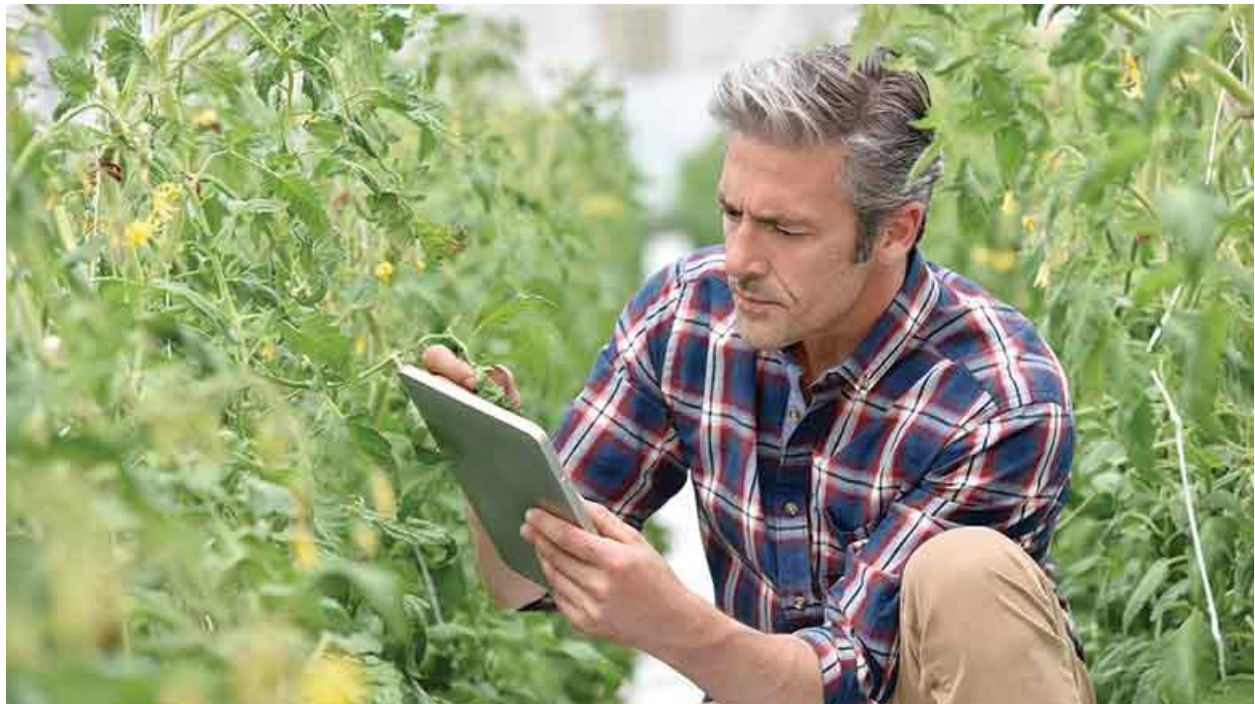


DISTRIBUTION SOFTWARE COULD CHANGE EVERYTHING



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JULY 1, 2018

Originally printed in the July 2018 issue of Produce Business.

It's time to prepare for the produce business of tomorrow.

Future consumers will be able to walk up to a display of Romaine lettuce or Brandywine heirloom tomatoes, turn on their smartphone's scanner and learn where the produce was grown and how — including any chemical applications, when it was harvested and even how it can be used.

Younger people, in particular, are inquisitive about their food, and they already receive far more of the information they use to make produce purchase decisions from the Internet and social media than do Baby Boomers.

“I need to know every detail about how my produce is grown, harvested and handled,” says Richard Jones, chief technology officer for **Linkfresh** in Cambridge, England. “I want to go into a buffet and see this information on a screen in front of me. You will be able to point your phone camera at some lettuce in the store and learn everything there is about how to use it and how it was produced.”

The hardware to make this wealth of knowledge readily available is largely in place, as many consumers have smartphones, and nearly all retailers have scanners with wireless connections to the mainframe or the cloud.

“A lot of the infrastructure is there now; it’s the software that is getting better,” says Jones. “The systems aren’t in place. Companies are shopping for (Enterprise Resource Planning systems) now. We’re selling to more people who want a safety net.”

Food safety and the need to be able to trace produce from the field to the supermarket shelf brought most of the industry to the information age.

“With the coming of the **Food Safety Modernization Act** in the United States and the **Safe Food for Canadians Act** in Canada, there will continue to be a focus on using technology for all aspects of dealing with fresh produce,” says Charles Waud, president of WaudWare, Brampton, ON. “You can expect to see increased usage of robotics, RFID, barcode and Internet technologies everywhere.”

