Aeration investment pays off

CHRIS NEWMAN* LOOKS AT A WA CASE STUDY IN WHICH GROWERS ARE DEMONSTRATING THE VALUE OF AERATION IN QUALITY CONTROL AND INSECT SUPPRESSION

JOE CANDELORO CROPS some 7100 hectares on his Woodlands farm near Toodyay with sons Aaron, Dion and Jerome. The main crops grown are canola, wheat, barley and lupins.

Joe says that his significant investment in aerated on-farm storage has added considerable value to the family's cropping enterprises. Installing aeration in their four 1700-tonne flat-floor silos has proved a bonus for storing barley long-term.

The silos are Westeel and are fitted with two Customvac B 2000 fans, managed by an Agridry Rimik automatic controller. The fans deliver a low flow-rate (measured in litres/second/tonne, L/s/t) which is adequate for cooling and grain maintenance but not for drying.

Prior to installing the fans, long-term storage of barley was difficult because of grain insects. The aeration has made it easier because the lower temperatures within the silo created by the ingoing air suppress insect development.

Improvement in the storage phase enabled them to increase the area sown to barley by 75 per cent. Adding barley into the crop rotation has also improved weed management, because it is more competitive with weeds than other crops.

Barley harvest starts around 12 November. For most of the paddock, grain moisture is around 12 to 14 per cent and lower as the season progresses. However, in the sprayer wheel tracks every 120 feet, the moisture can be up to 18 per cent in a narrow strip due to regrowth.

The aeration strategy is to cool the grain and even out grain moisture, so the fans are left running for the five days it takes to fill the silo and a further five days after loading is complete. The Agridry Rimik controller is then switched on and the fans are run in rapid mode (running 50 per cent of the time at cooler times of the day/night).

After two weeks the fan is set to normal mode for the remainder of the storage period. The controller runs the fans for about one seventh of hours each week and selects the coolest time of the day and night to switch fans on to optimise cooling.

Meanwhile back in the paddock, harvest has finished some eight days early because the aeration allows non-stop harvesting and attention switches to bringing in the canola.

Joe also has a 115-tonne field bin fitted with the same size fans as in the silo, effectively turning the field bin into a high flow-rate aeration dryer delivering more than 17L/s/t of air through the grain. This is used mainly for a speedier return to harvest if there is rain or they take off a load that is too wet to put straight into the silo. It has also been used in the past for direct harvesting of canola. Joe delivers to stock feeders for pelleting between March and November. Insect numbers are negligible and rarely found when outloading.

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Note: This storage technique allows this grower to meet his market requirements with no or minimal chemical controls. However, other markets have different requirements, necessitating fumigation before the grain is out-turned. Fumigation concentrations of phosphine can only be maintained at levels that kill all grain insects if a sealed silo is used. Access to a sealed silo is therefore critical if delivering into nil-tolerance markets.

Aerated farm storage has proved a bonus for the Candeloro family near Toodyay, WA.