

# Fresh Future

Ten trends to follow in 2022



A special report on new opportunities for fresh produce suppliers and brand owners.



**FRUITNET**  
MEDIA INTERNATIONAL

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## Fresh Future · Ten trends to follow in 2022

A special report on new opportunities for fresh produce suppliers and brand owners.

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### Produced by

Fruitnet Media International  
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Fruit Logistica

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### About Fruitnet

Fruitnet Media International is the world's leading publisher and congress organiser for the global fresh fruit and vegetable business. Delivering informed industry coverage, it helps the fresh produce business grow worldwide by providing useful information, insight and ideas.

# Preface

**For this year's Fruit Logistica Trend Report, we asked a select group of people to help us identify trends that will shape the fresh produce business in the next 12 months.**

As well as an in-depth knowledge of the European fruit and vegetable market, each of those experts offers their own unique perspective on specific aspects of the trade.

We asked them to suggest specific trends which they believe will influence the fruit and vegetable industry the most this year. We also invited them to elaborate on their suggestions and to provide examples of those trends in action.

Once we received their answers, we used them to compile a list of ten key trends. We placed these in order of importance, based on the number of times each particular trend was nominated. In a small number of cases, we merged trends that could be considered as part of one overarching theme – for example, vertical farming and local sourcing.

The results are published here as *Fresh Future: Ten Trends to Follow in 2022*.

We hope you enjoy reading this special report, and we look forward to seeing you at Fruit Logistica, which takes place in Berlin on 5-7 April 2022.

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# A huge challenge

The pandemic has had a profound impact on the way we live and work today. And it will shape our lives for years to come. The long tail of this crisis continues to have an impact on the fresh fruit and vegetable market. Every part of the supply chain is affected. Businesses must become even more efficient – they need to strip out every unnecessary cost and to invest and innovate even more, especially in new technology. And all this at a time when food retailers make ever more use of the blunt instrument of low prices, to compete for market share. It's an enormous challenge to sustain any business at a time like this.

## **Three forecasts**

### *New retail*

Enjoyment of food is one of life's essential pleasures, but shopping for food remains a chore for so many of us. This means food retailers need to rediscover an enthusiasm to serve us in stores that are fun to shop at, or else we shall all go online and where is the joy in that? With supermarkets transfixed by the price war, the time for new forms of independent retail is now.

### *Eat healthy*

The pandemic has reminded us that fresh fruits and vegetables are essential for better health. So we need to convert this into consistently higher sales, driven by great-tasting and high-quality products for which people pay good money. Life would be miserable without them!

### *Talk tech*

Since we have embraced technology in every other part of our lives, the sector needs to explain better why tech in every aspect of the fresh fruit and vegetable supply chain is to be welcomed. Why indeed? It results in better, tastier, cleaner fresh produce and, in simple terms, it's better for us and for our planet.

## **Chris White**

Managing Director · Fruitnet Media International





## Chapter 1

# Essential maintenance

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Kiwifruit vines covered with green,  
protective nets near Ravenna, Italy  
*Photo: Alegra*



**Sustainability stands out as the single most-important trend in the fresh produce business today. Of all ten trends selected for this report, it will be the most influential by far in 2022. A clear majority of our contributors chose it as a their headline trend, and pointed to its far-reaching consequences for every single part of the fruit and vegetable business. The fact is, a huge proportion of our industry understands that sustainability is a 'no brainer'. You don't need a degree in meteorology to understand that our climate needs all the help it can get to avoid the worst effects of its recent warming. You don't have to be a public relations guru to comprehend the folly of ignoring corporate social responsibilities. You don't have to be a qualified economist to see that environmental stewardship and ethical trade make long-term financial sense. As one of our trendwatchers observed: "Sustainability will be non-negotiable."**

The UN's Sustainable Development Goals and its Intergovernmental Panel on Climate Change (IPCC) have opened eyes to the scale of the challenge: climate change is "widespread, rapid, and intensifying, and some trends are now irreversible," it reported in August 2021. In response, fruit and vegetable growers, suppliers and retailers have set ambitious environmental targets, and investment in sustainability has become a greater priority. Energy use, packaging, and transport all require improvement in terms of their efficiency and impact. Resources, people, communities, and biodiversity need greater protection. This will all entail new investment, new technology, and new strategies.

Retailers have taken the challenge seriously. The increasing unpredictability of weather patterns has made produce procurement harder than before. And while efforts to bring production closer to home might alleviate some of the supply chain stresses involved, it is also true that adaptable procurement also means having to source from further afield. "Extreme weather conditions are no longer just increasing overseas, but globally, in Europe and even on our own doorstep," says Eugenio Guidoccio, head of fresh produce buying at German retail group Rewe. "If we used to have relatively stable temperatures in the winter season for berry cultivation in Spain, for example, we now see these further south, including in Morocco. So we have to supplement our deliveries accordingly, in order to ensure the availability of goods."

How this works in practice depends on several factors, reveals Guidoccio's colleague Markus Bobenhausen. "When it comes to storable fruit or vegetables, such as apples or potatoes, we can work differently than [we do] with a sensitive product like raspberries. It also depends on whether the cultivation cycles are short, as they are for potatoes, which means we can still influence them depending on the country of cultivation. If we are talking about stonefruit, which cannot be planted and harvested immediately, we have to find alternative producers quickly. Depending on the product, we have to react differently."

Look elsewhere in the food business and you will see similar signs of urgency. Multinational food company Danone has pledged to halve its greenhouse gas emissions by 2030, and part of that will be achieved by sourcing more mature fruit locally to where it is consumed. Through a project launched with INRA in France called Friendly Fruit, its fruit buyers have assessed how and where its fruit is produced in order to improve their procurement environmentally and socially. In France, it now sells yoghurts under the brand Aux Fruits d'ici, which means 'Local Fruits'. »

There are tough choices ahead. In some instances, our industry stands at a fork in the road. Packaging is a perfect example: France has already banned plastic packaging for unprocessed fruit and veg in packs below 1.5kg, and in other countries politicians and retailers have taken measures to encourage more recycling. ICA in Sweden and Rewe in Germany have looked at laser labelling as an alternative. And Lidl in Switzerland is funding research into an edible coating made from crushed fruit and veg peel, which it says could help bananas and cucumbers stay fresh for longer without the need for plastic wrap.

Across Europe, it seems, plastic appears to be on the way out. As a recent IRI Worldwide report found, more consumers want their packaging to be biodegradable, or at least made from recycled material. But how many of them understand that plastic might still have a key role to play in minimising food waste? Alternative materials, some of which harness new shelf-life extension technologies, ought to be welcomed. But it is also right that they must guarantee the same benefits and ultimately contribute to a reduction in climate warming.

More and more consumers want to know that the fruit they buy is good for the planet, as well as good for their health  
*Photo: CartonPack*



For marketers, sustainability and ethics are front of mind because the same is true of consumers, especially younger ones. Recent research suggests almost half of Generation Z is happy to spend more with retailers that commit to climate sustainability. Retailer demand for data-driven standards will therefore grow, as will the need for suppliers to deliver overtly climate-friendly products that can be sold and promoted as such.

To monitor and measure sustainability, new and trustworthy systems will be needed so people can make informed decisions about what they purchase. As a consequence, well-organised suppliers that can scale up their operations and achieve consistent, year-round availability will find themselves with a clear advantage in the market. Plus, they can start to convey a sustainability message that reinforces the strength of their brand. »



At the same time, governments want to demonstrate their own commitment with new regulation. Here, there appears to be some apprehension within the fresh produce business about where new rules will take the industry. Producers in Europe say they fear the possible negative effects of the European Commission's Green Deal, despite their broad support for its central aim to boost organic farming and to halve the amount of pesticides used in agriculture by 2030.

A recent study carried out by Wageningen University & Research found that the policy's focus on tackling climate change and a loss of biodiversity was likely to have various adverse consequences. These include a decline in crop yields and a resultant increase in prices, as well as a fall in European exports – potentially from 1.3m tonnes to 450,000 tonnes – and greater imports from outside the EU. Yet at the same time, many welcome the opportunity to keep expanding Europe's organic fruit and vegetable sector, which is forecast to be worth €15bn by 2026. Production is booming, and expected to double its share of overall production to 20 per cent by 2030. As long as inflation does not apply too harsh a brake on that growth in the medium term, this should unlock plenty of new value.

Locked into the theme of sustainability is another trend in our top ten, health. Concerns about sustainability often overlap with consumers own personal health concerns, as well as the future of the global food system itself. In a recent report by Innova Market Insights, it was suggested that a majority of consumers now places more importance on the future health of the planet than they do their own health. As a result, even plant-based foods are going to be scrutinised for their green credentials as well as their nutritional benefits.

In future, however, as avocado suppliers are already finding out, a health-based marketing message won't always be enough. "We have to be really cautious about where we source from," explains Evy Van Gastel, senior buyer at Belgian importer Special Fruit. "Colombia has the advantage of lots of water, which some countries are experiencing challenges with. We have a team that is constantly investigating all sustainability aspects, including water and labour. Going forward, as people become increasingly aware of the climate crisis, we see potential for organic avocados, as well as sourcing from closer by." For every company in the entire fresh produce business, sustainability should be top of the list. ●

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## Chapter 2

# The cost of combustion

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Thousands of glasshouse LEDs light up the night sky in Westland, Netherlands  
Photo: GAPS Photography



A sharp rise in energy prices and a subsequent increase in inflation – higher input costs and consumer prices – will be major factors for every fresh produce business in the next 12 months. Eurozone consumer prices were up by a record 5.1 per cent in January, bumped higher by sharper-than-expected increases in Germany and Spain. In the UK, inflation was 5.4 per cent in December, its highest in 30 years, US inflation set a 40-year record in December with a 7 per cent year-on-year rise, according to the Bureau of Labor Statistics. In Japan, meanwhile, inflation rose at its fastest rate in almost two years. In all cases, soaring energy costs have fanned the flames of inflation. The war in Ukraine has poured even more fuel on that fire.

Writing in the *Financial Times* in early February, Valentina Romei and Alan Smith said there was a general acceptance – even among those who believe inflation will fall in 2023 – that the current inflationary shock will last longer than first thought. “The rise in energy prices, which has driven inflation in many countries, is a case in point,” they wrote. “In one sign that inflation may be spreading beyond energy, the price of many other items is also increasing — especially in countries where consumer demand is strong enough for businesses to pass on higher costs.”

