Grain Drydown and Timely Harvest Decisions

Harvest timing should be determined in each field by monitoring grain moisture content, stalk quality, and ear quality. The ideal harvest moisture content is between 22 and 25 percent. Farmers and some researchers believe that it is possible to lose grain dry matter during drydown after corn reaches physiological maturity.

What is the ideal harvest moisture content for grain? This question has been studied and debated by agronomists, researchers, and growers over the years. Some on-farm anecdotes and limited research have suggested that yield may “disappear” after physiological maturity due to respiring grain in the field (also known as “phantom” yield loss). This raises the question of whether it is better to harvest corn at higher grain moisture content and incur the drying cost to avoid potential yield losses or leave corn standing in the field to dry down naturally and potentially risk harvest losses.

The ideal harvest moisture content for corn is between 22 to 25 percent. Corn drydown is linked to growing degree units (GDUs). Under ideal weather conditions, corn may lose up to one point of moisture per day. As the days get cooler, GDU accumulation per day decreases and grain drying slows. As a rule of thumb, 30 GDUs per moisture content point are required to lower the grain moisture content from 30 to 25 percent and 45 GDUs per point are required from 25 to 20 percent. This means that late-maturing fields may take two to three times longer to dry in the field.

Harvest Determination and Losses

Harvest timing should be determined in each field by monitoring stalk quality, grain moisture content, and ear quality. When corn moisture content is approximately 23 to 25 percent, kernels shell easily and stalks generally stand better, which can make harvesting more efficient. A normal level of harvest loss is about 1 to 2 percent with a timely and efficient harvest.

Waiting for corn grain to dry to 18 percent moisture content in the field can certainly save on the energy bill, but it also increases the likelihood of excess harvest losses due to stalk lodging, ear drop, and detrimental weather, all of which can affect your bottom line. If stalk lodging or ear drop problems are observed, harvesting timing will be more critical to maximize yield potential. Take the time to watch the crop condition in the field in an effort to balance field drydown with harvest losses.

Grain losses during the harvesting operation can range from 1 to 6 percent. These losses can account for more yield loss at harvest than kernel dry matter loss during drydown. Farmers have a high degree of control over mechanical harvest losses. Identifying the sources of harvest losses and adjusting the combine are steps farmers can take to prevent excessive loss at harvest. Always refer to the manufacturer’s manual before performing any maintenance.

- **Pre-harvest loss.** Losses can be higher in stressful years or when harvest is delayed. Losses due to lodging, stalk rot, dropped ears, foliar diseases, and premature plant death can occur before and during harvest.
- **Header ear loss.** Lost whole or broken ears can result from driving too fast or slow, off the row, or operating the header too high. Losses can be as high as 3 to 4 percent.
- **Header kernel loss.** Kernel loss of about 0.6 percent can occur at the gathering snouts, snapping bars, and snapping rolls.
- **Combine cylinder loss.** Some kernels can remain on the cob as they pass through the machine due to insufficient shelling action. This loss should not exceed 0.3 percent with the correct cylinder or rotor speed and concave clearance adjustment.
- **Combine separation loss.** Some kernels may pass over the sieves and out of the combine. With correct sieve and wind adjustment, this loss should be held to 0.1 percent of the total crop yield.

Sources: