



The Partnership

news and views from Enza Zaden



no. 8

Trends

Habits of tomorrow

Product

Lettuce in a global market

Marketing

New standards for branding

Markets

Tradition meets innovation in South Africa

Focus on trends in lettuce

Welcome to this 8th edition of the Enza Zaden magazine 'The Partnership'.

In this new edition we again present a wide range of articles, this time with special focus on lettuce. It is an important product segment, covering a global market and encountering new trends continuously, from prepacked salads to city farming. Articles from our lettuce department, from partners as Pulmuone in Korea and Belaya Dacha in Russia, indicate the fast changes in consumer preference and the resulting requirements for our lettuce breeding teams.

2015 is an exciting year for Enza Zaden: expansion and investment in many different countries and regions. We are significantly extending our seed operation and logistic capacity in Enkhuizen to facilitate the increasing product flow and quality demands for our seeds. The most important factor still remains our human capital: strong teams in all the company segments, people dedicated to Enza Zaden and dedicated to partnerships with growers, retailers, suppliers and distributors.

From September 2nd till 4th the Asia Fruit Logistica will be organized in Hong Kong. Enza Zaden will be present at this vegetable and fruit trade fair, with every year growing visitor numbers and growing interest from Asian customers. The theme on our booth will be 'the power of healthy food', with ample attention for our new bittergourd varieties, tomato specialties, new pumpkins and melons, our Eazyleaf lettuce range and our leading range of sweet peppers, for all segments of the market.

We hope you will enjoy reading this new edition of 'The Partnership'.

Regards, and success in the months to come.

Jan Panman

Regional Sales Director
Enza Zaden Export



4 Lettuce in a global market

Lettuce is hot! An overview of the latest trends and developments found in the different markets.

8 Tradition meets innovation in South Africa

Do South African farmers still work with a primitive form of growing? Not at all! This region is undergoing something of a resurgence.

12 Changing Korean vegetable consumption

Koreans are not used to eating raw vegetables, but the market is changing. A close partnership contributed to distributor Pulmuone's selection of the right lettuce varieties.

14 Plants, true seed factories

A better understanding of how plants develop, helps to get the best out of the seed's genetics. A Physiology Researcher's point of view.

17 In Focus

Up to date with the latest developments and events.

18 New standards for branding and marketing

Smart marketing has prompted Russian consumers to take a different look at salads. How BD Salads has achieved this goal by setting new standards.

22 Improving living standards of Indonesian farmers

An impressive example of corporate social responsibility: making expertise and technology available to improve the living standards of local farmers.

24 Millennials point the way

Millennials, also referred to as 'Generation Y', know what they want. Producers that respond effectively to this change do good business.

28 Step by step business expansion

Yding Grønt ranks among the largest producers of babyleaf crops and fine herbs in Denmark. The partnership with Enza Zaden helps Yding Grønt to take the right decisions as quickly as possible.

30 Column

Internet and social media have opened up new opportunities. What does this entail for the fresh produce chain? Market Researcher Hans Verwegen shares some best practices.

32 DNA profiling for plants

Technology makes processes faster and more efficient. PCR and sequencing are such important technologies.

34 Events

An overview of upcoming events.



The global lettuce market is constantly evolving as consumers in the Western markets continually trigger new trends, thereby creating new requirements for this versatile product. This evolution is also visible in countries which do not have a long history of lettuce.

Lettuce in a global market

As the lettuce market has become globally competitive, it has become increasingly important to respond to consumer trends in a timely manner and to offer products with added value. “Today’s trends are the result of the consumer’s desire for a healthier lifestyle and for the efficient use of time,” explains Crop Research Director of Leafy Vegetables, Henk Driessen. “Key triggers for today’s consumers are taste, healthy living, convenience, interaction, exclusivity and food safety.”

Trend 1: fresh cut produce

The consumers’ desire for a healthier lifestyle and convenient food has boosted the demand for fresh cut produce. The US, UK and Spain are global leaders in this market trend. Even in the more traditional lettuce markets such as France and Germany fresh cut produce is increasing, however the sales of whole head lettuce still prevails. These whole heads are now often wrapped in plastic.

Driessen: “The demand for fresh cut lettuce introduces new challenges such as increasing the net yield and shelf life of this produce. Consumers also tend to have higher requirements with regards to taste and variation in shape and colour.”

Trend 2: hydroponics

A second important trend to which markets must respond is the cultivation of lettuce in water. The driving forces behind this ‘clean’ way of growing lettuce is its convenience, year-round consistency and food safety.

Advantages

A hydroponic system has many advantages for the grower. First and foremost is the fact that many production cycles can be realised per year. As the lettuce is cultivated in water instead of soil, growers no longer have to fear soil-borne diseases such as Fusarium.

Hydroponics also benefits the environment as the exhaustion of arable land is no longer a limiting factor, and it is a good alternative in regions where soil or water is scarce. Working conditions are improved as well as the water containers are at an ideal working height thereby ensuring easy labour friendly harvesting.

Emotion

Hydroponics is becoming ever more interesting from a business point of view too. Lettuce is sold as a high-value product in some markets. “The roots that are still attached to the plant strengthen the awareness of it being a fresh product. Today’s consumers are willing to pay a higher price for it. And in markets in which local-for-local has emotional value, such as the US and the surroundings of large cities, hydroponics offers extra value because it means that the produce can be grown locally, even in areas where water is scarce.”



Trend 3: vertical farming

In vertical farming, or city farming as it's also known, the crops are also grown in water, but in a layered system within an enclosed area making use of artificial light. This form of farming is still in its infancy, but is attracting a lot of interest, especially in large metropolis cities all over the world. In some areas vertical farming is already being used on a large scale, supplying large local supermarkets. Elsewhere production is taking place on a smaller scale, supplying produce for local use, for example restaurants, supermarkets and oil rigs.

Motivations

Major advantages of this farming method are greater food safety, lower transport costs and year-round local supplies. The motivation for switching to this method varies from one country to the next. The main motivation in Japan is food safety, whereas most European countries are motivated by the innovative aspect which in turn boosts the product value. In the US where local-for-local has high emotional value, the product's fresh character is the main motivation. And lastly, in Scandinavia the possibility of local production makes investment worthwhile.

Developments in emerging markets

As far as lettuce is concerned, developments are no longer restricted to the mature markets, but are now also taking place in the emerging markets. Western influences have had a great impact on these markets. The product is on the rise in countries without a long lettuce tradition such as Russia. And countries like Brazil, Mexico and Turkey are now seeing the benefit of replacing local traditional varieties with more reliable modern varieties. The increased professionalism and global awareness are resulting in a growing demand for top quality and greater disease resistance varieties.

Here you can see a variety of lettuces growing in a VydroFarm system – a vertical farming solution designed and developed by UK hydroponics manufacturer and wholesaler HydroGarden. This is just an example of a whole range of salad crops that can be grown in a VydroFarm system along with many other fruits, vegetables and herbs.

These markets are now undergoing the same developments that took place in the mature markets years ago. People have more money to spend and the need to invest in quality and value creation is growing. Driessen: "We are still using existing successful genetics as a spin-off for local markets, but in the future there will be a demand for varieties that meet specific local needs. During our Open Days the markets and breeding teams come together to analyse current developments ensuring that our breeding programmes respond accordingly."