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Rewe's fresh produce buyers admit that supply chains are under severe pressure  
Photo: Fruitnet



For the international fresh produce business, it's not just energy prices that are a cause for concern. Transport costs are also set to be a major headache in 2022, as shipping capacity strains to cope with two of the pandemic's major economic effects: escalated demand for consumer goods, and supply chain disruption. Sales of containerships have rocketed over the past 12 months.

“The number of cellular container vessels reached an all-time high in 2021, after ship-owners appeared willing to pay almost any price to secure tonnage in the frenetic post-Covid market,” says Rafa Llerena, CEO of Easyfresh Logistics, quoting a recent *Alphaliner* report. Estimates in a report by the United Nations Conference on Trade and Development indicated a sustained surge in freight rates – they have reached five times the ten-year average – could further inflate consumer prices by 1.5 per cent this year. »



Retailers have already noted such changes. In an exclusive interview released through the retailer's own media channel, produce buyers Eugenio Guidoccio and Markus Bobenhausen of Rewe Group in Germany admit that fresh produce supply chains are under severe pressure. "The general supply situation is guaranteed and the availability of goods is normal," says Bobenhausen. "In terms of prices, however, the situation is a bit tense. Rising oil prices are having an impact on freight costs, both for sea freight and for trucking companies." That was before Russia's disastrous invasion.

According to Guidoccio, climate change and in particular the politically charged question of carbon dioxide emissions have become major factors when it comes to fruit and vegetable prices and availability. "Added to this are the increasing legal requirements with a view to the supply chains and their transparency. These are long-term requirements that we have to meet," he explains.

Can fresh produce companies pass on any of these increased costs? Some growers have already done so, but they tend to be those who have factored inflation into longer-term contracts. A few months ago in the Netherlands, for example, one supermarket chain that had already committed to sourcing from Dutch growers year-round apparently found itself locked into paying more to cover higher energy costs. As one of our panel points out, retailers will seek out any chance they can to limit the prices they pay. Plus ça change, you might well add. All the while, stipulated standards in all their many and varied forms will remain expensive passports to entry.

In some cases, the new economics will make it impossible for growers to continue. There are signs that this is already happening in the Netherlands and the UK, for example, where glasshouse operators have scaled back vegetable production rather than spend money on inputs that they cannot recoup. There are also fears that war in Ukraine and sanctions imposed on Russia will send energy and fertiliser costs higher than ever before, which is desperately bad news for suppliers already under intense financial pressure.

What about consumers? Inflation has to be passed on somehow, and this will inevitably create new patterns of spending behaviour in the market. There are a number of possible effects. Depending on the severity of the downturn, demand for high-end, premium lines that cost anything above around €3 per kilo will suffer to a certain extent. Below that figure are a broad number of staple items that might conversely attract a larger market share. Some commentators argue that growth in organic produce sales – which have seen strong growth in Europe over the last decade – could slow down dramatically, and the anticipated arrival of new customers may be delayed. ●

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## Chapter 3

# All being well



Greater public awareness of nutrition is a key trend for the fresh produce industry

*Photo: Konstantin Yuganov*



**Health and wellness remain high on the list of important trends for the fresh produce business in 2022, as consumers seek out more nutritious foods to improve their diet. The pandemic has certainly made healthy eating and nutrition a more immediate concern for lots of people, something seen in the growing importance of vegan, vegetarian and plant-based foods in the market. Lots of organisations have tried to raise awareness of fresh produce as health-enhancing food, among them the Food and Agriculture Organization of the United Nations, which declared 2021 as the International Year of Fruits and Vegetables in a bid to highlight their importance. Fresh produce companies themselves have also taken the lead to promote that same message.**

Finland's second-largest food retailer K Group recently revealed that its consumers are indeed more interested in eating well and locally. As part of its latest annual trend review, the chain surveyed 1,279 Finns and found that as many as 54 per cent were determined to eat a varied, healthy diet. According to its own sales data, products that increased in popularity over the past year included mixed berry packs (+54 per cent), Chinese cabbage (+41 per cent), peppers (+23 per cent), broccoli (+21 per cent), and small citrus (+15 per cent). "The Covid-19 pandemic has made Finns pay attention to their own wellbeing, and it has clearly also increased interest in ordinary, varied everyday food. People want to take care of themselves by eating well. We may ask if the era of fad diets is over," said Heidi Jungar, customer insight director for K Group banner Kesko's grocery trade division.



We expect this trend will continue to grow across Europe in 2022, but there remains a nagging doubt about the efficacy of generic promotions. After all, per-capita consumption of fruit and veg has not suddenly spiked upwards and remains well below the amount recommended by the World Health Organization. The EU has co-funded lots of campaigns over the past decade, but sales have not jumped dramatically higher. As the WHO itself revealed, around 3.9m deaths worldwide in 2017 were attributable to a lack of fruit and vegetables.

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Several retailers have launched lifestyle coaching apps to educate consumers about the health impact of their food  
*Photo: Jumbo*

Yet all the while, the notion of eating differently to be healthier has boosted sales in other food categories. A recent EU-funded investigation found that the plant-based food market in 11 European countries grew by 49 per cent to €3.6bn between 2018 and 2020. That's not just double-digit growth, it's a rocket-fuelled increase.

