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PICKING HOLDS THE KEY

COLUMNIST

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AKEHURST**
Calving resembled
a foam party

FEATURE

EDITOR'S VISIT
Alex Myatt has set
a new goal at her
family's fruit farm

NEWS

**ADMINISTRATION
SHOCK FOR
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FEATURE

COTTAGE FARMS
A top fruit pack house has
significantly invested

Rural Outlook 2019

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PACKED WITH PRIDE

Top fruit pack house, Cottage Farms, has significantly invested in cold storage, mobile racking units and end of line automation to keep up with the growing demand for UK fruit as quickly and efficiently as possible.

"Please enter your details and select the member of staff you are here to see," chirped a Sinica machine as I walked through the entrance of Cottage Farms in Horsmonden, Kent. While I have filled out many a health and safety form for site visits, I don't ever recall being greeted and checked in by a computer, yet, by the end of my pack house tour, it was clear that this virtual receptionist was an apt introduction and a mere hint at the modern technology which can today be found in forward-thinking, efficiency-driven fruit businesses like the one managed by Chris Browning.

Once a common fruit farm feature, the pack house is now a rare sight in the South East. As numbers of top fruit processing units have dwindled, consumer demand and supermarket requirements have not, and today's modern pack houses are all designed to take in and ship out as much volume, as quickly and cost-effectively as possible.

Cottage Farms, whose existing site was

developed just five years ago, is currently one of the South East's largest top fruit handling plants, looking after fresh produce from over 30 UK growers, on behalf of Avalon Produce Limited, and out of season Southern Hemisphere imports, to supply one major multiple with around 4 million cartons of apples and pears per year.

During peak weeks, which normally fall towards the end of August and beginning of September, when the Southern Hemisphere imports cross over with the English season, Cottage Farms will pack in the region of 100,000 cases, which equates to about 7.5 million individual fruits.

With such an impressive tonnage of fruit to look after, Cottage Farms' managing director Chris Browning is always on the hunt for new ways to ensure that each stage of the packing line is running as efficiently as possible. Following a significant grant-aided investment into various site buildings and a state-of-the-art Aweta pre-sizer and grading line, in 2018 the company received the green light for two more Rural Development Programme for

England (RDPE) funded projects.

"After hitting all our milestones and surpassing some of our aims from the original grant, we decided to reapply for funding for end of line robotics and a 15,000 sq ft cold store with mobile racking," said Chris. "The grant was awarded on the basis of job creation and as we had proven to be previously successful, it was great to see a continuation of the government's support."



> Cottage Farms managing director Chris Browning

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COTTAGE FARMS

DOUBLING ON-SITE COLD STORAGE

Aside from wanting to take advantage of the grant funding before it potentially disappears post-Brexit, English Apples and Pears' (EAP) goal to increase the availability of English-grown fruit in the supermarkets, spurred Chris to start building the cold store as soon as possible, to ensure that it would be ready in time for summer 2019.

"Work on the cold store started a fortnight after the grant was approved," said Chris Browning. "Depending on the orders which come in, fruit could be delivered one day and be packed and shipped out the next. Equally, because we grade product by size and quality, certain stock might be stored for four or five weeks.

"At harvest time we are inundated with ex-orchard fruit and are often grading 300 to 400 bins per day. In fresh produce correct storage is absolutely key and there were times last year when the pack house was completely full, and we desperately needed additional space."

After recognising that the business didn't have sufficient facilities during peak times, Chris set about looking at the most efficient way of increasing cold storage capacity and opted for a mobile racking system.

"Despite limits from the planning authorities which meant that the new build could not be taller than existing structures, the new cold store has successfully doubled our on-site cold storage," said Chris. "The store will be kept at between 1 and 2°C,

pallets will be stacked three high and there is a moveable aisle which means there is room for 1,470 pallets."

To maintain the store temperature, JD Cooling, the UK's largest independent supplier of bespoke cooling, power and control systems, has provided Cottage farms with an innovative, purpose-built refrigeration system which has also been designed to provide good ventilation to ensure all products are adequately cooled.

The chilled water system utilises an air-cooled liquid chiller operating with low GWP (Global Warming Potential) HFC refrigerant to provide a long-term solution with improved energy efficiency. The use of a secondary or chilled water circuit reduces the quantity of refrigerant covered by F-Gas legislation compared to a typical direct expansion system.

To suit its external position, JD Cooling's solution is complete with weatherproof housing, aluminium clad pipework, anti-vibration mounts and cooler control panel to house the digital thermostat, and evaporator and defrost controls.

DECREASED DOWNTIME

To position the pallets accurately on the racking, Chris has added several BYD reach trucks to his fleet material handling equipment (MHE). Working with Stacatrac Limited, Cottage Farms was looking for an efficient range which could reduce downtime and overall machine numbers. Jon Monteath at Stacatrac felt that the best way to achieve this

with BYD's machines which only use lithium iron phosphate batteries.

"BYD in our opinion is the leading manufacturer in the sector as they only supply electric machines with these batteries," said Chris. "They are 100% maintenance free and require no checking of levels or topping. All the MHE can be charged from flat batteries to 100% fully charged in approximately one hour, as opposed to a minimum of eight hours which is the case with lead acid batteries, meaning the units can run for longer periods. This reduced charging time also decreased the actual number of units we required for the site."

The BYD machines have an eight-year manufacturer warranty for the batteries, the longest offered in the industry, and with the ability to charge them at any time throughout shift breaks there really is little downtime. There are also no end of contract disputes over dilapidated battery function, no costs for deionised water or labour costs for filling, no acid spills or replacement cells costs, no need for spare batteries or extra units to cover workload when machines are being charged and there are no heat or emissions created during the charging cycle.

