

Partnership

Nº17 | 2020

**SUCCESS THAT
WHETS THE
APPETITE FOR
MORE**
ORANGE SUMMER

**HEALTHY
EATING**
3 WAYS TO CONVINCE
CONSUMERS

WHO DID IT?
PHYTOPATHOLOGY
DETECTIVE WORK

ENZA ZADEN



Dear reader, dear partner,

Welcome to the 17th edition of the Enza Zaden 'The Partnership' magazine!

In the current turbulent times, volatile markets and global work environment, we continue to work together with you to develop healthy vegetable varieties that excel in consistency, reliability and quality. In other words, varieties that you can rely on. This teamwork with you, at local and global level, is the key to our success.

Innovation is the foundation and strength of Enza Zaden. We invest thirty percent of our turnover in research, broadening and developing the knowledge of our employees and cooperation with our partners. And that pays off in the form of a constant flow of innovations. Each week, we launch two new varieties onto the global market. Varieties that offer positive distinctive benefits and add value for our partners and customers.

However, we can only reach this by working closely with all our partners and customers, globally and locally. They come first: we try harder! We focus on serving the whole chain; from growers, traders, supermarkets and processing industry to consumers. Together we make the best quality products, for each product-market segment.

At these times, it also remains key for Enza Zaden to recognise our corporate responsibility, the importance of integrity and compliance with law. This affects our

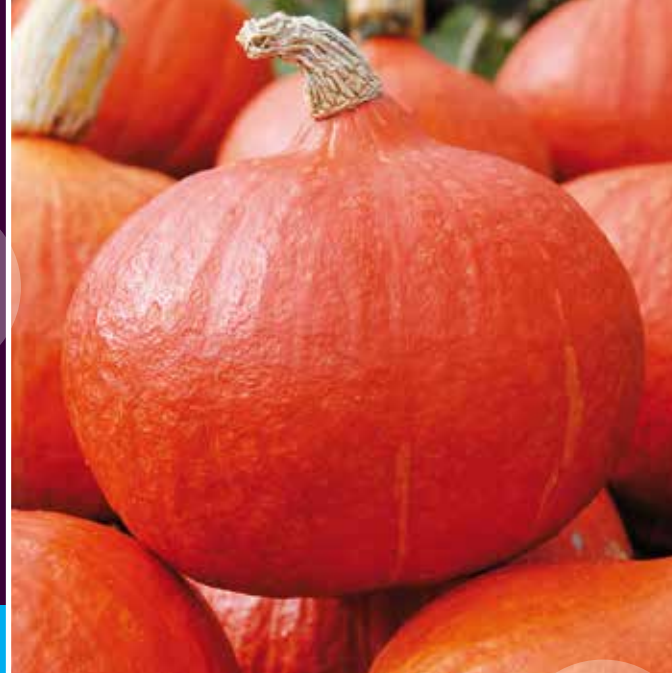
responsibility in terms of working conditions, as well as respect for the society and the environment. Enza Zaden is based on the principles of integrity, fairness and honesty, allowing us to represent your interest fairly. Furthermore, we adhere to the law, phytosanitary regulations and expects the same from our partners.

We will keep investing in the market, innovation and products. However, we fully recognise we can only achieve this together with you to get the best outcome for all!

Joost Gietelink
Chief Financial Officer



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The Partnership



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Breeders pushing ahead
with expanding range

Orange Summer's success whets appetite for more

Pumpkin Orange Summer is a hit in Europe – and not only in the summer and autumn. Now that this variety is also being grown for export in South Africa and New Zealand, it is available to consumers all year round. Meanwhile, a lot of effort is being put into expanding the market and breeders are building on future successes in this product segment. **Team Pumpkin is making great headway.**

Pumpkins and squashes have been part of Enza Zaden's portfolio ever since the company took over the Australian breeding company Yates in 2003. These are a wide-ranging group of heirloom agricultural crops originating from Central and South America which includes both edible and non-edible species. The main edible species are cultivars of *Cucurbita maxima* and *moschata*.

"Around 15 years ago, the pumpkin and squash market was very modest in size," Crop Research Director Ralf Kuijpers explains. "The range was dominated by landraces (locally adapted, traditional varieties) for organic cultivation. Nevertheless, we saw a lot of potential. The breeding programme started by Yates was expanded and linked to the activities of our subsidiary Vitalis, which specialises in the organic seed market."

Growth factors

A number of factors formed the basis for the favourable market outlook. Demand for organically grown vegetables was steadily rising in western countries. This prompted supermarket chains to start looking at adding organic produce to their range. Being relatively easy to grow organically, pumpkins and squashes were an ideal way to meet both growers' and consumers' wishes. In parallel, organic cultivation was becoming more professional, and the demand for varieties that combined more predictable, high yields with uniform, flavoursome fruits with good keeping qualities increased.

"This combination of factors is still the driving force behind the growing demand for hybrid pumpkin and squash varieties," Kuijpers adds. "When we introduced Orange Summer F1 some years after the breeding programme was launched, the market was more or less completely ready for it."

Exceptional qualities

To begin with, this market was limited to north-western Europe, starting in the Netherlands. There, Orange Summer proved not only that pumpkins were an excellent addition to organic product ranges but also that it had exceptional qualities compared with the main orange pumpkin variety grown at the time, Uchiki Kuri. Crop breeding manager Pauline Kerbiriou: “Orange Summer is an easy-to-grow, high-yielding variety that produces very uniform, flavoursome fruits. Because the plants are compact and easy to manage, it also takes a lot less time to keep the plot weed-free as you can use mechanical weed control for longer. That was – and is – a massive benefit for organic growers. It is also a reliable variety in the sense that it copes well with changing growing conditions and is not particularly susceptible to diseases.”

Widespread interest

Because of its versatility and the growing popularity of pumpkins and squashes among consumers and both organic and conventional growers, Orange Summer soon found its way into other countries such as Germany, France and Poland. And that growth looks set to continue.

“Pumpkins and squashes are once again enjoying great popularity as versatile vegetables that respond perfectly to the healthy eating trend and the growing demand for authentic products,” says Kerbiriou. “In Europe, you can definitely call Orange Summer the leader of the pack.” However, its enthusiastic reception also caused a problem: it has a relatively short season. In Europe, pumpkins and squashes are a typical seasonal product, available in summer and autumn only. Once Orange Summer had made its mark on all fronts over several years, consumers, retailers and wholesalers wanted it to be available at other times of the year as well.

Opposite seasons

The answer lay in South Africa. With opposite seasons to Europe, this country offered opportunities to grow the variety there specifically for the European market. “Until recently, there was virtually no demand for orange pumpkins in South Africa,” Matome Ramokgopa, General Manager of Enza Zaden South Africa, explains. “It’s the grey pumpkin that dominates here. So working with a local grower and a Dutch importer, we started producing Orange Summer on a small scale here in 2015. The trial was a great success.

We currently supply seed to around 20 farmers, who are growing several hundred hectares of the variety this season. Also, our production period lasts much longer than in Europe; due to the differences in climate zones and altitude, we can cultivate these pumpkins almost all year round.”

The fruits are shipped to Rotterdam from Cape Town in climate-controlled sea containers. From there, a select group of dedicated importers sends them out to distributors, retailers and consumers right across north-western Europe.

Although South Africans themselves haven’t yet developed a taste for the orange pumpkin, the market there is also changing. The growing area for grey pumpkins, which dominated the market for many decades, is gradually diminishing in favour of the butternut squash, the dominant type of squash in North America. But Ramokgopa expects orange pumpkins to increase in popularity too. “Our most successful variety and some recent introductions have so many good qualities that the consumer will ultimately welcome them,” he adds confidently. New Zealand is also latching on to the trend with an increasing growing area for various pumpkins and squashes, predominantly cultivated for export to Japan and Europe.

