Late Corn Harvest Issues

- Final yield is determined over the entire growing season; however, grain quality is often determined by conditions at the end of the growing season.
- Harvest date should be dictated by stalk and ear integrity balanced against grain moisture.
- Usually, the rate of grain drydown after November 1st is very small and does not exceed 0.5% per day in the Corn Growing Region.
- As winter approaches, field drydown of corn grain is minimal and stalk and ear integrity deteriorate.
- Cost of artificial drying may be less than the possible cost incurred by slower harvest of lodged plants and yield loss as a result of unharvestable ears.

Timing Harvest[1]

Kernel moisture dictates the use of the plant at harvest.

- At 33-35% plant moisture the crop can be used for silage
- At 29-32% kernel moisture the crop can be used for high moisture corn that is ensiled
- At 25-26% kernel moisture the crop is ideal for combining (shelling)
- At 20-23% kernel moisture the crop is Ideal for ear picking
- When below 20% kernel moisture field losses increase, but artificial drying costs are reduced.

Grain Drydown Rate[2]

Corn grain dry down occurs two ways: First, kernel moisture is lost as dry matter accumulates prior to black layer, and second, black layer moisture is lost when it evaporates from the kernel surface. A study at Iowa State University looked at four planting dates and four corn products of different relative maturities. Ears were harvested weekly September through October. In this study, the average dry down across planting dates and product maturities was 0. 58% per day, with the rate at 0.69% for the first 20 days and 0.44% for the next 20 days. While there was no difference in the rate of drydown among corn products after black layer, there was a range of 28 to 38% kernel moisture at maturity, which is to be expected with products with longer relative maturity. Based on their research, 15.5% kernel moisture could be achieved in 35 days when moisture at maturity is above 36%, and 25 days when kernel moisture is below 30%. The estimates from this study are based on normal fall conditions; warmer or colder temperatures, more or less humidity will impact the time to reach 15.5% in the field.

Drying Costs

Determining when to harvest corn depends on moisture content, weather forecast conditions, number of acres to be harvested and drying capacity. Corn kernel mechanical damage during harvest is usually lowest between 19 percent to 24 percent moisture.[3] Farmers need to evaluate if crop damage or loss related to field drying is less than the cost of drying. The breakeven point between total drying cost versus value of lost yield due to field drying depends on several factors, including ear and stalk health, crop maturity, weather forecast, and drying costs. The University of Kentucky has developed a grain drying cost decision tool that may be beneficial in determining the return on investment on artificial grain drying versus in field drying. (Link to this tool at https://www.uky.edu/bae/grain-storage-systems)

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Ear and Stalk Health

Scout fields to determine harvest priority by assessing stalk quality using either the pinch or push test.
The pinch test is done by squeezing the stalk between the second or third internode from the soil surface, if it collapses easily, the stalk may lodge. The push test is done by pushing a stalk to a 45° angle, if it does break or collapse, the stalk may lodge. If 10% or more of the stalks have poor quality or lodge at the root after sampling the field in several areas, the field should be harvested earlier.[1]

Figure 1. Lodged corn.

While checking stalk quality, fields should also be scouted to determine the extent of ear rots. If a field has more than 10% of the ears infected on 10 to 20% of the grain the field should be harvested as soon as possible, and the grain dried to at least 15% moisture.[4] Drying the grain to this level will prevent further mold growth. Prevent additional damage to the kernels by adjusting the combine to the proper setting. If possible, clean grain with a rotary cleaner to reduce the fines, thus reducing the mycotoxin levels, as fines have a higher mycotoxin level than kernels. Testing grain with obvious mold problems for mycotoxins is advised.

Harvesting Down Corn[1,5]

Should lodging be an issue, consider the following recommendations for harvesting down corn.

- Use an auto header height on your corn head.
- Flatten the corn head angle. If the corn is lodged "with the row", steepen the corn head angle.
- Synchronize gathering chain speed to ground speed.
- Set the clearance between the tray and cross auger flighting at two inches for down corn.
- Open stripper plates and use more taper from bottom to top on stripper plates.
- Center the stripping tunnel above the stalk roll tunnel.
- Synchronize gathering chain lugs to be opposite one another. Attach metal paddles onto every other gathering chain lug to increase the conveying capacity of chain. Turn gathering chains around to increase aggressiveness.
- Install a corn reel.
- Take off any end risers or tall corn extensions. Remove rubber ear savers.
- Add weight to poly divider snouts to help them stay under the canopy. Grind the wear shoe tips of the dividers or shim to give more pitch to help them stay under the canopy.
- Use stalk rolls with revolving windows.
- Start harvesting on the downwind side of the field.

Late Corn Harvest Issues

Sources

[1] Lauer, J. 2021. Corn agronomy. University of Wisconsin Extension http://corn.agronomy.wisc.edu.

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