowers experts from around the world to discuss the future of the wholesale floral industry. I know I’m personally really looking forward to this year’s event and seeing all it has to offer.”

Lisianthus *Chaconne*

NEW Promising Players



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CRACKING A WELL-GUARDED MARKET

When I was tasked with writing an article about a Miami based import company I started to think of all the great companies I know of that have an interesting story to tell. There are many, but one company stuck out to me mostly because they have entered a well-established business and have succeeded in only 10 years.

AUTHOR AND PHOTOGRAPHER: WILLIAM ARMELLINI

Established in 2008 by Mike Black, Jet Fresh Flower Distributors was built with the intention of forming long-lasting relationships that will help the industry grow. Black has worked in the flower industry his entire life beginning his career in New York City's 28th Street Flower Market. Mike is a 3rd generation floral veteran with experience in many different areas including wholesale, bouquets, mass market and now growing.

HYBRID COMPANY

Jet Fresh describes itself as "a family-owned and operated hybrid company, a combination of a regional floral wholesaler, importer, distributor and grower all from one source."

In a business filled with companies big and small what makes a new competitor stick out? One big advantage was the marketing that Jet Fresh has employed to make it different and recognized. Their online presence is funny, in your face and never ending. Another significant asset is family. The Black family is well represented in all facets of the business at Jet Fresh and beyond. But clearly Black's instincts, and vast knowledge of the industry have been the most valuable company asset.



Michael Black explained how Jet Fresh added an Ecuadorian farm to its portfolio and how this has added a level of vertical integration that is becoming more common in floral.

VERTICAL INTEGRATION

Jet Fresh recently added an Ecuadorian farm to its portfolio and this has added a level of vertical integration that is becoming more common in floral.

Jet Fresh sources its flowers mostly from Central and South America with a small percentage coming from Europe and the US. Mexico has potential but the logistics from there are still a challenge.

There are many business interrupters that have entered the business over the last 10 years as well. Direct sales by growers to wholesalers and internet sales to retailers and consumers are chipping away at sales at all levels. Jet Fresh has embraced this technology by using Komet Sales online platform which has; "become a real staple for us linking the grower, the importer and the retailer online."

NEW BUILDING

Miami is the floral hub for the Americas as Amsterdam is to all of Europe. Jet Fresh has also just moved into a new building and now has its own facility located in the heart of the floral district adjacent to Miami International Airport.

Private US companies do not like to share their sales figures or turnover so I asked Jet Fresh about units sales and they replied "More than some, and a little less than most. With our intermediate size, we're a very well-integrated, medium-grade supplier which is able to supply and fulfill a huge amount of flowers."

Finally, the best quote of the interview Black said, "Our best customer is someone who had a bad experience from our other competitors. Our door is always opened for our diverse client opportunities."



Left to right: Celine Bray, Carlos Coloma, Michael Black, Susan Black, Juanita Coloma, Judith Arias, Fernando Ortega, Casey Black, Yeni Hurtado, Jason Yannizze.

MAYESH TAKES THE EXTRA STEP

When a floral wholesale company has been around for 80 years and is thriving, you can be certain there's a reason. In the case of Mayesh Wholesale Florist, there are actually many reasons.

AUTHOR AND PHOTOGRAPHER: RICHARD MELNICK

The family-owned, Los Angeles-based company employs 360 full-time staff, many of them second and third generation members of the Dahlson family. Back in 1978, Roy and Gerrie Dahlson purchased the then-40 year old company from Jack Mayesh and have steadily expanded to include 17 branches and a stake in Flower Cargo, a cargo agency and handling facility based in Ecuador. Once flowers from South America arrive in Miami, Florida, Mayesh handles all transport thereon out. Approximately half of Mayesh's flowers are sourced from South America, mainly Ecuador and Colombia. The other half are from the US and other countries known for their superior flowers such as the Netherlands. Mayesh sells in excess of 100 million stems per year.

FINE-TUNED COLD CHAIN

Being one of the top five floral wholesale companies in the US is a testament to the vision of CEO Pat Dahlson, Roy and Gerrie's son, and his eight siblings. The company's mission statement is "We take the extra step." And indeed they do. Their commitment to quality is apparent in everything they do: from their close relationship with farms both at home and abroad until the moment their cut flowers are delivered to customers. To ensure the highest quality, all product is purchased directly at partner farms so that Mayesh can control not only quality but the entire cold chain. Dedicated trucks that make no other stops (and thus keep a constant temper-

*Premium quality
Chrysanthemums.*



Mayesh' Phoenix branch at 1805 W. Crest Lane.

ature) are part of the process. Flowers remain in buckets continuously until their delivery rather than dry-packed in boxes as competitors do. Every step along the cold chain has been fine-tuned for optimal quality.

LUXE BLOOMS

Consistency and quality are the hallmarks of Mayesh. Several years ago, the company introduced Luxe Blooms, high-end flowers from artisan growers. Barbara Montes, Sales Manager of the Phoenix, Arizona branch states, "We try to get the best product available from anywhere in the world so that we have a consistent offering to meet demand." Luxe Blooms will often have unique grading or varieties that set them apart. Royal FloraHolland provides Mayesh with the majority of flowers for this endeavour, including Astilbe and Astringia. Other Luxe Blooms include Protea from Africa, Cymbidium from Holland most of the year and New Zealand in the summer and Ranunculus and Anemone which, depending on the time of year, come from either Holland, Japan, Chile or California.



Barbara Montes, Phoenix Branch Manager
and Dave Tagge, Phoenix Sales Manager.

*Luxe Blooms:
high-end flowers
from artisan
growers.*

*On the internet
one can read
how florists
love shopping at
Mayesh and are
impressed by the
selection.*

COMMUNITY COMMITMENT

Mayesh stays engaged with the larger horticulture community by being very active on social media. Besides visibility and a great way to showcase their flowers, social media also speaks to a new generation of millennials and younger florists. Their Instagram page has 50,000 followers and their YouTube videos have more than one million views. Another way to stay connected is the Design Star Workshop. Each year, one competitor is chosen as that year's Design Star. They showcase their talents at weekend workshops throughout the year in select cities. The increased exposure often propels these Stars to new heights within the industry and the greater community. The goal of all of these endeavours is educa-

tion. As Pat Dahlson states, "This is a great opportunity to promote the industry" and educate the public about the importance of flowers in daily life. Showcasing their beauty, versatility and meaning is in Mayesh's DNA. Each year Mayesh works with the Memorial Day Foundation in the US to honor military veterans. Mayesh partners with a corporate sponsor and send tens of thousands of flowers to veteran cemeteries throughout the country where volunteers help place flowers on the graves of military veterans. This year, CEO Pat Dahlson flew to Arlington Cemetery outside Washington, D.C., the resting place of many notable people including John F. Kennedy, to help distribute flowers and be part of the greater community.

On a daily basis, Mayesh is also actively involved in their local communities. In Phoenix, for example, two of their full-time employees are from a local organisation called Gompers which trains and finds employment for people with disabilities. The goal is to assist these workers attain the highest level of independence possible. Both employees work together in the warehouse and are well-respected. Per team member Krista Hamas they have "become such a valuable part of our staff."

DIPPING TOES IN NEW WATER

Mayesh is symbolic of many modern-day, success stories: though older and established they're nimble and not afraid to dip their toes in new waters. Not willing to sacrifice quality or consistency, they are willing to experiment with new ideas and concepts. Pat mentioned that once supermarkets began selling flowers in the late 80s/early 90s, it had a direct effect on traditional bricks and mortar florists. New entrants in the world of cut flowers "are coming from the world of interior design and art. I believe these flower artists can be successful as owner operators. I think we will see retail shops and studios owned by this new breed. They have always been in the business, but there will be more." As with prior changes, whatever the new model, be certain that Mayesh will thrive.



Floral distribution

U.S. Flower farm

17%

grown in America

An estimated 400 cut flower producers. Product mix: Liliun, Delphinium, Tulipa, Gerbera, Iris and Paeonia.

17% are grown in America, 83 % of flowers are imported.

Over 90% of imported flowers come from Colombia, Ecuador and Holland.