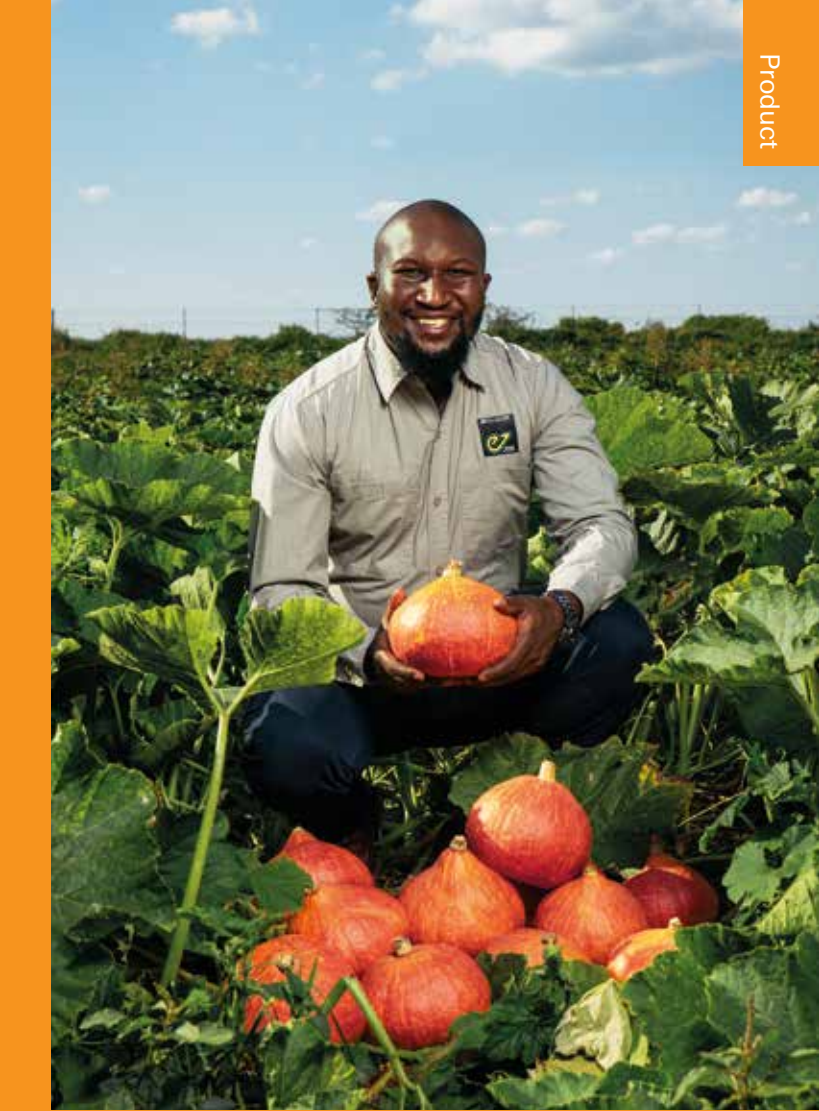
Two teams in four countries

To date, no other pumpkin hybrid has come anywhere close to Orange Summer’s success. However, pumpkin and squash breeders in New Zealand, Australia, the Netherlands, France, India and Malaysia have been working hard on expanding Enza Zaden’s portfolio. “My colleagues in Malaysia and India are working on new varieties exclusively for the tropics and subtropics,” Kerbiriou explains. “They are mainly using other types and genetic lines than my colleague in Europe and I are. So you could actually describe us as two specialist breeding teams. But we still exchange knowledge and genetic material with each other, for instance for crossing backwards and forwards to improve resistance traits. And that’s the nice thing about working for this company: Enza Zaden has such a wide-ranging pumpkin and squash programme that you can innovate on many different fronts, including interspecific crossings.”

Portfolio under development

It is therefore hardly surprising that several new varieties have been introduced in recent years. In the orange pumpkin segment, the late, long-lasting variety Kauri Kuri is an excellent addition to Orange Summer, with longer storability. Bright Summer is another very recent introduction.

The butternut squash is the world’s most widely grown and eaten type, and there is a wide choice of colours, shapes, sizes and flavours, many of which are combined with disease resistance or tolerance. “Local growing conditions and preferences dictate what specific combinations of traits are wanted,” the Senior Breeder explains. “With Havana, Jaqueline, Matilda and Tiana, for instance, we have a number of promising varieties for



Matome Ramokgopa.

very different markets.” As yet there are no breakthroughs to report in the Kabocha squash segment, which is very popular in Japan, but this could also change over the next few years. Kerbiriou: “The Japanese are the most critical consumers in the world. Kabochas are closely related to the orange pumpkin but they have a higher dry matter content, more sugar and a more intense flavour. For that reason, they are also becoming more popular in Europe and North America. So we are working hard to produce varieties in this segment that can match up to the best. I have every confidence that we will be able to meet this challenge.”

Game changer

Ralf Kuijpers agrees. “The success of Orange Summer certainly whets your appetite for more, but these game changers are extremely rare,” he admits. “Despite that, we have a large team of highly competent people working specifically on this segment. I don’t know of any other breeding company that has such a broad and geographically wide spread pumpkin and squash programme. And we need that, so that we can continue to offer growers and consumers the best possible products – wherever they are.” ■



“We can cultivate these pumpkins almost all year round.”

Matome Ramokgopa

With a surface area of 8.5 million square kilometres, Brazil is the fifth largest country on earth.

Quality gaining ground in the country of the Little Canaries



General Manager Enza Zaden Brazil Jean-François Hardouin:
"Consumers and supermarkets want more choice and are specifically demanding quality guarantees."

Brazil is big and something of a challenge in many respects. That's no less true of the vegetables sector, which is undergoing a fundamental transition. Enza Zaden opened a commercial office in Holambra ten years ago, followed in 2017 by the opening of their breeding station. **A growing number of modern varieties with added value are now finding their way to grower, retailer and consumer.**

With a surface area of 8.5 million square kilometres, Brazil is the fifth largest country on earth. Its more than 210 million inhabitants form a melting pot of cultures and eating habits from both the old and new worlds. The agricultural sector, which accounts for a third of the country's gross national product, is undergoing a phase of rapid professionalisation coupled with investments in modern technology and quality assurance. "Consumers and supermarkets want more choice and are specifically demanding quality guarantees," explains Jean-François Hardouin, General Manager Enza Zaden Brazil. "From 2020, traceability will be required by law. This has a significant impact on the whole of the production and supply chain."

Rapid professionalisation

Traceability means that it must be possible to show at any time where, when, by whom and how all fresh produce offered on the market was grown and the route it took in the supply chain. The same obligation applies to starting material such as vegetable seed.

"This puts significant pressure on primary producers," says Region Manager South & Central America Geale Sevenster. "Putting certified quality assurance systems in place leads to other decisions and working methods, including in terms of crop protection and company hygiene. Growers are having to keep detailed administrative records and crop registration and are focusing more on working conditions. This is taking some getting used to, especially for smaller producers."

Both men agree that this professionalisation process has been going on for some years now. Among other things, it has led to more direct contact between supermarkets' purchasing departments and both minor and major producers.

Protected cultivation on the rise

As a result of the more stringent quality requirements and the demand for more variety and choice in the produce offered, protected cultivation is on the rise. Perhaps not as quickly as we would like, but this is nonetheless a positive development for various reasons. By investing in greenhouses – particularly plastic

ones – and polytunnels, producers can grow more high-quality crops and specialties produce at home, like tomato, sweet pepper and lettuce. This puts products that are less successful in open field production within reach and makes offerings more predictable due to the decreasing influence of weather conditions.

Fewer formalities

Hardouin and Sevenster are keen to see this development continue. That's not easy, because loans are expensive. What's more, importing advanced cultivation technology is very complicated. "Brazil is a wonderful country full of opportunities for entrepreneurs, but it also has a massive and complicated bureaucracy," the general manager says. "We also have to contend with it, in the form of time-consuming procedures and formalities."

Region manager Sevenster adds: "A global company like ours benefits from a liberal trade environment. Ultimately that's also better for our customers, who want access to the best varieties as quickly and economically as possible. Having fewer formalities at the border is also good for international fresh produce chains. Fresh produce has a limited shelf life, and efficient chains go a long way towards reducing the substantial food losses."

Diverse eating cultures

At present, the demand for new, often relatively expensive vegetables is limited to the wealthier parts of the population living in and around the cities. The vast interior and rural areas are both more thinly populated and less well off. On top of that, the longer logistics lines impact on product shelf life.

"As far as their eating habits are concerned, Brazilian consumers are not the most adventurous," Hardouin remarks. "The other side of the coin is that there are a range of cultural niches in this country stemming from its rich legacy of immigration. Besides strong Portuguese and African influences, there are also Italian, German and Japanese strands, for example. All these also offer opportunities for extending the product range. And these days, the younger generation in particular are discovering new cooking styles, dishes and ingredients much more quickly and more intensively through travel and social media. All things considered, therefore, there is plenty of fertile ground for new market launches."

