



Agronomic Spotlight

Grazing Ear Dropped Corn

- A variety of factors can contribute to ear drop during the growing season. Factors may include drought stress, insect damage, and other agronomic considerations. Grazing cattle on corn residue may not be the best option in fields with significant ear drop.
- Increased available grain in grazed fields with ear drop can increase the risk of overconsumption of grain leading to acidosis to cattle.
- There are several management options that can reduce the risk of acidosis to cattle including controlling the type of cow allowed to graze, providing supplements, reducing the area of the field available for grazing, and providing hay to the cattle prior to grazing.

WHAT TO CONSIDER

Stress from weather conditions is a key factor when evaluating the cause of corn ear drop. Extreme high temperatures during silking (R1 growth stage) can result in a weak ear shank attachment. Ear shanks can be cannibalized for carbohydrates by the ear, leading to shank deterioration. Fungal infections and insect damage may also affect shank strength. Plants can recover after stress at the R1 growth stage and produce normal grain on the upper portion of the ear. This produces a heavier ear tip which the weakened ear shank may not be able to support, resulting in ear drop prior to harvest.¹

The incidence of ear drop can vary by planting date, soil type, corn product, and other agronomic factors. Problems with specific corn products will not occur every year and are affected by factors other than genetics alone.

Problem fields should be harvested quickly. 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 can result in higher yield than trying to get every plant into the header. Corn fields with ear dropped corn may have significant amounts of plant material remaining even after harvest. Using these fields to graze cattle may seem like the best option to utilize the available nutrients in the field. However, there are many factors to consider prior to cattle turnout.¹

YIELD IMPACT

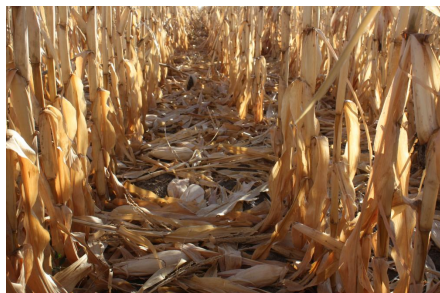


Figure 1. Corn with severe ear drop.

In fields with corn ear drop, it is important to first assess how much grain remains in the field prior to grazing. Any field that is grazed by cattle with more than eight to ten bushels per acre

of grain can lead to acidosis (digestive problems), lameness and abortions, and in severe cases, death.² To quantify the amount of corn remaining in the field, count the number of ears on the ground between two rows on 1/1000 of an acre (Table 1). For a more accurate estimate of loss, count multiple areas of the field and average the numbers.³

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Table 1. Row length equal to 1/1000 of an acre for various row widths.

Row width	Row length equal to 1/1000 acre
15	34 ft 10 in
18	29 ft 0 in
20	26 ft 2 in
22	23 ft 9 in
30	17 ft 5 in
36	14 ft 6 in
38	13 ft 9 in

Jasa, L., Klein, R., Treffer, B., Stauffer, G., Rasby, R., and Glewen, K. 2012. Assessing and harvesting downed corn. University of Nebraska-Lincoln. <https://cropwatch.unl.edu/>.

Count the number of kernel rows and the number of kernels per row on an average ear. Then use Table 2 to determine the amount of yield lost. For example, if an average ear has 14 rows per ear and 37 kernels per row, then 5.8 bushels of corn per acre remain on the field. If there are 5 ears found within 1/1000 of an acre, then roughly 29 bushels of corn per acre would remain on the ground, which is more than the eight to ten bushels maximum allowed for grazing cattle.³ For more information including data for ears with small kernels visit the

following web address:

- <https://cropwatch.unl.edu/assessing-and-harvesting-downed-corn-unl-cropwatch-oct-26-2012>

Table 2. Bushels of corn per acre for each ear found in 1/1000 of an acre (17.4 foot row length in 30-inch rows) with an average kernel size (90,000 kernels per bushel).

Kernels per row								
Rows per ear	25	29	33	37	41	45	49	53
12	3.3	3.9	4.4	4.9	5.5	6.0	6.5	7.1
14	3.9	4.5	5.1	5.8	6.4	7.0	7.6	8.2
16	4.4	5.2	5.9	6.6	7.3	8.0	8.7	9.4
18	5.0	5.8	6.6	7.4	8.2	9.0	9.8	10.6
20	5.6	6.4	7.3	8.2	9.1	10.0	10.9	11.8
22	6.1	7.1	8.1	9.0	10.0	11.0	12.0	13.0

Modified from Jasa, L., Klein, R., Treffer, B., Stauffer, G., Rasby, R., and Glewen, K. 2012. Assessing and harvesting downed corn. University of Nebraska-Lincoln. <https://cropwatch.unl.edu/>.

MANAGEMENT OPTIONS

To reduce the risk of feeding too much grain to cattle, it is important to harvest fields with ear drop quickly. Once the field is harvested, there are several management practices that can help prevent cattle from falling ill. The following recommendations may be used:

- Consider grazing inexperienced cattle like calves, yearlings, or cull cows on the affected fields first. Experienced grazers will consume the grain first, whereas the the inexperienced grazers will generally graze other plant material before consuming grain. This can help acclimate the cattle for grain consumption.
- Supply the cattle with a ionophore-

containing supplement.

- Acclimate the cattle to grain prior to grazing affected fields. Begin by providing three pounds per day and increase to seven or eight pounds within ten days prior to allowing grazing.
- Control the area of the field accessible to the cattle by cross fencing. Fences may need to be moved every day during the early grazing period.
- Pre-feed the cattle with good-quality hay prior to turning them out to graze and provide hay in the field as well.² Continue to monitor cattle for signs of acidosis. Cattle may stop eating and look gaunt or stressed, as well as having loose, grey stools and elongated hooves.⁴

Sources

¹ Shay, C., Ellis, L., and Hires, W. Measuring and reducing corn harvest losses. Department of Agricultural Engineering. University of Missouri Extension. Pub G1290.

² Dahlen, C., Dhuyvetter, J., Hoppe, K., Brummer, F., and Crawford, E. 2015. Use caution when grazing corn residue. North Dakota State University Extension Service. <https://www.ag.ndsu.edu/>.

³ Jasa, L., Klein, R., Treffer, B., Stauffer, G., Rasby, R., and Glewen, K. 2012. Assessing and harvesting downed corn. University of Nebraska-Lincoln. <https://cropwatch.unl.edu/>.

⁴ Robinson, K. 2012. Expert: Exercise proper management when grazing corn fodder. Purdue University. <https://www.purdue.edu/>.

Web sources verified 11/02/17. 171031105243