Common outlets: cut flowers



Consumption Patterns

Per capita cut flower consumption in the US is about \$30-35 per year.

The business is highly seasonal with spikes in demand at Mother's Day, Valentine's Day, Christmas/Hanukkah and Easter Passover.

Sources: 2016 Floral Purchase Tracking Study, MIA facts and figures, USAID, AIPH.

Imported flowers

Miami International Airport (MIA) handles 90% of the fresh flowers imported per year. **253,806 US ton** of flowers land at MIA each year.

7 daily flights, 6 days per week. The major cargo air carriers of flowers are LATAM, Avianca/Tampa, Atlas Air, UPS and DHL.

40.000

boxes of flowers arrive daily.

\$2278 M.

Total import value in 2017

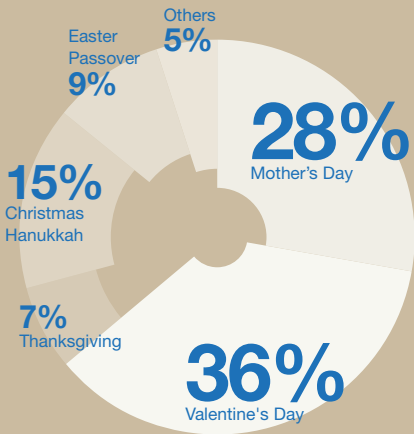
120.000

during the weeks of Valentine's and Mother's day.

Airport



Distribution Channels



Traditional

"Bulk" product (35%)

Broker/importer



Wholesaler
(600 in the U.S.A.)



Florist chains
Retailers
Florist shops

Present

Consumer ready products (65%)

Broker/importer



Direct sales to mass
marketers
Supermarkets
Garden centers
Home centers
Online sales

MIA'S INTERNATIONAL FREIGHT IS FLYING HIGH



Cargo traveling to South America is no longer filling enough planes so these days flowers, are now having to compete with other cargo.

Ever wonder what are the two largest commodities passing through Miami International Airport (MIA)? Tourists and flowers!

AUTHOR AND PHOTOGRAPHER: WILLIAM ARMELLINI

That's right, after people, flowers from South and Central America arrive in huge numbers every day. In fact, there are an average of 133 cargo flights a day in and out of MIA. Not all of these flights are full of flowers, but many are and that is why over the last several years 90% of the flowers imported into the US passed through MIA. That is 253,806 US tons of petals.

LONG HISTORY IN FLORAL

Miami has a long history in floral dating back to the late 70's when the exports from Colombia began. Back then there was ample freight moving from the US to South America and flowers from Bogotá were a perfect way to fill airplanes back into the US via Miami and MIA. In those days there was not a lot of infrastructure to properly handle flowers but little by little the industry grew into a huge business and the airport has been trying to keep up with the growth ever since. Much of the flower industry is located just outside the airport perimeter where warehouses with colorful floral

names can be seen lining the commercial areas. Stop at any street corner in this area and most of the trucks around you are floral related.

UNCERTAINTY

The major cargo air carriers of flowers are LATAM, Avianca/Tampa, Atlas Air, UPS, DHL, Sky Lease, and others on a charter basis. Many airlines join the party during Valentine's and Mother's Day when the volumes double/triple.

All these airlines rely on cargo to fill their planes and this is where the whole game, of having the right plane, in the right place, at the right time, to secure the best load, begins. Cargo traveling to South America is no longer filling enough planes so these days flowers, which were once the perfect backhaul, are now having to compete with other cargo from other countries. This dance to move the cargo and make money finds airlines literally, flying around the world to get the best loads. This leaves growers and cargo agents struggling to move this very perishable product to markets around the planet. Uncertainty has pushed some cargo agents to begin using sea containers from certain markets. Containers of flowers and greens have been leaving from South and Central America on a weekly basis for years now and have been very successful. The challenge is to have enough product to fill a whole container.



A global freight hub, MIA offers service to over 160 cities on four-continents.

MANAGING GROWTH

As a correspondent of B2B magazine FloraCulture International, I was able to take a VIP tour of the MIA cargo area with my guide, Emir Pineda, Manager Aviation Trade and Logistics Marketing from the Miami Airport. Being in the flower business all my adult life I have spent most of that time in and around MIA and the flower industry. A concern that many in the industry have is: How will MIA manage growth as more and more passengers compete with cargo for valuable airport real estate? I posed that question to Emir. "We have a cargo

development plan called CORE (Cargo Optimization Redevelopment Expansion) which will take us from our current 2.3 million tons of cargo to approximately 4.3 million tons by 2030. It is estimated to cost around \$1 Billion. It will be done in phases...near-term optimize (fix) current cargo facilities, mid-term redevelop/build new facilities and long-term buy land and continue development west of the airport." Like many major city airports MIA is in a very populated area surrounded by neighborhoods and therefore has limited growth opportunities. Emir told me that building up was one way to get more space on an existing piece of land. So, expect to see taller buildings as you fly in and out of MIA over the next 10 years.

BEST AIRPORT IN NORTH AMERICA FOR CARGO LOGISTICS

This year, Miami International Airport was named Best Airport in North America at the 2018 Asian Freight, Logistics and Supply Chain (AFLAS) Awards ceremony in Shanghai. MIA achieved its best year ever for freight tonnage in 2017, with 2.24 million total tons – a three-percent increase over 2016. A global freight hub, MIA offers service to over 160 cities on four-continents with dedicated freighter service to 106 global destinations. MIA handles 83% of all air imports and 79% of all exports to/from the region. 2017 rankings show MIA as the leading airport in the United States for international freight (1.93 million US tons).



AFRICA

I asked about flights from Africa. Emir states that while they have spoken often with Kenyan Airways there is little hope of getting any Kenya planes landing here anytime soon. It is no secret that Kenyan Airways is not in good financial position and expansion is not possible at this time. However, Ethiopian Airlines, with one of the newest fleets in the world, is more likely see MIA as a destination before other African nations.

Many other major US airports over the years have tried to attract the flower business out of Miami with little success. Why? MIA and the floral importing community have spent many millions of dollars on infrastructure specifically for flowers and working closely with the multiple government agencies have created the perfect place to import flowers.

MIA and US Customs and Border Control Protection agencies have worked with the importing community to minimize red tape and streamline the clearance process. This has resulted in some ground-breaking programmes that are the envy of some other US ports. When flying in or out of MIA stop to enjoy a Cuban coffee and pick up some flowers.

Fun
Versatile
Memorable!



Platycodon Pop Star

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Benary
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An early summer must-see

This year's FlowerTrials® took place June 12-15 in the Westland and Aalsmeer regions in the Netherlands and the Rheinland Westfalen region in Germany. A record 60 breeding companies launched thousands of novelty pot and bedding plants and merchandising programmes and concepts. In attendance were growers (37% of total visitors) followed by import/export specialists (21%), breeders/young plant producers (12%), retailers (6%) and auction representatives (1%). Here's our take on the biggest stories from FlowerTrials 2018.



AUTHORS AND PHOTOGRAPHERS:
RON VAN DER PLOEG AND ALICJA CECOT

Founded in 2003 by a group of visionary entrepreneurs in the pot and bedding plant industry, FlowerTrials® has quickly established itself as one of the top ornamental plant events providing a platform for relatively young companies in plant breeding as well as established brands and supports retail businesses throughout the world. June is one of the most important months of the year for everyone in the ornamental horticulture industry. With summer around the corner, growers, plant buyers, plug producers, distributors, florists, garden centre retailers, journalists and PR professionals kick into high gear with the start of FlowerTrials.

Industry professionals spend hours each day discovering the latest breeding breakthroughs, attending seminars, award ceremonies and talking shop, marketing programmes and trends.

FlowerTrials has developed over a number of years and become a spectacular international event providing a comprehensive overview of existing, new and future assortments of cut flowers, pot and bedding plants. Since 2003, attendance at the annual showcase has grown with guests visiting from five continents to the four-day show. This year, the exciting and creative open house attracted 7,300 visitors (an increase of 2.3% over last year). FlowerTrials organisers noted a strong increase in visitors from Southern Europe, with 34% more visitors from Italy, without doubt thanks in part to first time exhibitor Gruppo Padana. FlowerTrials also saw significant more visitors from Spain (up 12%) and France (up 12 and 6% to last year respectively). Meanwhile, the 2018 edition of FlowerTrials welcomed more visitors from Eastern Europe with a strong contingent of Polish, Russian, Ukrainian, Slovak, Czech and Estonian trade visitors. The number of visitors from Turkey and Iran decreased significantly, most likely due to the Ramadan and sugar feast which fell this year in week 24.

