

Growing then storing the grain with care

Producing a top grain crop doesn't end when the headers roll in.

Graingrowers devote enormous expense, time and energy to nurturing their crops through the seasons to harvest time, yet many then shunt their grain into silos and think the job's done.

Storage facilities at the local depot, such as those owned by the bulk handling companies (such as Graincorp, AWB, CBH, Viterra Australia) are run with a clear focus on biosecurity, pest control and maintaining grain quality during storage.

With on-farm silos, many grain growers in the past put minimal effort into managing pests in stored grain. However, this is rapidly changing according to Philip Burrill, Plant Health Australia's Grains Biosecurity Officer working with DEEDI, Primary Industries and Fisheries Queensland.

"There is a wide range of facilities out there, and there is now major investment in on-farm silos as grain buyers and accumulators increasingly approach growers directly to secure parcels of grain for either domestic or export sales.



He says while on-farm storage gives growers more marketing control and flexibility, quality control becomes their responsibility.

"This means using an appropriate mix of storage facilities, the right equipment, learning how to control pests and maintaining product / food quality while in storage.

"It is also worth looking at the big picture, where many of these management steps undertaken on individual properties contribute to the long term biosecurity of the grains industry."

Things have changed since the days when most farmers put 30 tonnes away in a silo to feed livestock in a dry spell, with or without a few weevils and beetles.

Philip Burrill emphasises three key points:

1. Hygiene - ensuring grain is not left in the 'nooks and crannies' favoured by insects.
2. Aeration - making the best possible use of cooling, an aid to grain quality and suppressing insect breeding.
3. Have a monitoring and fumigation strategy - checking grain monthly and using correct fumigation practices to avoid last minute "quick-fix" attempts during out-turn.

He says focusing on these three will go a long way to good outcomes for grain quality, pest control and Australia's grain industry biosecurity.

“People with aeration fans should consider using a good quality automatic controller. Seek advice from a number of sources to select the appropriate system.”

“And a good monitoring and fumigation policy will prevent those horrible moments when a buyer’s truck turns up to take a delivery and more than grain falls into the hopper.”

However, there are increasing concerns about industry dependence on, and over-use of, phosphine as a fumigant.

“It’s cheap and has been effective. But when people use it once, have a failure, and use it again, and even once more, to try and kill insects they are rapidly selecting those few insects in the population which have phosphine resistance.

“Phosphine has to be used in a sealed, gas tight storage. Sealable silos must be pressure tested annually.”

Having a minimum of two sealable, aerated silos on-farm should be considered essential for growers serious about on-farm storage. The current recommendation from Plant Health Australia is to talk with a grain storage specialist to match storage types to farm and market requirements.

Plant Health Australia’s Executive Director and CEO, Greg Fraser, says “The key aim is to manage stored grain with biosecurity in-mind, to ensure the quality of grain sold is as close as possible to the quality that went in at harvest time.”

“Understanding the basic do’s and don’ts can prevent insects and moulds plus remove any potential risk of chemical residues.”

“Correct identification of insects is also critical to their effective control.”

The key insects are:

- Lesser Grain Borer: This is one of the most serious pests of stored grain in Australia. The adult beetle is 2.5mm to 3mm long. It is dark brown to black and has a distinctive cylindrical shape with its eyes and mouth parts tucked under its chest like a hunchback.
- Rice, Maize and Granary Weevils: These are similar in appearance with the typical long weevil snout, except that the rice and maize weevils have four orange-red spots on its wing cases. The maize weevil looks identical to the rice weevil but is limited to tropical and sub-tropical regions, and is a strong flier infesting both maize in the field and stored grain.
- The Rust-Red Flour Beetle: The adult is reddish brown and about 3.5mm long, with large eyes and short antennae with 3 larger club segments on the ends. It is a strong flier and will infest whole grain and oilseeds, and processed grain products.
- The Saw-Toothed Grain Beetle: This insect feeds on cereals, oilseeds, and grain and foodstuff fragments. The adult is a slender dark brown beetle about 3mm long, with saw teeth projections on each side of the thorax. It flies readily.
- Flat grain beetle: The adult is a small, fast moving beetle with long antennae which is quick to conceal itself in grain. It infests most stored grains and feeds on damaged grain.
- Psocids or Booklice: These insects are very small (1mm) with a light brown to clear appearance and may look like moving grain dust. They thrive under warm and moist conditions infesting a wide range of grains and commodities.

Mr Fraser says it’s not just for the regular, everyday weevils and beetles that a grain storage biosecurity approach is useful.



“There are a range of grain pests and diseases that Australia doesn’t have and doesn’t want.

“These could come in on imported farm machinery or hitch a ride with the steady stream of imported containerised products.

“Take extra care if you have travelled in agricultural areas overseas or have visitors who potentially could carry crop pests on clothing or foot ware.

“If you see anything unusual on your property, call the Exotic Plant Pest Hotline on 1800 084 881,” Mr Fraser said.

For more information about farm biosecurity practices, see www.farmbiosecurity.com.au. For more information about pests of stored grain, visit the Pest Information Document Database on the PHA website at www.phau.com.au/pidd.

Captions:

Photo 1 - Quality control is important in on-farm grain storage

Photo 2 - Lesser grain borer (*photo courtesy of Department of Employment, Economic Development and Innovation - Qld*)