The future: expansion

Retailers and supermarkets are becoming larger and more influential. They want and expect a uniform product of top quality varieties throughout the year. At the same time the entire production and processing chain is expanding and becoming more professional. Driessen: "Growers of course have to recoup those investments. For us breeders this means that, besides focusing on Bremia, we need to be focusing on ways to boost efficiency, for example with more resilient varieties that can be harvested efficiently, and possibly mechanically."

Expanding portfolio

Driessen: "Our wide range of lettuce varieties gives us a strong and healthy basis for future breeding. I am confident in our future varieties. This, combined with our opportunities in new markets, which are also increasingly demanding high-quality products, means that our portfolio will expand further in the future. We are ready for this with plenty of local expertise and highly committed teams." ■



A brand that offers an attractive range of products that supports the growers and processing industries in their ambition to strive for top quality products. That's exactly what Eazyleaf® is, a business-to-business brand.

Eazyleaf® was initially developed for the markets of north-western Europe and Spain, but it's also attracting a lot of interest from Australia and the United States. The brand stands for a high quality product for the processing industry as it is easy to process and offers excellent shelf life. The possibility of mechanical harvesting makes Eazyleaf® more efficient and labour friendly for growers.

"The processing industry is continually faced with challenges," explains Lettuce Portfolio Manager Ian Botes, "Shelf life and yield are the biggest challenges. Eazyleaf® products offer a leaf with a small cut surface that decreases the oxidation which results in a better shelf life. The Eazyleaf® varieties are also extremely easy to cut and prepare. With one cut the plant falls into many small leaves, all equally sized leaving very little waste. The advantage for consumers is a unique tasting experience as Eazyleaf® offers them a wide range of attractive leaves."

"For Enza Zaden, this brand is an engine for growth with a sunny future, considering what's still in the pipeline. The Eazyleaf® type of plant also makes it possible to exploit the tremendous genetic variation offered by lettuce. Who knows what the future will bring?"

Tradition meets innovation

The image that springs to mind when you think about South Africa is that of a basic form of growing, and not greenhouses, high-tech cultivation systems and extensive collaboration in the production chain. But nothing could be further from the truth. With the growth of the middle class and the increase in the minimum wage, agriculture in this region is undergoing something of a resurgence. It's no coincidence that South Africa is one of the fastest growing markets in the world.

When you look at the most popular vegetable crops in this region, you're undoubtedly talking about tomatoes, onions, cabbage and carrots. These have traditionally been the main ingredients in local dishes, and they still are today. But the range received a substantial boost with the arrival of settlers from Europe in the 18th and 19th centuries. They brought new products with them, such as courgettes, aubergines and lettuce, which, thanks to the region's climate, can be grown all year round. As a result, the African market has since become impressively diverse.

Growing middle class

And that's not all. "The growth of the local middle class is playing a major role in product diversification and quality," says Technical Manager for Southern Africa Matome Ramokgopa. "Because these people have more money to spend, they come into contact with a wider variety of foods. So we are seeing Western trends being adopted more and more in this class. The demand for convenience products like pre-cut and pre-packaged vegetables is a good example of this, as is the growing popularity of buying vegetables in supermarkets rather than from roadside vegetable stalls. This means that the demand for quality products has increased. So we are seeing a trend away from outdoor cultivation of fruit crops to polytunnels in this region. They provide growers with more harvest security, something they need when they work with the supermarkets."

Lettuce on the up

As elsewhere, obesity is a growing problem in South Africa, and the focus is now on healthy eating. Salads are popular, with more than 4,000 ha of lettuce now under cultivation. Until recently this was rare on the African continent. Additionally, eating uncooked vegetables is still considered dangerous in many other African countries. Ramokgopa: "Raw vegetables are associated with pathogens and pesticides. But with the introduction of disease resistance and the growing middle class who can and want to look beyond traditional dishes, we are noticing that this crop is on the up."

But this is just the middle class, of course. The vast majority of the population still depends on 'hawker markets' – roadside stalls where traders offer their products together. They are all about value for money and are where the biggest pumpkins, peppers, cucumbers, and so on are snapped up.

High tech

This is in sharp contrast to the quality and origin of the products found on supermarket shelves. "When you think about agriculture in Africa you often still think about primitive methods and manual labour," says Ramokgopa. "To some extent this is still the case, but it is certainly not true by definition. In South Africa in particular there are several large, innovative vegetable producers, and modern satellite technologies are gaining a strong foothold. Mechanisation, greenhouses, tunnels and substrate

South Africa

New markets for onions

The Ceres valley near Cape Town is well known for its exports of citrus and other fruit, but less well known are the 2,500 ha of onions planted here every year. “Onions are a very important market for us – one in which we also have a big market share,” says Area Manager Michel de Voogd. “Back in the day when everything was still being done manually, all the onions had to be out of the ground before February because the workers had to start working on the fruit harvest. But now we have good hybrid varieties like Plutonius and Olivine which are ideal for harvesting mechanically because of their excellent skin and shelf life. While the bulk of the workers are out picking fruit, the harvesting machines take care of the onions, and they have created a new market segment.”

cultivation are all happening here on a large scale. With the emergence of hydroponic lettuce production, these growers know how to use water and fertilisers efficiently and sparingly. Because of developments like these, we are seeing a lot of upscaling among many growers.”

Mechanisation

Automation and mechanisation in this industry were given an extra boost recently when the minimum wage was increased by more than 50%. Growers who had previously focused very much on manual labour, and therefore on getting the work done as efficiently as possible, began to invest in mechanisation. Ramokgopa: “Wherever machines can take over from manual labour, this is happening. Vegetable varieties that are less labour-intensive or that can be harvested mechanically are increasing in popularity. Growers who can’t make efficient use of their workers have switched to extensive crops such as maize or pumpkins.”

Collaboration in the production chain

It is striking how progressively the parties in the South African production chain are linked together. “This is particularly true of seed companies, supermarkets and growers,” says Area Manager Michel de Voogd. “When we organise field days together with our distributor, we see various representatives of the production chain walking through our fields. The big supermarket chains like Woolworths and Pick n Pay always send their food fresh produce technologists. They are not so much looking at our production methods but are more interested in differentiation on the basis of flavour, uniformity and shelf life. The quality has to be good.” Supermarkets are accounting for an ever increasing share of vegetable sales and source directly from the growers. New vegetable varieties are added to the range following extensive testing in the sales channel. So simply convincing growers of higher returns or better disease package is not enough.

Besides South Africa, these retailers have set their sights on the rapidly-growing market across the continent as a whole, and new stores are constantly being opened in neighbouring countries such as Zambia, Mozambique and Namibia, as well as further afield in Ghana and Nigeria. These countries currently fly many of their vegetables in from South Africa, but they too are looking to fill the gaps with local growers.

Challenges

Despite the emerging consumer market, it is no easy ride for the agricultural sector in Southern Africa. Political challenges and natural obstacles are facing the sector. Climate change is making planting and harvesting plans unreliable and crop failures due to factors such as hail or heavy rains are an ever more frequent occurrence. Apart from that, growers are having to contend with increasing numbers of new plant diseases spread by sources such as contaminated river water. “For seed companies, these factors offer new opportunities to select varieties with more resistance and that are able to withstand the vagaries of nature. With all the developments and opportunities in this country, South Africa sure has a bright future.” ■

Partnerships in South Africa

Strategic partners are a must for a proper and efficient seed distribution. In South Africa, Enza Zaden therefore teams up with the country’s local but leading sales organisations in vegetable seeds: Starke Ayres and Hygrotech. Both companies are very successful and are extending their efforts into other African markets too.

Starke Ayres was founded over 130 years ago and since then has grown to become the largest independent vegetable seed company in Southern Africa. Today, the company’s brand is found in both the professional and retail market and it is recognised all over Africa. Besides several suppliers, Starke Ayres is breeding in several key crops for African markets, such as tomato, beans and pumpkin. “Enza Zaden has become their most important seed supplier,” explains Enza Zaden’s Export Area Manager Michel de Voogd. “Together we dominate the South African onion market with a strong variety range.”

Hygrotech was founded in 1984 and over the years the company has developed into a pioneer in new technologies for horticulture and agribusiness in South Africa. Starting with a wide range of hybrid seed from several breeding companies, Hygrotech is now also a strong player in other products such as soft chemicals, growing medium, amenity grass seeds and foliar sprays. CEO Henry van der Voort: “Over the years, Enza Zaden has strengthened their product portfolio with open field crops and has therefore become our main supplier for the South African vegetable market”.

Jaco Straus, sales representative Hygrotech for Johannesburg and Pretoria, in a tunnel with Sylvania.



Matome Ramokgopa in Yossi Kahlon’s hydroponic greenhouse.

Changing Korean vegetable consumption



Korea's social structure has changed rapidly over the past decade. These changes have had an impact on vegetable and food consumption in Korea. Koreans traditionally had large families, but nowadays most people live alone or with two or three people only. Ten years ago, Korean mothers would buy fresh vegetables and raw produce from the market. Nowadays the trend is to eat out more and buy pre-prepared food. This led to a drop in consumption of agricultural products, making it necessary to identify new ways of presenting fresh products to the consumer. And so it was that fresh-cut and packaged vegetables arrived on the Korean market.

Increased consumption of fresh vegetables

It was this development that prompted Pulmuone to enter the packaged salad market. Pulmuone's marketing activities focused on promoting the consumption of raw vegetables. Four years ago it entered the babyleaf market and it is now expanding into the processed lettuce market as well. Mr Chung-Hyun Lee, Market Chain Manager and Product Developer at Pulmuone: "Pulmuone's recipe for success in the Korean salad market is to combine the Western salad style with the Korean food style. This is producing a unique Korean packaged salad culture." The Korean salad style is very traditional, with wild greens and predominantly fermented vegetables used in the traditional dish Kimchi. The Western salad style, on the other hand, uses many different kinds of raw vegetables, like lettuce, sweet pepper and tomato. By mixing these two styles together, Pulmuone has created a range of distinctive products for the Korean market.

Co-operation

To implement this concept, Pulmuone is working very closely with Enza Zaden. Ms Sun-Hyang Kwon, Marketeer and Product Researcher at Pulmuone: "Enza Zaden is outstanding in lettuce breeding, and they have varieties that are excellent for the Korean market. After some trials and tests with this company we selected five varieties that suit our market preferences and growing conditions. These varieties were selected for their crispy taste, brix, leaf volume and good shape and because they are less susceptible to brown discoloration after cutting. They are also ideal for growing in a hot, humid climate."

In November 2013 Pulmuone launched two product lines with these varieties onto the Korean market. The first line is French-style based on Eazyleaf® varieties. The second line is Italian-style and is based on Romaine lettuce varieties.

Challenge

Over the past few years, the big challenge facing Pulmuone has been to integrate the Western style of eating raw vegetables into the oriental Korean dish style. Koreans traditionally eat their vegetables fermented as a side dish. They are not used to eating raw vegetables. That is why it has taken some time to introduce Western salad culture into Korean dishes. "But people in Korea are getting more and more used to Western-style food, with the advent of dishes like spaghetti, pizza, steak and burgers. This trend is also helping to increase salad consumption."

Mr Young Han, Area Manager Japan-Korea at Enza Zaden: "Pulmuone is very quick to respond to customer needs and is making efforts to expand the market and change the vegetable consumption culture." ■

Having started out as a vegetable retailer in Seoul in 1981, Pulmuone Co. Ltd. is now a representative food business and a pioneer in the development of authentic wholesome foods in Korea. The company produces perishable foods such as tofu and soybean sprouts and sells its products both within Korea and internationally. In order to expand the Korean market for processed salad, Pulmuone started working closely with Enza Zaden. This partnership has led to a successful line of lettuce varieties for packed salads that are now widely available throughout Korea.



Plants true seed factories

Developments in science and technology succeed one another at top speed. Nevertheless, we still actually know very little about precisely how seeds work and respond to environmental clues. Seed physiologists perform extensive research into the processes that take place inside seeds during and after development, and how breeders and seed producers may take advantage of that knowledge to deliver best quality seed.

Plants are seed factories and, like any factory, they need to adequately use all available resources to generate a high-quality product. At the same time, numerous processes and interactions influence the quality of the end result. "Multiple interactions occur not only between the plant and all surrounding organisms but also within the plant itself" explains Senior Seed Physiology Researcher Fernando Goffman. "Plants compete with one another for the available light, water and minerals, and then there is also a competition taking place within the plants themselves, in which the absorbed nutrients and the plant generated organic compounds are distributed among the various plant organs. Together with Wageningen University and other Enza Zaden research teams we are trying to find out precisely how all those processes are regulated, and how we can help plants to make the most of the seeds' intrinsic – genetic – quality."

Quest

In some cases the basis of quality is to be found during the actual production of the seed. The big question is then in which phase of the plant's life cycle, and in which part of the plant the best seed is produced. "For us it's a quest to find ways of influencing that, and to determine the best balance between yield and quality. Something that we already know, for instance, is that the fruits that are better timely and spacially located in the plant to capture phytonutrients produce the best seed."

Warm-up

The seed that is approved for sale after all required quality inspections may be subjected to various treatments to further enhance its quality. An example of those treatments is priming, which is done to activate the so-called pre-germinative

metabolism of the seed, which ultimately will allow it to germinate faster and more uniformly. However, as Goffman explains, those treatments cannot turn inferior seed into top-quality seed. "The seed's basic quality must be good right out of the mother plant. The priming is intended to prepare the seed for the start. You can compare it to top athletes warming up before a contest so that they'll be able to achieve top results. Their heart rate goes up and their muscles warm up, ready for action. But that warm-up costs energy, and things are no different where seed is concerned. The priming warms the seed up, ready for immediate, optimum performance, but as it also involves the consumption of stored energy, primed seed cannot be stored for as long as unprimed seed. So it's a matter of finding the right balance between generating immediate energy for germination and keeping quality throughout storage. And that balance varies from one crop to another, from one variety to another and even from one seed lot to another. So what we're actually doing is constantly developing new priming recipes, trying to cope with the actual needs of the seed."