SELECTA ONE

Selecta One's Osteospermum 'Purple Sun' scooped up the FleuroStar Award 2018/2019 in recognition of its overall excellence. According to Selecta's clever marketing minds, 'Purple Sun' conjures up images of spectacular sunsets on the beach. However, most FlowerTrial goers were more interested in the multi-branching character of the plant and the masses of flowers it produces than the romantic description.



'Purple Sun' blooms come in different shades of orange accentuated by a luminous purple ring around the dark centre. The cultivar fits any existing Osteospermum production scheme and is backed by a 'Purple Sun Takes You To The Summer' campaign that comes with POP material.

The FleuroStar Award winner was presented as a stand-alone variety but it is officially part of the SummerHero series which, according to the breeders, produces flowers all summer. Not bad for a bedding plant that usually stops blooming for a while mid-summer.

Building on the success of Pink Kisses are Selecta One's new pot carnation concepts Dianthus Peach Party®, Dianthus Purple Wedding® and Dianthus Early Love®. Peach Party features apricot blooms in spring and a red ring around the white centre once summer arrives. Purple Wedding bears masses of flowers in hues of pink and crimson red that rise above nicely contrasting dark foliage. Early Love stands out for its double flowers on short stems and its rounded plant habit.

In Pelargonium, the biggest hit was Moonlight® 'Tumbao', with the looks of an interspecific but officially ranged into the zonale category. It has dark leaves zoned with maroon and single blood-red flowers. Its compact growth habit suits high-density production. Like the other 15 members of the Moonlight series, the upright plants have an early blooming stage and are eye-catching on retail shelves.

Appearing to have had bleach (or white wash) spilled on their petals, Petunia BabyDoll®, Lighting Sky and Glacier Sky find their roots in different series. Cultivation-wise Baby Doll should be grown as a member of the Bonnie® series. Cultivation of Lighting Sky and Glacier Sky follows the Famous and AlpeTunia® series, respectively

SYNGENTA

A prominent spot had been reserved for Impatiens walleriana Imara®, a brand new series (white, red, rose, violet, orange, orange star) that are resilient to Impatiens Downy Mildew (IDM). Imara is the result of a joint IDM taskforce which was set up in 2012 in partnership with Syngenta Jealott's Hill Research Centre and Stockbridge Technology Centre in the UK. Also involved is B&Q (owned by Kingfisher). Teaming up with the British retailer has been a logical step as Impatiens walleriana is the quintessential English cottage style garden flower, a firm favourite of British garden lovers for decades.

Syngenta carried out intensive, large-scale, side-by-side trialling with Imara® out-performing other varieties even when exposed to the disease. "We found a natural source for disease-resistant plants and started a programme for classical breeding. Imara have been tested for performance in gardens and greenhouses so consumers and growers

In keeping with tradition, Syngenta FloriPro Services, the distribution organisation serving commercial growers in Europe, Africa and the Middle East, showcased its newest varieties at its young plant production facilities in De Lier.

benefit from this next generation of Impatiens walleriana," said Joost Kos, head of research & development at Syngenta Flower.

Imara have proven to offer compact, long-blooming periods and exceptional colour at retail, in addition to strong resilience to downy mildew. The team at Syngenta evaluated over 5,000 seedlings to find genetics that would not succumb to downy mildew. "The trials were heavily infected with obligate biotrophic Plasmopara obducens," said John Gordon, technical specialist at Syngenta Flowers. "Only Imara displayed a significant level of tolerance to severe levels of infection."



PANAMERICAN SEED

Highlights of the show included the new Petunia Easy Wave Red Improved (more blood red and less prone to Botrytis) and Violet Improved (improved mounding habit), Coreopsis Double the Sun, new additions to the Zinnia Double Zahara and Dianthus Corona series. With its exceptional flower form and palette of colour choices, Corona gives its best performance in cool weather along with other cool-season annuals such as pansies. Dianthus Corona is available in White, Cherry Red, Rose and Strawberry.

Worthy of an honorable mention is the Vinca Tattoo series. Heat tolerant, durable flowering and bold colours, Vinca Tattoo (also known as Catharanthus roseus) is truly a hassle-free and visually appealing flower. PanAmerican Seed

“Busy, colourful and an upbeat mood are some of the things that come to mind if we look at FlowerTrials 2018,” said PanAmerican Seed’s Marketing Specialist for Europe, Denise van Kampen. She is happy that the company received so many compliments on the presentation of the Pansy Cool Wave and Petunia Wave series. “Visitors appreciated that you could look on top of each plant and really see the differences in plant habit of the Wave, Tidal Wave and Easy Wave petunias.”

says each petal looks like it’s inked, but for that you definitely need to use your imagination. The traditional Vinca roseus is crowded and tends to look messy as they grow to their full size. But Tattoo maintains its compact growth habit. Available in four colours: Tangerine, Black Cherry, Papaya and Raspberry.

The new series of cut Celosias, Celosia Neo, Sunday and Celway, were absolute showstoppers.



DANZIGER

Danziger’s showcase at Royal Van Zanten’s headquarters in Rijssenhou is not to be missed. Visitors from around the world flocked to the company’s sumptuous display of single-season bedding and container plants.

The giant ‘Rubik’s Cube’ of flowering Bidens in yellows, pinks and oranges stole the show of the outdoor display. The Bidens Timeless™ Collection was definitely the highlight of this year with as many as 10 different varieties of yellow, red-yellow, lemon, pink or white flowers including compact and more vigorously growing varieties. The series suits patio pots, window boxes, balcony planters and beds. Officially a member of the Timeless™ collection and unofficially a standalone variety Bidens Golden Empire has been going strong since its debut in 2016. Danziger’s Sales Manager for Europe, Ms. Ayala Zilberman, said the product has proven a great success. “Growers appreciate it for being a trouble-free plant, standing out for its upright and compact growth habit and large flowers. Also consumers love its giant blooms and the plant’s great performance in the garden.”

Zilberman explained how the wooden bridge “decked out” with Bidens Golden Empire at the entrance of the indoor show symbolizes the unity between growers and end consumers. Another recent outcome of Danziger’s extensive breeding programmes is Capella. Launched last

year Capella is a series of five Petunia hybrida varieties including Capella™ Pink Lace. They initially grow upright and compactly and finish as a mounding, floriferous ball of color.

Capella™ is a prime example of bedding plants that appeal to the modern-day city dweller. People that have a small garden, patio or balcony are an important target audience for breeders, growers and garden retailers.

Lia™, a brand new series of Calibrachoa hybrida, was another showstopper. “This series of five cultivars perfectly fits urban garden trends too,”

said Zilberman, whose favourite variety is ‘White’ (white flowers with a yellow centre). Lia™ has huge retail appeal as it stays compact and produces masses of comparatively large flowers.



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BENARY

Begonias have for decades been a very important genus for Benary, and took pride of place in their Trials display. Variety series – all seed-raised – ranged from the newest addition, the double-flowered semi-trailing Funky, to the longstanding success stories, Begonia semperflorens Sprint Plus and B x tuberhybrida Nonstop. Funky was introduced in 2016 and is deep pink but orange and white, both of them in the Trials display, are potential sister colours. Sales evidence is that Funky is proving highly competitive against comparable vegetatively-propagated varieties.

The Sun Cities series of B.boliviensis hybrids launched by the introduction of Santa Cruz is now in three colours. It also competes effectively against vegetatively-propagated series. The BIG series, the Illumination and Sprint series, and the Nonstop series with the Joy

Europe's oldest seed company was celebrating its 175th anniversary at the FlowerTrials. Equally remarkable, it is still in the hands of the founder's family, for the sixth generation.

varieties its most recent development, were all shown at the Trials.