We are about to walk through the door into a high-tech age that changes everything about produce, from food safety traceability to inventory management, communication with customers and relationships with growers.

“The focus for the next five years is e-commerce, analytics and operational efficiency,” says Tina Reminger, general manager of **Silver Creek Software**, Boise, ID. “E-commerce is incredibly important because it’s the company’s primary online presence, and the typical consumer expects a simple way to order online. The bar has been set very high by large companies like Amazon and Walmart, and the quality of your ordering platform can often be the key element that sets your produce company apart from your competitors.”

Inventory Management

Midwestern grain farmers already use GPS enabled tractors that let them plant or harvest 24 hours a day when the weather leaves them in a time crunch.

These new-age machines even produce yield maps that can be used with variable rate applicators the next season to put additional fertilizer in the more productive areas of the

field, or incorporate gypsum to balance the magnesium in crusted ground that shows up on the map.

Salinas Valley, CA, lettuce growers use tractors with cameras that can identify weeds and apply a highly selective squirt of herbicide without wasting the material or harming lettuce plants just a few inches away.

High technology is already impacting how we produce food, and the next step will be using software to manage the inventory more efficiently and waste less perishable produce.

“Because produce has a short shelf life, distributors must have a detailed look at inventory levels to make sure they don’t have either a shortage or a surplus,” says Fred Powers, president and chief executive of **Dimensional Insight**, Burlington, MA. “Analytics allow produce distributors to optimize inventory levels, minimize downtime and conduct in-depth analyses to capitalize on the efficiency of the manufacturing process.”

Good distribution software should take to a new level the accuracy and speed in all the exchanges of information needed to move produce from the field to the packinghouse, on to the distribution center and then to supermarket shelves.

“Software can have a huge impact on inventory management,” says Reminger. “Being able to quickly pick or pack product and track it all the way to the customer is critical in keeping the produce business efficient.”

It is already possible to see on a smartphone how much of every SKU you have on the department floor, at the distribution center and even in the field, and to match this with how much you can expect to sell in a specified period of time.

“Software used in inventory management can reduce the labor needed to maintain accurate counts and speed up access to information needed for business decisions,” says Waud. “Further, automated (Electronic Data Interchange) systems will reduce the need for people to exchange business transactions verbally or via email. Software will detect when inventory levels reach the point of replenishment, calculate the quantities needed, place the orders with suppliers and anticipate the arrival of the product.”

The bottom line on inventory management software is whether it saves enough time and money to justify the investment.

“Software that can help reduce manual labor will be of the most importance,” says Waud. “We need to continue to find ways to reduce the need for human interaction related to various processes in farming, harvesting, packing and shipping produce.”

Tomorrow’s forklift driver should be able to locate his target load on a screen mounted in front of him, according to Linkfresh’s Jones, and as robotics advance — the forklift may not even need a driver.

“Autonomous vehicles will play increasingly larger roles in the ‘last-mile’ deliveries as well as long-haul trips,” says Charles Shafae, president of **dProduce Man Software**, Half Moon Bay, CA. “Not all firms can afford the \$10,000s or \$100,000s that these robots may cost, but as the technologies continue to evolve cost will be adjusted downward, and smaller firms can buy robots to supplement the labor force. If you aren’t already using route-planning software, you are falling behind.”

If driverless forklifts seem terribly futuristic, consider that the pace of change in high-tech is unlike anything ever experienced in agriculture.

“Five years in high-tech industry is synonymous with 50 years in a regular industry,” says Shafae. “I can imagine extensive uses of artificial intelligence. A good example of that would be warehouses with automated picking and packing equipment. Imagine a warehouse where intelligent robots pick and pack the items. The next step is to stack the items in the self-driving trucks. The robots can then calculate the least cost for the fastest delivery route.”

The biggest players in high tech think the next big development will be machines that learn on the job.

“We just had the Microsoft and Google software events, and they unveiled what is coming in the next five years,” says Jones. “They expect it to be in the area of machine learning and artificial intelligence.”

At every step of the way, the question to ask about distribution software is whether it makes the operation more efficient.



“Operational efficiency is an area that affects every aspect of your business,” says Reminger. “This is especially important when it comes to warehouse management and inventory tracking. Things like voice scanning, automatic slot selection and delivery truck tracking are all software solutions that can improve the productivity of a produce business. There is a lot of focus on artificial intelligence. How can your processes and systems work better for you?”

The ability of computers to store and analyze information could be a game-changer in the produce industry.

“We are seeing more and more companies looking into data analysis as a key to running their business more efficiently,” says Marc Hatfield, national sales manager at **Produce Pro Software**, Woodridge, IL. “The adoption of business intelligence tools has increased and likely will continue to evolve with easy-to-use platforms. Also, ‘blockchain’ is a big

buzzword in the industry today. How that is developed and implemented is still being determined.”