Predictability

And just like athletes, seed needs more than a good basic quality and a 'warm-up' alone to ensure good performance. Ambient factors such as sub-optimal temperatures and soil-borne microorganisms may affect the seed's performance. Especially in outdoor crops, such ambient factors may have a strong influence on a plant's development. The aim is to ensure that the seed performs as uniformly as we want it to, in spite of those factors, which we can barely influence. Priming treatments are also meant to make seeds' performance more predictable, with a higher tolerance to environmental challenges such as high or low temperatures.

Dormancy

Plants don't produce all their seeds of the same quality. Each single seed from a seed batch is unique in its properties and may have a different capacity to respond to the environmental factors that lead to germination. Because of this, the behaviour of seeds belonging to the same lot may differ, affecting the lot's uniformity and predictability. "A single seed batch is actually a mixed population of seeds having different degrees of dormancy and vigour. Some seeds in a lot may respond better to environmental signals than others, germinating faster. Our aim is to make seeds' ability to respond to those triggers as uniform as possible. When we prime the seed we add substances that remove seed dormancy in all seeds."

Priming also greatly increases the range of environmental conditions under which seeds are able to germinate. Which temperature is most ideal for priming depends on the crop and variety concerned. The dormancy of spinach seed, for example, is broken at a low temperature. Why? Seeds are little engines designed to start only when the conditions are favourable for further growth, allowing them to reach maturity and disseminate themselves over time. In the case of spinach, a cold requirement is a mechanism by which the seeds ensure that the cold period has been left behind so that they may germinate in the right season: spring. In other words, spinach seeds won't germinate until those low-temperature triggers are activated."



Senior Seed Physiology Researcher Fernando Goffman:
"What we're doing is constantly developing new priming recipes, trying to cope with the actual needs of the seed."

Trends and developments

More knowledge leads to more challenges. Ambient factors such as climate change, salinification and other abiotic stress factors are good examples, as is the possibility of using biologicals in seed treatments, such as natural products, extracts and microbes. It's unbelievable what can still be achieved with seed treatments. Those biologicals can for example be used to boost the seedling's

"Seed treatments are thirty times cheaper than crop protection products"

vigour so as to, for example, protect it from diseases. "Seed treatments are also more environmentally friendly and thirty times cheaper than crop protection products or biostimulants applied to the soil. In other words, our better understanding of how plants develop, is helping us to get the best out of the seed's genetics. So it's not surprising that ever more use is being made of seed treatments in general, and priming in particular. The recipes therefore are becoming ever more crop- and region-specific. And this is only the beginning; science still has plenty in store for us in the future." ■

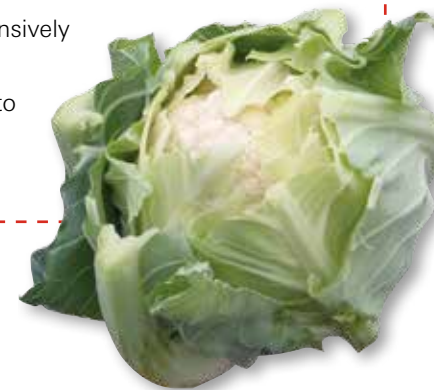


Assistant Researcher Panwasa Suriya tests the storage capacity of primed seed.

Fairway: success through collaboration

Whether or not a variety succeeds depends, among other things, on how well it suits the market for which it is intended. To match the variety as closely as possible to local conditions and market wishes and needs during the breeding process, it is essential for the breeders and local representatives to work very closely together. "We depend on the feedback we get from the market," cauliflower breeder Herre van der Sloot explains.

Van der Sloot: "Take the Fairway cauliflower. This variety has been developed for the British market, but breeding mainly takes place in Enkhuizen, the Netherlands. To be able to develop this variety we worked closely with our commercial/technical colleague Paul Lote in the UK. He was very intensively involved in setting up the screening trials and he regularly visited the screening locations and trials. We have been able to benefit from his experience in cultivation and the market in our breeding, enabling us to achieve the best possible end result."



Focus on healthy food at Asia Fruit Logistica

From 2 to 4 September Enza Zaden will be present at the Asia Fruit Logistica in Hong Kong. The theme of the Enza Zaden booth this year is healthy food. "Our aim is to grant everyone everywhere in the world access to healthy and tasteful vegetables," says Ruud Berkvens, Area Manager South East Asia.

"Each market has its own wishes and needs, also when it comes to healthy food. We develop products attuned to the latest local market demands. For example, smooth and shiny gourds for a health boost and aromatic small peppers that spice up every dish are especially bred for the typical Asian market."

To show the visitors of the Asia Fruit Logistica that healthy food is also very tasty, the chef in the Enza Zaden booth will prepare small bites. Berkvens: "Our chef will be preparing healthy bites using ingredients that include bittergourd, mini sweet conical peppers, pumpkin, lettuce and tomato. All these vegetables have their own healthy characteristics."



Join our survey and win a tablet!

What do you think of The Partnership? We value your opinion which helps us to further improve this magazine. Please fill out the survey on our website to share your opinion with us about the articles in and the set-up of The Partnership.

From all the responses we will randomly select the winner in November. He or she will win a tablet. It might be you!

Go to
www.enzazaden.com/survey

BD Salads

new standards for
branding and marketing

BD Salads is already by far the largest producer of fresh salads in Russia, but the family business's ambitions go further. "We've almost reached the full capacity of our three cutting facilities and we're ready for further expansion," says Managing Director Anton Semenov. Smart marketing has prompted Russian consumers to take a different look at salads. Sturdy basic food is giving way to a varied range of ready-made prepacked delicate salads with a strong health image.

Belaya Dacha can trace its agricultural history almost a hundred years back in time. It was established as a traditional farm in 1918, soon after the communist revolution. After the nationalisation in the early 1920s it evolved into a model sovkhos that earned respect both within and outside Russia. The political and economic revolution that began in the late 1980s implied new opportunities and possibilities. Viktor Semenov turned the state farm into a family business and began to focus on vegetables, in particular different types of lettuce, and on processing them in fresh salads. He now manages Belaya Dacha Holding, which, besides the agro-industrial complex, also comprises an investment company specialising in property development.

♥ New times, new opportunities

In 2007 Viktor's son Anton joined the business, and he now holds sway over Belaya Dacha Trading and the premium brand BD Salads. "Things went really quickly," says Semenov. "My father was very much aware of the new opportunities brought by the changed times. The opening of the borders and increasing welfare introduced Russian consumers to new products and consumption cultures, new retail formulas and new catering concepts, such as fast food. He really staked a lot on that."

A great milestone was the acquisition of the first contract for supplying vegetables to McDonald's. That was in 1994, when the fast-food giant opened its first restaurants in Moscow and Saint Petersburg. There are now 500 branches in Russia, in dozens of large towns. The company soon began to supply produce to other formulas and wholesalers, too. Belaya Dacha grew along with the increasing demand of a steadily expanding customer base - in terms of turnover and size, but also professionalism.



♡ Contract farming

“Salad production is our core business,” explains Semenov. “Some of the required ingredients we grow ourselves, but over the years we’ve had to obtain ever more of them from third parties. This geographical spreading of our crops means that we are assured of a supply of high-quality fresh produce at all times.” Because of the strict product specifications, BD Salads likes to work with long-term contracts based on fixed prices and volumes. The company’s agronomists select the desired varieties, compose the crop recipes and support the more than forty Russian suppliers in different regions. They report to the managers every week, enabling them to take measures when supplies arrive earlier or later due to weather conditions.