Also very prominently displayed were Benary's new dwarf sunflower Bert, and their new three-colour Platycodon series Pop Star. Recent breeding has seen the introduction of Petunia and French marigold series, challenging long-established competition in these highly important plant groups. The semi-trailing Petunia series Success, originally a multiflora, is now available as Success 360, a grandiflora sub-series, and Success HD, a genetically compact version.

The new French marigold Super Hero series is available in 8 colours. The plants have a compact plant habit, blood red flowers with a deep yellow centre and finish one week earlier than comparable varieties. All colours show a very good and stable flower pattern.



HEM GENETICS

Genetic dwarfness in Petunias, bedding salvias and zonal Pelargonium is the signature breeding activity of Hem Genetics. Its two Petunia series, the multiflora Mambo and the grandiflora Limbo were the first of their kind, enabling production without the use of PGRs.

Arrays of these and of the newer versions Mambo GP and Limbo GP featured prominently on the company's stand. GP means Garden Performance, and these series offer dwarfness on the nursery during plant raising but after planting the development of a more ordinary growth habit. Varieties on display included recently introduced colours like Mambo GP Burgundy and Limbo GP Blue Veined.

Dianthus is an important genus for the company, and was very prominent on the stand. The range goes from the China Pinks series Diana to the interspecific first year flowering perennial Supra and the semi-tall Elegance.

Twinny is the first series of F1 hybrid dwarf double-flowered Antirrhinums. Their potential as showy plants in large containers was demonstrated on the stand. There are now seven colours, and it is planned to extend the range in this series.

Hem Genetics was showing its recently introduced Gazania series Enorma. This has uniformly compact habit across the colour range. The series already has six colours, and the introduction of a red will be in the near future.





TAKII EUROPE

The seed-raised canna series Cannova made the biggest splash of colour on the Takii stand at the Trials. The newest variety seen by visitors was the dark-leaved Cannova Bronze Orange, introduced last year. Cannova Bronze Scarlet was the 2014 FleuroStar Award winner. Two Cannova colours are All America Selection award winners.

Takii was also showing a current AAS winner, the trailing petunia Evening Scentsation. Flower colour is blue, but its principal appeal is its very strong fragrance, the feature that most impressed the AAS judges. Yet another Takii winner on show was the double-flowered Begonia semperflorens Fiona Red, awarded a 2019 Fleuroselect Gold Medal following international trialling last year. There is a sister variety,

Fiona Rose, claimed to be closely matched in habit and performance.

There was a strong forward-looking element in Takii's choice of plants for its stand. A new zinnia series, Preciosa, was on pre-introduction display. The full commercial launch will be in 2020. It is in effect an upgraded version of the well-regarded Dreamland series, with basal branching notably improved.

Pink Panther is a new stand-alone Digitalis variety, also provisionally scheduled for 2020 release. And Takii was showing Smiley Orange, an experimental pot sunflower. In this plant the company has an international reputation for its cut flower varieties, with Sunrich Orange holding pride of place for many years.

DÜMMEN ORANGE

Officially joining the Dümmen Orange Sweetunia series and unofficially a stand-alone variety the vegetatively reproduced Petunia Miss Marvelous has been going strong since its debut. Like other members of the Sweetunia series, the plants are easy to grow, have an early blooming stage and are eye-catching on retail shelves. This semi-trailing, subtly veined plant bears plum-coloured flowers with pure white edges. Miss Marvelous is well-suited for large containers, where they will gently cascade over the sides. A single-flowered petunias, Miss Marvelous is self-cleaning and doesn't need deadheading.

SunStanding hybrid New Guinea Impatiens are heat-and humidity-tolerant and thrive in both full sun and shade. SunStanding offers growers a compact growth habit and an early blooming stage. In Europe, the series offers eight colours and is available in QuickTurn™ cutting. The cuttings are ideal for direct-stick applications.

SunStanding cuttings have been used to test Dümmen Orange's Basewell technology which allows young plant producers to

If the FleuroStar Award is all about the wow-factor and creating impact in the garden, this year's list of nominees was pretty uninspiring. It was mostly the same genera and the same companies one is familiar with getting nominated for the same things. International press members asked themselves why Petunia Miss Marvelous did not deserve a spot on the FleuroStar stage, though the flower was already presented at the 2017 FlowerTrials.

move the costly, time consuming sticking and rooting process overseas. Basewell's rooting technology features bare-rooted starter plants that arrive directly from the production farm in Africa and South America, readily available for transplanting and, thus, decreasing order lead times. To ensure premium quality, cuttings are placed in gel rather than soil and shipped in full strips or individual cells that fit automated sticking methods. Individual cells can also be used for manual transplanting.





ROSES FOREVER

Rosa Eskelund's FlowerTrials debut was just like her: generous and brimming with exuberance. Eskelund exhibited at MNP Flowers in Leimuiderbrug, close to Schiphol airport, Amsterdam and the coinciding GreenTech trade exhibition. Capturing a fair share of attention were large-flowered Infinity miniature roses, finger-licking gourmet roses, Plant'n'cut DIY kits and roses that bloom like crazy.

The complete family of Infinity miniature roses took centre stage at the Roses Forever exhibit. The line includes potted roses with extra-large flowers, extra-long shelf life and now available in white (Infinity White), soft pink (Infinity Princess), pink (Pink Infinity) two toned pink and bourbon shaped (Infinity Evergreen), orange (Jinfinity) and red (King of Infinity).

Roses Forever also put on show Gourmet Roses. Eskelund said that over the past five years the company has invested vast amounts of time and money into researching the best species for culinary use. Small-scale production of Gourmet Roses were setup at two horticultural operations. In Denmark, a specialty grower of salad and fresh herbs added Eskelund's edible roses to the product range using his existing partnerships with chefs, caterers and wholesale markets. Eskelund explained that Danish grown Gourmet Roses are handpicked, meticulously packed and ready to be used as an ingredient or simply a garnish. The roses are grown in pots and part of the crop

is sold as potted miniature roses when they rebloom. In Holland, Rodewijk Roses from Valkenburg, a company which has earned a name in dyed Vendela roses, grows a selection of gourmet roses in a separate greenhouse section and sells them to caterers and restaurants.

Gourmet Roses are available in eight different colours and the rose buds have a long shelf life when cold-stored.

Also very prominently displayed was the merchandising concept Plant'n'cut®, which was developed for hobbyists who would like to grow their own bouquet roses. With her keen eye for beauty, Eskelund selected varieties with Bourbon-shaped flowers. So far the brand includes two cultivars: 'With Heart and Soul' and 'Tender' featuring pink petals with an apricot centre and pink flowers with shades of green respectively. The set comes with a bare-rooted rose and includes care instructions.



BETWEEN A ROCK AND A HARD PLACE?

John Ingwersen graduated with a degree in marketing from Georgetown University in 1990, and founded Jungle Jack's, Inc. in 1995.

I firmly believe that freedom of trade internationally directly benefits all involved. My operation in California would cease to function if I were not able to import cuttings, plants, and seeds from various countries all around the world. Likewise, our export operation in Thailand depends entirely on open access to the various markets we ship to. Imposing tariffs or other barriers would at the least hinder if not cripple our operations.

Fortunately, to this point, we have not been directly affected, as our exports originate from Thailand, which is not a primary target in the current trade war. Therefore, I'm able to write this column from more of an observer's perspective, at least so far. What is frustrating, at least from the American perspective, is that the playing field of global trade is not at all fair. The average American has watched solid jobs drained away for years, some via the law of comparative advantage, but many through poorly negotiated trade agreements, or in the case of many countries, blatantly anti-competitive practices. As in the case of Brexit with regards to immigration, this has generated a resonance in the American populace that finally spilled over in a meaningful way. The people who are actually losing the jobs found a voice, whether one likes the voice or not.

This puts someone like myself, who believes in both free trade and its importance, in a difficult position. Yes, we need trade, but we also need fair trade. Unfair trading practices ultimately create detrimental imbalances on both sides of the ledger. The problem is how to cure the problem, and a global trade war benefits no one. On the other hand, it's not reasonable to expect a country to continue to allow itself to be exploited by certain countries with outright predatory trade practices without at some point defending its position.

