

Steeped in tradition: expanding with technology

Company Profile

Location	Berwick-upon-Tweed, UK
Industry	Malt Production
Founded	1866

Situation

- Huge forthcoming increase in factory production volumes
- Large-scale commissioning of new malting equipment
- Year-round production will mean even greater demands on machine efficiency

Solution

Mainsaver® CMMS to support best practice in maintenance and inventory management

Benefits

- Reduced stockholding
- Critical spares now always available
- Breakdown “hot-spots” identified
- Improved PM regime
- Better visibility of “10-minute tasks”
- Visibility of PM schedule for auditors



Major investment in new plant has doubled output at the Simpsons Malt production facility in Berwick-upon-Tweed. In Mainsaver, Chief Engineer Pat Richards believes that he has the right system to help his busy department deal with the added operational and regulatory burdens .



There are references to malting dating back thousands of years, and the process has been described as mankind's earliest use of biotechnology. When a visitor first sees the manufacturing complex operated by Simpson's however, it is immediately clear that in the 21st Century, malting is carried out on a colossal scale using leading-edge technology, construction techniques and control systems.

With established long-term contracts to fulfil, Simpson's Malt is gearing up for the increase in demand for malt production. Two new 350-tonne Germinating and Kilning Vessels (GKVs) are being constructed, with another two to follow next year together with new barley handling equipment and effluent plant. When the new equipment is commissioned, Berwick-upon-Tweed will be the largest privately-owned maltings in Europe, with an annual output close to 250,000 tonnes of white and green malt.



“When conditions get tough, inefficient plants will go under.”

*Pat Richards
Chief Engineer
Simpson's Malt*

At the heart of all this technology, however, is a cereal crop and a poor barley harvest in any of the large crop-growing nations can have a knock-on effect that ripples right around the globe.

Chief Engineer Pat Richards explains; “It’s not just bad harvests that affect the market – unusually good harvests affect supply and demand as well. The malting industry is a global one and we are affected by what happens elsewhere, even though we predominantly supply the UK. If you then factor into those peaks and troughs the emergence of new markets (increased demand for malt whisky in China, for example) there can be a lot of variables to contend with.”

“We need to mitigate against that by ensuring that we are as efficient as we can possibly be. When conditions get tough it’s the inefficient plants that will go under.”

As Chief Engineer, Richards is ensuring that his maintenance department plays a pivotal role in the drive for increased efficiency. “When I joined the business five years ago I introduced manual systems that moved us to a more preventative and predictive maintenance regime.” he recalls.

“The next stage was to give our engineers the means to update and review maintenance information electronically. Of all the options available to us, Mainsaver suited our requirements best and the implementation plan proposed by Spidex was delivered fully in line with our own productivity objectives.”

Mainsaver went live at Simpson’s Malt in June 2007, and the benefits were already starting to appear not long afterwards. The company deployed Mainsaver’s Shop Floor module on terminals throughout the giant site so that the engineers could log on and off within a reasonable distance of where they were working.

“A lost production day is lost forever - we don’t have spare ones in which we can catch up.”

“Good management of stores is therefore essential, and we’re achieving that with Mainsaver.”

“Once we started to get daily intelligence into Mainsaver, we could see very clearly where we were spending our time. One small production area in which we knew we had regular problems actually turned out to be responsible for 30% of our work. The difference now is that we know the extent of the problem and can address it in an informed way.”

“Similarly, we gained a wealth of new detail on the small tasks that every maintenance department has to do. I can tell you very accurately how long it will take three of my engineers to build a conveyor and how much it will cost. What I couldn’t do previously was tell you how much time and expense was going on ten-minute jobs. Now I have that information, we can target preventative maintenance in order to reduce them. “

THE MALTING PROCESS

Malting is the controlled germination of cereal crops (usually barley) followed by an application of heat to terminate the process.

Stage 1 Simpsons procures top quality barley through its subsidiary company McCreath, Simpson & Prentice Ltd (in the North) with additional supply from other prime barley-growing regions including Lincolnshire and East Anglia for its plants in the South.



Stage 2 The barley is transferred into stainless-steel cylindrical steeping vessels (above) where it is steeped in natural water from boreholes. Low-pressure air is pumped through the vessel at regular intervals to keep the individual grains separate, until the root tip (or “chit”) appears at the end of the grain.



Stage 3 From the steeping vessels, the chitted barley is transferred to a Germinating and Kilning Vessel (GKV). Inside the GKV the barley is allowed to germinate in conditions of controlled humidity (shown above) with regular gentle “turning” of the metre-deep grain bed to prevent matting. The GKVs at Simpsons utilise a rotating floor and fixed turner beam to assist with the loading, turning and unloading of the product.

Stage 4 After the germination is complete, the humidified air is replaced by heated air inside the GKV to halt the process completely. Variations in the level and duration of heated air produce the different specifications of malt to meet the individual needs of brewers, distillers and food manufacturers.

Mainsaver & EPR Compliance

Like all larger food processors, Simpsons Malt must comply with the Environmental Permitting Regulations (EPR).

These regulations, designed to control the environmental impact of emissions from industrial activities, require manufacturers to demonstrate that they apply the best available techniques to pollution prevention. Without an EPR permit, a factory is not allowed to operate.



“The regulators are looking to see a robust Preventative Maintenance (PM) programme in place to minimise dust, noise and contaminant emissions” says Pat Richards. “That’s difficult to demonstrate if you’re only working with paper and spreadsheets.”

“In my case, I was able to use standard Mainsaver reports to show our entire PM schedule and demonstrate how we ensure those tasks aren’t missed or overlooked. It’s a very straightforward way to merit a tick in that particular box.”

Another success story brought about by the Mainsaver installation has been a significant move towards best practice in the management of stores. Mainsaver now holds details of all the spares Simpson’s needs for the site, their optimum on-hand quantities and where each is used. The overall value of the stockholding is now known, unnecessary stockholding has been eliminated and there are always critical spares available when required.

“The conveyors are operating at full-tilt, all day, every day” says Richards. “When you are running continuously, it is absolutely vital that the equipment is backed up by the appropriate inventory so that a component that cannot be fixed is immediately replaced.”

“If a kiln fan breaks down and we lose a day’s production because we don’t have a replacement part, that equates to around 300 tonnes of white malt. And that day is lost forever - we don’t have spare ones in which we can catch up.”

“Good management of stores is therefore essential, and we’re now achieving that with Mainsaver.”

One further encouraging outcome from Mainsaver’s deployment at Simpson’s Malt could be on departmental headcount. It is a common fallacy that maintenance management software is used primarily to identify over-manning and create the case for redundancies. Not in this case.

Pat Richards; “Mainsaver shows me how many jobs are still outstanding on the work queue, the number of engineer hours available to do them and the subsequent percentage job completion rate.”

“Using this information, I have been able to put together a strong justification for recruiting two *additional* engineers. It’s just another example of the priceless information that is now available to me.”

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