



Boosting mobile drier efficiency

The flexibility offered by mobile recirculating batch driers allows them to be integrated into a range of different drying and storage layouts. Good planning helps boost output as *Geoff Ashcroft reports*

With two recent wet seasons still to be erased from many cereal growers' minds and this year's harvest less than five months away, thoughts for many will soon turn towards having a little more drier capacity.

For many, a mobile recirculating batch drier holds the key to fulfilling that need, but considerable thought is needed, suggests Opico's James Woolway, to boost drier efficiency and avoid double handling of grain. Properly planning the installation of a drier can influence efficiency, simply by giving careful thought to how grain gets to and from the drier and into store.

"Many farms can boost their drying output at minimal additional cost, simply by arranging their systems to manage the flow of wet and

dry grain between the combine and store," says Mr Woolway. "It's all about correct drier positioning, filling and emptying to maximise productivity and avoiding adding unnecessary labour costs."

Mr Woolway advises that a mobile batch drier set-up needs to be arranged to minimise downtime when filling and emptying, and the drier should ideally be placed in a well-ventilated area. "And if it is to be located outside, the drier will benefit from having a roof overhead to protect it from the weather," he adds.

The key to efficiency is to cut down on dead time – the time when the drier isn't actually doing any drying – and that means filling and emptying as fast as possible. "Our 20t capacity drier, for example, uses 100t/hr loading and unloading augers, which reduce

filling and emptying times to just 12mins each way," he says. "And with a 3-phase drive and diesel fired burner, automated controls allow such a system to be left to its own devices most of the time. And this means the drying process could be easily managed by the trailer driver fetching grain back to store from the combine."

Mr Woolway points out that just using a telehandler bucket or trailer to feed the drier is a 'no-no' when it comes to maximising efficiency and throughput. If there is insufficient grain to meet the intake auger's demand, the drying cycle will be extended and throughput reduced. Ideally, a feed hopper is vital to boost efficiency.

"With an automatic drier, you really need to match the hopper capacity to multiples of the drier, so it can be preloaded

and then topped-up. This allows the machine to handle several batches automatically with minimal supervision.

“Such a system can make 24hr drying a practical solution even with a drier offering just 10 tonnes/hr capacity – you could still handle 200 tonnes/day,” he says. And in difficult harvest conditions, using an efficient drying system will create the opportunity to hit a weather-driven market and allow growers to cash-in on demand for grain at a time of year when availability could be very low.”

Clever drier installation

Norfolk grower Richard Eaglen invested in an Opico Magna 2000QF recirculating batch drier for the 2009 harvest, after relying on weather conditions and the ability of merchants to accept grain at 16% moisture content.

“The wet 2008 harvest that coincided with the need to supply grain at a revised, lower 15% moisture content forced me to do something about harvest management,” says Mr Eaglen who farms the 485ha, Wayland Farm, Scoulton near Norwich.

“After four wet loads rejected and having to pay for the transport plus drying costs, I decided enough was enough,” he says. “The penalties in one very bad season were almost enough to pay for a drier.”

With his landlord planning to provide a second 1,000 tonne grain store, Mr Eaglen considered his drying options. “As a tenant farmer, fixed equipment is cost-prohibitive and brings with it a much higher maintenance requirements and running costs. So I looked at mobile driers that could be incorporated into the design of



The landlord invested in the 1000-tonne grain store, which provided Mr Eaglen with the opportunity to integrate the drier's loading and unloading system.

the new grain store for one third the cost of a fixed installation using bins, pits and conveyors,” he explains.

With flexibility at the top of his wish-list, Mr Eaglen went to his local Doe Show in February last year and a discussion with Opico researched the options. “I came away from the show with a very clear idea of what I was going to buy – I just needed to consider the location and layout,” he adds.

A new four-bay barn measures 30m x 18m and is split into two clearly defined areas using a central partition wall. But this dividing wall doesn't extend the full length of the barn, explains Mr Eaglen, and this means it doesn't limit manoeuvring and prevent the ability to load trucks under cover on a wet day.

“I have a wet side and a dry side, with which to manage my grain flow,” he adds. “Anything coming off the combine at 15% or higher is tipped on the floor in the wet side, in preparation for drying. If grain is 14.9% or less, it goes straight into the dry side.”