So where does that leaves us? I honestly don't know, but another cliché sums up the situation quite well...we're stuck between a rock and a hard place, and only reasonable accommodation all around can de-escalate the situation. I want to be optimistic, but my gut feeling is that reason is in short supply these days...

The Continuing Story of Impatiens Downy Mildew

The more we learn about Impatiens downy mildew (IDM), the more intriguing and cunning this disease seems.

AUTHOR: JILL M. CALABRO*

IDM came to light in 2004 after widespread infections were reported in several states throughout the US but then receded from the spotlight for several years. Since 2011, IDM has been more consistently visible and frustratingly present in both production systems and landscapes. As a consequence, sales of Impatiens declined. The USDA's National Agricultural Statistics Service estimated annual sales of Impatiens dropped from over \$266 million in 2009 to just under \$215 million in 2014. During this time, Impatiens went from being the most valuable bedding plant (in terms of total, annual sales) to the third most valuable and was surpassed by petunias and geraniums.

A UNIQUE HISTORY

To better understand *Plasmopara obduscens*, the causal agent of IDM,

*Jill M. Calabro, Ph.D. is science and research programs director at the Horticultural Research Institute, the AmericanHort research and scholarship foundation. The Horticultural Research Institute (HRI) has provided more than \$7.5 million in funds to research projects covering a broad range of production, environmental, and business issues important to the green industry since 1962. Nearly \$11 million is committed to the endowment by individuals, corporations, and associations. For more information about HRI, its grant-funded research, or programming, visit www.hriresearch.org or call 614-884-1155.



This year, Syngenta launched Impatiens walleriana Imara®, a brand new series (white, red, rose, violet, orange, orange star) that are resilient to Impatiens Downy Mildew (IDM).

and, therefore, better manage the disease, researchers need to have a better understanding of its past. It turns out that Impatiens downy mildew has a unique, confounding history.

P. obduscens was first reported in the US in the 1880's on Impatiens capensis, a native Impatiens known to be weedy often called orange jewelweed. *I. pallida*, another type of jewelweed, was also determined as an early host plant. *I. walleriana*, the most well-known, common host of IDM, was introduced to the US in the 1960's, and is by far considered the most susceptible of all species tested. But IDM didn't become problematic

until 2004. So what changed?

A team of researchers, led by Dr. Cristi Palmer, IR-4 Environmental Horticulture Program, is trying to solve the IDM mystery. They are trying to pinpoint the cause for the sudden change. By using molecular techniques, populations of *P. obduscens* collected in the 1880's are compared with more modern ones collected during recent IDM epidemics. Early results indicate that historic isolates are distinctly different. It is believed that modern isolates are not derived from historic ones; however, their origin is unknown. The results also indicate that the current population



of this pathogen continues to evolve. Why does this research matter? A shifty pathogen, such as *P. obduscens* is proving to be, impacts fungicide resistance management strategies, diagnostic tools, and creates obstacles for breeders. At-risk pathogens are those that have short disease cycles and are capable of undergoing many disease cycles per year. They are generally able to quickly adapt to new environments and overcome fitness challenges, such as tolerance to fungicides. IDM fits this definition. The common 'white powder' visible on leaf undersides of infected *Impatiens* is comprised of lots and lots of sporangia (a type of spore spread readily by air currents, splashing water, and movement of plant material). All those sporangia can be easily transmitted to cause new infections.

FUNGICIDE EFFICACY AND RESISTANCE

Fungicide efficacy and resistance are naturally areas of focus for researchers. At Cornell University and Michigan State University researchers continue to evaluate new products alone and in rotations, as well as monitor commercially available products for issues. Some newer products that show promise include:

- Orvego™ (ametoctradin + dimethomorph)
- Stature™ (dimethomorph)
- Segovis™ (oxathiapiprolin)
- Phosphorous acids, various formulations

Reduced efficacy has been reported with a couple of fungicides.

Populations of *P. obduscens* in certain regions have noted that either Subdue Maxx™ (mefenoxam) and/or Adorn™ (fluopicolide) no longer work as well in previous years, potentially signaling fungicide resistance development. Furthermore, plant injury has been associated with Adorn™ drench applications related to perlite-based media. Product information is in no way a product endorsement. Please consult product registration and label for the most current use information.

LIFE AND DISEASE CYCLES

Another key aspect to unlocking better management tools is simply having more information about IDM's life and disease cycles. Dr. Nina Shishkoff, USDA ARS, is trying to decipher some basic, biological questions about the pathogen. For example, the primary source of inoculum is unknown. Dr. Shishkoff is studying the possibility that *P. obduscens* is seedborne, the importance of systemic infections, and the survivability of oospores (thick-walled resting spores) in the soil. Oospores from other downy mildew species have been shown to remain viable after 8-10 years in the soil, which influences landscape management. "It's important for growers to know what recommendations to give gardeners. If the pathogen doesn't overwinter, people can put in a new bed of *Impatiens walleriana* the next year; if it does, growers need to have alternative bedding plants on hand. However, we hope to find a way to clean up soil infestations in the future," said Shishkoff.

I. walleriana is a species considered to be unnaturally susceptible to the extreme.

HOST RANGE

Host range is an important component to research. Like most downy mildews, IDM is host-specific, which means that *Impatiens* is the only known host of *P. obduscens*. There are an estimated 1,300 species of *Impatiens*, and a clear range of susceptibility levels has emerged. For example, New Guinea *Impatiens* (*Impatiens x hawkeri*) are tolerant of IDM but do not do as well in full shade. On the opposite end of the spectrum are varieties of *I. walleriana*, a species considered to be unnaturally susceptible to the extreme. Evaluations led by Ms. Daughtrey include the many, many different species in between. These studies will yield information helpful to breeding efforts to develop *Impatiens* varieties resistant to IDM that also grow well in shade conditions and bloom all season.

HRI

Since 2013, over \$2.2 million dollars has been allocated to downy mildew research, including on *Impatiens*, from both Farm Bill Section 10007 (USDA APHIS) and the Floriculture and Nursery Research Initiative (USDA ARS). AmericanHort and its affiliate, the Horticultural Research Institute (HRI) supported funding of this research. The IR-4 Ornamental Horticulture Program, a USDA-NIFA sponsored entity to increase the specialty crop industry's access to labeled control products, coordinates this collaboration of researchers.



The common 'white powder' is visible on leaf undersides of infected *Impatiens*.



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Poorer than their Parents...

AIPH's International Vision Project (IVP) has identified the working-age population in North America as one of the three target groups which have the scale and spending power to reshape global demand. However, the future working-age population in America consists of the Generation X, Millennials and Digital natives. As it is generally accepted that they will earn less than their parents, the question arises whether future Americans will be able to sustain their appetite for luxury items such as flowers and plants? FCI leads the investigation.



Humans simply thrive better, are healthier and mentally happier surrounded by flowers (Photo credit: Petal it Forward Campaign by the Society of American Florists).

AUTHORS: JOEP HENDRICKS AND DR. CHARLIE HALL

The 2030 working-age population has enjoyed a prosperous youth: They live in a wealthier country, enjoyed higher education, a relatively safe society with, by the swipe on their phone, instant access to nearly everyone and everything. Yet, in a monetary sense, they will be poorer than their parents. University and college enrollments are at an all-time high resulting in a total debt of student loans of 1,5 trillion USD, a sum that will constrain spending power for several generations. The youngsters of tomorrow will live with their parents longer, postpone marriage and buying their first home and have children at a later age. All of which will impact their shopping priorities and obviously their demand for ornamentals.

BIOPHILIA

This raises an important question: Will Americans be able to sustain their appetite for flowers and plants? Part of the answer lies with us as an industry and the way we communicate our value proposition.

Income is not the only factor that drives demand for ornamentals. We humans have an innate need for green (called biophilia); we simply thrive better, are healthier and mentally happier surrounded by flowers, shrubs, and trees. A plethora of studies underpins our intrinsic need for green. Yet, we as an industry mainly position our products as luxury items. With this new consumer cohort looming on the horizon we can no longer afford to opt for a luxury positioning only, or we will be among the first items to fall off their shopping lists.

