



## Considerations on Cold and Corn Planting



Deciding to plant when soil temperatures and forecasted temperatures are cold must be made on a case-by-case basis and opinions may vary widely.

Continuing to plant through cooler temperatures can keep planting operations moving; however, when planting into cold soil, corn kernels will be slow to germinate, plants will be slow to emerge, and the risk of seedling death is elevated.

### Asking the What Ifs:

No matter when a grower decides to plant there will always be risk involved. Is it risky to plant into cold soil conditions? Yes. Is it risky to plant corn late in the season? Yes. Will the crop achieve a better stand if there is no stress? Yes, but many factors affect the amount and timing of environmental stress.

Determining the greatest risks are judgement calls that vary from one grower to the next.

### Variables to Consider:

- The calendar date in relation to your own planting progress.
- Soils are wetter than ideal.
- Heavy rainfall in the near term forecast.
- Comfort level with rate of germination (slower or faster depending on soil temperatures)
- Late planted corn vs. cold planted corn
- Ample soil moisture in the next coming weeks.
- Planting capacity of your own operation to ensure timely soybean planting even if corn planting is delayed.

These factors could impact each operation differently. However, certain facts relating to corn planting and management must be taken into consideration when deciding to plant into less than ideal conditions.

### Corn Germination and Quality:

- Corn requires a soil temperature of 50° F to germinate.
- Planting into soil that is less than 50° F will cause the seed to sit dormant, increasing seed vulnerability to diseases, insects, and animal predators.
- In cool conditions, corn may not emerge for 3 to 4 weeks.<sup>1</sup>

- High quality seed treated with seed treatments can better handle stress, increasing the probability of emergence.
- Delayed planting can allow warmer soil temperatures, which allows corn to germinate and emerge faster.
- When planting into cold soils or a forecast of cold temperatures, there can be a risk of imbibitional chilling injury which may delay emergence, cause an irregularity in growth and expansion of the coleoptiles, or cause complete failure of emergence.
- The likelihood of obtaining good emergence when planting into cool soils increases when little or no rainfall occurs between planting and emergence.<sup>2</sup>

### Management Considerations:

- If a grower does decide to plant into cooler soil conditions, the crop is in the ground and they can move on to planting another crop or other tasks that need attention.
- Early planting allows the opportunity to replant if emergence is poor or stand is inadequate.

### Summary

We cannot predict the future to assure a perfect stand, but we can analyze conditions and assess risks to help in determining the best planting options.

### Sources (verified 4/23/15) and Legal Statements:

<sup>1</sup> Thomison, P., Paul, P., and Hammond, R. 2013. Corn planting nearing completion—time to troubleshoot emergence problems. The Ohio State University Extension. C.O.R.N. Newsletter. <http://corn.osu.edu/>

<sup>2</sup> Nafziger, E. 2015. Planting into cool soils—yes or no? University of Illinois. The Bulletin. <http://bulletin.ipm.illinois.edu/?p=3068>

For additional agronomic information, please contact your local seed representative. Developed in partnership with Technology, Development & Agronomy by Bayer.

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.

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