

March 23, 2018

KEEP STORED GRAIN COOL

When delivering grain to an elevator, ethanol plant or other outlets, the most important item is never printed on the ticket. We focus on the weight of the load, the moisture and if there was any grain discounts. Don't forget to ask the clerk what the temperature of the grain delivered was. It's too bad this bit of information is rarely shared to the farmer unless they specifically ask. Keeping grain cool and in condition over winter and spring is critically important especially during spring temperature swings.

I was thinking about the temperature fluctuation this week as spring is finally beckoning and we are starting to see cover crop and wheat start to grow. It's important to check stored grain regularly this spring. It's in the best interest of both the elevator and farmer to share grain temperature information. Did you know that for each 10 degree increase in grain temperature, the allowable storage decreases by about half?

Ken Hellevang, North Dakota State Agricultural and Biosystems Engineering Specialist, says the allowable storage time for 18 percent moisture corn is about 200 days at 40 degrees F, 90 days at 50 degrees F, 50 days at 60 degrees F and only 30 days at 70 degrees F. "Not only are daytime temperatures increasing, but the bin works as a solar collector," he says. "This heats the grain to temperatures exceeding outside temperatures, particularly on the south side of the bin and on the top of the bin." Farmers should run the aeration fans periodically at night or during the cool part of the day to cool the grain. The goal is to keep the grain temperature cool during spring and into the summer, preferably below 50° F.

Temperature of grain deliveries is a great way to monitor grain temperature in the bin and alert the producer to possible troubles. Another good practice is to cover the aeration fan when not in operation. The reasoning is the chimney effect or wind can push warm, moist air into the grain mass to nearly the daily maximum temperature.

Hellevang suggests checking the stored grain every two weeks. While checking on the grain, measure and record the grain temperature and moisture content. Rising grain temperature may indicate insect or mold problems. Insect infestations can increase from being barely noticeable to major infestations in three to four weeks when the grain is warm. Grain moisture content is even more important for summer storage. The moisture content must decrease as the grain temperature increases to prevent mold growth and grain deterioration while keeping the grain as cool as possible.

Corn needs to be dried to 14 percent moisture, while soybeans should be dried to 11 percent and wheat to 13 percent for summer storage. The goal for summer storage also should be to keep the grain as cool as possible to limit insect activity. It is best to complete delivery of all non-feed grain by late July or early August. This allows time for grain bin clean up, repair, and treatment for the fall harvest season. After thoroughly cleaning the bins, spraying insecticides such as Tempo or Diacon are a good idea. These are examples of modern empty bin insecticidal treatments.



If you have temperature sensors in the bin, don't let that give you a false sense of security. Grain is an excellent insulator and the sensors can only measure grain near the sensor but not a couple feet away. Place a temperature cable a few feet away from the south wall of the bin for effective monitoring on the south side on the bin. For more information go to a shortcut I made at: <https://go.unl.edu/aeratingmgt>

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