



TECHNICAL BULLETIN



AERATION & VENTILATION OF TREATED GRAIN



HARVEST TIME RECOMMENDATIONS

1. Ensure all fans are in good working order.
2. In flat store situations walk the grain pile at least once every week.
3. Only aerate when ambient air temperature is at least two degrees lower than the temperature of the grain. Aerating at night generally meets this requirement and this is also a very cost effective time to run your aeration fans.
4. The air which is blown through the grain pile into the air space above the grain should be removed from the store by having a suitably sized extraction fan. This will help prevent condensation.
5. Have an effective method of temperature monitoring either by using a hand held temperature probe or by having a temperature monitoring system in place.
6. Do not read the temperatures directly above aeration ducts or close to pedestals as this may not represent the true temperature in the grain mass.
7. Record temperatures each time you read them in order to monitor the trend of the temperatures over time throughout the grain pile.

STORED GRAIN TARGET TEMPERATURES

DO NOT ALLOW the temperature of the grain to go above 25°C at any time.

Temperature range 15-20°C within 3 weeks of Harvest – check every day.

Temperature range 10-15°C within 6 weeks of Harvest – check every second day.

BELOW 10°C for remainder of storage period – check weekly.



AERATION & VENTILATION F.A.Q.'S

How important is temperature monitoring?

Adesco Treated Moist Grain (up to 24% moisture) needs to be carefully aerated & monitored throughout its storage life to ensure its original quality is maintained. Temperature monitoring is key to understanding what is happening in your grain store.

How often does temperature need to be checked?

Once the store is full, temperatures should be checked TWICE weekly until the end of October. Thereafter until the store is empty, the temperature should be checked once per week.

How many temperature points should I have?

A typical store with 2-3,000 tonnes should have at least 9-12 temperature recording points spread out evenly over the area, typically with one deployed every 6m square.

What is my target temperature?

The aim should be to have the grain, cooled to between 15-20°C within 2-3 weeks maximum. Aerating at night during this period can be an efficient way to reduce grain temperature. Over the following couple of weeks the aim is to get the temperatures down to 10-15°C. depending on the efficiency of the aeration system and ambient conditions, with a final target of 10°C 6 weeks after harvest.

How hot is too hot?

Temperatures should NOT be allowed to get above 25°C ideally. Cooling grain naturally reduces the moisture content (mc) by about 0.25% for every 5°C drop in temperature, a process known as dryaeration.

What temperatures do I need for fans?

The ambient external temperature should always be at least 2°C less than the average in the heap before the fans are activated. The greater the differential the greater the effect. The use of an automatic temperature monitoring system with a differential thermostat controlling the aeration fans is very effective and energy efficient.

Is it ok to aerate in damp conditions?

When blowing air through the grain, if the air temperature is 4°C below the grain temperature, there is no need to stop aerating during wet weather especially if you need to get the grain temperature reduced quickly. It is critical to reach the target temperatures outlined above and once no rain/moisture is getting into the ducts aeration can continue in damp weather.

How do I prevent insect infestation?

Efficient reduction in temperature is essential to prevent the fastest multiplying insect, the saw toothed beetle, completing its life cycle. Cooling to about 10°C prevents grain weevil developing. Maintaining a cool temperature will kill off existing insects and prevent mites breeding. Our grain preservation products will help control moulds even at high temperatures but aeration is necessary to prevent insect infestation.

How long does the product remain active on the grain?

Adesco products are designed to be very stable when exposed to aeration, which can take place within 24 hours after application if required. Trials show at least 60-80% of the product present on the grain after 6-8 months in storage.

Does treated grain need more aeration than dried grain?

No, treated moist grain should require NO MORE aeration to manage the temperatures than normal dried grain. However, ventilation and extraction of air over the grain is essential. That is Adesco's experience, but it DOES require MORE monitoring, to ensure temperatures do not rise again.

NATIONWIDE SUPPORT

Adesco can support you throughout the storage period by visiting your store to take and report the temperature of the grain. Adesco can also take samples on a regular basis for analysis which will be an indicator as to the quality of grain over time.

If you have any queries concerning the aeration of your grain or should you need any assistance in setting up a temperature monitoring/aeration procedure please do not hesitate to contact any of the Adesco technical support team.

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