♡ Temporary relapse

In the summer of 2014 Russia’s ban on the import of vegetables and other products from the European Union caused the company serious problems, as that’s where part of its produce came from. Semenov had to quickly supplement his supplies from Russia itself.

“That was a difficult time,” says Semenov. “Many producers, including a few contract growers, seized the opportunity of the sudden scarcity to raise their prices to absurd levels. Of course we didn’t accept that. And fortunately there were also producers with a more long-term perspective. With them we can continue to realise our growth ambitions to our mutual benefit. We expect that consumer expenditure will soon begin to increase again. That will be good for our premium products too.”

♡ Brand development

Semenov aims to ensure professionalism and perfection in all parts of his company. In the outside world that is most evident in the company’s progressive brand strategy, in which it has invested a lot of effort. “We began to seriously develop our brand in 2009,” says Semenov. “We had been selling our products in supermarkets for some time by then, but they were more or less anonymous. We wanted to do things properly and effectively the first time round, so we took a close look at Russian and foreign companies which in our opinion employed a successful strategy.

We also called in the help of renowned consultancies. That way we ultimately arrived at three promising clusters of values: Sense of Family, Health & Sport Foods and Luxury.” Those values find expression in the products’ packaging, characterised by bright, light colours and transparent parts, and of course in the composition of the salads. A cute white rabbit that immediately appeals to consumers links all the products in the range.

♡ Marketing

A young, enthusiastic marketing team promotes the brand in other ways, too. Besides the website, advertisements and free publicity in traditional media they also use social media such as YouTube, Facebook and food blogs. Under the motto ‘Be good and tell it’ they have many times called Russian consumers’ attention to the freshness, healthiness, vitality and affordable luxury that BD Salads aims to promote. And of course also to the products’ delicious taste. Semenov: “We had to build our consumer brand BD Salads from scratch, but we’ve evidently scored a bull’s eye. Since 2010, when we launched our first

consumer oriented advertising campaign, its sales volume has increased by 74%. The past few years consumption patterns have really changed in Russia. Salads were traditionally hearty, substantial affairs with potato as their main ingredient. People were not used to eating anything different. Now, most middle- and high-class Russian consumers know what Waldorf salad is, and how it should taste. I’m proud that our company has helped to achieve this.”

♡ Three new cutting facilities

In spite of the temporary relapse since last summer, Semenov intends to continue with his strategy of promoting BD salads in value added products segments. The company has good shelf positions at Russia’s leading supermarket chains, among which are Magnit, X-5 Retail and Auchan. “Those chains will continue to grow, while discount stores are not really in keeping with our brand image,” explains Semenov. The company also intends to continue its own expansion plans. They include new production locations near Saint Petersburg in the northwest, near Azov in the south and near Novosibirsk to the east of the Urals. Those factories will also have a capacity of around 50 tonnes a day. “They will expand our geographical span, because there’s a limit to the distances that fresh salads can be transported. They shouldn’t really travel much more than 1,000 km or else their shelf life will start to decrease.”

Belaya Dacha Trading is also expanding its own cultivation facilities with a greenhouse complex with an area of seven hectares in south Russia, where it’s going to grow babyleaf lettuce varieties and various types of tomatoes.

♡ Good varieties and support

Growth and product innovation are impossible without a frequent supply of new or better resources. Semenov greatly appreciates Enza Zaden’s active role in this respect. “We’ve had a good relationship with them for ten years now,” he explains. “Enza Zaden has excellent varieties for almost all the lettuce segments, such as its Diamond iceberg lettuce. The company also provides practical support in the field, to help growers get the best out the varieties. Their product specialists help our agronomists and suppliers to improve their results, and they cooperate in product trials in which we can objectively evaluate new varieties. I have seen several trials and am almost certain that our salads will include various new Enza Zaden varieties next year.” ■



Improving living standards of Indonesian farmers

Companies doing business influence the environment. Ever more companies formulate plans to make that influence as positive as possible, for instance by improving the living standards of local people. The Yayasan Bina Tani Sejahtera Foundation is such an initiative, in which joint forces have achieved great results.

At the basis of this project is Indonesia's largest vegetable seed company PT East West Seed Indonesia (Ewindo). The founders of this joint-venture, Enza Zaden's Piet Mazereeuw and Simon Groot of East West Seed, are also the founding fathers of the Yayasan Bina Tani Sejahtera Foundation (YBTS), which they established in 2009. However, the foundation's everyday affairs are all handled by the Ewindo team, which Edwin S. Saragih has been leading since 2014.

Improving living standards

"The foundation's aims are in line with those of PT East West Seed Indonesia. Basically they are to give vegetable growers all the help they need," explains Edwin Saragih. More than hundred million Indonesian people are active in the agricultural sector. That's just over forty percent of the country's total population. Indonesia is an impressive, highly diverse archipelago comprising densely populated islands such as Java on the one hand and many virtually uninhabited islands on the other. "The Yayasan Bina Tani Sejahtera Foundation helps growers grow their vegetables, especially in the remote parts of the lowlands with their difficult conditions. By sharing our expertise and technology we improve the living standards of many farming families. YBTS actually bridges the gap between Ewindo and farmers in remote areas. With the experienced YBTS team we hope to be able to increase the capacity and production of these farmers. Ewindo is incidentally not the only organisation supporting us. We also receive help from other strategic partners as non-profit organisations, for example Cordaid Nederland and Wageningen University & Research."

Economic growth

Thanks to the impressive economic growth, the Indonesian population now has more money to spend and people can choose what they consume. This has led to an increase in the consumption of vegetables, and to consumers asking for fresh, safe and tasty products. All this is strengthened by the awareness that vegetables contribute towards

a healthy lifestyle, especially in growing children. These developments make things difficult for the country's farmers, who don't always know how to meet the requested quality standards, how to get the vegetables to the market on time and how to get the very best out of their plants.

"YBTS was introduced for the purpose of making good expertise and technology available to the farmers who want to improve their living standards. All our activities last year focused on practical technical support for the specific aim of ensuring permanent improvements in the farmers' livelihood. Examples of things we hope to achieve are empowerment of the farmers' cooperative, more resilience to enable farmers to cope with the consequences of protracted drought, knowledge management combined with good tools and help in gaining access to the market."

Successes

In 2014 just under five thousand farmers benefited from YBTS's activities, which included digging sixteen wells in West Timor and installing a seven-kilometre pipeline from the wells to the arable land. Now more water is available for irrigation and consumption. Another project involved planting thirteen thousand young trees to make these communities greener. The foundation also arranged the printing of 48 thousand manuals on vegetable cultivation. 33 thousand of those manuals were distributed among farmers, the other 15 thousand are for sale in bookshops.

"The foundation constantly makes knowhow available to the millions of vegetable growers in the country. Time and time again we see how better technology and high-quality resources like seed help the farmers increase their income. We are proud and delighted that the Yayasan Bina Tani Sejahtera Foundation is assisting the farmers in their efforts to improve their crops and the quality of their products and to increase the safety of the food they produce." ■

Farmer Mrs. Anita Wote (second in front from left) happily shows the Bonanza sweet corn harvest of this season with her team. Her farm is located in Kalipitu village on the Indonesian Halmahera island. Yayasan Bina Tani Sejahtera – now led by Edwin S. Saragih (on the picture at the right) – provides farmers development and technical services allowing them to improve crop performance and thus to increase their income.