So the real question should be whether or not it can benefit the fresh fruit and vegetable category itself. In some ways, the rapid arrival of new vegan foods such as meat substitutes and free-from products in the supermarket aisles represents a trend that is in danger of passing the fresh produce department by. Interest in healthy eating represents a golden opportunity to sing the praises of nature's healthiest harvest. Frustratingly, promotional activities like the post-Christmas detox extravaganza Veganuary are very much an end-of-aisle event that features packaged, »



processed foods. They do not tend to be embedded in retail fresh produce departments themselves. One possible conclusion is that fruit and vegetables need to be even more convenient if they are to satisfy this consumer demand for new and easy routes to healthier eating.

On the plus side though, there are plenty of other opportunities to be found, especially where renewed interest in health translates into new ways of consuming: the post-pandemic urge to cook from scratch more at home, to get more local and seasonal produce delivered, or to pay for the convenience of ordering a meal kit where all of the ingredients are ready to go, certainly seems to have opened new doors for produce suppliers. As one of our trendwatchers observes, this can also open up the market for new products – turmeric root, for example – or indeed forgotten items like kale, parsnips, or salsify. There are also opportunities for established products to be merchandised in new ways. What better way to impress your first dinner guests in two years, for example, than by showing them you know how to barbecue a watermelon?

For many, issues related to mental health have been front of mind since the pandemic began. As a result, there is one school of thought that suggests consumers will be more focused in future on the connection between mental health and diet. This ties in with a documented shift among consumers towards a more proactive, holistic approach to health – one that has more room for the concept of functional foods. Within the so-called performance foods sphere, there could therefore be an opportunity to develop further the concept of superfoods.

Marketers could underline a connection between certain products and specific advantages, for example better skin health, as British Apples and Pears did earlier this year. Or they could promote certain fruits and vegetables – among them berries, nuts, green vegetables, raisins and avocados – as 'brain foods'. "Interest in longevity and mental acuity will factor into this trend as well," says Barbara Galli, an expert in food and sustainability. "People are looking for the best food to eat for brain health and to keep the brain sharp when ageing, avoiding dementia and Alzheimer's."

In a recent article, Deloitte predicts that Covid-19 will have a big impact on personalised nutrition, since the pandemic has hit people with pre-existing health conditions like diabetes and obesity. "Instead of treating when these people get sick, what can we do to pre-emptive care and improve their health through optimising their personal diet," it asks. "This might trigger a structural change in consumption patterns, and we should not underestimate the underlying behavioural change and supporting platform that is required in order to make new food habits stick." ●

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## MEET JOSEPH MAKHLOUF

who grows capsicums at  
**Elite Agro Farms** in Al Ain.

"Growing locally means we can pick our capsicums when they are perfectly ripe, thereby getting them from farm to table in 24 hours."

**Chapter 4**



# Up close and regional

.....  
Retailers want to show they can procure locally grown produce

Photo: Spinneys



**Local production is increasingly important to consumers, retailers, and indeed suppliers. It is a trend that is encouraged by the economic, environmental and perceptual benefits that sourcing from nearer to market can secure, and catalysed by technological advances in supply chains. Food that is grown closer to market could answer new consumer demand for fresh produce that is simultaneously perceived to be healthier and better for the environment.**

Driving this trend are environmental concerns, cost inflation in supply chains, and new technology. The latter can bring production closer to markets by pushing forward the development of indoor production, especially so-called vertical farming of items including leafy greens, herbs, tomatoes and berries. With an estimated US\$1bn poured into this groundbreaking area of horticulture in 2021, fears of an over-inflated investment bubble are perhaps well founded. Companies like Infarm, Bowery Farming, Plenty Unlimited, BrightFarms and CropOne have already secured some serious financial backing, with the vertical crops business projected to reach US\$1.02bn by 2027 according to Research and Markets.

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Projects like this box delivery scheme for new parents tap into both the local and health trends  
*Photo: Baby Groente Tas*



It is also true that technological breakthroughs like machine learning and the application of artificial intelligence have planted the seeds of some seriously exciting advances. There are signs that the trend is about to go mainstream: in early 2022, US retail giant Walmart became the world's first retailer to invest in vertical farming when it signed a landmark partnership deal with California-based Plenty to grow fresh, high-quality produce in vertical farming centres. Vertical farming's advantage is its capacity for continuous improvement. German company Infarm, for example, has partnered with Wageningen University & Research to work out how to maximise the flavour, nutritional content and yield of vertically grown hydroponic tomatoes.

One way or another, a lot of vegetables, and no doubt a fair amount of fruit too, will be grown closer to market in future. Some believe the hype around indoor farming will calm down in 2022, especially as the potential benefits and returns continue to appear more certain. Barriers to entry are certainly falling as the technologies improve and become more accessible. All the while, greenhouse growers like Mastronardi in the US and Agrocare in Europe continue to expand their own operations. Traditional players like Taylor Farms, North America's largest grower and processor of leafy greens, have also bought into protected production. »



At the other end of the chain, customers clearly see local sourcing as a useful opportunity. In Germany, suppliers to Rewe Group say they have noticed a rise in demand for so-called 'local'. You only have to look at the chain's Regional brand campaign to understand that proximity is a priority. In Norway, fresh produce distributor Bama-Gruppen recently got approval for a project that will increase domestic greenhouse production of fresh cucumbers and tomatoes. And an increasing number of vegetable seed companies and plant propagators now work together with growers, retailers and distributors to establish local supply chains for items like Tenderstem broccoli or sweet potatoes.