Traceability Is Still Paramount

The need for greater implementation of traceability was brutally demonstrated by the recent difficulty being able to pinpoint the source of *E. coli* in Romaine lettuce from Arizona after weeks of looking.

“Traceability is still a major issue for many companies (especially smaller ones) to implement and utilize fully,” says Reminger of Silver Creek Software. “As we all experienced with the recent *E. coli* breakdown from Arizona, we as an industry realize how incredibly important traceability on the whole is.”

The answer to this problem will be in the ability of many produce companies to quickly and accurately communicate with each other.

“One of the areas that needs particular focus is the standardization of B2B protocols that make it easier to swap and transfer data between businesses using different equipment and systems,” says Mick Heatherington, vice president for sales at **Prophet North America**, Bakersfield, CA. “This includes traceability data for produce origins that would be of huge assistance in product recalls.

Here we are in 2018 with another food scare in full swing, and as an industry we can’t really pinpoint quickly or accurately enough what route the product we need to trace took to market or where it has ended up.”

The challenge of traceability will only grow more challenging as food distribution becomes even more global, and consumers demand additional information about the origins of their produce.

“As the supply chain becomes more and more global, easy-but-accurate traceability becomes even more important,” says Reminger. “This is important not just in the event of a recall but also for the discerning consumer, wanting to know how their produce was grown and who they are supporting with their purchase as a key part of the farm-to-table movement.”

Blockchain is a fast-growing method in which many parties participate in sharing information in a format that is all but impossible to hack or change once it has been entered.

“Of particular interest right now is the use of blockchain for traceability. Many people in the industry are keenly interested in how this can help,” says Waud.

The produce industry on the other side of the Atlantic is apparently ahead of us in using food-traceability protocols.

“If the United States follows what is happening in Europe, there will be more full traceability,” says Linkfresh’s Jones.

Because fruit and vegetable growers are already largely implementing good agricultural practices to reduce food safety risks, the onus is on retailers.

“In my opinion, retail needs the most work in terms of using software (and related hardware) for food safety and traceability,” says Waud. “Great improvements are being made in the farming and packing/shipping of produce. Retailers need to do their part to make sure traceability and food safety are maintained at the point of purchase.”

WHAT IS HOLDING THINGS UP?

The hardware needed to use the most advanced distribution software systems is not a great obstacle because it is largely inexpensive.

“There is a big focus on mobile development to provide those in the produce industry with access to data in the right place at the right time and on the right device,” says Fred Powers of president and chief executive of Dimensional Insight in Burlington, MA. “That way, employees can access critical data, whether sitting at their desk, on the plant floor or on the road.”

All that is needed at the distribution center and store level are portable devices that can scan, and send and receive voice commands.

“Tablets are becoming more of a standard,” says Marc Hatfield, national sales manager at Produce Pro Software in Woodridge, IL. “When it comes to the warehouse operations, the utilization of voice picking is becoming a critical and efficient way to operate.”

Most companies in the supply chain already have smartphones, tablets and access to the Cloud to use the latest diction, inventory management and traceability software.

The stumbling block is most likely in the reluctance of companies to adopt technology that changes the way everything is done.

“Any company still tracking inventory on manual spreadsheets or paper is not operating in an optimal environment,” says Tina Reminger, general manager of Silver Creek Software in Boise, ID. “As input costs continue to rise, efficiencies need to be found throughout a company’s operation. A customized ERP solution can help ensure a client’s business operates in the most optimal fashion for their people, processes, overall operation and to the unique markets served. Being able to track fully from seed to sale is a major advantage for any produce company.”

Interdepartment conflicts or rivalries can make it difficult to accept that everyone will do the job better if they are connected to the same way of entering, analyzing and retrieving information.

“There are many companies where one department is using spreadsheets, another data sets and a third is in something else,” says Richard Jones, chief technology officer for Linkfresh in Cambridge, England. “There’s a lot of resistance to running it all as one operation.”

With hardware largely already in place, and more powerful software arriving almost daily, produce distribution looks to be poised for a great leap into a new age.

“The produce industry is hungry for new technology,” says Mick Heatherington, president for sales at Prophet North America in Bakersfield, CA. “There is a vibrant technology ecosystem developing around the industry and gradually, but surely, the industry is grabbing hold of the incredible opportunities to be more efficient, more effective and importantly, more profitable and sustainable. Labor shortages, plant efficiency, automation, the harnessing of data and a desire for joined-up B2B solutions are just some of the things that are really exercising the minds of produce leaders.”