

# Grain protectants build barrier against storage pests

**G**ROWERS planning to store grain in unsealed storages after this year's harvest are being encouraged to consider using grain protectants to reduce the risk of insect pest infestations.

The use of protectants combined with meticulous hygiene and aeration cooling are especially useful in storages which are not gas-tight and therefore cannot be fumigated effectively.

Queensland Department of Agriculture and Fisheries (DAF) researcher Greg Daghish warns that protectants are designed to prevent pest infestations, not to control an existing problem.

"It's a common misunderstanding, but research shows us that grain protectants work best to protect grain where there is no pest infestation. There is no guarantee a protectant will kill existing pests," Greg said.

"To give your protectant its best chance of working, grain should be clean and pest free and the product should be applied quickly after harvest when this is most likely. The longer grain is stored the more chance that you will have a pest problem.

"Like all aspects of grain storage, the decision to use a protectant must be researched, planned and implemented to a specific timeframe."

## Know your registered uses and markets

This point is particularly important in reference to markets, with Greg saying growers need to know whether or not protectant treated grain will be accepted at sale.

"Generally speaking protectants are only registered for use on cereal grains and of those only some protectant products are registered for use on malting barley, rice and maize. No protectants are registered for use on pulses and oilseeds.

"Growers need to have a buyer secured, and know what that buyer will or won't accept as part of their planning process."

He says there are few options available to growers to control storage pests when an infestation is detected.



**Protectants prevent pest infestations – they don't control an existing problem.**

"Phosphine, sold in the solid formulation of aluminum phosphide (AIP) – under trade names such as phostoxin and fumitoxin – is by far the most common disinfestation treatment for stored grain," he said.

"But the label was first written in the 1970s for relatively small silos and other storages. Now a significant number of growers have invested in large capacity (1500 tonne) flat bottom silos, so trials were needed to see if current label rates would work in these larger storages.

"It is also incredibly important that growers have a silo that is sealable to the Australian standard, or fumigation simply won't work."

Another option for reducing the likelihood of grain pests is aerating stored grain from when it goes into storage.

"Cooling grain below 20°C dramatically reduces grain insect population growth. Experience shows that to get the best results, the aeration fans should be turned on from when you first start loading the bin.

"This allows the aeration system to exploit the evaporative cooling effect of any moisture that may be in the freshly harvested grain.

"Where grain is already dry, it is still valuable to utilise cooling aeration as it removes the 'harvest heat' from grain that is often 30° to 35°C going into the silo, due to the daytime temperatures during wheat and barley harvest."

Some protectants start deteriorating 48 hours after being mixed with water so growers should avoid leaving prepared protectants for long periods before applying to grain. The product label will also indicate the anticipated effective life of the protectant on the grain.

The effective life of protectants may be shortened if applied to grain above 12 per cent moisture content and at temperatures above 27°C, or if treated grain is exposed to direct sunlight which can occur at the end of a shed or in an open bunker.

Further information on grain protectants is available from the GRDC's Stored Grain Information Hub at <http://www.storedgrain.com.au> or phone 1800 933 845.



**QDAF researcher Greg Daghish cautions that growers need to know their grain buyers' requirements in terms of treated stored grain.**