

Ten Commandments of Grain Management

Protect your stored soybeans using these guidelines

On-farm grain storage can be a valuable tool to help you take advantage of favorable markets. Grain-holding capacity lets you wait out fluctuating market conditions and react when prices are good.

Farmers may have a year's worth of income to protect in the form of stored grain. To make sure your soybean yields are protected and stored safely, follow these ten commandments of grain management from North Dakota State University Extension Engineer Kenneth Hellevang.

- 1. Start with a high-quality product** – How grain is harvested affects storability. Make sure your soybeans are harvested at appropriate moisture levels: 18 percent moisture, ideally stored at 15 percent.
- 2. Minimize mechanical damage** – Potential for mechanical damage has a lot to do with the moisture level at harvest. Waiting to harvest until soybeans are too dry increases the risk for cracking and splitting. Harvesting with slightly higher moisture and using fans to circulate air to dry soybeans can minimize mechanical damage.
- 3. Manage moisture according to storage plans** – The ideal moisture for marketing soybeans is 13 percent, which is fine for storing soybeans during cool conditions. If

your soybeans will be stored through winter and into the warmer weather of spring and summer, Hellevang recommends storing at 11 percent moisture to prevent mold growth.

- 4. Handle soybeans properly** – Specialty soybeans, including those grown for food uses, may need to be handled differently than commodity soybeans. That includes reducing auger drop-height when unloading into grain bins in order to reduce breakage.
- 5. Control temperature inside the bin** – Temperature control is as important as moisture control. Soybeans should be cooled as they go through fall and winter to maximize quality. Hellevang recommends aerating stored soybeans periodically as temperatures drop. In northern states, soybeans should be stored at or near 30 degrees Fahrenheit, while southern regions should aim for storage at 40 degrees or less.
- 6. Keep grain covered** – Once soybeans are cooled, aerator and ductwork openings should be covered to prevent snow or moisture from blowing into the bins during winter storage. Don't allow openings to let moist air or snow enter the bins.
- 7. Monitor stored grain regularly** – Storage management isn't complete once grain is

cooled to proper temperature for winter storage. Outside temperature changes can bring about moisture changes inside the bin. Monitor your soybeans at least once every two weeks during winter storage.

- 8. Read the signs** – Watch for any indications that something is wrong with your stored soybeans. Condensation, insects and grain temperatures can be indicators of trouble. Recording temperature values and grain condition can be useful in tracking any changes.
- 9. Use available tools** – Improved technology can help you better manage stored grain. Temperature cables and fan controllers can make management simpler by taking advantage of favorable conditions to keep grain stored at the optimum temperature and moisture levels.
- 10. Don't turn everything over to automation** – Technology is great, but visual inspection of stored grain occasionally can be valuable. For example, moisture sensors need calibration in order to be accurate. Blindly trusting that equipment is working properly without personally checking periodically could lead to disaster.

4 Ways to Use Drones on Your Farm

Coming home with a brand-new drone in tow may make you feel like a kid at Christmas, but at the end of the day, drones are powerful tools.

Michael Starek, Ph.D., is an assistant professor of geospatial surveying engineering at Texas A&M University-Corpus Christi (TAMUCC). He's conducting research using unmanned aerial systems (UASs) to monitor crops.

"The biggest value in my opinion is UASs offer the flexibility to fly whenever conditions allow," Starek says. "We can get real-time data and collect information over a period of time as



needed to monitor changes. UASs can cover areas not feasible by ground methods and can capture data in detail.”

Here is a list of four ways drones can be put to use:

1. Scouting for weeds and insects:

While scouting is an important management practice, many farmers have trouble finding the time to walk through all of their fields. Drones can cover more area in less time.

2. Measuring crop health:

Some drones are equipped with imaging technology that can determine whether a plant is healthy based on how much invisible, NIR light it reflects.

3. Monitor water drainage:

Soybeans don't do well in wet soil for prolonged periods of time. Drones with thermal sensors can scan for wet spots in the field, helping you identify areas that need better drainage.

4. Weather damage:

Using a drone to scan your field can help you determine how much damage was sustained during a storm or other event. That can ultimately help you determine whether to replant as well as give you documentation for submitting an insurance claim for the damage.

“The real potential of this technology is just beginning to be tapped and growing daily,” Starek says. “Sure, we can fly and get up-to-date aerial maps, but the true value comes in the data analytics and the ability to learn from it to direct management methods.”

Drones can be put to use in several ways, but not all ways will be valuable for you. Do your research and make sure the technology is a good fit for your farm before taking the plunge.

Improve Sustainability, All Year Long

10 production practices that boost sustainability

U.S. soybean farmers are committed to continuous improvement – making sure the land they farm now is prosperous for years to come. Sustainability is a year-round effort; start your sustainability journey with these 10 sustainable practices:

FALL

1. Frequently test soils, maintain nutrient-management plans, know recommended nutrient levels and apply adequate nutrients as needed.
2. Research seed selection. Seeds enhanced by biotechnology allow farmers to reduce tillage and make fewer trips through the field in a tractor.

WINTER

3. Explore new precision-farming technologies to increase sustainability. Those could include GPS and computer monitors to use in tractors, sprayers and combines to track yield and inputs.
4. Preserve water and improve biodiversity with environmental practices like buffer strips, filter strips, waterways, tiling and terraces.
5. Keep detailed records of all your farming practices, including planted acreage, annual yield for each field, all inputs for each field and proper calibration levels for all planting equipment.

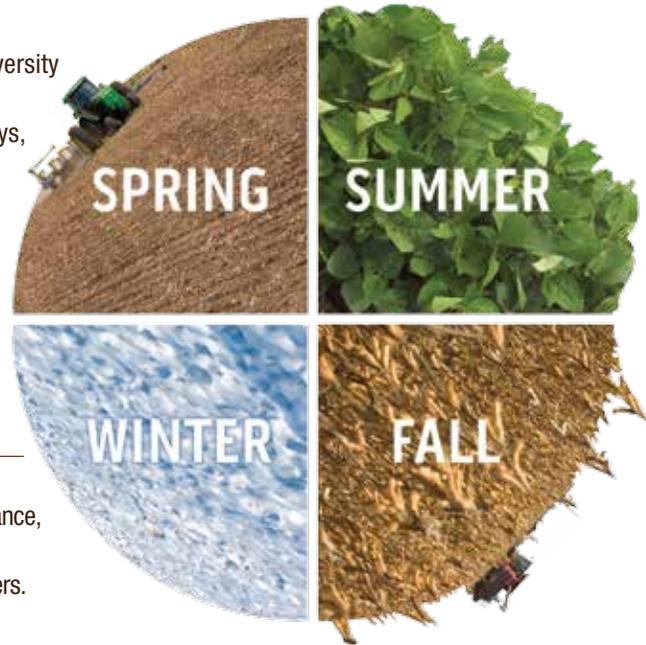
SPRING

6. Rotate crops to increase biodiversity, control pests, prevent disease resistance, replace vital nutrients in the soil and reduce the need for chemical fertilizers.

7. Preserve the soil's nutrients, increase organic matter and reduce runoff, soil erosion, labor, fuel use and equipment wear with reduced-tillage methods.
8. Use biodiesel, one of the leading carbon-reduction strategies available with today's vehicle technologies, in your diesel equipment.

SUMMER

9. Use irrigation-scheduling tools, such as soil-moisture sensors, to improve water-use efficiency.
10. Use chemical intervention as needed when managing pests. When chemicals are necessary to eliminate the problem, carefully determine proper timing and spray coverage to limit pest resistance, runoff and residues.



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