FUNCTIONAL BENEFITS

We will collectively need to promote the functional benefits that plants have on health and well-being. The 2030 consumer will have an appetite to buy plants as a means to reducing their medical bills, improve their kids' school performance or increase the value of their property. City councils will deploy green spaces to mitigate storm water, to improve safety and increase tax revenue from the increasing value of real estate. Thus, there is an oppor-

tunity for the industry to create value off an array of functional benefits. Meanwhile, lavish floral design at weddings will continue to exist, but they will go hand in hand with an increasing demand for 'functional' flowers.

LOOKING A DECADE AHEAD

This transition will happen, but not overnight. The IVP research identified quite precisely where and when this will occur. This provides an opportunity to grow our industry, but it also requires initiatives to deal with short-term threats. The USA has had a tremendous shakeout of growers, with 16% fewer growers remaining since the last recession. Main reason; the margin squeeze of around 27%.

And that is today's contradiction: a strong economy, with good demand, but with growers under considerable margin pressure. That requires the courage of everyone in the industry to be visionary, to look a decade ahead and to start to invest today to prepare for that changing demand of 2030.



COURT OF JUSTICE EU

Varieties obtained by new mutagenesis techniques are GMOs

In a recent judgment, the European Court of Justice (ECJ) has ruled that organisms obtained by new mutagenesis breeding techniques are genetically modified organisms (GMOs) within the meaning of the GMO Directive. As a result, those organisms fall, in principle, within the scope of the GMO Directive and are subject to the regulatory obligations laid down by that directive. Critics say the decision has far-reaching consequences for the ability of plant breeders to apply promising new breeding techniques such as CRISPR/Cas9 within the European Union, also within the ornamental sector.

AUTHOR: HIDE J. KOENRAAD*
PHOTO CREDITS: ISTOCK AND BOEKX ADVOCATEN

Confédération paysanne, a French farmer's association which defends the interests of small-scale farming, brought an action before the French Council of State together with eight other associations concerned with the protection of the environment and the dissemination of information on the dangers of GMOs. The action was brought in order to contest French legislation which exempts organisms obtained by *mutagenesis* from the obligations imposed by the European GMO Directive and to ban the cultivation and marketing of herbicide-tolerant rape varieties obtained by mutagenesis. The GMO Directive amongst others provides that GMOs must be authorised following an assessment of the risks which they present for human health and the environment and makes them subject to traceability, labelling

and monitoring obligations. This results in an uncertain, costly and lengthy politicised regulatory approval process, which prevents most breeding companies from being able to commercialise innovative products in the EU.

The ECJ was requested by the French Council of State to determine, in essence, whether organisms obtained by mutagenesis, specifically using new gene editing technologies, are GMOs and whether they are thus subject to the aforementioned obligations of the GMO Directive.

Confédération paysanne and the other associations took the view that the use of herbicide-resistant seed varieties obtained by new mutagenesis gene editing techniques carries a risk of significant harm to the environment and to human and animal health, in the same way as GMOs obtained by transgenesis. According to the Confédération paysanne et al. these new techniques should therefore fall under the scope of the GMO Directive.

In general, transgenesis can be described as a genetic engineering technique that consists in inserting one or more genes from other species into the genome of another species. The GMO Directive does not explicitly refer to the notion of transgenesis. However, the directive does cover various techniques which could normally be described as such. Mutagenesis does



not entail the insertion of foreign DNA into a living organism. It nonetheless involves an alteration of the genome of a living species.

CHANGING MUTAGENESIS TECHNIQUES

Mutagenesis techniques have changed over time. Prior to the adoption of the GMO Directive, there were mostly only the conventional or random methods of mutagenesis that were applied *in vivo* to entire plants. These techniques were used for decades without apparently creating any identifiable risks for the environment or health. Gradually, new techniques have appeared. Not only have random mutagenesis techniques been applied *in vitro* to plant cells, but targeted mutagenesis methods applying new genetic engineering techniques have been devised, such as oligonucleotide-directed mutagenesis (ODM) or directed nuclease mutagenesis (SDN-1 and SDN-2 using ZFNs, TALENs, meganucleases and CRISPR/Cas9). Whereas conventional mutagenesis involves random mutations, some of these new gene editing techniques cause a precise mutation in a gene.

JUDGMENT OF THE COURT

In its judgment of 25 July 2018 (C-528/16), the Court of Justice takes the view that organisms obtained by mutagenesis are GMOs within the meaning of the GMO Directive, in so far as the techniques and methods of mutagenesis alter the genetic material of an organism in a way that does not occur naturally. According to the court, it follows that those organisms come, in principle, within the scope of the GMO Directive and are subject to the obligations laid down by that directive. The ECJ states, however, that it is apparent from the GMO Directive that it does not apply to organisms obtained by means of certain mutagenesis techniques, namely *those which have conventionally been used in a number*

of applications and have a long safety record. The court nevertheless specifies that the EU Member States are free to also subject such organisms, in compliance with EU law, to the obligations laid down by the GMO Directive or to other obligations. The fact that those organisms are excluded from the scope of the directive does not mean that the persons concerned may proceed freely with their deliberate release into the environment or with their placement on the market within the EU. The EU Member States are thus free to legislate in this area in compliance with EU law, in particular with the rules on the free movement of goods.

With regard to the question whether the GMO Directive may also be applicable to organisms obtained by mutagenesis techniques that have emerged since its adoption in 2001, the Court considers that the risks linked to the use of these new mutagenesis techniques might prove to be similar to those that result from the production and release of a GMO through transgenesis, since the direct modification of the genetic material of an organism through mutagenesis makes it possible to obtain the same effects as the introduction of a foreign gene into the organism (transgenesis) and those new techniques make it possible to produce genetically modified varieties at a rate out of all proportion to those resulting from the application of conventional methods of mutagenesis. This means that the GMO Directive is also applicable to organisms obtained by mutagenesis techniques that have emerged after 2001.

IMPLICATIONS AND REACTIONS

So far, the judgment has been perceived very critically by breeding companies, scientists and breeders' associations. Probably even more, since the ECJ did not follow the opinion of the Advocate General who concluded that also the new mutagenesis techniques are exempted



*Mr Hidde J. Koenraad, Partner Intellectual Property at Boekx Advocaten (Amsterdam).

from the obligations of the GMO Directive provided they meet all conditions included in the Directive.

Contrary to the Advocate General's opinion, the ECJ's decision now subjects almost all plants obtained with new mutagenesis breeding techniques to the regular GMO legislation with – as indicated before – its prohibitive costs and political uncertainty of final market approval. According to Secretary General Garlich von Essen from the European Seed Association, *"it is now likely that much of the potential of these innovative methods will be lost for Europe – with significant negative economic and environmental consequences. That strikes a serious blow to European agriculture and plant science. While other parts of the world go ahead with these innovations without unnecessary overregulation, Europe's breeders and farmers will once again lose out, without a chance to explore the huge potential and benefits of these plant breeding innovations in practice."* (source: european-seed.com). Similar initial views are expressed by the Secretary-General of the European farmers' group Copa-Cogeca: *"This decision risks that European agriculture remains isolated from the benefits of innovative developments vis-à-vis the rest of the world [...]"* (source: Twitter). Although the case at hand dealt with the allowability of a GM food crop (rape), the decision of the court also covers GM ornamentals. Within the European ornamental sector, nowadays new mutagenesis techniques are mainly used for experimental plant breeding purposes as an alternative for – or an addition to – the more traditional technologies such as radiation and chemical treatment. However, both the expensive licence fees for the use of patented new mutagenesis breeding techniques, in combination with the high costs of the lengthy and regulatory approval process and subsequent marketing conditions, hinder the commercial introduction of GM ornamentals in the EU, even for the largest breeding companies.

According to Hans van den Heuvel, Managing Director R&D of Dümme Orange, the negative implications of the ECJ judgment for the ornamental sector at this moment should not be overstated. According to van den Heuvel *"the downside of the judgment is mainly caused by the fact that on a global scale, there is no fair level playing field, as the new breeding techniques can be used in various countries outside Europe, such as in the US and Israel, without being subject to GMO legislation. By not being able to freely apply these techniques in Europe, we miss out on the substantial time efficiency that can be gained when developing new varieties"*.

