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Frost-damaged corn

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Abstract
What a weekend! It was only 10 days ago that it was in the 70°s, and yesterday (May 1), I finally stopped planting when it started to snow. Yes, some of us don't have a cab on our tractor! It has definitely been cooler than normal and the average 4-inch soil temperature is now getting close to 50° F. Air temperatures have been close to 30° F in central Iowa over the last couple of days, but it will finally change later this week.

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INTEGRATED CROP MANAGEMENT

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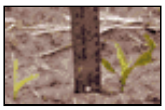

Frost-damaged corn. Note damaged plant (V2+) on right and undamaged plant (V1) on left.

Enlarge [1]

I would guess that approximately 75 percent of the corn has been planted in Iowa with many fields emerging or getting close to emerging. One concern is the effect of freezing on our crops. Crops that haven't emerged yet should be okay. However, many corn fields are now spiking since we really had some excellent seedbed conditions 3 weeks ago with warm temperatures, which got many to start planting. Corn can tolerate low temperatures and substantial leaf injury can occur without loss in stand or yield. As long as the growing point of the plant stays healthy, corn plants usually will recover once warmer temperatures return. Currently, we see substantial leaf injuries across most of Iowa. The growing point is located below ground (approximately 1/2-3/4 inch below the surface) and is not likely to be damaged by the frost. However, some of the low temperatures that we have had in Iowa the past couple of days may have been able to penetrate down to the growing point itself. This is especially the case for plants along ditches and field edges or in low-lying areas of the field where cold air often accumulates over nights. If you think that the frost damaged the growing point, then wait at least 3 days before you determine if replanting is needed. New growth should be visible a few days after the frost if the temperature is about 65 to 70° F.

I think that it is wise to say that no one can be certain if the growing point has been killed or injured. At least, hold back a few days on applying postemergence herbicides or fertilizers because the seedlings are plenty stressed already.

The cool temperatures may also influence stands and emergence. Many variables will influence uneven emergence such as residue, seed depth, loose soil, and poor soil-to-seed contact, and then soilborne pathogens. Late-emerging plants will often lose the battle with the early-emerging and more vigorous plants; however, it is still too early in the season to see that. More detailed information on corn emergence can be found in a very nice publication on corn emergence,

Uneven emergence in corn, written by Paul Carter, Emerson Nafziger, and Joe Lauer and is available on the web [2]. More information on corn planting in Iowa can be found in Iowa State University Extension publication PM 1885, Corn Planting Guide [3].

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