

Aeration silos provide 'string' to bow

By KEN WILSON

SOME signs usually trigger a response, particularly when it comes to looking after silos.

Like the presence of weevils in grain; like mould spores; like caked grain blocking the outload port or, liked pooled water in the port cap.

Perhaps, as one response, you've tried builder's lime in unsealed silos to try and slow down weevil populations.

Carnamah farmer Peter Smith can tick most of the above-mentioned and like his peers, understands the frustration and annoyance trying to store grain and maintain quality.

Plan A this year was to secure four new DE Engineers aeration cone silos (tick) and retro-fit six other cone silos with a DE aerations system (tick).

That gave Peter a total of nine 2000 bushel silos and one with a 1500bu capacity.

Two of the 2000bu silos store seed barley and the 1500bu unit stores wheat. The rest carry stock feed.

"Basically the plan is to keep weevils out, store grain at the proper temperature and solve the dampness problem," he said. "And by having 10 aerated silos it gives me a bit more flexibility in seasons where storing grain for later sale is a good strategy."

Peter said the DE aeration controller runs continuously for between 24 and 72 hours when first installed, reverting to 10 hour "runs" for the following three to five days in the cooler part of the day.

It then selects the three "best hours" to run at night to optimise the introduction of the coolest air into the grain.

This becomes an as-required "maintenance run" until any adjustments are made.

"It doesn't require much power to run," Peter said. "I checked the power bill and it works out about 60 cents a night to run it for three hours."



□ Carnamah farmer Peter Smith bought four new DE Engineers aeration silos this year to add to six silos he has retro-fitted with the DE aeration system.

"And retro-fitting the system is an easy two-man job."

Peter's storage strategy has been vindicated by the hot, wet and humid weather in the past two months.

"If I hadn't aerated the grain I would have been totally at the mercy of the weather," he said.

"You know there's nothing you can do and you know the grain will get fried and there goes your seed quality."

"It will be interesting to see crop germinations this year, given we've kept the seed grain in good condition."

GRDC studies have shown that the two most common, serious threats to grain quality in Australia's storages, are insect pest infestations and grain moisture problems causing mould and fungal growth.

Key initial strategies include thorough hygiene for storages and equipment, plus aiming for "cool, dry grain" in-storage.

According to DE Engineers principal Kevin Prater, his

company's aeration system is sophisticated but low cost.

It comprises an aeration controller (the 'Safe grain 8'), an aeration fan and a unique ducting system called 'Aeroduct', which pushes air down to the bottom of the cone and up the other side for increased benefit.

"We now supply louvered ducting on request with all silos which fit to the bottom and sides of the silo for more efficient air flow when aerating," Mr Prater said.

"And with aeration, you can say goodbye to using phostoxin for insect control."

The controller is linked to temperature and humidity sensors to take readings in the middle of the stack and at the silo wall.

In one trial, eight tonnes of barley was stored straight off the crop with an initial temperature of 34 degrees Celsius, which was brought down to 25° overnight, then down to 19-20° through the hotter months and 15° through winter.

It also measured the temperature in the roof space

on a 38° day, which was 55°.

Mr Prater said a Kondinin Group correlation of grain temperature to insect and mould development showed that temperatures below 15° saw the cessation of insect reproduction and mould stops developing.

"All silo manufacturers in WA make fully sealed silos to increase the effectiveness of fumigation but this had led to silos which do not vent to allow moist air to escape, resulting in moisture build-up," Mr Prater said.

"Not many people realise that a 76 tonne silo filled with grain that has too much moisture, can condense 760 litres of water for every one per cent released from the stored grain, inside the silo."

"This then runs down the silo walls ruining grain and corroding silo walls."

"Green radish in a silo will also increase moisture as could the application of water-based pickle, so I suggest to store only clean, dry grain with a moisture content of 12pc or less to reduce weevil problems."