

Managing Ear Drop in Corn

Drought stress, heat, insects, and other stress factors can cause premature ear drop. The interaction of several events may be the reason for ear drop near harvest. Fields with ear drop should be harvested as soon as possible and operating the corn head higher than normal may reduce ear loss during harvest.

Premature Ear Drop Causes

A key factor that causes ear drop is weather stress.

- Generally, ear drop is most severe when extreme high temperatures occur at silking (R1 growth stage).
- High temperatures during silking can result in a weak shank.
- European corn borers or other insect pests may be responsible for ear drop as the insects can tunnel into and weaken the shank.
- Ear drop can vary by planting date, soil type, corn product, and other agronomic factors. Therefore, problems with specific corn products may not occur every year and are affected by factors other than genetics alone.

Plants may recover from initial stress at early R1 and produce normal grain on the upper part of the ear. However, this will produce more weight on the ear tip than may weakened shank can be support. As a result, ear drop may occur before harvest.

Shank strength can be reduced due to drought stress and premature plant death. Ear shanks can be cannibalized for carbohydrates by the ear, leading to shank deterioration and eventual ear drop. Fungal infections, which develop more quickly at higher temperatures, also may lead to shank deterioration.

Table 1. Row length in feet and inches to equal 1/100th of an acre for various row widths and rows to be harvested.

Row Width (inches)	Number of Rows Harvested			
	4	6	8	12
20	65' 4"	43' 7"	32' 8"	21' 10"
30	43' 7"	29' 0"	21' 10"	14' 6"
36	36' 4"	24' 4"	28' 2"	12' 1"

Source: Hanna, M. 2008. Profitable corn harvesting. PMR 574. Iowa State University Extension.

Measuring Preharvest Ear Drop Loss

A quick evaluation of a field can help estimate preharvest losses due to ear drop. Begin by measuring the required distance behind the combine. The length of corn rows equivalent to 1/100 acre will vary by row width and number of rows covered by the corn head (Table 1). Each full-size ear (about 3/4 lb each) represents about 1 bu/acre loss and finding 3 small ears (about 1/2 lb each) represents about 2 bu/acre loss.¹

Minimizing Ear Drop Losses

Growers should scout fields thoroughly to observe for weak ear shanks. Problem fields should be harvested as soon as possible. Where ear drop is a problem, growers should run the corn head as high as possible while adjusting ground and header speed for maximum ear retention. 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 should be made to reduce the amount of potential volunteer corn. Also, 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

¹Hanna, M. 2008. Profitable corn harvesting. PM574. Iowa State University.

Thomison, P. 2012. Stalk lodging and ear drop impact corn yields. C.O.R.N. Newsletter. The Ohio State University. <http://corn.osu.edu/>.

Kansas State University. 2011. Drought-stressed corn needs timely harvest to avoid stalk lodging, ear drop. Corn & Soybean Digest. <http://cornandsoybeandigest.com/>.

Web sites verified 6/6/18. 140814010101

Performance may vary from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields. 140814010101 071318 RDH.