His drier location is outside and immediately alongside the main storage barn. A lean-to

extension, complete with Yorkshire boarding around the roof area, affords protection against weather and gives good ventilation to prevent the build up of condensation.

Getting grain to and from the drier is where Mr Eaglen has really scored. The first bay of the barn – on the dry side – has a roller shutter door above the concrete panelled wall that gives access to a 20-tonne capacity intake hopper, which was made by a local engineering firm.

Its loading lip has rubber matting between it and the



Richard Eaglen says the mobile batch drier has enabled Wayland Farm to take control of harvest.



The Opico Magna 200QF offers fully automatic control of its loading, drying, cooling and unloading functions and is housed under a purpose-built lean-to.

grain store wall, so any spillages from over-zealous telehandler use will simply fall back into the store.

“The hopper’s two outlets sit directly above the drier’s intake auger. So we can pre-load the hopper using a telehandler, working from inside the grain store. When the hopper is full, it takes just a matter of minutes to load the drier.

“When grain is at the desired moisture content and has been cooled, the drier discharges back through the side of the store above the wall, but in the next bay along,” he explains. “We can either put a trailer beneath the drier’s outlet and move grain to another store or let it fall into a heap and then push corn into the back of the new store using the telehandler.”

With a 20t holding capacity, Mr Eaglen’s 3-phase powered drier uses a diesel-fired burner and fully automatic controls. This means each batch of

grain is loaded, dried, cooled and unloaded without the need for any labour once the initial programming has been carried out. Each full cycle takes just two hours, providing a drying capacity of 10t/hr.

“As the drier loads itself, we

can continue filling the hopper, which gives us the capacity to dry two full batches over a four-hour period without the need to have a man on machine-minding duties. So our trailer driver just needs to make a cursory check on the system



Loading the drier’s holding hopper allows two full batches to be dried over a four-hour period without the need for extra labour. The purpose-made loading hopper’s two outlets sit directly above the drier’s intake auger and help fast filling.

each time a load comes back to the yard," he adds.

A timber garden shed, located in the corner of the grain store, provides a clean, safe area in which to carry out grain sampling and recording too. "I bought a Sinar 6060 moisture analyser, so we can accurately monitor what we do," he says. "We shouldn't suffer a rejected load in future based on moisture content."

His first season with the drier was a steep learning curve, and after initially over-drying two loads, he soon had the batch drier working to full capacity. "We quickly learned to shorten the process to allow for additional drying action while each batch is cooled. Being able to dry accurately means we don't waste energy and add cost by making the grain too dry," he says.

Mr Eaglen says he has ample capacity to keep up with his Lexion 480 combine and his options for grain management are much more flexible than in previous seasons. "We dried about 35% of our crops during 2009 and the most we put through the drier in a day was 100t – five batches.

"And the drier sipped its way through just 450 litres of diesel during that long day's drying. Compared with rejected wet loads, this is an effective way of managing costs."

He says that the arrival of the system means harvest pressure is now well and truly off. As each day progresses and moisture content changes, grain can be tipped accordingly into the wet or dry sides of the store.

"With the addition of the drier, we can now bring the harvest to us rather than have to wait for the right opportunities to



This roller shutter door, inside the building, provides access to the 20ft capacity intake hopper. Rubber matting on the loading lip helps contain any spillages.

go combining," he says. "And being in control of harvest means we can now be much more timely with cultivations and drilling too."

He adds that the system now enables him to dry grain for neighbours too, if required. "I've got grain in the barn for

the first time ever during the winter months, giving me the opportunity to benefit from higher winter prices," he says. "My only regret is not having invested in a grain drying system much sooner. It's one hell of an insurance policy."

Farm Facts

- **Wayland Farm, Scoulton, Norwich**
- **Size:** 485ha
- **Cropping:** 202ha wheat, 41ha beans, 121ha sugar beet and 121ha barley
- **Yields:** 10t/ha 1st wheat, 8.5 t/ha 2nd wheat, 8t/ha barley
- **Soil types:** Sand through to heavy clay
- **Labour:** Richard Eaglen plus two full-time
- **Grain storage and drying:** 2,500 tonnes total capacity, Opico Magna 2000QF mobile, recirculating batch drier.