



Cold Temperatures Can Damage Small Corn

KEY POINTS

- Frost with temperatures above 28 °F may damage seedling leaf tissue without necessarily injuring the growing point, while temperatures below 28 °F may injure or kill the plant even if the growing point is below the soil surface.
- Growers should wait 3 to 5 days after a weather event to accurately assess seedling survival.
- Soil type and planting depth can also influence the level of cold-temperature damage to young corn plants.

Cold Temperature Damage

The severity of damage to corn seedlings from cold temperatures is highly dependent on actual temperature and stage of growth (each growth stage is identified by the number of exposed leaf collars). The growing point of a corn seedling is below the soil surface until the plant is close to the V5 growth stage, which provides a level of protection from freezing temperatures. When corn is larger than V5 and the growing point is above the ground, the plants are more susceptible to damage from frost and lethal cold temperatures. Corn is more susceptible to lethal temperatures when planted at shallow depths or in coarse-textured soils because air temperature fluctuations are more severe in these situations.



Figure 1. Frost-damaged corn seedling.

Frost with Temperatures Higher than 28 °F

If corn is smaller than V5 and a frost occurs without significant periods of lethal cold temperatures (colder than 28 °F for a few hours or more), generally leaf tissues will be affected, but the growing point is somewhat protected by the

surrounding soil. Regrowth will likely occur with warmer temperatures. The affected leaf tissue will turn yellow or brown and will wilt and decay, which may temporarily inhibit new growth from the whorl giving the corn seedling a twisted appearance. In this situation, no action is needed except patience and scouting for future potential problems.

Frost with Temperatures Lower than 28 °F

When corn has been exposed to lethal temperatures, careful observation of the growing point is required. Temperatures colder than 28 °F can injure or kill the growing point region of a young corn plant even if it is still below the soil surface. Growers should wait 3 to 5 days after a weather event to accurately assess seedling survival. A white or cream-colored growing point that is still firm with new leaf tissue emerging from the whorl (Figure 2) is an indication that the plant is recovering. Growing points that are darkening and soft are likely beginning to die. Cool days following a frost event may slow recovery and delay the ability to assess plant health.



Figure 2. A corn plant recovering from frost damage. Note the green leaf coming from the whorl indicating that the growing point was not killed.

Source: Nielsen, R.L. 2010. Frosty corn, banded plants. Purdue University Extension. <http://www.agry.purdue.edu>

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible. 140318070110 020518CAM