

IOWA STATE UNIVERSITY

Extension and Outreach

Integrated Crop Management

Plan Ahead for Potential Harvest and Storage Challenges this Fall

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With delayed planting across the state, it is important to plan ahead for potential harvest challenges. Scout your fields for crop development to determine whether you might have potential problems with immature, frost-damaged grain, and wet grain.

Potential challenges:

Frost-damaged soybean will have a slower dry-down in the field and may produce green/yellow soybean with above-normal shrink from drying. The green color may subside within two weeks of maturity if allowed to dry in the field or after several weeks of aeration.

Corn damaged by a freeze before it has reached physiological maturity will create issues of low test-weight, low quality, and high moisture. Light corn has a shorter storage life and is more difficult to dry. Even without frost damage, corn in-field drying rate decreases with air temperature: in September, weekly drying is estimated at 4.5 moisture points per week, and in October, November, and December, this is reduced to 2.5, 1, and 0.5, respectively. Use this [growing degree day calculator](#), along with your location and corn hybrid characteristics to estimate date of corn maturity and see how it compares with historical average first freeze dates.

Using a location of Johnson County, Iowa, a planting date of June 1, and corn maturity of 111 days, the calculator estimates black layer on September 29, 20 days before the average first freeze for this location of October 20. Using a later planting date of June 10, the calculator predicts black layer on October 21. For corn planted after May 1, remember to manually adjust the growing degree day requirements to reach maturity by 6.8 fewer

growing degree days per day. Remember that there is always a chance of getting an earlier than average first freeze.

Handling and storage recommendations:

Moisture meters are typically inaccurate at high grain moisture levels, so be sure to follow the manufacturer's procedure for obtaining an accurate measurement. Green, immature beans will read a drier moisture than they actually are, so add 1.5 moisture points when you have these beans mixed in with sound beans.

Harvest and handle grain from low-lying, frost-damaged areas separately, as this grain will have a high storage risk. Frost-damaged corn may not be wanted by ethanol operations; however, it maintains most of its value for animal feed. Test for protein level, amino acid level, and mycotoxins before feeding. Green soybeans are often discounted by processors.

To safely store through the winter, dry good quality corn to 15% moisture and soybean to 13%. To store into the warmer summer months, dry corn to 13% and soybeans to 11%. Dry low test-weight corn and corn with damaged kernels to one percentage point lower in moisture content than normal. High temperature drying should be limited to 160 degrees for frost-damaged corn and to 130 degrees for soybean to limit damage in the dryer.

Low-temperature or natural air grain drying should be limited to 21% moisture corn or dryer. Natural air drying is typically limited after late October. When average daily temperatures cool to below 40 degrees this fall, focus on getting the grain cooled for winter storage, aerate through the winter as needed, and continue drying when temperatures rise in the spring.

Cool grain in bins to 30-40 degrees to store through the winter. Check grain for rising temperatures and moisture levels, odors, and insect activity every two weeks through the winter and every week during spring. Use a grain cleaner or "core" bins with poor grain quality to remove fines accumulated in the center. Core the bin after filling it by removing about half of the peak height to remove fines and improve aeration. If we have wet conditions this fall, look for the development of molds and toxins, such as vomitoxin, on grain left out in the field.

Grain bin safety:

When removing grain from a bin, visually inspect to be sure that an inverted cone has been created. If no cone is created, there may be bridging of the grain surface and a hollow space beneath. Do not enter the bin until the bridging has been corrected. Do not enter a

bin when grain is flowing. Be sure to protect your lungs with proper respiratory protection when working with dusty or moldy grain.

Category: [Crop Production](#) [Equipment and Machinery](#) [Grain Handling and Storage](#)

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Crops:

[Corn](#) [Soybean](#)

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