

Grain Storage Tips

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The ultimate success or failure when storing grain is judged by the condition of the grain coming out of the storage. The condition is going to depend on the quality going into storage, and how well the grain can be kept cool and dry while in storage.

Grain undergoes a natural respiration whenever the moisture content and temperature of the grain is sufficient to support the microbial and chemical processes involved. When grain respire, carbohydrates convert to carbon dioxide and water, with the release of heat, resulting in a loss of dry matter and grain quality.

Once grain is harvested and put into storage, the surface area exposed to air movement is greatly reduced compared to grain standing in the field. It is imperative to place high quality grain into storage facilities and monitor grain to maintain that quality.

Reduce Drying Costs

The cheapest way (obviously) to dry corn is to let it dry naturally in the field for as long as possible; however, good weather conditions (low humidity, light

winds and warm temperatures) aren't guaranteed and are often hard to come by.

Grain should be cooled whenever the average outdoor temperature is 10–15°F cooler than the grain. It should be cooled to near 30°F for winter storage. Cool grain with aeration to reduce the insect infestation potential. Insect reproduction is reduced at temperatures below 60°F. Insects are dormant below 50°F and can be killed by extended exposure to temperatures below 30°F. Cooling grain as outdoor temperatures cool, reduces moisture migration and the condensation potential near the top of the grain pile.

If you are natural-air drying in a bin, it becomes inefficient as outdoor air temperatures decrease. Turn the drying fans off when the outside temperatures average below 40°F (transition to cooling grain for winter storage). You will also want to turn the drying fans off when it is raining, snowing or foggy.

Grain Bags

Grain bags are long polyethylene "tubes" approximately 8–12 feet in diameter and are

often placed at the ends of fields. These are increasing in popularity in order to reduce capital investment in permanent structures, provide buffer in storage amounts and convenience for transport during harvest; however, there are many important considerations when using these bags for temporary storage.

There will be extra costs for the bags and special loading and unloading equipment, plus the labor of two to three people to load/unload. There is also the risk of damage to the bags from wildlife, pests, rodents, etc., plus aeration is not possible for moisture or temperature control.

Bags need to be placed on firm, level, well-drained ground and oriented north-south, so the sun more uniformly shines on the bag, limiting temperature variations. Do not overload bags as most bags only stretch about 10% and could risk breaking.

The most important and challenging aspect is grain moisture. Corn and soybeans stored in bags should be at moisture levels at or below 15% and 13%, respectively. Some research has shown commodity corn (at 14%) can be safely



Grain bags are increasing in popularity for temporary storage.

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stored in bags for up to four months without quality loss, but soybeans stored at 10.4% moisture lost approximately one grade after four months of storage. It is recommended to not store grain in bags beyond spring or for more than four months. Continuously monitor bags for punctures, leaks or any damage/tampering to the bags.

If you are new to using grain bags, you may want to utilize the help of a dealer or other producers who are familiar with the process. You should also contact your crop insurer to inform them of the decision to use grain bags and how it may affect your policy.

Never enter a grain bag because it is a suffocation hazard. If unloading the bag with a pneumatic grain conveyor, the suction can "shrink wrap" a person so he or she cannot move and will limit space for breathing.

SMALL CHANGES
BIG
PAYBACK

UNL Exhibit at Husker Harvest Days

"Small Changes, Big Payback: Strengthening Nebraska's Agricultural Economy" is the theme for the University of Nebraska-Lincoln's Institute of Agriculture and Natural Resources (IANR) exhibits at the Husker Harvest Days show Sept. 12–14 near Grand Island.

Exhibits inside IANR's trademark Husker Red steel building at Lot 321 on the south side of the exhibit grounds will show farmers and livestock producers how small changes can bring big payback.

Outdoor exhibits adjacent to the building will feature a variety of demonstrations related to improving irrigation efficiency and reducing irrigation pumping costs.

September is National Septic Smart Week

Meghan Sittler
Extension Educator

This year's National SepticSmart Week is Sept. 18–22. The Environmental Protection Agency (EPA) uses a week in September each year to focus on improved awareness of proper operation and maintenance of septic systems.

The wastewater of approximately 25 percent of the population of the U.S. is treated by on-site or individual wastewater systems. In Nebraska, this statistic holds consistent with 25 percent of our state's population being served by onsite wastewater systems on farms, acreages, suburbs and even some small communities.

Septic systems are the most common type of on-site system utilized throughout the state. Certified professionals install a system or perform regular larger scale maintenance or repairs. But the individual homeowner is the key person for ensuring their septic systems performs as it is designed to prevent damage to property and to protect critical water resources.