Demand for resistant varieties

Growers also have their wish lists. There is a great demand for varieties with more resilience or resistance to major pests and

diseases. Sevenster: "This demand is nothing new, of course, but it is also being boosted by restrictions on chemical crop protection products and the general desire to make agricultural production systems more sustainable. Understandably, breeding companies are paying a lot of attention to this."

Resistance delivers clear added value for growers. Among the varieties Enza Zaden Brazil has successfully launched - partially thanks to their resistance properties - are Bremia resistant iceberg lettuce Ludmilla, the pink root resilient onion variety Rachelle (5605) and the tomato PaiPai, which combines resistance to spotted wilt with excellent yields. Other successful introductions are the cherry tomato Bosco and the cantaloupe-type melon Konquista.

"Melons are a major export product for Brazil and account for a large growing area," Hardouin adds. "Konquista produces a strong crop and very flavoursome fruits with a long shelf life.

It has really put the company on the map in this segment. Hopefully we're able to continue to build on this position with additional introductions, including in other types of melons."

Breeding for the tropics

However, these won't be coming out of the R&D kitchen at the Holambra breeding station any time soon. The team of 15 dedicated breeding and selection specialists is focusing primarily on tomato, sweet pepper and leafy vegetables. "Their efforts not only benefit the substantial domestic market," Sevenster points out. "Enza Zaden carries out breeding work at various places in different climate zones. Each station has its own portfolio of crops and breeding objectives centred around aspects such as climate, cultivation methods and, of course, consumer preferences. We also have several breeding sites in the tropics and subtropics. Holambra may have a limited crop portfolio, but it is leading the way for future innovations in all countries with similar climatic and growing conditions. ■



Long-term relationships

Brazilian growers generally place great value on long-term relationships with their suppliers. Designated contact persons with an in-depth knowledge of the market, the product and the customer's business are highly valued but very scarce. "In this country it's quite rare to spend your entire working life at the same company," says Jean-François Hardouin, General Manager of Enza Zaden Brazil. "If a Brazilian gets tired of their job, if they could earn more somewhere else, or even if they just don't feel like doing it anymore, they will quite happily resign. Let's say it's just part of the culture. But employee turnover at Enza Zaden is exceptionally low. I think this has to do with the nature of a well-managed family business that is used to investing in its people. It's quite remarkable that we have been able to sustain this after decades of strong growth and internationalisation. It's also very positive, because a stable foundation enables you to build stronger houses."

Its more than 210 million inhabitants form a melting pot of cultures and eating habits from both the old and new worlds.

"Brazil is a wonderful country full of opportunities for entrepreneurs."

Jean-François Hardouin



Premium varieties pay off

Good news for Filipino onion growers

One of the keys to a successful business is to keep innovating and developing products that meet the needs of growers and the market. This is something Enza Zaden knows all about. The company introduces premium quality vegetable varieties every year through its many distributors and subsidiaries. One of which is the subsidiary in the Philippines, established at the end of 2018.

Reynaldo C. Ramos is the first Filipino farmer to grow the red onion variety Malbec, and he is delighted with the results. In April 2019, he managed to produce a staggering 168 tons of onion from his 3.5 hectare plot. "I used to yield only around 84 tons on the same field," says Reynaldo, who has been growing onions since 1992. Malbec produced double the amount compared to other varieties. And that's why he now plans to expand his Malbec production area from 3.5 to 5 hectares in 2020.

Increased profits

Higher yields mean higher revenue. So, Reynaldo earns twice as much from the red onion variety. Malbec's other distinguishing characteristics include a large bulb and a so-called double bulb skin, which, according to Reynaldo, is just what buyers want. The thick skin protects the bulb from damage so that its quality is maintained all the way to the end user.



“Malbec fulfils all the criteria for a superior onion.”

Reynaldo C. Ramos

The most important thing is that Filipinos like the Malbec-style red onion. Since the market for Malbec has been established, Reynaldo and other Malbec farmers can still make a profit when the price of fresh onion falls. And they can make an even better return when the price of fresh onion is at its highest.

Increased crop area

Given all these advantages, Reynaldo is certain that Malbec is the best red onion variety in the Philippines. “Malbec fulfils all the criteria for a superior onion. It is early maturing, with a large bulb and high yield,” says Reynaldo, who was introduced to Malbec by his friend and happens to be an Enza Zaden Philippines distributor.

Reynaldo likes to explore new technologies and new varieties. That is why he readily accepted Malbec, even though it was a new onion in the Philippines at that time. He is also the kind of person who likes to help others. He is happy to praise the virtues of Malbec and share his experience of growing it with fellow farmers. “I want other farmers to reap the benefits of cultivating Malbec too,” says the 51-year-old. And slowly but surely, other onion producers are making the same switch.

According to Reynaldo, about twenty growers are currently cultivating Malbec on the Philippines. The total crop area has increased from the original 3.5 to more than 25 hectares: “I am delighted that the total area under cultivation has increased to this extent, considering the Malbec was first marketed in late 2018,” says Edicer Ocampo, Enza Zaden Philippines head of sales.

Mutual cooperation

Clearly the new onion variety is becoming increasingly popular with Filipino farmers, especially in the village of Antipolo in the Nueva Ecija province, where Reynaldo’s land is located. The province is the leading producer of onions in the country, and Reynaldo is one of the most influential farmers in the area. In addition to onions, Reynaldo also produces pumpkins, tomatoes and chilies. He plans to use Enza Zaden varieties for these three crops as well. “We have decided to make him our brand ambassador in recognition of his efforts in endorsing the benefits of Malbec among other farmers,” says Edicer. “This further solidified our good business relationship. We are pleased to have Reynaldo as our brand ambassador, knowing his capacity for promoting Malbec. We hope Malbec will become the farmers’ choice of onion.”

And Reynaldo has discovered that there are some perks to being the brand ambassador: he gets to be the first to grow the new crops and latest varieties. To ensure production runs smoothly, Enza Zaden has reliable field officers who are always ready to give technical assistance to their farmers.

You could say that Reynaldo and Enza Zaden are like two sides of a coin. Reynaldo hopes to increase his profits by using quality products from Enza Zaden while Enza Zaden is eager to innovate in order to develop varieties and produce seed that meets the needs of local farmers. ■

We create value for you

People at Enza Zaden are continuously working to develop the best vegetable varieties. However, the best variety for one customer is not necessarily right for everyone. What’s important is developing varieties to meet our customers aspiration to deliver a point of difference in their market. We do this through the development of varieties that offer added value and match the strategy of our customers throughout the chain.

Customer first

This means putting our customers first. Focusing our efforts to understand their total business and its environment. Together we constantly ask the question: ‘How can we create added value?’ This all revolves around building and maintaining an interactive personal relationship. It begins with companies, it evolves with people!

Common challenge

We accept the objectives of our customers as a common challenge. We use all our skills and know-how at all levels to achieve those objectives. That way we all win. From our customers to the final consumer, we are all succeeding.



Do you want to know how we can create value for you? Let’s meet at Fruit Logistica Berlin!
Let’s meet
Fruit Logistica Berlin
5-7 February 2020
Hall 1.2 | Booth C-07



It's all about flavour

Last June, Tribelli® has been awarded with the Superior Taste Award, celebrated by the International Taste Institute in Brussels.

From awareness to action!

The fact that a good diet plays an important role in good health is nothing new. And nor is raising awareness of this among consumers. What is new is that more and more initiatives are being launched **to help people make conscious choices when it comes to healthy eating.**



Healthy eating

Time and again, research shows that a healthy diet can improve the quality of life and can even help prevent certain diseases. But with the growing availability of cheap, highly processed ready meals in recent decades, the healthy choice is no longer naturally made. We have lost the balance between refined food and unrefined natural products that still contain a full range of vitamins and minerals. How do you convince the general, healthy public to eat more vegetables, one of the main components in a healthy diet? According to marketing experts Anne-Marie Roerink and Hans Verwegen, there are three ways to do this: encourage people to buy vegetables, make this an easy choice for them, and offer help where the knowledge needed to make that choice is lacking.

