

Small Scale Grain Drying and Storage



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Practical Guide

Arable cropping has become a specialized sector of the farming industry, with associated infrastructure to match. This is evident in the form of large scale, high throughput, grain driers and specialised crop storage buildings. For the small-scale grower, such infrastructure is impractical. This guide will look at what options are available for drying and storing grain for quantities of a few tonnes or less.



The Need for Drying

To allow successful storage, grain typically needs to be dried down to a safe level. This will greatly limit the chance of grain spoiling through the development of fungi, insects, and mites. A safe level of moisture content (MC) for long term storage is 14.5%. With the predominant harvest conditions in Scotland, it is unlikely your crop will be near that figure.

Traditionally, the crop was left in the field/stackyard to dry, however with the use of combine harvesters came the need to dry the grain.

Methods

The two main methods for grain drying are:

- High-temperature drying, which uses hot air to dry the grain. This is the quickest method, but you need to ensure the grain isn't overheated, and that it is cooled once it is dried
- Near-ambient drying, where ambient temperature air is blown through a large batch of grain to dry it. This is a slower method, but with a low risk of overheating the grain

If your grain has come off the field quite close to target MC, it is possible to dry and cool it by spreading it in a thin layer on your shed floor, and letting the good weather do the work.

If you can't dry your grain soon after harvest, it is important to cool it, as this prolongs the time it can be safely stored before it is dried.



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Grain moisture meters can be slightly inaccurate in their readings, so it would be prudent to leave a safety margin of 0.5% less than target MC to account for that.



An easy way to check your grain if you are worried it has been overheated by the drying process, or indeed just as good practice, is to perform a germination test. This is something that can easily be done at home, or you can send a sample away to be performed under laboratory conditions.

Storage

Successful storage of grain at a small scale is typically easy to achieve if attention is paid to some basic principles.

- As a lot of effort will have been expended getting grain dry, don't ruin it by storing grain where it can get wet. Ensure roofs are in good condition and leak free, and store the grain off the ground to ensure no moisture wicks up
- Rodents are always a threat around croft/farm buildings, so make sure steps are taken to keep the area rodent free
- Ensure there is adequate ventilation to prevent the build up of condensation and keep the grain cool
- Clean storage area of any foreign contamination, and ensure none more occurs, by for example excluding birds from the shed
- Whilst in storage, it is good practice to check the grain temperature to ensure it hasn't heated up, although this is a smaller risk with lower quantities of grain
- Bugs and beasties are rarely in the new grain, but more often in the store. So if you are re-using previous years storage method, ensure it is adequately cleaned out

If the principles above are applied, grain storage can be quite simple and inexpensive. This can range from 25kg seed bags, larger tote bags, repurposed IBCs, specialized storage bins, or even in a spare trailer.

Main points to remember

- Dry grain to 13-14.5% MC
- Keep storage means clean and dry and free from rodents



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