Wastewater carries pathogens, nutrients, bacteria, organic matter and other chemicals harmful to human health and water resources if left untreated. Septic systems are designed to use naturally-occurring aerobic and anaerobic bacteria to digest nutrients and organic matter within the tank, and then allow soil to perform its natural "filter" action to continue to remove or hold potential contaminants before they continue into groundwater resources.

Here are some ways homeowners can "be septic smart."

Think at the Sink

The drains in your house can look like easy and quick ways to dispose of any liquid within your house but they can introduce toxins that can kill the organisms in your tank. Some simple ways

to "think at the sink" are:

- Don't pour cooking oil or grease down the drain.
- Use boiling water or a drain snake to open clogged drains instead of chemicals.
- Paints, solvents or large quantities of chemical based cleaners should never be poured down the drain.
- Reduce or eliminate the use of your garbage disposal. The garbage disposal introduces small particles of food as well as oils or grease that can change the stratification of the layers within your septic tank. Consider composting instead.

Don't Overload the Commode

The toilet is also another inviting place to dispose of items that can damage your septic system or cause it to fail.

An easy rule of thumb to remember is to never flush anything — liquids or solids — besides human waste or toilet paper.

Don't Strain Your Drain

Average water use for each person in the U.S. is 75 gallons per day. That amount of water is used to calculate the size of your septic system components to allow it to function as it should.

Conserving water in the house means there is less water entering the septic system which reduces the risk of the system failing and improves the operation of the septic system. Many technological advances have been made that increase water use efficiency of appliances and fixtures within your house. Some examples of water efficient products include:

- High-efficiency toilets use 1.6 gallons of water or less per flush instead of five gallons of water per flush in old toilets.
- High-efficiency showerheads reduce water use from 2.5 gallons of water per minute to a maximum of 2 gallons of water per minute.
- "Energy Smart" washing machines use

50 percent less water than standard models. (Also, spread washing machine use throughout the week and select the appropriate load size.)

Shield Your Field

The drainfield removes contaminants from the water that discharges from the septic tank by dispersing the liquid across a relatively large area of soil and allowing the soil to complete the job of filtering remaining contaminants before the water reaches clean water resources.

Protecting your drainfield is relatively easy by ensuring you:

- Don't drive or park on your drainfield which can damage the laterals that are dispersing the water across the area.
- Only plant trees or shrubs with large root systems a safe distance from the drainfield. Roots can damage or clog the laterals causing the system to fail.
- Make sure you direct stormwater or

other drainage away from your drainfield to ensure the additional water flow doesn't impact the wastewater treatment process.

Protect It and Inspect It

Proper care of your system happens on a day-to-day basis with the practices listed above, but periodic inspection and maintenance by a certified professional will still be necessary.

Set a regular schedule to have the system inspected and pumped. Keep all records including system location and design, registration, inspection results, maintenance dates and repairs.

FOR MORE INFORMATION

- Nebraska Extension wastewater resources, <http://water.unl.edu/wastewater>
- EPA SepticSmart week and septic system resources, <http://epa.gov/septic>

Upcoming Wastewater Professional Trainings

Nebraska Extension, Nebraska On-site Wastewater Association (NOWWA), Nebraska Department of Environmental Quality, Washington On-site Sewage Association and the National Onsite Wastewater Recycling Association are partnering to conduct six-hour professional development trainings for on-site wastewater professionals in September and October throughout the state.

The September trainings will be held in conjunction with National Septic Smart Week and will focus on both job site safety and pathogens of concern in wastewater. The October trainings will focus on troubleshooting installation and repairs of septic systems.

- **Tuesday, Sept. 19 — North Platte:** West Central Research and Extension Center, 402 W. State Farm Road
- **Wednesday, Sept. 20 — Grand Island:** Hall County Extension Office, 180 W. Highway 34, Room 1 & 2
- **Thursday, Sept. 21 — Lincoln:** Lancaster Extension Education Center, 444 Cherrycreek Road
- **Tuesday, Oct. 10 — Ogallala:** Lake McConaughy Visitor Center, 1475 Highway 61
- **Thursday, Oct. 12 — Norfolk:** Madison County Extension Office, 601 E. Benjamin Ave., Ste 105

For more information, contact Meghan Sittler at 402-441-7180 or NOWWA at 402-476-0162. Registration can be done online at <http://nowwa.org> or by calling NOWWA.