Also, various scientists have expressed critical views on the judgment. The precautionary

principle, as included in the GMO Directive and mentioned as an important ratio for the decision of the ECJ, applies to cases of scientific uncertainty. However, there are studies that show that there is less uncertainty related to mutagenesis using new gene editing techniques than with conventional random mutagenesis methods by ionising radiation or exposure to mutagenic chemical agents (source: EFSA Journal 2012;10(10):2943). It is also argued that there is no scientific reason, nor any basis in the GMO Directive, to differentiate between variations of "mutagenesis" techniques, notably because the end results are similar or even identical.

LEGISLATIVE INITIATIVES?

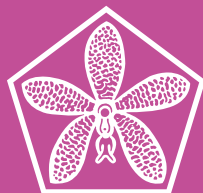
Despite these critical views, for now, the plant breeding industry in Europe will have to deal with the ECJ's judgment. It may consider to lobby and convince the European Commission and legislature to update the GMO Directive and its annexes to include the newly available gene editing techniques using scientifically based evidence on human safety and impact on the environment.

It follows from the opinion of the Advocate General that the European Commission observed that no particular problems connected with conventional mutagenesis have been reported since the 1960s, when it was first used. According to the Commission there is no real difference between in vitro and in vivo mutagenesis. In vitro mutagenesis would even have predated the adoption of the GMO Directive and, to a lesser extent, that of its predecessor (Directive 90/220). Furthermore, the Commission observed that the EU legislature intentionally decided not to distinguish between the techniques to determine the scope of the mutagenesis exemption. At the same time, it effectively narrowed down the exemption in order to take account of ongoing technological developments by adding the caveat deriving from the use of recombinant nucleic acid molecules. That caveat was considered to sufficiently take into account the emergence of new mutagenesis techniques. According to the Commission and several Member states, a case-by-case analysis should be carried out to determine whether organisms obtained by mutagenesis can be exempted by looking at the different processes used to modify the genetic material, including the possible use of recombinant nucleic acid molecules or non-exempted GMOs.

The GMO Directive has been amended in the past various times, including with respect to the exemption for mutagenesis. This may be the time to again initiate a new update of the legislation.

What is CRISP-Cas9?

CRISPR-Cas9 is a genome editing tool that is creating a buzz in the science world. It is faster, cheaper and more accurate than previous techniques of editing DNA and has a wide range of potential applications. CRISPR-Cas9 is a unique technology that enables geneticists and medical researchers to edit parts of the genome by removing, adding or altering sections of the DNA sequence. Source: yourgenome.org



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CULTIVATE'18

AUTHOR: CHRIS BEYTES

The largest floriculture event on the North American calendar was Cultivate'18, held July 14–17 in Columbus, Ohio.

A smallish city in an idyllic Midwestern state, Columbus is within easy reach (600 miles) of 60% of the U.S. population. And attendees can easily visit growers, retailers, manufacturers and distributors in Ohio, Michigan, Pennsylvania, Indiana and Illinois—some of America's most important floriculture production states.

But while it is a North America-centric event, Cultivate'18 is the most international of U.S. horticulture shows, with 136 of the 650 exhibitors (20%) coming from some 18 other countries. That is reflected in the size of the Netherlands reception on Sunday evening, where at least 100 Dutch attendees and exhibitors met with representatives of the Dutch embassy, including new Agricultural Counselor Marianne Vaes.

How many people attended? AmericanHort hasn't yet released those numbers, but I really don't care. The industry isn't growing and companies are generally sending fewer rather than more staff to meetings, so size of audience is less important than quality of audience. That applies to all shows. I can tell you that I saw in attendance every important business person I would expect to see.

New Agricultural Counselor Marianne Vaes discussing trade with Jorg Swagemakers of van Krimpen b.v. (Photo by Caroline Feitel of the Dutch Embassy in Washington, DC).



OxyFusion is a machine that produces PAA (peroxyacetic acid) on demand. PAA is a disease control treatment and helps prevent biofilm build up in your irrigation lines. biosafesystems.com



QUICK FACTS

650 premier exhibitors
135 exhibitors coming from
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150 expert speakers
120 relevant professional
development sessions
78 years running strong
30 countries

Small growers are being offered tools that let them operate like a large grower. Bouldin & Lawson's new Low-Profile Incorporator lets a smaller business blend its own potting mix 2 or 4 cubic meters at a time. It can feed any tray or pot filler, and its low height makes it easy to keep loaded with raw materials. bouldinlawson.com



Israeli propagator Hishtil showed their own version of an AutoStix-compatible product called RootOstix. It is unique in that it is for rooted cuttings, not URCs. Their packaging technology allows for the shipping of bare-root cuttings, with no substrate, to comply with any phytosanitary rules. Another plus: it eliminates the rooting process. Eventually, it could eliminate an entire step in the production process: the rooting station. www.hishtil.com



DryGair Energies Ltd. was established in 2010 in order to design, develop and market an efficient and environment-friendly dehumidification solution to the humidity problem in greenhouses. Working with Volcani Center – ARO (Israel's Agricultural Research Organization), DryGair Energies developed the DryGair dehumidifiers' concept which helps reduce the grower's expenses and contributes to better yield (quantity and quality) using less energy and less pesticides. www.drygair.com



BioTherm's Toob o2 Infuser and associated products provide a solution for increased dissolved oxygen levels in irrigation water. Systems start with flow rates as low as 2 GPM and are able to scale as high as required. The most popular unit supports up to 18 GPM. The company's infusion products can be installed in any type of irrigation system and are proven to increase levels of dissolved oxygen providing a broad spectrum of plant health benefits. Installation is simple and well documented, with technical support available before, during, and after installation. www.biothermsolutions.com



Cannabis, either medicinal or recreational or both, is now legal in 23 U.S. states, and many traditional flower growers are exploring the business or are involved in it. That was reflected on the show floor, where we spotted quite a few cannabis-related business and products, most of which were standard equipment, such as structures and LED lighting.



Of course, new plant varieties are the main draw for many of the 9,000-plus attendees, and the bigger and better New Varieties display, improved last year when the show floor was expanded, did not disappoint. Here, two Cultivate insiders, Mary Beth Cowardin (foreground) and Stacy Buttari, enjoy the fruits of their labor (7). Mary Beth is Vice President of Marketing and Membership Engagement for AmericanHort, the organization that hosts the show; Stacy is owner and designer with Whitespace, the graphic design firm that creates all the signage and other visual elements of the show.

Vitroplus, a renowned Dutch breeder and propagator of ferns, informed Cultivate attendees about a recent overhaul of its 30-year tissue culture system. The new fern factory is harnessing developments in lighting technology to grow and hardening off fern young plants in multi-tier systems under super-smart LED lights. The production facility offers a controlled environment growing system. Working with lighting company Reveb, Vitroplus grows its plantlets on trolleys fitted with LEDs that maximise available space: production capacity /m3 under low heat generating LED lamps is 20 to 30 times bigger than in a traditional greenhouse. The company's Ellen Kraaijenbrink told FCI that the company is tapping into a new market: cold hardy ferns. www.vitroplus.nl



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CZECH REPUBLIC

16-21 SEPTEMBER 2018

International Garden
Centre Congress.
www.igca2018.cz

UNITED STATES

17-19 SEPTEMBER 2018

AmericanHort Plug &
Cutting Conference at
the Sheraton Charlotte Hotel,
Charlotte, North Carolina.
www.americanhort.org/plug

AUSTRALIA

17-20 SEPTEMBER 2018

World Flower Council
Summit 2018, new venue
(W Hotel Brisbane),
same amazing event.
www.worldflowercouncil.org

ITALY

17-22 SEPTEMBER 2018

The global ornamental horti-
culture industry is invited to the
70th AIPH Annual Congress
which will take place in the
beautiful city of Padova in
Italy from 17th-22nd September
2018. Open to members and
non-members and includes
conferences, discussion,
networking and professional
tours that will prove highly valu-
able for everyone who attends.
www.aiph.org/events/padova/