This all bodes well in terms of establishing new fresh produce supply. The direction of travel is unequivocally towards extending domestic and regional supplies, rather than importing from further afield to achieve year-round supply. In some parts of the market, especially where healthy eating is also a major trend, this could revive interest in seasonal eating. Of course, the definition of 'season' is itself open to debate. In the UK, one of the country's leading berry and stonefruit cooperatives Berry Gardens recently picked its first fruit grown at Dyson Farming, a new hi-tech glasshouse that helps it extend the British strawberry season to nine months, from mid-March until almost the end of November. Powered with renewable electricity and heat from an adjacent anaerobic digester, the glasshouse will eventually produce 750 tonnes of strawberries a year.

There are, of course, some very obvious reasons why fruit and vegetables are not usually grown within towns and cities. But as Luuk Graamans of Wageningen University & Research pointed out last year, growing crops year round in controlled environments can cut food miles and guard extreme climate stress, even if this does not necessarily make them more efficient than traditional methods. In particular, vertical farms need to offset their higher energy use. But as a recent report by the University of Sheffield's Jill Edmondson and Samantha Caton observed, urban horticulture is a largely overlooked and potentially very useful way to secure the supply of fresh, high-quality food in several urban settings. Aside from being close to market, there are other potential advantages, including reduced waste, protection against adverse conditions, and improved food security. Cities don't tend to have a good reputation when it comes to supporting consumer health and well-being. More food production in those areas could change that. ●

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**JUMBO** City

**JUMBO**

VERSKEU

**GORILLAS**

**GORILLAS**

Faster than you.

**Chapter 5**

**Retail**

**reformatted**

Rapid delivery firms like Gorillas connect retailers even faster with consumers

Photo: Jumbo Supermarkten



In January, China's largest online retailer JD opened its first two physical stores in Europe. Of course, it was not the first e-commerce giant to add bricks to clicks – Amazon was the first major mover with its acquisition of Whole Foods and then its rollout of Amazon Go – but it certainly says a great deal about where the grocery retail world is heading. JD's Ochama outlets in Leiden and Rotterdam in the Netherlands look nothing like conventional supermarkets. Instead, they serve as pick-up locations for products ordered online. Those products are stored in a massive warehouse and brought by robots to a collection point. As JD itself says, this is “an unprecedented shopping format”. If you enjoy a quick chat with the person on the till, this is not the shop for you. But for those who want less fuss and more speed, it's an attractive proposition.

This is a perfect illustration of the omnichannel trend's impact. Established retailers want to extend their reach from the physical world to online marketplaces, while web-based operators bring new ideas like checkout-free technology and dark stores to the real world. And it's a trend that has only just begun. This is not simply a case of supermarkets building e-commerce websites. This is about a proliferation of interfaces and experiences, about different approaches to ordering and delivery. Omnichannel retail brings people the right products at the right price – any time, any place.

Partnerships have proven essential in the quest for faster, more convenient supply chains  
Photo: Sainsbury's



Rapid delivery services are at the forefront of this trend. Backed by billions in venture capital, the likes of Gorillas, Flink, Getir, Weezy, Zapp, Fancy, Glovo, Cajoo and Jiffy are engaged in a battle not just for the quirkiest name but for the biggest share of that retail distribution holy grail – the 'last mile'. In an increasingly urban world where people are more remote from each other because they work from home more, it makes a lot of sense. Order online, and these companies guarantee to bring you your groceries within ten minutes.

Mainstream retailers are well aware of the challenge this poses: The Netherlands' second-largest supermarket chain Jumbo and the UK's largest Tesco both have partnership deals with Gorillas, while Deliveroo now works with Sainsbury's, Waitrose, Morrisons and Co-op in the UK. »

There is also growing interest in home delivery in Germany, where Edeka recently sold off Bringmeister in order to expand its stake in Dutch online supermarket Picnic. Around the German twin cities of Mainz and Wiesbaden, organic chain Tegut has significantly expanded the delivery area covered by its online business in cooperation with Amazon Prime. With plenty of physical store real estate available to convert into so-called 'dark stores', the supermarkets now have an opportunity to compete with rapid delivery firms: central to this will be the creation of more capillary distribution networks around micro-fulfilment centres – small hubs that link to their existing central distribution centres and enable them to reach customers even faster.

Whatever the outlet, whatever the supply chain, fresh fruit and vegetables remain as relevant a part of the retail world today as they ever have. "Consumers [have] spent more time at home, and this has a positive effect on fruit consumption, as this is mainly an in-home consumption moment," says Giorgio Comino, executive officer for Europe and North America at kiwifruit company Zespri.