Encouraging people to buy vegetables with discounts and incentives

Healthcare costs are sky-rocketing. So it's hardly surprising that insurance companies are coming up with ways to get their customers to adopt a healthier lifestyle as a way of preventing ill health later in life. "Some American health insurance companies are working with businesses to offer discounts or incentives to people who don't smoke or have quit, who get vaccinated, or who follow a special diet such as Weight Watchers," Anne-Marie Roerink of US company '210 Analytics' explains. "They also encourage people to eat healthily: for example, by offering a discount if you have eaten a variety of different-coloured fruit and vegetables every day. They have a special system for this

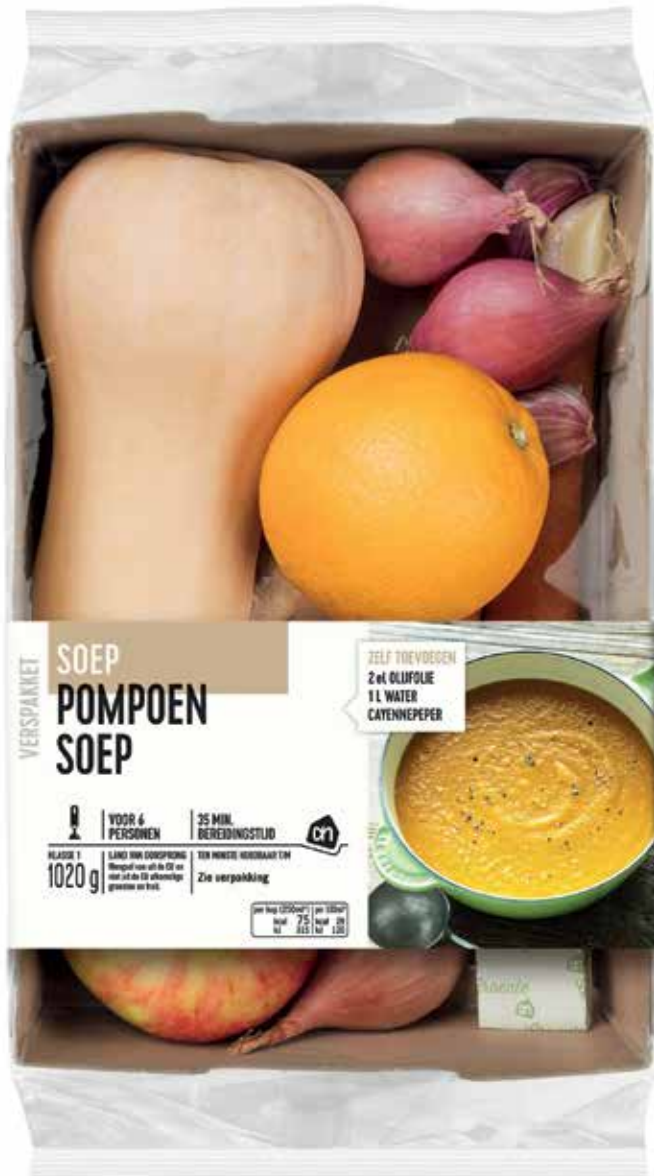
which you have to log into to record what you have eaten." Insurance companies in the Netherlands (Europe?) are also doing their bit by incentivising special diets designed to reverse the adverse effects of certain diseases, such as type 2 diabetes, but also Crohn's disease and arthritis.

On the shop floor

Supermarkets are also latching onto this trend in a big way, with more and clearer information on packaging, healthy convenience products and special shelves in stores to help influence consumers' decision-making processes. This is often referred to as nudging. And it has been shown to work. A joint experiment was set up by the Netherlands Nutrition Centre, the industry association and researchers to investigate the extent to which the in-store environment influences consumers' food choices. A supermarket branch was converted for six weeks into a 'Go For Colour Lab' in which fruit and vegetables were given a more prominent position by making subtle changes to the in-store environment. The nudges ranged from access gates and shopping cart inlays to healthy options at the checkouts. After analysing the sales figures from the control supermarket, it was found that even little nudges made it easier for people to make healthy choices. Bearing in mind that research has shown that we make around two hundred food choices every day – mostly impulsively, automatically and subconsciously – it is clear that there is a wealth of opportunities to positively impact people's healthy eating behaviour by nudging.

Learning to cook with fresh packs

In 2015, Bakker Barendrecht - a Dutch service provider for fresh fruit and vegetables - won the third prize in the annual Fruit Logistica Innovation Awards in Berlin for its DIY Fresh Packs – complete packs of fresh ingredients containing everything you need plus a simple recipe. Rarely has an award winner become such an overnight success. This ready-to-make healthy solution was a huge hit in the Netherlands in both the vegetable-based soups and meals categories. The themed structure with the emphasis on foreign cuisines is a striking element. The dishes are adventurous and many are suitable for vegetarians. In this way, young people are gradually learning to cook again – with the added bonus of a slightly broader world view than their grandmothers!



Product triggers to make choices easier

Supermarkets are also doing their bit to entice consumers to buy more fresh ingredients. These days, fresh produce shelves are brimming with low-threshold convenience packs to prompt the consumer to make healthy choices. Bags of pre-cut butternut squash wedges, bags of mixed pre-chopped vegetables or ready-to-eat salads: all initiatives designed to help consumers buy healthy food without compromising on convenience. "This is partly due to the fact that we are living such busy urban lives," says Marketing Analyst Hans Verwegen. "Everyone is busy; people don't have time to stand in the kitchen chopping and cooking. Add to that the fact that everyone in a family has their own agenda and sitting down for a meal together has long ceased to be a natural part of the day. A wide range of pre-cut veggies and vegetable mixes responds perfectly to this."

Fresh packs

The DIY Fresh Packs sold in Dutch supermarkets, which were nominated for the Fruit Logistica Innovation Award in 2015, fit into this picture – even if they take a little more time to prepare. This response by food retailers to the meal boxes from companies like Hello Fresh has become a major success in a short amount of time. This is also reflected in the decline of Dutch sales of so-called 'world dishes' with only dried ingredients in a small box. Verwegen: "People are now wanting to get more enjoyment out of food and experience real flavours. These fresh packs, which come with all the fresh vegetables, fruit, herbs and spices and whatever else you need to make a dish, fit in well with this trend. All you have to do is add meat or fish if you want to go for a non-vegetarian version. Of course, you still have to chop the ingredients yourself, but you're cooking yourself, the recipe is easy and you can give it your own twist. The whole process is satisfying, healthy and still easy. The concept is particularly popular with millennials who like cooking with fresh, healthy ingredients."

Challenges

Both triggers bring with them new challenges for breeders, such as developing varieties that are easy to cut and have a long shelf life once cut, and smaller sized vegetables for the fresh packs. "A large cauliflower or squash just won't fit in the box. Also, there are combinations of different vegetables in these packs, so you just don't need such big products. The ingredients in the packs are in exactly the right quantities, so there's no waste. But we need to do more if we want to attract the consumers' attention continuously. Think of good flavours, pleasant textures and attractive colours."

Help choosing

Healthy eating often starts in the supermarket. Stores with their own in-house dietitians are no exception these days in North American supermarkets. They walk through the store with the consumer and help them decide what to buy and eat. Thanks to these retail dietitians, consumers can match what they eat ever more closely to their own personal wants and needs. The initiative for this stems from an American study in which

dietitians accompanied patients with high blood pressure on shopping trips. The result was that these consumers started eating more fruit and vegetables, legumes, whole grains and unsaturated fats and cut down on saturated fats and salt. Roerink: "Nowadays more and more supermarket chains have fully qualified dietitians walking round to give customers advice on their health situations and lifestyles. They provide nutritional advice, develop recipes and guide customers round the aisles, for example to inform consumers with type 2 diabetes what they can eat, what items are good substitutes, and so on. It's a really great system for highlighting the elements of a healthy diet and giving practical tips on how to follow it."

Personalised food

All this is just a step up to the next big thing in health trends. The obvious next stage is that, bit by bit, all the initiatives to encourage ideal eating habits will be geared precisely to each consumer's personal situation. Advances have already been made in this trend towards personalised food in the US, but we are also seeing cautious signs of this in other western countries. ■

Diabetes reversed with healthy diet

Arie Derksen started taking medication for type 2 diabetes twenty years ago. And in no small way, either: he was ultimately injecting 64 units of insulin to get himself through the day. His GP recommended a special programme which he could follow to reverse the effects of his disease. His health insurance covered the costs for the "Keer Diabetes2 Om" (Reverse Type 2 Diabetes) programme in which a specialist team consisting of a doctor, a dietitian, a diabetic nurse and a mental coach helped him change his lifestyle.

