Benefits of a Timely Corn Harvest

- Monitoring of grain moisture is important for a timely harvest, and should begin when corn reaches physiological maturity or black layer.
- Scouting of fields for stalk quality and lodging helps to establish the best priority in harvesting order.
- Proper combine settings during harvest helps to minimize field losses.
- Frequently checking grain in storage bins helps to maximize grain quality and profitability.

Grain Moisture

Monitoring of grain moisture should begin as soon as corn reaches physiological maturity (black layer). To test for grain moisture, randomly select 10 ears of corn and remove several rows of kernels from the full length of the ear. Mix the kernels thoroughly and use an accurate moisture meter to determine the moisture content. Take three moisture readings and average the results.

At harvest, target a grain moisture level that will provide a good balance between minimizing harvest losses and keeping drying costs down. Allowing all the corn 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. Harvesting at 15% to 18% grain moisture can minimize drying costs, but may not be the most profitable. There may be greater potential to capture the most revenue per acre when harvesting at 23% to 25% grain moisture. Consider beginning harvest when corn grain moisture is a little above 25% so that harvesting can be finished before corn dries completely in the field.[1]

Field drying of mature corn grain is influenced primarily by weather factors like temperature and humidity. Warmer temperatures and lower humidity encourage rapid field drying of corn grain. 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 September.[2]

Harvesting Order

Fields should be scouted and monitored for issues that would change your field priority in harvesting order. Existing and potential stalk and root lodging, disease pressure, and moisture content can affect harvest order.

Figure 1. A timely harvest can help to maximize potential grain yield.

Stalk cannibalization and physiological stalk lodging can be due to nitrogen loss from excessive early season rainfall. *Anthracnose* top die-back and stalk rot can be prevalent in certain years. With excessive cannibalization and abundant stalk rots, fields need to be monitored closely to develop a harvest schedule that can help minimize lodging and harvest loss.

The pinch test and the push test are two methods to determine stalk integrity when scouting for potential corn lodging. 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.

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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. Always follow the manufacturer's equipment setting recommendations.

Listed below are a few combine preparation tips:[3]

- To minimize seed coat damage, start with the lowest manufacturer recommended cylinder speed setting. Only enough speed to adequately thresh the grain should be used while keeping losses to acceptable levels.
- Airflow to clean grain 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 (shields that keep ears from falling to the ground) 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 lodged corn can help maximize lift into the header.
- 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.

Figure 2. Corn grain in storage should be checked frequently.

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:

- Combine should be adjusted to minimize kernel damage and maximize cleaning.
- Corn grain should be 13% to 14% moisture prior to storage.
- Grain should be stored at cool temperatures (35.6°F to 42.8°F) after drying.
- Grain in storage should be checked periodically for temperature, hot spots, wet spots, and insects.
- Applying antifungal treatments to grain should be considered.

Sources:
[1] McNeill, S. and M. Montross. Corn harvesting, handling, drying, and storage. University of Kentucky Extension. http://www.ca.uky.edu. (verified 8/4/2014).
[2] Neilsen, R. 2010. Field drydown of mature corn grain. Purdue University. Corny News Network.
[3] Hanna, M. 2008. Combine harvesting tips for 2008 harvest. Department of Agriculture and Biosystems Engineering. Iowa State University Extension.

For additional agronomic information, please contact your local seed representative.