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Meal kits have continued to grow in popularity as retailers buy into the format  
Photo: Marley Spoon



Just look at the prominence of fruit and veg in meal kits, a new and exciting area of growth for established retail companies – German chains Edeka and Aldi both now sell 'Kochboxen' – and new online-only players like HelloFresh and Gousto. In the past two years, online produce sales have risen sharply and, according to Rabobank, they are not likely to fall back to pre-pandemic levels. This is especially true of everyday items like apples, bananas and cucumbers. "Consumers see no issues with buying these online," notes Cindy van Rijswijk, Rabobank's industry analyst for fruits, vegetables and floriculture.

While the pandemic has accelerated the development of various distribution formats, the lines between retailers and the rest of the supply chain – even as far back as production itself – have blurred. In Asia, e-commerce players that are not weighed down by physical store networks have been able to pivot in this way more easily. Chinese online retailer Pinduoduo, for example, recently said it would invest US\$1.5bn to modernise farming and introduce more popular varieties. »



“In the future e-commerce market in Europe, the US and other parts of the world, we also expect that the impact of powerful e-commerce players will go beyond providing services to consumers only,” Van Rijswick comments. “With the platforms and capital, these companies can also add value to farmers by providing not only a market place but also provide farm inputs, knowledge, and capital. “ It’s true that traditional retailers in other parts of the world are doing similar things. Walmart’s partnership with vertical farming startup Plenty, Norwegian group Bama’s investment in locally grown cucumbers and tomatoes, and Russian retail chain Magnit’s own greenhouse developments are just three of several such examples.

Autonomous delivery units like this one, operated by Ochama owner JD.com, are already a feature of China’s omnichannel retail landscape  
Photo: JD.com



The way fresh produce is merchandised continues to change as the formats themselves evolve. For some shoppers, affordability will be front of mind. For others, it will be about indulgence. In some instances, the retail experience will be of paramount importance. At other times, customers will want to spend as little time browsing as possible. If Mark Zuckerberg’s Metaverse dream becomes a virtual reality, then it’s quite possible some people will be drawn to the convenience of staying at home combined with the fun and games of an experiential retail setting. If enough people want to sit on the sofa in just their underpants and a VR headset, and then choose the best-looking broccoli avatar from a 20-metre tall display shaped like a Christmas tree, omnichannel retail will eventually make it happen. \_ ●

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## Chapter 6

# Helping hands

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Te Puke, New Zealand, one of many places  
where seasonal labour is in short supply  
*Photo: Brian Scantlebury*



**Labour, or lack of it, has worked its way up the list of key trends. The industry faces a major challenge because of a widespread shortage of people to produce, pick, pack, and pass its products along the supply chain. This was already an important factor before Covid-19 struck, but the pandemic has made it even more so.**

In New Zealand this year, there were not enough seasonal workers in the country to pick its kiwifruit and apples for export. More than half of Chilean fruit producers say they face a serious labour shortage. In the UK, a perfect storm of Brexit, Covid, and competition from other industries has left the horticulture sector desperately short-staffed.



As the world tries to put the pandemic behind it, so many factors remain in play: rising cost pressures, lingering restrictions on movement, concerns over the ethical treatment of people; and all the while the cost efficiency of automated technological alternatives grows. This is a key knock-on effect that will play out over the coming years.

Technology has raced ahead, powered by game-changing advances in several areas. Repetitive, time-consuming tasks no longer have to be done manually. Machines can now inspect or even pick fruit in the field, while machine learning can predict what the market demand will be. Robotics has brought more automated brawn, and new software gives companies access to some staggeringly competent artificial brains.

.....  
Many in the fresh produce business know the value of worker communities  
*Photo: Rijk Zwaan*

Many fresh produce companies have already turned to new technologies during the pandemic, while others have seen those alternative methods in action and are now ready to adopt and adapt. As agriculture contends with tougher competition for talent, its own digital evolution means the kinds of skill needed will increasingly overlap with new sectors.

“The fresh produce business will need to compete for key talents in, for instance, fintech, IT, finance, data analysis, risk management and innovation-based roles,” predicts Michele Dall’Olio of Fresh4cast, which automates production and demand forecasts using machine learning software.

In the past few years, our industry has learned – sometimes the hard way – that scrutiny of worker treatment is sharper than ever. It must be ready to change the corporate culture when it comes to workers, and realise that the days of cheap, plentiful labour are probably gone. \_●

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# Chapter 7

# Shifting supply

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Pallets of produce await their next move  
along the supply chain in the Netherlands

Photo: Adobe Stock



Supply chains are changing rapidly in response to shifting market requirements, persistent capacity pressures, and the emergence of new technologies. To summarise this trend succinctly is a challenge, but the emerging reaction from fresh produce companies could perhaps be described as a more joined-up approach to supply. Fruit and vegetables are moved from source to consumer along any number of different routes, which makes the potential obstacles along the way – quality, temperature, logistics, staffing, currency rates and so on – much harder to anticipate. Plus they need to be faster than ever.

Ben Horsbrugh of GlobalGAP says he believes the development of strategic supply chains will be a central feature of the fresh produce business for at least the next 12 months. “Retailers are likely to continue adapting their supply chain and sourcing structures to reduce risks such as those caused by supply chain and logistic problems, pandemics, climatic disruption, and price volatility,” he predicts. “This will strengthen their core strategies to source the right product at the right price from the right place, with ‘right’ now covering a wider range of attributes – such as sustainability, taste, quality, and farm structure.”