Arie: "It wasn't a difficult choice. Eighty-eight percent of participants were able to cut down on their medication and were

fitter and healthier after two years. I wanted that too. The team gave me a lot of advice on diet, exercise and stress. There even were cookery workshops where I learned how to cook low-carbohydrate meals."

Completely transformed

The end result is spectacular. Just three months after starting the programme, Arie has stopped taking his medication, lost a good 15 kg in weight and is 15 cm slimmer around the waist. "If you had told me that would happen before I started, I would have said you were crazy. This programme has changed my life. I feel fitter than ever before."



"My life has been transformed."

Arie Derksen

Secondary metabolites



Beneficial for plants and people

“There are basically two categories of compounds,” says Senior Researcher Jan-Willem de Kraker, who is studying compounds using biochemical analyses. “**Primary metabolites** are substances that plants produce to maintain life and growth, such as sugars and amino acids. Plants create **secondary metabolites**, to protect themselves against pests or pathogens, but also to attract pollinators and seed-dispersing animals. The latter group is of particular interest to us researchers because of their potential benefit to human health.”

Why do we eat vegetables? They taste good, they’re healthy and we need them to be able to live. These three reasons have one thing in common: they all revolve around compounds.

Flavour

The tastier vegetables are to us humans, the more attractive they are to insects. “Breeders are therefore always looking for a balance that produces a good flavour for consumers without attracting extra insects,” says Post-harvest Researcher Anne Marie Schoevaars. Tomatoes, for example, contain three types of compounds that are primarily responsible for the flavour: sugars, acids – including glutamate – and aromatic compounds. Sugars and acids are primary metabolites while aromatic compounds are secondary metabolites. Aromatic compounds attract animals that can spread the seeds in fruits in their excrements, for example.

Breeders are looking for a balance between sweet and sour. What is the ideal balance? That depends on your culture, what you are used to eating, and your genetic make-up. Glutamate works as a flavour enhancer and is responsible for the richly savoury and meaty ‘umami’ taste we know from broths and stocks, for example. This substance is created when a plant matures. Like salt, it makes the taste buds more receptive to flavour.

Aroma

Have you ever eaten a strong-smelling or fragrant food with your nose pinched closed? Then you’ll know that the food tasted quite a bit less interesting. That’s because you don’t pick up the aromatic compounds when your nose is closed. De Kraker: “An aroma consists of volatile compounds. As the nasal and oral cavities are connected, air flows from the mouth to the nose when you eat. This enables us to pick up on the more specific ‘secondary flavours’, such as fruity. Secondary flavours taste different from the primary flavours - sweet, sour, salty and bitter - which we can identify with our tongue.

Global Supply Chain

Cross functional Teamwork leads to success

Marc Vogels, Vice President Global Logistics

We all enjoy great tasting vegetables of excellent quality. Tasty cherry tomatoes, crispy iceberg lettuce and full flavour peppers, organic or conventional. All beautiful products our consumers expect to find in store. The world population is growing to 10 billion and climate change is becoming more evident. Therefore, the ability to deliver both healthy and sustainable vegetables as a key part of our nutrition is becoming very relevant. Developing new vegetable varieties which meet the needs of our growers, our consumers and our planet is thus key for Enza Zaden. Highly efficient farming techniques, organic seed production and no waste delivery chains are an integral part of our future, one where Enza Zaden's global supply chain can make the difference.

With the Seed Operations team, we are already supplying the seeds to our customers and growers to provide 460 million consumers with one of our 1200 vegetables every day. This involves seed production of around 30 crops in almost as many countries. Seeds are being upgraded in locations worldwide, undergo strict quality, purity and disease testing and are distributed through 45 subsidiaries.

What's the secret to success?

Innovation is at the heart of Enza Zaden. The development and commercialization of new vegetable varieties requires close collaboration with our R&D, Marketing & Sales and Finance teams. In today's world, economic and environmental sustainability need to go hand in hand. Knowing our customers and consumers and having our seeds ready for the right sowing conditions is important for our customers, for the global food chain and for Enza Zaden. We are working cross functionally to further strengthen our capabilities from initial screening to full scale commercial production. But we also strengthen the genetic purity testing and variety introduction planning together to meet this new vegetable supply chain challenge.

Within Seed Operations we are constantly working to create the best quality seeds at the right cost: the right protocols for both conventional as organic productions, seed cleaning and upgrading techniques to optimize germination and purity levels and the best quality testing and phytosanitary controls for disease free seeds.

The most important success factor, however, is teamwork with the spirit to succeed together. Effective cross functional teamwork across a global company is facilitated by work processes that ensure that the multi-crop and variety, multi-regional, multi-year planning are enabling the final daily order and delivery processes to serve our customers.

Integrated Planning

Entrepreneurship to win with our customers in each of our markets around the world requires a clear commercial and innovation strategy and a well-balanced sales portfolio. Strong seed Demand and Supply planning capability ensure efficient, on time delivery to our customers with minimal interruptions or waste. Building the right Planning capabilities ranging from long-term strategic planning for breakthrough innovation and production planning to short-term detailed scheduling for process and lab testing are important building blocks to manage our overall supply chain.

Key challenges are increased speed of innovation and higher customer expectations in terms of delivery performance. Increased regulatory changes imply more constraints in moving live seeds across borders. Building the right flexibility into our supply chain and improvements to our lead times are therefore essential ingredients. I am convinced that with teamwork and the right cross functional collaboration we will succeed together!

Bitter-tasting compounds

Speaking of flavour, we humans are programmed not to like bitter things, because bitter is nature's signal that something is toxic. So, a bitter compound in plants is a defence mechanism against pest damage. After all, a plant can't run away to escape. Some crops, such as cucumbers, carrots and eggplants, have had the more bitter compound bred out of them. It is still present in other crops, such as endive, chicory and bitter melon. "If we were to breed out the bitter compound from endive, for example, we would end up with a vegetable that looks and tastes like lettuce and is just as susceptible to diseases as lettuce. Also, these bitter compounds can be beneficial for our health in low concentrations, such as found in most plants."

Glucosinolates

Glucosinolates are natural bitter/pungent tasting metabolites that also protect plants against herbivores, fungi and bacteria. With their typical cabbage and mustard flavours, these substances are - in low concentrations - extremely healthy. In fact, currently, it is even thought that glucosinolates can protect the body against cancer. Broccoli is of particular interest in relation to cancer prevention. There are about 120 different natural glucosinolates. These compounds are not only found in broccoli but in all brassicas, such as Brussels sprouts and other cruciferous crops (cabbages). And if you cut up or chop cabbage, the glucosinolates are converted into sugars and the typical aroma of cabbage and mustard. Very useful for a crop that uses these compounds to protect itself against pest damage.

Chillies

Another compound with a typical flavour is capsaicin, a component that is mainly found in the placenta (or pith) of chilli peppers. This substance leaves a burning sensation in the mouth. That's how plants protect themselves from mammals and fungi. Nevertheless, the plant still needs a little help to spread its seeds. Birds are unaffected by capsaicin, so they have no problem eating the fruits and spread the seeds through their droppings. And what can capsaicin do for the human body? There is some evidence that it helps with weight loss and against nerve pain and certain cancers.

Vitamins

The best-known compounds are the vitamins. There are thirteen substances in the vitamin's category, and we need them for many different processes in our body, such as growth, energy, organ function, etc. Exactly the same applies to plants; they too need vitamins to maintain these processes. There seems to be a link between the keeping qualities of crops and the vitamins they contain. Vitamin C (ascorbic acid) is also added to foods to prolong their shelf life.

Fibre

In addition to vitamins, fibre is often also listed in the nutritional information on product packaging. Leafy vegetables are particularly high in fibre, which is one of the building blocks of plants and gives them strength and structure. In humans, fibre mainly has a bulking effect but also fills our stomachs without piling on the calories, so it is ideal for people on a weight-loss diet. Fibre also promotes good digestion and reduces the risk of cardiovascular diseases, type 2 diabetes and bowel cancer.

So many compounds with so many different functions for the plant. And they also make a substantial contribution to human health. By carrying out in-depth research, we are becoming increasingly aware of the positive effects certain compounds can have on us and how we can incorporate them into our breeding activities to make our products even better for the consumer and even more resilient to environmental influences. ■



Marc Vogels works for Enza Zaden for 1,5 years. Prior, Marc has worked for Procter & Gamble and Mead Johnson infant nutrition as a leader in Supply Chain, Innovation and Operations. He believes that strong cross functional teamwork and building strong capabilities are key to deliver success. Besides making the work easier, it makes it more fun for everyone!

