

Myth busters: Leaving a silo sealed up won't protect your grain

Australia Grain Magazine

May-June 2014 Edition

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Some growers mistakenly think that by leaving their silo sealed it keeps insects out of their grain, but this is a dangerous assumption.

According to Phil Burrill, Senior Grain Storage development agronomist with the Department of Agriculture Fisheries and Forestry (Qld), the point of having a sealable silo is to achieve a good result when fumigating – not to keep out insects.

Leaving grain sealed up in your silo for a long time (one or two months) may result in:

- Spoiled mouldy grain due to moisture migration and condensation;
- Creating areas of warm grain suitable for insects to rapidly multiply;
- Preventing the use of aeration cooling and associated grain quality benefits; or,
- Increasing the risk of silo structural damage

Spoiled mouldy grain

Grain left sealed in a silo will be much warmer in the head space at the top and on the northern and western walls, compared to grain kept in a well aerated silo. Head space air in sealed silos routinely exceeds 60°C. Just like any other living organism; grain can spoil and suffer quality damage if subjected to high temperatures for a long period of time. Try

THE BEST PRACTICES FOR STORING GRAIN

- Practice good storage hygiene;
- Use aeration to cool grain from the first day of storage;
- Check grain regularly and sieve for insects every month;
- If you detect any storage pests, seal your silo for fumigation;
- Keep records of pests found each month and any grain treatments; and,
- If you suspect you have an exotic insect then call 132523.

leaving a slice of bread in a sealed tin container in the sun for four weeks and see how it deteriorates.

Encouraging insect growth

It is dangerous to assume that there are no insects in your grain when filling silos at harvest time. The reality is that there are usually a few insects in very low numbers that you will detect. Therefore, it is best to aim to maintain cool, uniform moisture conditions in your silo which makes it very difficult for these few insects to breed. With good hygiene practices and well managed aeration, you should have no need to fumigate in seven out of 10 years. Although in years with humid summer conditions, the balance is tipped in the insect's favour.

Preventing use of aeration

Having your silo sealed means you can't run the aerators. Regular grain inspections and aeration cooling is the best way of maintaining grain quality for cereal grains, oilseeds and pulses.

The possibility of structural damage to your silo

If a silo is left sealed for a long period of time, particularly when only partially full, it is at risk of damage. A partially full silo has a lot of air in the head space that can rapidly expand and contract with changed outside weather conditions. A summer storm that moves in quickly on a hot day could create a risk of silo structural damage.

Silo manufacturers put oil batch relief valves on sealable silos to allow air to move in and out of silos while they are sealed during fumigation. But in some circumstances, relief valves may struggle to allow large enough volumes of air to move quickly in or out of a silo to alleviate the change in pressure.

Therefore, having a silo sealed only during the fumigation period minimises the risk of silo structural damage. It is also important to ensure the relief valve is well maintained.

Following the one to two week fumigation period, open the silo and use the fan to vent. After venting, return to the normal aeration cooling cycle to ensure that grain is kept cool.

Using an automatic aeration controller to switch the fans on and off is the best way to keep the grain both cool and dry. It selects approximately 100 hours per month to maintain uniform and cool conditions in the silo. This helps to stop or slow insects breeding, and also protects the quality of the grain.

The myth that sealing silos protects grain from insects is just that – a myth. The best way to protect your grain is to practice good hygiene, inspect every month, and use aeration to keep your grain temperature close to 20°C or lower. This will minimise insect breeding and maximise the quality of your grain.

Remember, in most circumstances, the general rule is to only seal your silo for fumigation.

For more information on grain storage go to <http://storedgrain.com.au/>

