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STORED GRAIN MANAGEMENT

It makes \$ense to maintain your sealed silo

By Chris Newman, Technical Officer, Department of Agriculture, Forrestfield

Surveys of central wheatbelt farms have found that all silos more than three years old failed the airtightness test. The majority of these silos leaked from faulty rubber seals in the hatches and outloading points.

However all of these silos could be returned to a sealed condition easily by replacing seals or replenishing the valve oil.

If gas leaks out, the concentration of fumigant will be reduced, the fumigation will be incomplete and there is a chance that insects will survive. These insects have undergone selection in a sub-lethal atmosphere of phosphine and may develop into a resistant population in the future.

Silo maintenance

Keep the pressure relief valve topped up to the level specified by the manufacturer.

Use only light hydraulic oil or paraffin oil. Never use vegetable oil, which can solidify in the valve. This makes the silo vulnerable to collapse if there is a sudden internal pressure change. This can happen during outloading or

during the rapid temperature changes that sometimes occur in a summer thunderstorm.

Open the top lid during outloading as a precaution against roof collapse.

Sealed silos are fitted with rubber strips that act as seals at the loading and outloading points. Because the rubber is exposed to extremes of climate and wear and tear when opening and closing the hatches, the rubber strips should be replaced routinely every two years or immediately if they are damaged.

Check for damage to walls and cracks in any internal sprayed-on sealant. Repair as necessary with brush-on sealants or silicone.

Testing a sealed silo

Once a year, pressurise your sealed silo to check for leaks.

Silos can be checked using a standard farm compressor attached to a tubeless tyre valve fitted to the silo wall.

First, check the oil level in the valve and top up if necessary.

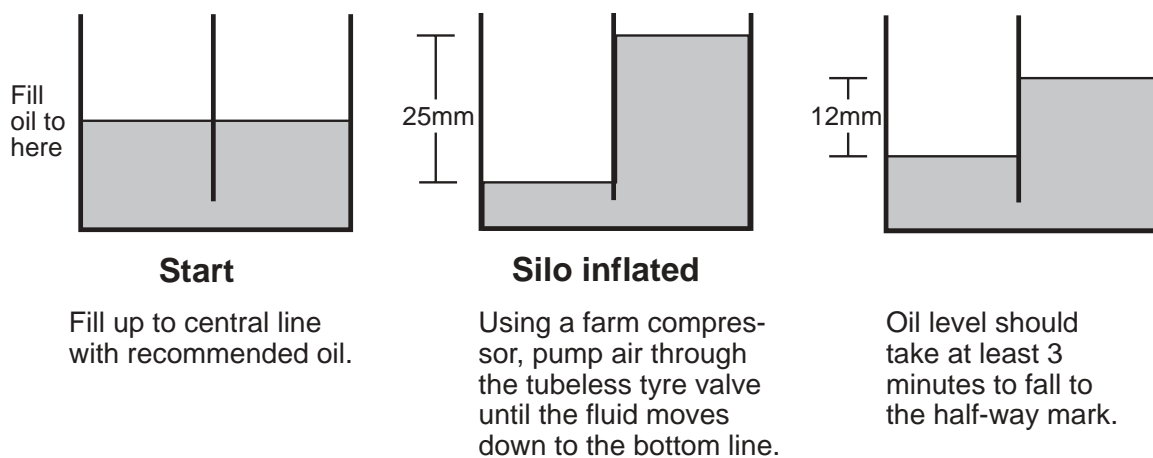


Figure 1. Silo sealing test.

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Pressurise the silo to create a 25 mm difference in the oil levels (Figure 1). Then watch the oil levels and check the time taken to fall to a 12 mm difference. This should take more than three minutes.

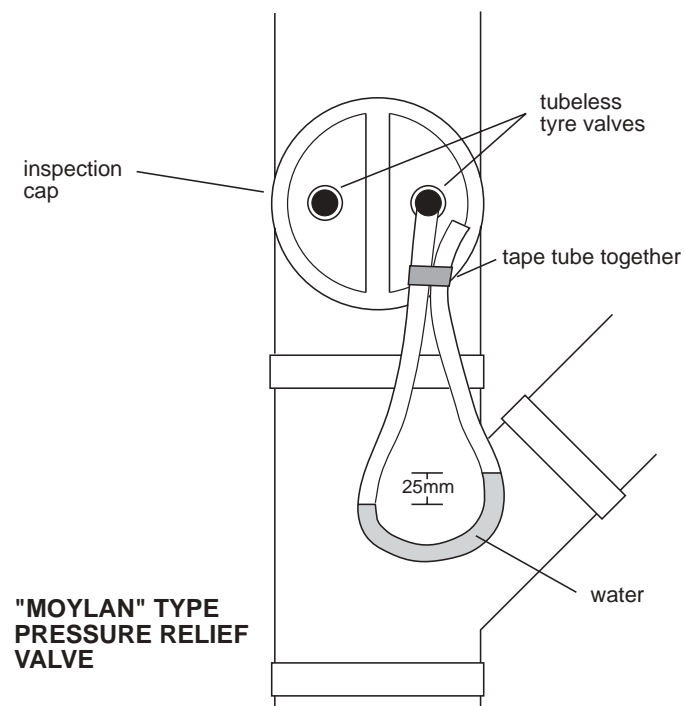


Figure 2. Moylan silo valve.

If you cannot see the oil level in your pressure relief valve, build a simple gauge (manometer) using two tubeless tyre valves and a piece of clear plastic tubing (Figure 2).

Failure and repair

If the silo fails to hold the pressure for the specified period, check for leaks using soapy water. Maintain the pressure on the silo while spraying a soapy solution on

all the outlets and seams. Bubbles will quickly appear if there is a leak.

Replace the rubber seals with a firm foam rubber strip. These can be purchased from industrial rubber suppliers.

Any joint leaks can be repaired using flexible membrane paints available from paint manufacturers. Alternatively, use a silicone sealant or an acrylic compound.

On-farm sealing

On-farm sealing is a viable option for returning your old leaky silo to good condition. You can do this yourself, but a great deal of patience and some skill in sheet metalwork will be needed. A contractor prepared to travel to the farm may be an alternative. Contact the Department of Agriculture for contact numbers.

Recommendations were current at the time of preparation of this publication.

Further reading

Farmnote 24/02 'Aeration : for preserving grain quality'

Farmnote 64/03 'Grain storage: Design and installation'

Farmnote 65/03 'Grain storage : Maintaining grain quality'

Farmnote 66/03 'Grain storage: Handling and maintenance'

Farmnote 67/03 'Sealed silos make \$ense'

Farmnote 69/03 'Effective fumigation needs a properly sealed silo'

Farmnote 70/03 'Underground storage of grain'