ITALY

19-21 SEPTEMBER 2018

Flormart at PadovaFiere,
Padua, Italy.
www.flormart.it

ECUADOR

19-21 SEPTEMBER 2018

Agriflor, trade show serving
the Ecuadorian flower industry
since 1992. Venue: Centro
de Exposiciones Quito.
patricia@hpp.nl, www.hpp.nl

AUSTRIA

20-21 SEPTEMBER 2018

EU Water Conference at Halle
E, Museum Quarter, Vienna.
[ec.europa.eu/info/events/
eu-water-conference-2018_en](http://ec.europa.eu/info/events/eu-water-conference-2018_en)



The next big US breeder's event

The next big us breeder's event will be the Independent Plant Breeders Conference (IPBC, November 8-10, 2018 in Mobile, Alabama) where Angela Treadwell-Palmer from Plants Nouveau will be one of the key note speakers. We asked her what can industry people expect and why should they attend? "The IPBC is a great conference for independent, backyard and commercial breeders. The conference focuses mainly on how smaller breeders can make their way into the commercial market. We show them all of the options and they can talk to other breeders big and small to see what their experiences are. A lot of the large companies are "breeder shopping" there, but we like to attend just to hear about all of the wonderful, innovative projects they are working on and to get to know them on a personal scale. That's our specialty. Our breeders are our family and we treat them that way. They really are a special part of our work and our lives."

WWW.PLANTDEVELOPMENT.COM

UNITED ARAB EMIRATES

1-3 OCTOBER 2018

2018 IPM Dubai and WOP
Dubai (fresh produce) will take
place from 1 to 3 October
2018. Once again, both trade
exhibitions will be held at the
Dubai World Trade Centre.
www.ipm-dubai.com
www.wop-dubai.com

CANADA

3-4 OCTOBER 2018

Canadian Greenhouse
Conference at the
Scotiabank Convention
Centre, Niagara Falls.
[www.canadiangreenhouse-
conference.com](http://www.canadiangreenhouse-conference.com)

THE NETHERLANDS

3-5 OCTOBER 2018

GrootGroenPlus, the world's
premier amenity plant show.
www.grootgroenplus.nl

SPAIN

3-5 OCTOBER 2018

Iberflora at the Feria
Valencia exhibition centre.
iberflora@feriavalencia.com
www.iberflora.es

ZIMBABWE

9-11 OCTOBER 2018

Hortiflor Zimbabwe at the
HICC in Harare, Zimbabwe.
www.hpp.nl

JAPAN

10-12 OCTOBER 2018

Ifex, Asia's largest
flower trade exhibition at
Makuhari Messe, Tokyo.
www.ifex.jp

ECUADOR

19-21 OCTOBER 2018

Agriflor at the Centro de
Exposiciones in Quito.
www.hpp.nl

IRAN

23-25 OCTOBER 2018

The 2nd International Plant
Congress in Mahallat City
(around 100 km south
west of Teheran).
www.isopcongress.ir/en/

CHINESE TAIPEI

**3 NOVEMBER 2018-
24 APRIL 2019**

Taichung World Flora Expo.
2018floraexpo.tw/en/

THE NETHERLANDS

7-9 NOVEMBER 2018

International Floriculture Forum
at the IFTF show in Vijfhuizen.
www.floriforum.com

THE NETHERLANDS

7-9 NOVEMBER 2018

Royal FloraHolland Trade Fair.
www.royalfloraholland.com

UNITED STATES

8-10 NOVEMBER 2018

Don't miss the 2018
Independent Plant
Breeders Conference
in Mobile, Alabama.
[conference.ifas.ufl.edu/IPBC/
index.html](http://conference.ifas.ufl.edu/IPBC/index.html)

THE NETHERLANDS

28-29 NOVEMBER 2018

European Mineral Fertilizer
Summit in Amsterdam
www.acieu.net



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- Fruit
- Hydrangea
- Kalanchoe
- Mandevilla
- Pelargonium
- Perennials
- Pot plants
- Rose
- Shrubs
- Tomato
- Tubers
- Etc.



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TURKEY

**28 NOVEMBER -
1 DECEMBER 2018**

Growtech Eurasia, international greenhouse, agricultural equipment and technology trade fair in Antalya, Turkey.
www.growtech.com.tr

THE NETHERLANDS

4-5 DECEMBER 2018

Breeders & Young Plant Producers Conference
www.fleuroselect.com

UNITED STATES

4-6 DECEMBER 2018

Great Lakes Expo and Michigan Greenhouse Growers Expo at DeVos Place Convention Center, Grand Rapids.
www.glexpo.com

UNITED STATES

16-18 JANUARY 2019

Tropical Plant Industry Exhibition (TPIE) at the Broward County Convention Centre, Ft. Lauderdale.
www.tpie.org

GERMANY

18-27 JANUARY 2019

Grüne Woche, international green week Berlin.
www.gruenewoche.de

IFTF trade show floor continues to expand

Now in its 9th year, the **International Floriculture Trade Fair (IFTF)** is going strong with further expansion of the trade show floor underway.

This November the specialised, annual trade show for fresh cut flowers, cut foliage and potted plants will host the world's top vendors showcasing their latest breeding breakthroughs, cutting edge growing techniques and merchandising programmes. To date, 350 exhibitors from the Netherlands and abroad have booked their space including country pavilions from Kenya, Ethiopia, Colombia, Ecuador, Iran, Turkey and Tanzania. Show organiser HPP said participants will share the 15,000m² trade show floor which has five halls. True to tradition, the largest space



will be devoted to fresh cut flowers and cut foliage, while houseplants, bedding plants will also be on display. Floral wholesale, ornamental plant breeding, horticultural supplies, packaging and floristry equipment are activities that can be found across the show. The 2018 IFTF show will take place November 7-9

at Haarlemmermeer Expo near Amsterdam, the Netherlands. The exhibition promises a packed schedule of events with the international seminar for the flower sector being the key event. On 6 November industry professionals from around the world will gather at the IFTF to discuss the sector's future.

WWW.IFTF.NL AND WWW.FLORIFORUM.COM

GERMANY

22-25 JANUARY 2019

IPM ESSEN
www.ipm-essen.de

GERMANY

25-29 JANUARY 2019

The Floradecora show will display interesting ways to blend fresh cut flowers, pot plants and home décor accessories. Set to attract the world's largest retail chains, Floradecora will be held in conjunction with Christmasworld in Frankfurt, one of the world's largest consumer goods trade shows.
www.christmasworld.messe-frankfurt.com

GERMANY

6-8 FEBRUARY 2019

Fruit Logistica Berlin, the world's leading trade fair for the fresh fruit and vegetable business.
www.fruitlogistica.de

ITALY

20 TO 22 FEBRUARY 2019

Myplant&Garden at Fiera Milano.
www.myplantgarden.com

ETHIOPIA

13 TO 15 MARCH 2019

Hortiflora Expo Addis Ababa.
www.hpp.nl

THE NETHERLANDS

21 MARCH TO 19 MAY 2019

Keukenhof, one of the world's most beautiful spring gardens.
www.keukenhof.nl

UNITED STATES

20-22 MAY 2019

World Floral Expo in Dallas.
www.hpp.nl

CHINA

20-22 APRIL 2019

Hortiflorexpo IPM China
www.hfexpo.org/
www.ipm-essen.de/welt-leitmesse/ipm-worldwide/hortiflorexpo-ipm/

Iran: International Congress on Ornamental Horticulture

The Iranian Society for Ornamental Plants (ISOP), the Ornamental Plants Research Centre (OPRC) and Iran's Ministry of Agriculture have announced the 2nd International Congress and 3rd National Congress on Ornamental Horticulture, to take place in Mahallat, Iran from October 23-25, 2018. Held in conjunction with Mahallat's Chrysanthemum Festival, the three-day event aims to develop, promote and share knowledge and expand communication between national and international experts and researchers in the field of flowers and plants. The Congress will encourage applied research to help solve national problems in ornamental plants production and trade. The organisers believe the scientific congress will play a prominent role in harmonizing activities in academic research and professional production of ornamentals. On behalf of the organizing committee, Dr. Pejman Azadi said that to mark the occasion international flower businesses will be invited to participate.

WWW.ISOPCONGRESS.IR/EN

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tradefairaalsmeer.com