

AGRONOMIC ALERT



Frost and Cold Temperature Damage to Small Corn - OH

Recent weather patterns have exposed corn to frost and cold temperatures. Understanding the effects of these weather conditions on corn at different growth stages can help determine the best management options. Additionally, waiting three to five days after the weather event can allow for a more accurate assessment of plant health.

Frost can damage corn, but the cold weather that accompanies it can cause more injury. Both can damage leaf tissue. Lethal cold temperatures, which are at or below 28° F, can damage the growing point even if it is below ground. Currently, much of the corn in northern Ohio is spiking through V3, which means the growing point is still below ground. If the corn was at or above V5, the growing point would be near the soil surface, and frost combined with cold temperatures would lead to more severe injury.

Frost Damage with Temperatures Warmer Than 28° F

Recent nighttime low temperatures were 30 to 35° F in northern Ohio, and 35 to 37° F in southern Ohio. When corn has been exposed to frost with temperatures warmer than 28° F, generally leaf tissue will be damaged but the growing point will be uninjured. Regrowth will likely occur with warmer temperatures. The leaf tissue, as seen in the photographs above, will turn yellow, silver, or brown and will wilt and decay. Sometimes the decaying leaf tissue will slightly inhibit new growth from the whorl, giving the corn seedling a twisted appearance. The new growth will eventually grow through the decaying tissue. In this situation, no action is needed except patience and scouting for future potential problems.

Frost Damage with Lethal Temperatures (Colder 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. A white or cream-colored growing point that is still firm means that the plant is recovering. Growing points that are darkening and soft are beginning to die.

Conditions Can Affect Susceptibility of Growing Point

Situations that might make the growing point more susceptible

Frost Damaged Corn Seedlings



to lethal temperatures are shallow planting and coarse soils. Shallow planted corn is more susceptible to lethal temperatures because the temperature of the air and shallow soil depths fluctuate more than temperatures deeper in the soil. Corn planted in coarse-textured soils is more susceptible to lethal temperatures because more air can infiltrate the pockets in coarse-textured soils as compared to fine-textured soils.

In Summary, Corn that was exposed to lethal temperatures and sustained growing point damage in the field requires careful consideration when making a replant decision. Some of the risks associated with yield loss may be reduced by replanting if the replanting date is favorable, soil conditions are suitable, and corn seed is available with the germplasm and traits that are right for the area.

Since the corn in our geography is relatively small, the most important action to take at this point is be patient and evaluate plant survival carefully before making any decisions on replanting. Recognize that cool days following a frost event may slow the plants' recovery and delay the ability to assess their health. After three to five days, surviving corn plants should be showing new leaf tissue expanding from the whorls, while dead corn plants will still look dead.

Source: R.L. Nielsen. *Frosty Corn, Toasted Plants*. Purdue Univ. Extension. 28 April 2010. <http://www.agry.purdue.edu> (5/10/2010)

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