.....  
Stricter standards require an even more joined-up approach to fresh produce supply chains

Photo: Rewe Group



Faced with such a daunting challenge, companies will need to forge partnerships or make acquisitions in order to create fuller, more flexible supply chains. They will also need to run systems that talk to each other, utilising digital software that combines data sources seamlessly. Suppliers who have their own production in the market as well as access to other dependable sources out of season will fare better than others who do not. “Easier said than done,” says Michele Dall’Olio of Fresh4cast, “because production is fragmented and highly seasonal, while retailers look for year-round consistent supply.” ●

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## Chapter 8

# Genetic ingenuity

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High-GABA Sicilian Rouge, the world's  
first gene-edited tomato

Photo: Sanatech Seed



**The continued development of licensed, protected products that offer better quality and taste thanks to their genetic points of difference is set to create plenty of new value in the coming year, particularly for those who hold the commercial keys to those varieties. Across a number of different product categories, privately-owned genetics regularly outperform their commoditised competitors, which in turn has prompted a kind of genetic goldrush as companies look to find the next Pink Lady apple or SunGold kiwifruit.**

This is not just about consumer brands. Yes, the likes of Jazz and Rockit apples and Bimi broccolini have shown the sort of added value that can be achieved through scientific exploration. But it's also true that the fresh produce market is a tough place for trademarks and not all of them make it. The good news is that this doesn't have to be a dealbreaker. so-called club varieties that offer better genetic properties don't necessarily need a consumer brand to make an impression.

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Trademarked products like these Caulilini baby cauliflower stems offer the market something new and exciting  
*Photo: Mann Packing*



Take blueberries for example: so far, their remarkable commercial success has not been held back by a lack of consistent quality, but as retailers look for ways to maintain sales growth, suppliers with access to improved genetic material will have a definite advantage. Some of the world's leading berry marketers have already secured deals with breeders to achieve that goal.

This year, a small group of Italian growers will launch a new variety of sweeter green kiwifruit – a direct response to changing consumer demand. Another major Italian fruit cooperative, Apofruit, recently decided to put trademarked varieties – including Pink Lady apples, Zespri Gold kiwifruit, Fred pears, and Fall Creek blueberries – at the core of a major expansion project, as it seeks to defend the value of its members' production and looks to compete with other suppliers on the international market. VIP, the Val Venosta Cooperatives Association, says it will soon be able to guarantee year-round supply of club apples grown under licence in the South Tyrol region. Similar things are happening in other countries and product categories too, and this will broaden the divide between licensed genetics and open-source alternatives. »

Genetic modification is one area that continues to capture the imagination. Recent advances in genome editing – a distinct scientific branch in its own right alongside selective breeding and genetic engineering – makes this one of the most intriguing fresh produce industry trends to watch in future. In January, researchers claimed a newly discovered gene called PAR would make it possible to produce seeds from crops that are genetically identical to their mother plants. The phenomenon, called apomixis, enables plants with a desirable combination of traits to produce many offspring with the same desirable combination of genes as the mother plant. This looks like a real game-changer for fruit and vegetable breeders.

.....  
New genetics  
have already sown  
the seeds of new  
growth in the  
berry business  
Photo: BerryWorld



Already, products with selected traits are being developed using gene-editing technology. Japanese group Sanatech Seed's Sicilian Rouge tomato, for example, was bred using CRISPR-Cas9 techniques to give it a larger amount of gamma-aminobutyric acid, which can reduce blood pressure.

Privately owned genetics do not have to be new, of course. Frank Döscher, managing director of Elbe-Obst, believes there is room in the market for so-called legacy varieties that have been around for centuries but more recently have been overlooked. "Old varieties have always been and still are a trend or desire of consumers, especially the older target group," he explains. "Here, Elbe-Obst or respectively the Altes Land region [near Hamburg] can serve the food trade with varieties such as Red Boskoop or Holsteiner Cox."

In Japan, growers are registering more new varieties of fruits and vegetables than ever before in an attempt to secure premium prices. According to a report from The Nikkei Asian Review, 28,653 varieties of fruits, vegetables and other crops were registered with the Japanese government by the end of September 2021, nearly three times the number of registrations in 1994. Those fresh produce companies that can help their customers access high-quality varieties that are unavailable elsewhere – whatever the vintage – will have more success in the future. ●

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A basil plant is shown in a glass container, illuminated by a blue and purple LED grow light. The light creates a strong blue and purple glow over the scene, highlighting the texture of the basil leaves. The background is dark, making the illuminated plant stand out.

## Chapter 9

# Appetite for delection

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Artificial intelligence has been used in the US to grow basil plants with better flavour

*Photo: Andrii Iarygin*

Closely linked to genetics is taste, a trend that is set to drive demand and influence the way fresh fruit and vegetable companies produce and sell their products. For many consumers, it is no longer enough for produce to be healthy. They want enjoyment and wellbeing. Influenced by their own experiences as well as the opinions of social media connoisseurs, many know that pleasure need not be compromised in the pursuit of good nutrition.