Millennials

point the **way** to the **eating** and **buying** habits of **tomorrow**



Vegetables have earned a permanent and well-deserved place on the daily menu all over the world. Internationally, consumption behaviour is undergoing a sea change, with ever more attention being focused on the origin of products. Producers that respond effectively to this change with the right products, partners and marketing mix do good business. But this also calls for good communication with the end customer via modern channels. This applies to every link in the chain. What does the near future have in store for us?

There will always be regional and local differences in eating and buying habits, but it makes sense to focus on megatrends that influence that behaviour. Millennials are an interesting focus group in this regard. Millennials are consumers born roughly between 1981 and 2000, who now form the biggest and most influential group of young adults. What is striking is the relatively large number of single-person households among this group. They are also referred to as 'Generation Y', as the successors to Generation X (born in 1961-1980). "Thanks to the internet, this Y cohort is the first generation in world history to have many values in common measured over many different countries and to have similar buying and eating patterns. Convenience, and a quick and on-the-go availability are key elements of this. But there is also social involvement," market researcher Hans Verwegen explains.

Internet and social media

Millennials have grown up with the internet, mobile phones and social media. Their world view and buying behaviour are influenced by blogs and apps to a far greater extent than by traditional media such as newspapers, magazines, television and radio. Authenticity, integrity and opportunities for interaction are important criteria against which millennials judge not only media but also companies and products. Social media, especially blogs, play just as crucial a role in mutual communication and group formation. Social networks form around specific topics or themes; within them, people communicate on these subjects unhindered by distance or national borders. Verwegen: "As a provider you can capitalise on this development, but you must do so in a language that resonates with the target audience and with a real passion for your product."

Loyal and committed

Once a product or brand has earned their trust, millennials are often very loyal and committed customers. They want to influence and join in the conversation and like companies to be open to that. "This means that companies not only need to advertise on social media and in social networks, but they must also participate actively in them. This takes time, money and a clear vision for interactive communication, of course, but you really do get something in return." Millennials are active co-creators and their questions, ideas, suggestions and tips often make a very valuable contribution to product development within companies.

Socially involved

Millennials have sincere concerns about climate change, pollution and social abuses. They detest greed: companies can make a good profit, but they should also give something back to society. Companies that can prove that their production methods are

sustainable and that they also support the community in other ways have a clear advantage over competitors who don't. We are not talking 'certified organic' per se. Local products with a traceable origin and transparent information about the circumstances under which they were produced are also greatly appreciated. Demand for local products is so strong that 'local' is now being referred to as the new 'organic' in Germany.

Authenticity

Verwegen: "Because the young consumer spends a large part of their life in a virtual world, they have a strong need for 'the real thing', or in other words tangible products. For example: contact with the earth in a literal sense, as evidenced by the popularity of small-scale urban farming and growing vegetables at home – preferably experimental, with new taste sensations. The young producer shares the end-product proudly with their friends. As a result, appreciation of the skills of the professional grower is definitely on the rise, but this manifests itself most of all when people feel that they know this person – in real life or virtually."



Asia vs Europe

Supermarkets in Japan and Korea have been displaying producers' names on the sales shelves, often along with a photograph, for the past 25 years. And as long as 15 years ago, the arrival of the mobile phone made it possible for customers to go straight to the manufacturer's website while in the store. This was particularly successful, given the number of active users on the Japanese shop floor. This method of promotion has been less successful in Europe. Major players often place QR codes on packaging, but their use has not lived up to expectations.

Changing consumer behaviour

The desire for authenticity among millennials is translating into changing consumer behaviour. It is a given that supermarkets, whose largely standardised offerings are relatively anonymous in terms of origin, are still by far the most important sales channel for food. But more and more alternatives are coming on stream which appeal to younger generations in big cities in particular. A new golden age has begun for small-scale, artisan shops, preferably grouped together under the roof of a wide-ranging fresh food market. They offer a selection of sustainably produced food, usually of local origin. These local markets are not the place to do the entire daily shop; instead, people visit them to top up – and not

only for the products but also for the social aspect. Verwegen: “These are the first sales outlets where new trends become visible, like the rapid rise of peppery rocket, for example. Taking part in one of these markets or a food festival or taste-testing with a food truck can provide producers with valuable feedback prior to launching new vegetable varieties.”

Convenience services

At home in the kitchen, more and more consumers are keen to take the time to cook with care, especially at weekends. Slow food as a time to relax and spend with family or friends is in. But convenience and time-saving are called for in this area too. Online

convenience services in the form of delivery or click-and-collect subscriptions are already available in many countries. This way consumers get all the fresh ingredients they need to make hot meals and salads delivered to their homes at prearranged times and in precisely the right quantities, along with a recipe and a brief or detailed description of the origin of the products. The emphasis is often on regional and seasonal organic products, which gives the service extra authentic, sustainable credentials. “Interestingly, these delivery services are introducing a new dynamism into product development. Items that do not make it onto the supermarket shelves immediately are getting real opportunities through direct contact with the target audience,” Verwegen explains.

Multichannel approach

A multichannel approach for supermarkets and other links in the production chain is a must if they are to survive in the future – at least in terms of communication with end consumers. They are interested in the source and the producer’s expertise. Verwegen: “The internet has made it much easier for producers to communicate directly with the end consumer and has even enabled them to sell directly. But make no mistake, the potential client will still demand a lot of attention.” ■



Transparent information provision

In France initiatives have been launched in which local sales of various vegetables, meat and dairy products are combined into modern, internet-driven concepts. Take O’TERA for example. It may look like a cooperative, but it is actually a trade-driven initiative. In fact, it is a local platform with a physical sales outlet located close to the local traditional street market. The name of the grower of every product is shown, along with a photograph and address and details of how long they have been with O’TERA. A special feature is the transparent pricing information provided, which includes the growers price and the mark-up.

O’TERA: <http://www.lafermedusart.com/>

US kale day

The multichannel approach takes up a great deal of time and effort. It can therefore sometimes be more cost-effective not to do everything yourself. With a trendy product, for example – one that people will actively seek out online – it can be a good idea to seek collaboration with other growers and possibly trading partners. A good example of this is the US site of the national kale day. This is not only a website where producers can actively promote

kale, but they have even declared 1 October “US kale day”. Within a cooperative, individual producers can also be given scope to profile themselves on the internet in an efficient way. The website Verse Oogst, powered by The Greenery (the Netherlands) is a good example of this.

National kale day:
<http://www.nationalkaleaday.org/>

Verse Oogst:
<http://www.verseoogst.nl/>



With an outdoor cultivation area of 180 ha and greenhouses with an area of 2.5 ha, Yding Grønt ranks among the largest producers of babyleaf crops and fine herbs in Denmark. Director-owner Søren Flink does everything he can to make sure things stay that way. He regularly makes adjustments in his procedures to lower his production costs and create extra value for his enterprise and his employees. From his seed suppliers he expects commitment and a pro-active attitude. “You can’t recommend the right varieties without knowing how we work here,” he explains.



Step by step business expansion

Søren Flink has been in business since 1994, when he became joint owner of Yding Grønt. A few years later he became completely independent. “In the 1990s we grew mainly iceberg lettuce and little gem,” he recalls. “Each head of lettuce was harvested by hand. Our cost prices were high because in Denmark, labour costs are way above the European average. I had to work out a solution one way or another.”

Variation and convenience

Flink saw opportunities in switching to babyleaf products, which can be mechanically harvested. Around the year 2000 the babyleaf segment was just getting off the ground and prospects were good. Consumers were introduced to hitherto relatively unknown products such as corn salad and rocket and were enthusiastic about the new flavours. On top of that, babyleaf products are ideal for a differentiated range of ready-made salads in consumer packaging. “You can pack and sell them either per variety or in different colour and flavour mixtures,” adds the grower. “I saw a promising future in them.”

Everything had to change

The switch implied a lot of changes for the company. Babyleaf products are harvested while they are young, and implied much higher plant densities than what the farm was used to. The majority were moreover of varieties that were new to the farm, and that had to be sown directly in the field instead of arriving as propagated young plants.

So the farm needed sowing and harvesting machines, and also a line for processing the consumer packages. And the relatively short season meant that the cropping plan had to be revised. “All in all we had to make a lot of changes,” says Flink. “We started off growing babyleaf products in half of our acreage, leaving the rest as it was, so as to spread the risks and costs in case our first results were disappointing. The other half followed in 2002.”

Wide range

Encouraged by a steadily growing demand in Denmark and the surrounding countries, Flink expanded his business step by step

until he reached the present outdoor acreage of 180 ha. In 2013 he also commissioned the construction of a 2.5-ha greenhouse for the cultivation of fresh herbs.

The babyleaf range now comprises fourteen products varying from young iceberg lettuce, corn salad, rocket and spinach to red lettuce, sorrel, green cabbage, pea shoots, the Japanese lettuce variety mizuna and tatsoi. “On average we harvest our outdoor crops about five times a year,” says Flink. “This means we process almost 1,000 ha of babyleaf every year. That calls for tight planning and organisation.”

Sales

Flink sells his products via a growers’ association, but he’s in contact with his buyers himself almost every day. “Personal contact is very important,” explains the grower. “I want to be able to offer retailers and processors precisely what they want. We export forty percent of our products to Sweden, Germany and Norway. Most of our export customers are processors, who want the products delivered in bulk. To retailers we supply a wide range of babyleaf salads in consumer packaging. We make agreements about volumes, prices, delivery times and special offers. And we discuss the sales prognoses, which partly depend on the prevailing weather conditions.”

Innovation

Another recurring theme on the agendas of the entrepreneur, his customers and his suppliers is innovation. “All our efforts in this respect focus on value creation,” explains Flink. “There’s no sense in innovating merely for the sake of innovation. The aim must be for process and product innovations to create value for the chain. That can be achieved for example by factors that increase yields, lower cost prices or improve keeping quality. Another possibility worth considering is to give your product a distinctive colour, shape or flavour. It will often be a combination of factors.”

Variety trials

Flink permanently reserves part of his farm for variety trials to keep his range up to date and to be able to anticipate new requirements

Babyleaf salad grower Søren Flink, Yding Grønt (Denmark):

“New varieties are as good as the added value they can offer us”

and opportunities. “We have to invest a lot of time, attention and money in that, because we have to evaluate new varieties under different conditions,” he says. “To see how they do by themselves, and also in relation to existing varieties.”

Most varieties are at their best for only part of the season. Sometimes a grower will know that beforehand, at other times it will become apparent in the field. “During one or more seasons we evaluate all relevant aspects, such as susceptibility to diseases, uniformity, yields and flavour. If we have something that’s really novel we invite customers to come and inspect and taste the variety.”

Partnership

Yding Grønt doesn’t admit any new varieties to its standard cropping plan until they have been thoroughly screened and evaluated. Flink expects his seed suppliers to fully understand and respect his wishes and working method, to ensure that the trials will proceed as efficiently as possible.

“New varieties are as good as the added value they can offer us,” he explains. “We don’t have the time or money to test everything that’s new. We have to be able to take the right decisions as quickly as possible. So we need partners with excellent knowledge of both our company and our market. The number of seed companies that fit that bill is small. Enza Zaden is most definitely one of them. The company has a good position in the field of leafy crops and has over the years shown that it continuously ranks among the top companies of its kind. Their rocket is always good and the primed seeds give the varieties added value because they enable faster and very uniform germination. What’s more, Enza Zaden provides expert cultivation advice with which we can get the best out of their varieties.”



The Yding Seedmat, the seeds are supplied in rolls, clamped between two layers of paper.

Yding Seedmat

Flink is also enthusiastic about the Yding Seedmat concept. The seeds are then supplied in rolls, clamped between two layers of paper at the right plant distances. You simply roll them out in the field and cover them with a thin layer of sand. “The great advantage of this is that we can grow our crops entirely free of weeds. It’s our policy never to use herbicides, so you can imagine that this implies added value for us.” ■



Sharing **best** practices around the **globe**

In the world of vegetables, generations come and go in ever-quicker succession. A trend many of you growers and traders will recognise. In society too, we are also witnessing successive waves of groups and communities that adapt their behaviour, including eating patterns, to embrace the possibilities offered by technology and the demands imposed by a changing environment.

For younger generations, internet has opened up a completely new, virtual universe that embodies the essence of their social behaviour and transcends geographical barriers to enable friendships all over the world. For the first time in the history of humankind, communities of like-minded people have sprung up all over the globe linked by the worldwide web, sharing beliefs and also practical matters such as recipes. Peer to peer social networking websites like couchsurfing enable these groups to meet in person.

Strikingly, the younger generation is extremely interested in the physical production processes, and probably thanks to the impact of the virtual world, attaches a high value to local produce. They are also keen to know the story behind the producer, and interested in how products or produce are manufactured or grown, and want to try them at home.

Maybe they will try a ‘Brew your own’ beer kit from the local microbrewery, or have a go at growing vegetables or herbs at home in the garden or on the balcony. When adopting the role of ‘grower’, many younger consumers aim for convenience and a quick harvest. Plants are sold already bearing mini fruit, and quick-growing sprouts and cress simply need sowing in the growing medium supplied. However, this group also likes to work ‘from scratch’. Using internet to track down the best seed, reading blogs, discussing best practices with new friends and sharing the results in uploaded photos and films. Young hobby growers are proud of the fruits of their labour and happy to share their expertise with everyone.

How should professional growers deal with this transparency regarding production methods? Responding can give a dynamic extra impulse to a nursery or farm. Playing an active role on internet will not suit everyone, but is maybe something better coordinated by the marketing association that growers are affiliated to. The question then facing the association is whether they have something interesting to say bottom-up from the production perspective, or whether to work from the consumer-driven perspective by presenting an appealing story line. Ideally, this should be translated into so-called product concepts, based on specifically selected seed and growing instructions, supported by an appropriate logo.

Where do you begin? Or do you collaborate with other players in the supply chain? This is an interesting issue that is occupying the minds of many at the moment. ■

Hans Verwegen is a marketing analyst in fresh produce with 35 years experience from seed to fork. Consumer and retail research have played an important role during his career. Nowadays he works as a Market Researcher for Enza Zaden.