These factors all help with overall cost reduction and with 98% charger efficiency, they also reduce the company CO₂ footprint. After successful on-site trials to confirm the equipment was by far the best for their requirements, Cottage Farms made the decision to go with the BYD products, supplied and maintained by Stacatrac on long term hire. >>



> Mobile racking units will provide space for 1,470 pallets of fruit. Loading for the first time on the day of South East Farmer's visit




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PLAN

DESIGN

BUILD

BYD manufactured reach trucks use lithium iron phosphate batteries and can be fully charged from flat in one hour



Full crates are organised into layers and loaded onto pallets which will be automatically strapped



COMMUNICATION SECOND TO NONE

When it came to find the right contractors for the new project, Chris Browning took a slightly different approach than normal, opting to look at the construction, steel frame work and building separately to refrigeration and electrical work.

After receiving the necessary three quotes for the RDPE grant application, Wealden AM was appointed as the main contractor, led by Rob Kendall. As well as constructing the steel frame, Wealden AM also oversaw the groundworks, which were carried out by Torran Construction and electrical work, which was completed by Orchard Cooling. Cottage Farms then dealt directly with JD Cooling who put the refrigeration in place.

"The contractors all worked exceptionally well together," said Chris. "The communication was second to none and we organised a weekly meeting with everyone which meant that the project ran smoothly. Nick Field, Wealden AM's contracts manager, has been very good at addressing any issues quickly and making sure there were no surprises."

A busy pack house with non-existent quiet periods, Chris was careful to choose contractors who were well seasoned in the agricultural sector

and capable of working around the site.

"From day one, I was clear that we would not be stopping the pack house for any construction work," said Chris. "We lost the main access to our grader for a few months, but we manage to plan around that. There would never have been a good time to install the automated packing line either. We had to separate and sheet a section of the pack house and then it was a case of handing over each machine one at a time."

INCREASING VOLUMES

In December 2018, work began on the second project; the end of line automation equipment which will allow the team at Cottage Farms to pack at a consistent speed and will enable them to increase outputs in the long-term.

"We are still in the commissioning stage and have been making some small adjustments over the last few months to make sure that the machine can work with various fruit sizes and the different pack formats required by the supermarket," said Chris. "The eventual goal is to put product down the line at a rate of 75 packs per minute, which would make a huge difference to the business."

Supplied by Oxfordshire-based Mpack UK, in partnership with MAF Roda and Egatec Packaging,

end of line automation has been added to the existing flow wrap packing lines. Three end of line case packers, including automated case destacking and three palletising units, with strapping have completed the automation of the packing lines.

The new equipment allows Cottage Farms to feed its flow wrapped apples to a bespoke case packing system, creating, then lowering, a full layer of apple packs into a transport tray. The system has been designed to allow maximum flexibility between multiple packing formats and pack counts, as well as different tray sizes, which are typically 600 x 400 and 400 x 300.

Once trays are packed, they are transported via conveyor to a fully automated palletising system. This system will build a full pallet of trays then forward the full pallet to a strapping machine to complete the process. Again, the pallet movement is all automated via a transfer conveyor which will move the full pallet to the strapping machine and bring empty pallets to the system ready for the next trays. Only once the full pallet has been strapped is there a requirement for one of the packhouse team to transfer the pallet from the packing area to dispatch or storage.

"Having known Chris for a while, he invited me to look at his ideas for complete





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COTTAGE FARMS



► The end of line machine arranges the pack of apples depending on the pattern required. Here, the machine is configured to pack three layers of six packs

“automation for his packing lines,” said Steven Mace, director of Mpack UK. “Chris had some bold and exciting thoughts, so we decided to combine automation equipment from two of the sector's leading manufactures, MAF Roda Agrobotic from France and Egatec Packaging from Denmark. This allowed us to offer a first-class solution to the challenge set to us, such as the needs to improve efficiency, reduce the need for agency ‘top-up labour’ and improve product handling, which Chris had outlined as priority elements. The new equipment has not only fulfilled this but also offers excellent value for money and efficient use of space”

KEEPING COSTS UNDER CONTROL

As well as increasing the fruit handling capabilities, the new automated end of line system, has seen the number of packing staff on these lines reduce from around 20 people to just 12, when all three lines are in operation.

Across the site Cottage Farms currently employs

around 90 people, who look after around 85% of the workload, with 10 to 20 agency staff being brought in when required. As well as not having to worry about the availability of top-up labour from agencies, which has been getting increasingly difficult, with the ever-rising cost of wages, this new technology is helping Cottage Farms to keep long-term packing costs under control and has allowed them to invest in personnel in other areas of the business.

“While the machines have allowed us to reduce the number of people needed on the factory floor, the technology has, and will continue to, allow us to increase the volume of fruit being process which means that we are employing more people for quality control, in the warehouse, and to look after administration and logistics,” said Chris. “Since we installed the end of line robotics, we have taken on seven members of staff, but only one was a packer, the rest have been split across the business.”

In the next few weeks, Chris will be taking

delivery of the first of two highly anticipated MAF Roda Fastpack tray packing robot. The new equipment will be packing all of Cottage Farms' loose apples into trays. Also supplied by the team at Mpack UK, in partnership with MAF Roda, the new Fastpack robot is designed to pick individual apples using vacuum and place them on an open tray. By focusing on fruit colour and stem orientation, the robot delivers a perfectly presented, uniform layer of apples ready to be boxed.

“The new loose packing machine will process 240 fruits per minute and will allow us to double our capacity to 1,600 per day on a standard shift,” said Chris Browning. “The developments into the Cottage Farms pack house and the technology we invest in to improve efficiency is on-going all the time. With better long-term storage, the UK top fruit season is increasing and as that is crossing over with the early Southern Hemisphere fruit, we need to ensure that the pack house can efficiently keep up with these volumes.”



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