Inspiring marketing concepts

Boost demand for fresh herbs



Fresh herbs. Consumers can't get enough of them, according to the ever-rising sales figures in this product category in the supermarket channel. Sales of these colourful, aromatic and healthy flavour enhancers are growing in other channels as well. Retailers and producers are boosting this demand with attractive sales concepts that respond to people's desire for fresh, healthy food and invite them to buy these products.

There are some interesting developments taking place in the herb departments of European and North American supermarkets. The most notable of these relate to the way fresh herbs are offered for sale. In this article we focus exclusively on genuine herbs, with basil taking the leading role. This aromatic plant has become synonymous with Italian cuisine, where, among other things, it forms the basis for green pesto and is an indispensable ingredient in caprese salad. And just as pizza has conquered the globe, so basil has begun its triumphal march through the western world. Sales are by far the highest in summer, when basil gets a boost from the fresh tomato consumption peak.

The fresh herb portfolio

Basil is an interesting and attractive crop for Enza Zaden as well. It is a tender little plant that is quite susceptible to diseases and suboptimal growing conditions. For that reason, growers and the wholesale channel prefer varieties with increased tolerance or resistance to diseases. The higher seed price of this new generation of herbs is more than made up for by the stronger, homogeneous development, faster growth rate, lower losses, much higher production and longer shelf life. What's more, the Western consumer is happy to pay slightly more for certain products if they look healthy and in impeccable condition. Besides basil, this also applies to chives, parsley, leaf coriander and dill. This 'higher segment' therefore forms the core of our herb portfolio. In actual fact, the breeders are not merely concerned with yields and resistance but also – and not least – with what makes fresh herbs so popular: FLAVOUR!



The cut-your-own herb garden consists of a visually appealing display of trays of living potted herbs.

Fresh packed and potted

Back to the shop floor. In recent years we have seen various sales concepts appear alongside one another. The two main concepts in terms of sales and volumes – which have been around for some time now – consist of a wide range of fresh cut herbs packed in transparent, airtight plastic trays or bags, and a slightly smaller range of living herbs in pots.

A striking feature of the former is just how many different products are available. On the one hand, this is due to the wide-ranging tastes of the younger generations, but on the other, it is driven by the rapid increase in the number and prevalence of specialist herb growers who, naturally enough, want to

differentiate themselves. These include both traditional producers with glass or plastic greenhouses and hyper-modern vertical farms as well as small-scale rooftop farms in urban areas.

In the fresh potted herbs segment there is a clear shift under way towards growing organically and more sustainably. Among other things, this manifests itself in the use of alternative substrates containing less peat and the replacement of the traditional plastic pots with biodegradable materials. The demand for sustainably and organically produced food is rising, and growers of potted herbs are eagerly responding to this, partly because the majority of vertical farms designed for hydroponic cultivation are unable to claim the organic accolade.

In-store farming

A more recent innovation is a concept known as in-store farming. This is based on a modular system of transparent, closed cultivation chambers on the sales floor in which fresh herbs and leafy vegetables are grown. The plants are rooted in a tank with recirculating feed water and lit with LED grow lights. The conditions in each module are individually controlled and, depending on the details and implementation of the concept, can also be controlled remotely by the service provider. Strong points of this concept are the visual appeal and experiential value, the guaranteed provenance and freshness, and the clean cultivation method without pesticides. Although the latter applies to most fresh herb production systems, with in-store farming the consumer can see it with their very eyes.

The German company Infarm specialises entirely in this new segment, which is also suitable for many kinds of catering establishments. The concept is currently being rolled out in various supermarket chains in Germany, France and the UK. A recent capital injection of \$100 million is keeping the momentum going and the company is hoping to make a successful leap into the North American market soon.

Cut your own

A second relatively new concept, based on the principle of pick-your-own (PYO), is bringing a growing number of organic and conventional nurseries and rooftop and urban farms into direct contact with the consumer. The great experiential value and the guaranteed freshness that PYO delivers inspired the Dutch retailer Albert Heijn to develop a cut-your-own variant for fresh herbs. The Zelfpluk Kruidentuin (cut-your-own herb garden) consists of a visually appealing display of trays of living potted herbs. Consumer can cut, pack and weigh their choice of herbs in the quantity they need.

Although a large-scale pilot turned out to be too ambitious – not every consumer opts for absolute freshness and instore experience over the convenience of pre-packed herbs or small pots – a slimmed-down version of the concept, which was launched in 2017, has proven sufficiently promising to form part of the enhanced store formula the market leader is currently rolling out in its branches.

Continuing growth

But that’s by no means all. Large quantities of fresh herbs are also sold in traditional loose bunches in countless places such as regular street markets and farmers’ markets. For a good many consumers, this is still the best way to judge product quality for themselves. And there are of course numerous variations on the basic concepts described here which producers and retailers use in the hope of differentiating themselves. But one thing seems certain: the market for fresh herbs will continue to grow steadily over the next few years, and the same is true of the breadth and depth of Enza Zaden’s herb portfolio. After all, every cultivation method and every sales concept places its own demands on the underlying genetics of the product. And that is a prime example of how a breeding company can differentiate itself. ■



Marketing Concepts Herbs

Main concepts

Recent innovations

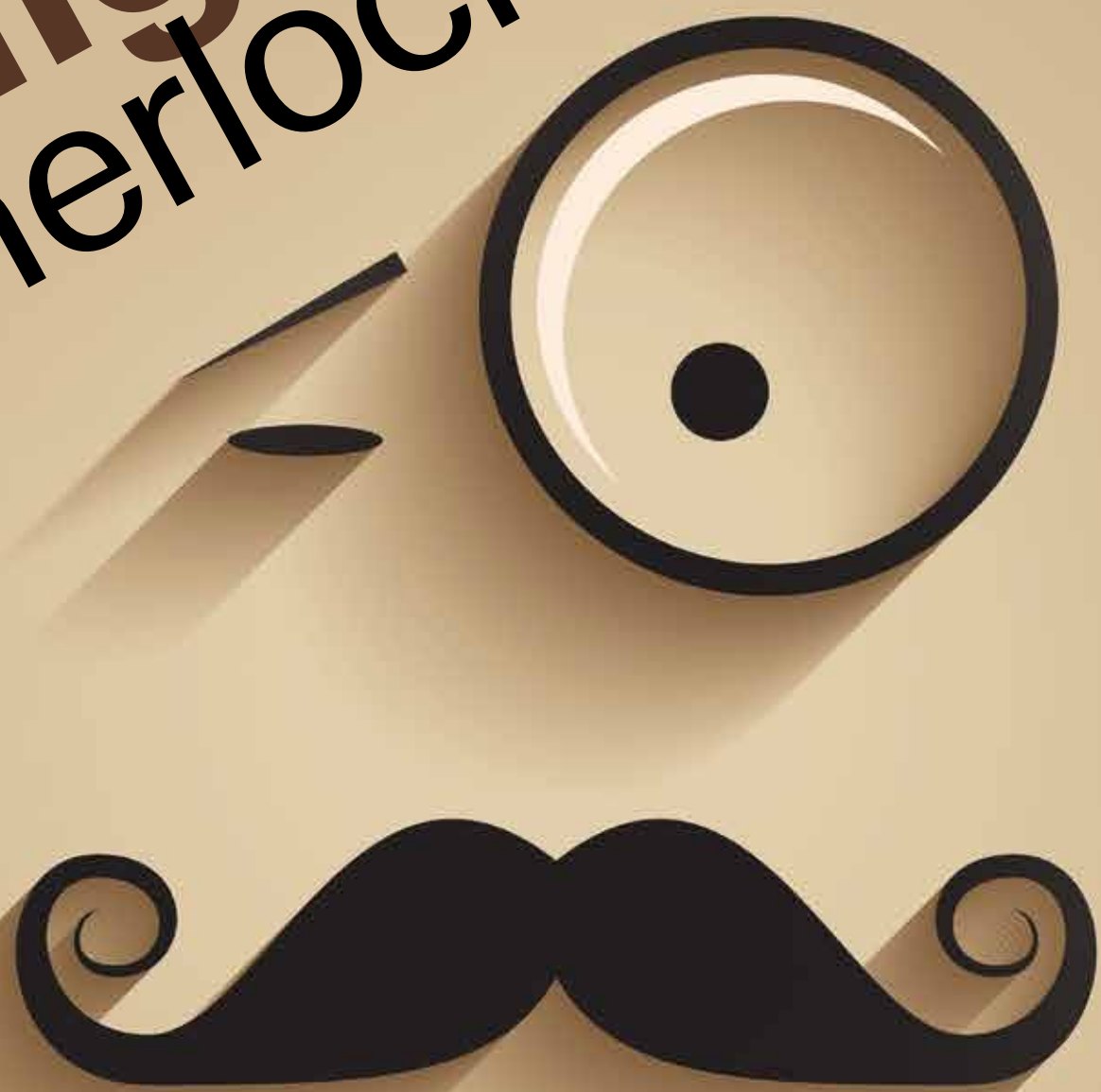
Prepacked fresh

In-store farming

'Cut your own'

