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Corn Hail Loss Chart and Things to Consider Following Hail

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Abstract

Hail storms again devastated portions of Iowa's corn crop on Aug. 9. Storms cut a 1 to 8 mile swath across north central Iowa. Producers in its path are asking, "How does hail after tasseling affect yield?" Most corn in the affected area was in the blister stage (R2). According to hail industry tables, complete leaf loss at R2 results in 73 percent yield loss (see table). Amount of leaf loss as well as development stage greatly impacts losses. For example, if half of the leaves are lost, yields are reduced by 22 percent. Damage at tasseling, VT, affects yield more severely while losses both earlier and later in development are less severe.

Keywords

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Corn Hail Loss Chart and Things to Consider Following Hail

By Roger Elmore, Department of Agronomy

Hail storms again devastated portions of Iowa's corn crop on Aug. 9. Storms cut a 1 to 8 mile swath across north central Iowa. Producers in its path are asking, "How does hail after tasseling affect yield?"

Most corn in the affected area was in the blister stage (R2). According to hail industry tables, complete leaf loss at R2 results in 73 percent yield loss (see table). Amount of leaf loss as well as development stage greatly impacts losses. For example, if half of the leaves are lost, yields are reduced by 22 percent. Damage at tasseling, VT, affects yield more severely while losses both earlier and later in development are less severe.

Table. Estimated percent yield reduction caused by hail damage.

| | | Percent Leaf Area Destroyed | | | | | | | | | |
|-------|---------|-----------------------------|----|----|----|----|----|----|----|----|-----|
| Stage | | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| VT | Tassel | 3 | 7 | 13 | 21 | 31 | 42 | 55 | 68 | 83 | 100 |
| R1 | Silk | 3 | 7 | 12 | 20 | 29 | 39 | 51 | 65 | 80 | 97 |
| R2 | Blister | 2 | 5 | 10 | 16 | 22 | 30 | 39 | 50 | 60 | 73 |
| R3 | Milk | 1 | 3 | 7 | 12 | 18 | 24 | 32 | 41 | 49 | 59 |
| R4 | Dough | 1 | 2 | 4 | 8 | 12 | 17 | 23 | 29 | 35 | 41 |
| R5 | Dent | 0 | 0 | 2 | 4 | 7 | 10 | 14 | 17 | 20 | 23 |
| R6 | Mature | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

USDA data. Table adapted from Corn Field Guide, CSI0001. Iowa State University Extension, 2009.

Consider a few other things relative to hail damage:

- Stand losses also occur with hail storms. Yield losses are directly related the number of plants broken below the ear at these later development stages. For example a 10 percent stand loss – plants broken below the ear will result in a 10 percent yield loss in addition to any losses from defoliation.
- Bruises on stalks and ear husks may allow pathogen entrance, thus further reducing yields and increasing issues with stalk and grain quality.
- No research data supports [fungicide applications](#) as a method to improve crop recovery.
- If a portion of the crop is worth harvesting, adjust combines well. Volunteer corn will likely be a problem in 2010 whether the crop is harvested or not.

These losses are devastating. Prior to the storm, the crop looked better than ever. Recovery of the crop, and growers, will be difficult.

For more information see the article on assessing hail damage from the [National Corn Handbook](#). In addition, Iowa State University Extension developed and posted resources for producers affected by hail on a special

Web page.

Roger Elmore is a professor of agronomy with research and extension responsibilities in corn production. Elmore can be contacted by email at relmore@iastate.edu or (515) 294-6655.

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