

AGRONOMY PROFILE

Early Frost Damage

OVERVIEW. Low temperatures and frost can injure young corn plants. Yield loss due to early season frost is related primarily to stand loss, not leaf damage. Some plants will recover from early frost, making replanting unnecessary. However, if plant populations are reduced significantly after a 4-day waiting period, replanting may be necessary.

WHAT YOU SHOULD KNOW.

- The extent of crop injury from low temperatures or frost depends on whether the field experienced lethal cold temperatures or a simple frost. Lethal cold temperatures are at or below 28°F. A simple frost occurs at temperatures above 28°F.
- Corn can often survive a simple frost as long as a seedling's growing point is not affected.
- The growing point, where new tissue originates, is located below ground until the plant reaches V5 stage. To locate it, dig up a plant and split the stalk lengthwise from upper leaves through the root crown. A healthy growing point is firm and white or yellow in color. A damaged growing point will be watery and orange or brown in color.

ACTION STEPS.

- 1. Look for symptoms of frost damage:** Frozen tissue usually turns silver approximately 4-6 hours after temperatures return to normal. Leaf tissue becomes dark and water-soaked, then brown and dry. New leaves should emerge from the whorl within 3-4 days if the growing point is uninjured.
- 2. Determine if replanting is necessary:** Wait 3-4 days after frost to determine the extent of damage, especially if the growing point was at or near the soil surface at time of frost. To get an accurate estimate of damage, observe plants from at least three parts of the field.
- 3. Calculate potential stand loss:** Compare the stand count in areas affected by a freeze to pre-freeze stand estimates to determine if replanting is beneficial.

NOTES:



Frozen leaves will first turn silver, then brown.

30 SECOND SUMMARY

- Lethal cold temperatures at or below 28°F can damage young corn plants.
- Wait 3-4 days after frost, then evaluate growing point damage from multiple parts of the field.
- Replant if stand loss appears to be significant.