

AGRONOMIC Spotlight



Technology
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Benefits of a Timely Corn Harvest-North

Climate varied across the northern Corn Belt this season. Some areas had typical temperatures with higher than normal rainfall, while other areas had above average temperatures with below average rain fall^{1,2}. Growing degree day (GDD) accumulations have been reported to be far ahead of what would be considered typical for this time of year. Since some fields may require an early harvest, now is the time to monitor fields to reap the benefits of a timely corn harvest, which is essential to help maximize potential grain yield and profitability.

Grain Moisture

Start monitoring grain moisture now. Consider starting to harvest at moisture levels higher than normal. Shoot for a moisture level that will provide a good balance between minimizing harvest losses and keeping grain drying costs down. A plan to take advantage of the rapid drydown and allow everything to field dry could be a very costly mistake. Harvesting at lower moistures can increase mechanical losses due to ear drop, stalk lodging, and kernel shattering.

Start monitoring corn as soon as physiological maturity (i.e., black layer) stage is reached. When maturity is reached during warm weather, grain moisture at black layer is usually lower. With high temperatures, it is extremely easy to underestimate the grain drying rates. Grain that matures in late August can have an average daily drydown rate of approximately 0.8 percentage point per day compared to 0.4 percentage point per day for grain nearing maturity in mid to late September³.

To test for grain moisture, randomly select 10 ears of corn and remove several rows of corn kernels from the full length of the ear, and mix the kernels thoroughly. Use an accurate moisture meter to determine the moisture content. Take three moisture readings and average the results.

Corn Harvest Order

Existing and potential stalk and root lodging, disease pressure, and moisture content can affect harvest order. Sidewall compaction, which restricts root growth, occurred this season due to excessive early season rainfall. Roots with sidewall compaction may be susceptible to root lodging. In addition, plants with restricted root growth often



A timely harvest can help to maximize potential grain yield.

experience nutrient deficiencies, even if soils with adequate soil test values, as the roots are not able to intercept enough nutrients. Stalk cannibalization and physiological stalk lodging is common this year, largely due to nitrogen loss from excessive rainfall. Anthracnose top die-back and stalk rot are also widespread and prevalent this year. With excessive sidewall compaction, cannibalization and abundant stalk rots, fields need to be monitored closely to develop a harvest schedule that can help minimize lodging and harvest loss.



Physiological stalk lodging.

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Scouting for Lodged Corn

The pinch test and the push test are two methods to determine stalk integrity. Conduct the pinch test by squeezing the second or third internode above the ground. If it collapses, stalk quality is compromised. The push test is performed by pushing a corn stalk to approximately a 45 degree angle. If it breaks, stalk quality has been reduced. Conduct either test on 10 plants in a row and at several locations in the field. If more than 10% of the stalks tested show poor stalk quality, or lodge at the root, the field should be slated for early harvest.

Harvesting Tips

In addition to harvesting at an optimum grain moisture content, achieving proper combine settings can help increase combine efficiency, maximize grain quality and minimize field losses. Listed below are a few combine preparation tips. Always follow the manufacturer's equipment setting recommendations:

- To minimize seed coat damage, the lowest recommended cylinder speed should be used to start. Only enough speed to adequately thresh the grain should be used while keeping losses to acceptable levels.
- Cleaning airflow is normally set at a higher level, and then reduced just below the point where the grain is blown out the rear of the cleaning shoe.
- Deck plated/snapping rollers should be adjusted to match the size of ear and stalks. This can help avoid shelling on the ear and slipping through the front of the machine.
- Spacing between plates should be 1.25 inches in a normal crop and ear savers should be maintained on the corn header.

Fields with considerable lodging should be harvested early to help minimize the risk of increased lodging and ear rots. Here are some harvesting tips to protect yield potential in fields with lodging:

- Consider using a corn reel if needed.

- Harvesting against the angle of the down corn can help maximize lift into the header.
- Harvesting when dew is present can minimize fluff.
- Time should be taken to make combine adjustments in the field.
- Combine should be properly adjusted to minimize broken kernels and excess fines as they can lead to spoilage.
- Over-threshing should be avoided.
- Combines should be set to maximize the blow out of fines and foreign material.
- Consult the combine operator's manual for cylinder adjustments, speed and clearance settings suggested by the manufacturer.

Storage Tips

Stored corn should be checked frequently. Bins should be inspected every one to two weeks in the fall and spring and once every two to four weeks after conditions in the bin have stabilized during the winter months. Preventative practices can be implemented to help protect corn from spoilage during storage:

- Adjust combine to minimize kernel damage and maximize cleaning.
- Dry corn to 13 to 14% moisture prior to storage.
- Store grain at cool temperatures (35.6° F to 42.8° F) after drying.
- Check grain periodically for temperature, hot spots, wet spots, and insects.
- Consider applying antifungal treatments to grain.

Sources: ¹High Plains Regional Climate Center (HPRCC). 2011. Climate Summary Maps. University of Nebraska-Lincoln; ²E. Nafziger. July 29, 2011. Assessing the corn crop as heat continues. University of Illinois. The Bulletin. Issue No. 17, Article 5; ³R. Nielsen. August 2010. Field drydown of mature corn grain. Purdue University. Corny News Network; Additional sources used to create this publication: M. Hanna. 2008. Combine harvesting tips for 2008 harvest. Department of Agriculture and Biosystems Engineering. Iowa State University Extension; S. McNeill and M. Montross. Corn Harvesting, Handling, Drying, and Storage. University of Kentucky. Pages 52-58; R. Nielsen. August 2010. Stress during grain fill: A harbinger of stalk health problems. Purdue University. Corny News Network; E. Nafziger. August 13, 2010. Corn to the finish line: Racing or Collapsing? University of Illinois. The Bulletin. Issue No. 19, Article 4; OMAFRA staff, Corn: stalk rots. Pub. 811, Agronomy Guide, 01 March 2002.; OMAFRA. March 12, 2009. Compaction—Soil Diagnostics. Ontario Crop IPM.

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible.

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