Grower cooperative BelOrta's Belgian and Dutch producers now grow 52 different types of tomato, each developed to offer good taste and flavour – vital to encourage repeat purchases. "If they like the taste today, they will buy it again tomorrow," says sales and marketing manager Jo Lambrecht.

One of those tomato varieties is Yoom, an award-winning, dark-skinned variety. Its success proves that taste is now of central importance to increasingly discerning consumers. "we have created a tomato that offers a gourmet experience for consumers who seek an uplift their daily meals, while being easy to grow and delivering good shelf-life, benefiting stakeholders from across the value chain," says Jérémie Chabanis of Syngenta, which developed Yoom.

.....  
Award-winning  
tomato variety  
Yoom meets  
growing demand  
for tasty, healthy  
products  
Photo: Syngenta



Of course, tasty products – tomatoes especially – have existed for centuries. The difference now is that the product's good taste has to endure all the way along modern, international supply chains.

Using machine learning, researchers have now discovered a way to explain why certain fruits or varieties of fruit taste the way they do, based on the products' chemical composition. In the US, a team at MIT recently used AI algorithms to improve the flavour of greenhouse-grown basil. Although the science will always be an educated guess – after all, taste perceptions change over time and across different groups of people – this does raise the possibility of developing varieties with new tastes and flavours much more quickly in future. \_ ●

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# Chapter 10

# Digital dynamics

Salad vegetables inhabit a vertical farm production room in San Francisco, US  
Photo: Plenty Unlimited



**Technology is tenth in our list of the most important trends that will affect the fresh produce business in 2022. It's a very broad term, of course. Technology has all kinds of applications and effects in all parts of the industry, from seed development, production, sourcing and grading, to transportation, distribution, retail and marketing. But this year, more than ever, the various technological advances we see are poised to have a marked impact on how fruit and vegetables are grown, traded, sold and even consumed.**

That's because data systems in various different parts of the supply chain are far more integrated than they used to be. There are risks too, however. A cyber attack on the Port of Antwerp in early February brought operations at a fruit-handling centre run by Sea-Invest/BNFW to a standstill, which meant it had to resort temporarily to manual methods and handwritten records. Technology opens new doors, provided you don't lose your keys.

Information technology gives the fresh produce business a clearer view of its own supply chains by making them more interconnected  
*Photo: Oranfrizer*



Much like the remarkable development of coronavirus vaccines over the past couple of years, the digital, AI-assisted tools now used to breed new varieties can turn out better types of fruit and vegetable much faster than they did previously. Production can be connected and monitored in ways that might once have seemed impossible, while the weather itself – despite the clear threat posed by climate change – is arguably easier to predict than ever before. Harvesting, grading, storage, and distribution are all potentially quicker and more responsive to customers' needs. And thanks to advances in e-commerce, the world of retail is now undergoing its most radical transformation since the arrival of the self-serve supermarket.

Traceability is an area where digital technology offers plenty of potential improvement. In 2021, US retailer Walmart began to track leafy greens like lettuce and spinach by using IBM's blockchain system Food Trust. Since then it has reportedly expanded the trial to other items including peppers, with around 100 different suppliers now understood to be part of the project. While artwork NFTs grab the headlines, this kind of technical artistry is at the centre of a silent revolution. »



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Technology could offer potential solutions for those firms faced with a lack of workers  
Photo: Crux Agrobotics, Fruit Logistica



Technology also provides an answer to one of the fresh produce industry's biggest challenges, one posed by a lack of labour – another trend mentioned in this report. As Michele Dall'Olio of Fresh4cast explains, suppliers and buyers can now take huge steps forward if they make use of new machinery or software. "As happened with the tractor revolution a century ago, the fruit and veg industry is seeing another tipping point," he predicts. "Automating repetitive tasks will free untapped human capital, much needed for more strategic jobs. Some practical examples are robots able to inspect and pick strawberries on the fields, like Dogtooth Technologies, and the automation of production and demand forecast using machine-learning software, like [our own company] Fresh4cast."

Technology will also enable fresh produce companies to cope better with the need to be more sustainable, for example on packaging (discussed earlier in this report), where new technologies can reduce a product's environmental impact. Sicily's largest citrus supplier Oranfrizer has introduced new precision farming technologies that reduce the demands its production places on natural resources and the environment. Through the use of data from tools including satellites and drones, it can now monitor tree health and keep a closer eye on moisture levels in the soil, air and leaves. It can also track adverse environmental conditions with greater accuracy. As a result, technology has enabled the company to cut water and fertiliser usage, as well as waste. And that returns us neatly to the first of our ten trends for 2022, sustainability. \_ ●

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*Photo on following page: Albert Heijn*



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AH Gedroogde pruimen  
2.99

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0.99

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2.59



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1.79

AH Mango etrip  
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Fruit Logistica is the world's leading trade fair for the fresh fruit and vegetable business. The event covers every single sector of that business and provides a complete picture of the latest innovations, products and services at every link in the international supply chain; it also offers superb networking and contact opportunities to the key decision-makers in every area of the industry.

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PRODUCED BY FRUITNET · THE FOOD EXCHANGE · NEW COVENT GARDEN MARKET · LONDON SW8 5EL · UK

PUBLISHED BY FRUIT LOGISTICA · MESSE BERLIN GMBH · MESSEDAMM 22 · 14055 BERLIN · GERMANY