Causes and Management of Corn Ear Drop

Key Points

- High temperatures, drought stress, and pest damage can contribute to potential ear drop problems.

- Determine pre-harvest loss by counting dropped ears within 1/100th of an acre. Each full size ear within this area represents about 1 bu/acre loss.

- Operating the corn head higher than normal can reduce additional ear loss in problem fields.

It is extremely frustrating to see dropped corn ears between the rows as the growing season approaches harvest. Weather stress, pest damage, and genetics can contribute to potential ear drop. However, there are some harvesting techniques that can be implemented to reduce additional ear drop during the combining process.

Ear Drop Causes

High temperatures during silking (R1) may result in a weak shank attachment which can contribute to potential ear drop. Furthermore, plants may recover from the initial stress at early R1 and produce normal grain on the upper part of the ear, resulting in more weight on the ear tip than the weakened shank may be able to support. Also drought stress which can result in premature plant death affects shank strength. Ear shanks may be cannibalized for carbohydrates by the ear, leading to reduced shank strength and possible ear drop.

Fungal infections, such as fusarium stalk rot, also may lead to shank deterioration. Insects, such as European corn borer, (as evidenced by a hole and frass at the entry point) can tunnel into an ear shank, reducing its overall integrity. Ear drop problems can vary by planting date, soil type, corn product, and other agronomic factors. Therefore, problems with specific corn products will not occur every year and are affected by factors other than genetics.

Determining Pre-harvest Ear Loss

Pre-harvest losses due to ear drop can be easily estimated. Begin by measuring the required distance behind the combine’s harvesting width. The length of the harvesting width equivalent to 1/100th of an acre is determined by row width and number of rows covered by the corn head (Table 1). Each full-size ear (about 3/4 lb each), within the measured area, represents about 1 bu/acre loss and finding 3 small ears (each about 1/2 lb and 8 inches in length) represents about 2 bu/acre loss.

Minimizing Ear Drop Losses

Fields should be scouted prior to harvest, focusing on looking for existing dropped ears and weak ear shank problems. Problem fields that have been identified should be harvested as soon as possible. Combine operators should run the corn head as high as possible while adjusting ground and header speed for maximum ear retention, where ear drop is a problem. Operating the corn head higher than desired and leaving some lodged plants often results in more yield than trying to get every plant into the header. If loss is significant, plans may need to be made to control potential volunteer corn in the next year’s crop. Also for subsequent seasons, planting corn with trait protection against certain above-ground insects, can help reduce the risk of ear drop by providing protection against shank-boring insects.

Sources:


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