In spite of all the manual work involved in traditional plant breeding, it would now be impossible to imagine breeding work without technology. Technology makes processes faster and more efficient. PCR and sequencing are technologies that have come to play important parts in the diagnosis of plant and seed diseases.

DNA profiling for plant pathogens

From time to time growers or seed producers find abnormalities in their plants. It may then be quite clear that something is wrong, but which pathogen is causing the symptoms will often be a complete mystery. In such cases the grower or producer will send entire plants or parts of plants such as the roots, leaves or fruits to our Phytopathology department for research. “We receive samples from all over the world,” says Phytopathology Manager Karin Posthuma. “Before analysing what pathogen we’re dealing with we ask the submitter to provide additional information to help us determine in what direction we should be taking our search.”

Different manifestations

For example, it’s important for us to know when a crop has been sprayed and whether the grower or producer has recently been confronted with any pests. The way in which the disease manifests itself often points us in a certain direction. Has the disease spread throughout an entire greenhouse, is it restricted to only part of it or are the affected plants to be found in different parts of the greenhouse? In the first case the disease was probably spread throughout the greenhouse by a machine, whereas insects, such as whiteflies, will have been responsible for the second and third cases. And if the problem is limited to a corner of a greenhouse or a plot of land there might be something wrong with the soil. On the basis of such findings researchers can already exclude quite a few options and decide what method to use for further research.

Photocopier

The old, familiar tests such as the ELISA method based protein recognition and resulting in a colour change when the pathogen is detected, or the patho-test, on which healthy plants are exposed to a potential pathogen, are still being carried out on a large scale. In addition, new methods that are faster and more accurate are used more frequently. Posthuma: “Detection of pathogens by PCR and sequencing are examples of such methods and they are developing fast. The PCR technology is best understood by imagining a kind of photocopier that exponentially multiplies a sample’s DNA or RNA. The DNA or RNA consists of combinations of four different letters that are the blueprint of life. Photocopying these letters by PCR leads to billions of copies and these can be visualised or even read, like a book, letter by letter. Computer software compares the letter sequences of the infected plant with those of a healthy plant. All the corresponding elements, such as the DNA data of the plant

itself, are eliminated to obtain only the new information, including the DNA or RNA of the pathogen.”

Seed pathologists versus phytopathologists

Seed pathologists need to check that certain pathogens are absent on seed, so they specifically look for certain harmful pathogens and use PCR and sequencing techniques for this purpose. Phytopathologists, on the contrary, carry out tests to find out which pathogen is causing a certain symptom. The results they obtain don’t always provide definitive answers as they may be dealing with a hitherto unknown disease. “Even so, the test has great added value because it tells us which known pathogen a new variant most closely resembles. In the most ideal situation we even succeed in isolating the pathogen, to enable our breeders to make plants resistant to it.”

Disadvantages

These developments are great, yet, they have some disadvantages. Finding a sequence of pathogens does not necessarily mean that the symptoms are indeed caused by this pathogen. A PCR analyses all the material, even, say, foreign material on a leaf. That may distort things. “Current developments are making it increasingly easy to use technologies. And ever more people are indeed using them, but by no means everyone is capable of verifying the results. New technology can be of great help, but it may also be a hindrance.”

The future

Today, the PCR method is particularly useful for testing samples in which it is difficult to identify pathogens with other methods. What things will be like in the future we don’t yet know. What we do already know is that this research method will become faster, cheaper and more efficient. “It will soon be possible to obtain an impression of DNA or RNA with only a single droplet of plant sap. I expect that this technology will really boom.”

The first steps have also been taken to develop new methods for indirectly detecting pathogens, for example via odour. “Plants sometimes emit a specific odour when they’re infected. That’s a natural reaction intended to warn other plants.” The first devices capable of isolating odours – e-noses – are already available on the market and we may assume that such technologies will certainly have a strong influence on future diagnostics, but that’s indeed still in the future.” ■



Event calendar

AUG WEEK 35	AMPHAC (C) Puerto Vallarta Mexico	NOV WEEK 45	TAMAS (E) Dae-Jeon City Korea
SEP WEEK 36	Asia Fruit Logistica (E) Hong Kong Hong Kong	NOV WEEK 46	House Fair Spain (E) Almeria Spain
SEP WEEK 37	Field Days Germany (FD) Dannstadt Germany	NOV WEEK 47	APSA (C) Goa India
SEP WEEK 39	Field Days Vitalis (FD) Voorst The Netherlands	NOV WEEK 48	YugAgro (E) Krasnodar Russia
OCT WEEK 42	AGRIWORLD 2015 (E) Makuhari Messe Japan (Tokyo area)	DEC WEEK 49	Growtech Eurasia (E) Antalya Turkey
OCT WEEK 43	PMA Fresh Summit (E) Atlanta, Georgia USA	DEC WEEK 51	Leafy House Fair Spain (E) Murcia Spain
OCT WEEK 44	Indagra (E) Bucharest Romania		

C = Conference | E = Exhibition | FD = Field Day

The Partnership

news and views from Enza Zaden

next
edition

The next edition of the Partnership will appear in January 2016.

Products: Pumpkin



Markets: Spain
Science: Big data
Marketing: Pot plants

Colophon

The Partnership is published by Enza Zaden.

Editing, concept & layout
Enza Zaden, Communications department.

Pictures
Pieter Prins Fotografie, The Netherlands;
Ruben Schipper Fotografie, The Netherlands;
Yding Grønt, Denmark; Jan van Staalduinen,
The Netherlands; Shutterstock, Inc. USA;
Enza Zaden.

Tips for the editorial team?
thepartnership@enzazaden.nl

Enza Zaden
P.O. Box 7
1600 AA Enkhuizen
The Netherlands
T +31 228 350 100
E info@enzazaden.nl
W www.enzazaden.com

© August 2015 | Enza Zaden |
Enkhuizen | The Netherlands

All rights reserved. While every care was taken in the preparation of this magazine, no responsibility can be accepted for any inaccuracies. Enza Zaden has attempted to trace all copyrights of illustrations used. If proper acknowledgments have not been made, however, we ask copyright holders to contact Enza Zaden.

the power of healthy food

How do we continue to develop vegetable varieties that contribute towards healthy and tasty food?

This is one of the topics we deal with on a daily basis at Enza Zaden. Our aim is to grant everyone everywhere in the world access to healthy and tasty vegetables. We will continue to invest in technology and work together with growers, traders, retailers and consumers to ensure that our vegetable varieties meet the specific requirements of local markets.

For example, Enza Zaden has developed its own Asian product range. Smooth and shiny gourds for a health boost and aromatic small peppers that spice up every dish are specially bred for the typical Asian market. But also crunchy, sweet bite peppers and flavourful tomatoes are becoming more and more popular in these countries. All products with their own healthy characteristics.

We are happy to discuss this with you in person! You are most welcome to visit our booth at the Asia Fruit Logistica.

the power of healthy food
the power of Enza Zaden



ENZA ZADEN



Visit us!

Asia Fruit Logistica
2-4 September 2015
Booth H-21

Sanjay Bisht
Country Head India

enzazaden.com