Organic potherbs

High-tech Sherlock Holmes



Within the department of phytopathology, we are given an intriguing task: figuring out what the heck is killing your plants. **This activity, referred to as ‘diagnostics’, is one of the core activities of Enza Zaden phytopathologists.** Much like fictional private detective Sherlock Holmes, we would like to reach a conclusion about ‘who did this?’, sometimes based on very limited evidence or clues.

And much like Sherlock Holmes, we try to combine observational proficiency and logical reasoning to draw our final conclusions. But unlike Holmes, we have the most advanced (bio)-technology tools at our disposal to solve these mysteries. We need those advanced tools, for in some way, Holmes work is peanuts in comparison to what we phytopathologists face. Once Holmes has figured out what has been going on, police and justice departments can take over. Mystery solved! However, when we find the causal agent that is killing your crop, the real hard work is still ahead of us. We are not just interested in what is killing your crop, we want to know how to prevent it in the future. This needs a combination of in-depth plant pathology knowledge, cutting-edge scientific techniques and efficient and clear communication between phytopathology researchers, breeding and our Marketing and Sales teams. So, what do we talk about, when we talk about diagnostics? What is it that the Sherlock Holmes of Enza Zaden are doing on a daily basis?

Detectives in lab coats

There is a statue of Sherlock Holmes in Edinburgh, wearing his iconic inverness cape. We have replaced that cape with white lab coats and throw-away greenhouse overalls. Perhaps less iconic, but they fit our detective work just fine. We wear our lab coats when we are on a molecular pursuit. Molecular detective works kicks in when we have some idea about the class of microbial pathogen harassing your plants, but we need to find out the exact species. This often means isolating the suspected culprit from leaf, fruit or root tissue that has been mailed to us. Receiving diseased plant material over mail feels like Christmas for a phytopathologist. Christmas presents with a scent of death. It is the strange fate of a phytopathologist; we are in love with and fascinated by everything growers despise.

Testing, testing, testing

Isolation of the pathogen often requires know-how on the right conditions in which these pathogens can grow. So, we create a microclimate on a Petri dish that lets the culprit fully show itself. Grown in isolation, we can harvest colonies (in case of bacteria) or mycelium or spores (in case of fungi or oomycetes). In some cases, we can isolate the DNA or RNA of these samples and send that for sequencing. In some cases, the morphology is so clear that we know with some certainty the culprit. And in some cases, we will replace our lab coats for greenhouse overalls and test our isolated material on plant panels with known resistances and susceptibilities against a wide set of pathogens. In the case of testing with plant panels, it can take up to eight weeks before we can accurately score symptoms and make our final verdict. Once we know, or know we don’t know, we will inform our findings as quickly as possible.

From diagnostics to resistance breeding

Our diagnostics pipeline is much more than solving that single question of what is killing your crop. For Enza Zaden, this pipeline functions as our crucial antenna in the market. Receiving samples from worried customers gives us access to the most urgent disease problems in the field. This in turn can influence breeding priorities for a crop. Within the phytopathology department we make yearly reports of the samples we have received per crop, so our breeders have detailed information about which diseases and possible breaking strains are present in the field. If a new pathogen pops up in a key market, Enza Zaden can make breeding for resistance to this disease a top priority. Having the actual pathogens in house is another crucial step in finding long term solutions for your pest- and pathogen problems. In order to supply our customers with seeds with the right

resistance genes in their genetic arsenal, we will need to first find a good resistance source. This requires testing hundreds of wild relatives in our gene bank material in order to find that one lucky charm that holds up against the new breaking strain of the virus, fungus, insect or nematode in question. These breaking strains often come directly from our diagnostics effort. Indeed, you sending us one diagnostic sample could lead to a new resistance in the commercial varieties you might be growing in the future.

Our Watson

Depending on the crop, it can take years before our detective work leads to a new resistance in the market. By adopting the latest technologies we are reducing the time needed to introduce resistance into our crops. We are using novel molecular techniques to speed up the process. We are using state-of-the art know-how on cell biology and plant physiology to speed up the process. We are using digital solutions to improve and speed up our communication with people in the field. And like Sherlock Holmes, we have our own Watson as a promising companion to speed up the process.

Watson you say? Computational biology, Artificial Intelligence and Machine Learning are key advances in technology that we are currently embracing. These tools often need computing power way beyond what is in your standard desktop. One such supercomputer is IBM's Watson. Named after IBM's founding father Thomas J. Watson, it bears no connection to Sherlock Holmes. But it will allow us to utter the iconic conclusion like Holmes did so often, when our deep learning algorithms run on Watson stump on a conclusion that fits ours: 'Elementary my dear Watson, quite elementary' ■

“The diagnostic sample you send us, could lead to a new resistance in the commercial varieties you might be growing in the future.”



Continuous development and innovation Amplus' secrets to success

The 100% Polish owned Amplus was established in 1992 and has its headquarters in the small village of Prandocin 14y in the Lesser Poland province. Its main activities focus on the trade of fresh fruit and vegetables. Additionally, Amplus unites growers in a corporation and also produces its own fruit and vegetables. **As partner of a supermarket chain, Amplus sells its products through modern sales channels. However, the activities of this company are not limited to production and sales.**

A lot of time and attention is paid to the introduction of innovative products and the creation of trends.





Bartłomiej Skrzydlewski (left) receives the EY Entrepreneur Of The Year award in the category Production and Services 2018.

"We aim to promote food that is healthy and safe for consumers," informs Bartłomiej Skrzydlewski, Chief Executive Officer of Amplus. "Our company is growing rapidly and is one of the largest enterprises in the Polish fresh produce market." The annual revenue is about PLN 600 million (approx. \$154 million), while roughly 180 million kg of vegetables and fruit are sold each year. This is cultivated on a total area of about 12,000 hectares by the Amplus producer cooperation and their contracted growers.

Agro Smart Lab

Amplus' main produce includes root vegetables, allium vegetables, brassica crops and fruit vegetables like tomatoes, cucumbers and peppers. While Amplus mainly focusses on the domestic market, the company is also active in other European countries. "We wish to develop further, which is why we established Agro Smart Lab, a separate company that mainly provides technical support to growers. We want to offer produce of superior quality, that is safe for consumer health, and readily available in every country in Europe," explains Skrzydlewski. These developments, together with the successful introduction of new products for the domestic market, are identified as some of Amplus' greatest achievements.

Tribelli® peppers

Together with Enza Zaden and other breeding companies, Amplus is working on the introduction of vegetable varieties that are extremely flavoursome and offer great health benefits, such as tomatoes with an increased lycopene content. Another example is a new broccoli type that is high in antioxidants. These products are marketed under new brand names, so that consumers can recognise their specific features and added value. Amplus continues to work with Enza Zaden on the introduction of several such product lines, including Tribelli® peppers for the Polish



"We aim to promote food that is healthy and safe for consumers."

