

Hail Damage Assessment to Corn

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Questions arise as to:

- What is and will be the final stand of the corn field?
- How healthy is the corn plant?
- Given the current stand and defoliation, how much yield impact will the reduced stand have?
- Should the crop be replanted?
- What are the replant options for corn or soybeans?
- How does my insurance coverage affect this decision?

How old was the corn plant and where is the growing point?

The growing point on corn is below ground until V5 (5 leaf collars visible). Prior to this time corn will generally re-grow from hail damage. Data from the National Crop Insurance Service's "Corn Loss Instructions" indicate that less than 11 percent yield loss will occur with 100 percent defoliation up through the 8-leaf stage.

To evaluate the location and health of the growing point at V-5 or before, make a horizontal cut through the corn plant and look for the "small triangle" near the base of the plant. The tissue should be white in the center. Sometimes even though the growing point was not cut off, diseases set in after the hail and causes rot to occur. Generally, some re-growth from the growing point can be seen 3-4 days after the hail. For post V-5 the stalk tissue to evaluate is easier to see, since the growing point is well above the soil surface.

Use the following table to determine the length of row to evaluate corn populations.

Row spacing	Distance for 1/1000 A.	Distance for 1/100 A.
30 inches	17 ft. 5 inches	174 ft.
36 inches	14 ft. 6 inches	145 ft.
38 inches	13 ft. 9 inches	138 ft.

Population (Plants/Acre)	Planting Date				
	April 20-May 5	May 5-May 15	May 15-May 25	May 25-June 5	June 5-June 15
	Percent Maximum Yield				
45,000	97	93	85	68	52
40,000	99	95	86	69	53
35,000	100	96	87	70	54
30,000	99	95	86	69	53
25,000	95	91	83	67	51
20,000	89	85	77	63	48
15,000	81	78	71	57	44
10,000	71	68	62	50	38

Determining Yield Loss Due to Stand Reduction

When a hailstorm occurs early in the growing season, an accurate stand reduction assessment is important if replanting is a management option. Because it is difficult to distinguish living from dead tissue immediately after a storm, **the assessment should be delayed for a week to 10 days**. By that time, re-growth of living plants will have begun and discolored dead tissue will be apparent. (Another reason for delaying assessment is that some plants initially surviving a storm may soon die because of disease infection entering at the sites of plant damage.) To get an accurate estimate of the extent of damage, observe and sample plants from at least three parts of affected fields, totaling about 1/100 acre.

Table 2 is based on research on stands and planting dates by Dr. Roger Elmore (former ISU Extension corn specialist). Although results will vary somewhat due to location, season, hybrid, and other factors, **Table 2 serves as a good starting point in decision-making**.

Once you have evaluated stand level and uniformity, compare that yield percentage with a full stand at the expected replant date. Convert the difference to bushels per acre. If the replant yield is lower, do not replant. If it is greater, consider the cost of replanting (tillage, planting, seed, and other factors) to see if the extra yield is enough to make replanting profitable.

Additional considerations:

- If you tear up a marginal stand, what will be the affect on your rotation? By replanting to soybeans, you'll have second year soybeans on some fields. Will soybean cyst nematode or soybean diseases become a serious problem? An estimate is that soybean yields are reduced by 10 percent when following a previous crop of soybeans.
- What herbicide has been applied to the field already? Refer to the herbicide label to determine rotation period for soybeans.