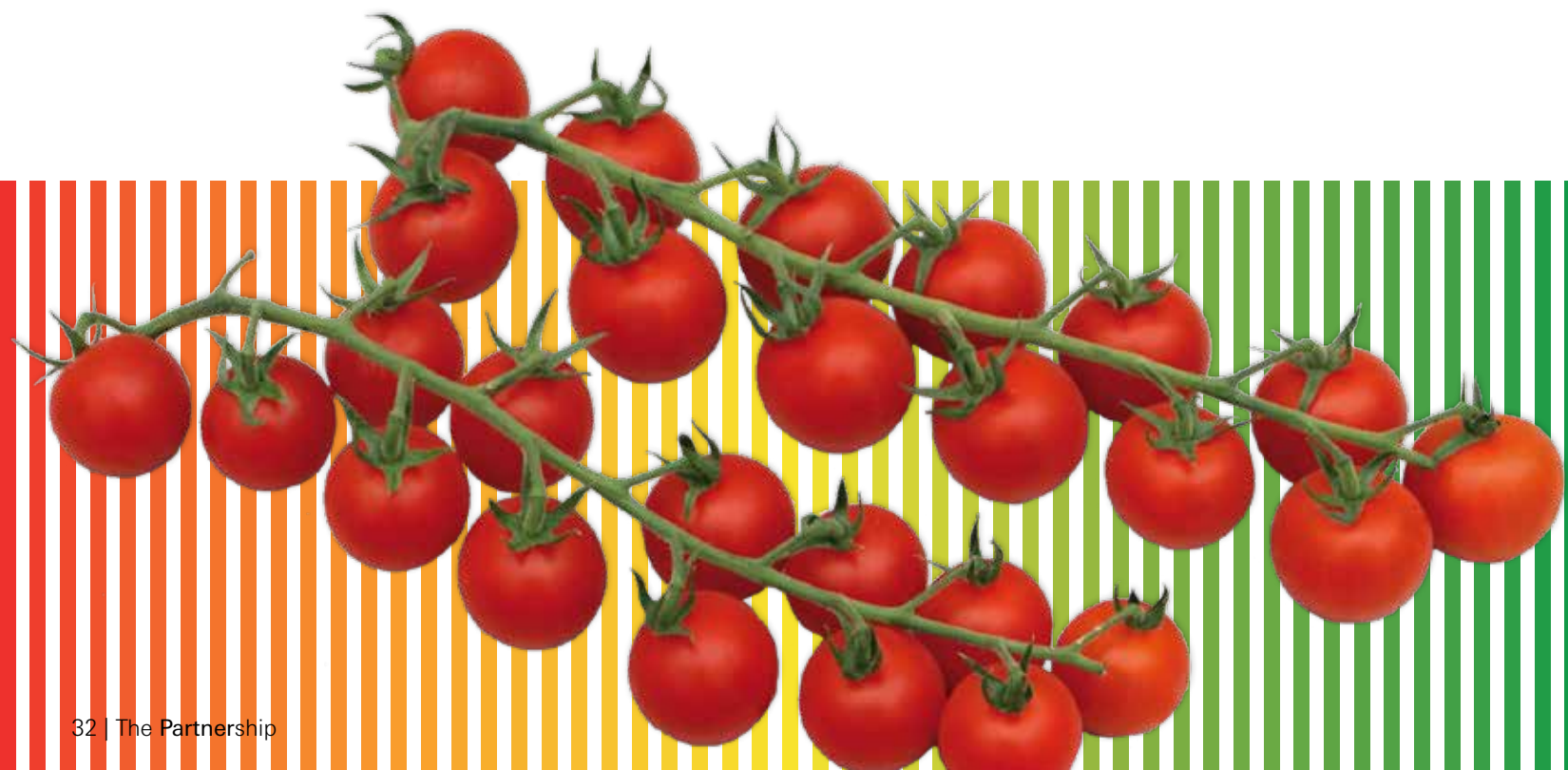
Bartłomiej Skrzydlewski

market. This brand consists of small conical peppers of various colours and Amplus will be the sole domestic producer and supplier of these snack peppers. Jacek Malinowski, Enza Zaden Marketing & Sales Manager in Poland, explains that "Tribelli's are tasty and convenient to use, because little waste is produced when the peppers are cored and seeded. We are constantly improving these pepper varieties, but they continue to be offered to consumers under the same Tribelli® brand, which is already well recognised in the West."

Skrzydlewski continues by saying: "we will promote Tribelli® mini peppers and explain to consumers why these are so healthy, flavoursome and convenient. We pay a lot of attention to marketing of an educational nature as we want consumers to know that eating vegetables is crucial for a good health. In Poland, there has been a general increase in consumer awareness, but the level is still low." Therefore, information labels about the advantages and ways to cook them have been developed and attached to the products.

Innovative prospects

Skrzydlewski thinks highly of Enza Zaden's professional approach to partnerships and he is impressed by the company's suggested variety portfolio. The cooperation is also highly rated by Malinowski: "Amplus is a perfect partner for us. Enza Zaden's distinctive product groups are not marketed under the original names of the varieties, but under Amplus' own trademarks or brands that already exist. At the start of our cooperation, we suggested a list of vegetable varieties to Mr Skrzydlewski that are already available worldwide at Enza Zaden but not yet known on the Polish market and could be innovative prospects there." This cooperation has also led to the organisation of events for vegetable growers where the advantages of cooperation and sales concepts for defined product groups are demonstrated. Additionally, they work together with renowned chefs in Poland to inform consumers about the advantages of the product lines that are being introduced. Both parties plan to further cooperate on the development of new products and brands and introduce them onto the domestic market. ■



EVENT
CALENDAR



2020 ◀ FEB MAR APR MAY JUN JUL AUG SEP ▶

3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
FEB	FEB	FEB	FEB	FEB	FEB	FEB	MAR	MAR	MAR	MAR	MAR	APR	APR	APR	APR	MAY	MAY	MAY	MAY	JUN	JUN	JUN	JUN	JUL	JUL	JUL	JUL	JUL	AUG	AUG	AUG	AUG	SEP	SEP

FEB WEEK 5	ASTA Vegetable & Flower Seed Conference Monterey Canada	FEB WEEK 8	National Watermelon Association Convention Orlando, Florida USA
FEB WEEK 5	Expo Sinaloa 2020 Culiacan Mexico	FEB WEEK 9	Hortex Ho Chi Minh City Vietnam
FEB WEEK 6	Fruit Logistica Berlin Berlin Germany	FEB WEEK 9	Tomato House Fair Sicily Italy



FEB WEEK 7	Leafy Demo Days Murcia Spain	MAR WEEK 10	AFSTA Livingstone Zambia
FEB WEEK 7	Organic Seed Growers Conference Corvallis, Oregon USA	MAR WEEK 12	China International Floriculture & Horticulture Trade Fair Guangzhou China
FEB WEEK 7	Demo Day Enza Zaden - Vitalis Culiacan	MAR WEEK 12	Green Tech Americas Queretaro Mexico
FEB WEEK 7	FHIA field day Comayagua Honduras	MAR WEEK 13	Melon field visit Central America
FEB WEEK 7	International congress for crop protected, ANAPI Guatemala	MAR WEEK 13	Salon Gourmets Madrid Spain
FEB WEEK 8	HortiContact Gorinchem the Netherlands	APR WEEK 17	Alimentaria Barcelona Spain



APR WEEK 17	Organic Experience 360° Almería Spain	APR WEEK 18	National Hot Pepper Congress Leon Mexico
MAY WEEK 20	AGRIWORLD Osaka Japan	JUN WEEK 23	Organic Food Iberia Madrid Spain
JUN WEEK 24	ISF World Seed Congress Cape Town South Africa	JUN WEEK 25	Hortitec Holambra Brazil
JUN WEEK 27	Melon House Fair El Albujon (Murcia) Spain	AUG WEEK 32	AMSAC (Mexico Seed Trade Association) annual meeting Cancun Mexico
SEP WEEK 36	AMHPAC (Greenhouse Growers Association) annual meeting Los Cabos Mexico	SEP WEEK 37	XXI Dni Ogródnika Gołuchów Poland

● = Organized by Enza Zaden

More information about our events on enzazaden.com

Colophon

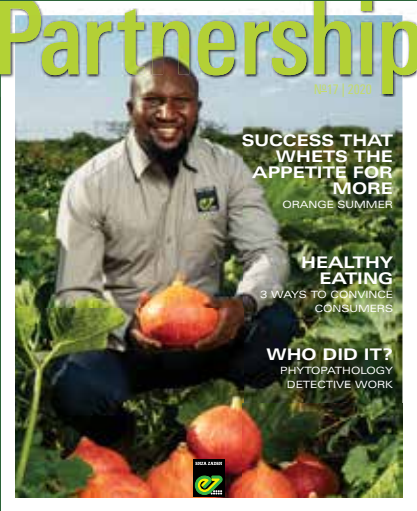
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