

# Should We Plant Corn This Early When The Soil Is This Cold?



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Illinois producers were able to do a great deal of tillage last fall and to apply a considerable amount of nitrogen. With limited rainfall in most areas in recent weeks – most of the state has received less than 2 inches since March 15, and much of central Illinois

less than an inch – fieldwork has started in earnest, with additional N applied, along with some spring tillage. It's no exaggeration to say that soil conditions in Illinois in 2011 are among the best we've ever seen during the first week of April.

We've had fair to good planting conditions some years during the first week of April, and in recent years this usually brings a start to planting. A few decades ago planting this early would rarely have been done, but with better seed, seed treatments, and planters, along with what have usually been good stands from such early planting, many producers will now plant the first week of April without too much concern. This year, however, soils are cooler than normal, with morning temperatures in the low 40s or even the 30s and air temperatures below freezing some mornings this past week.

We know that there is some risk involved in very early planting, but cool soil temperatures are not a major risk factor. Instead, stands poor enough to require replanting have usually followed heavy rainfall soon after planting, with seeds or seedlings dying from lack of oxygen. Chances of this happening are no higher for early planting than for later. In fact, planting into cooler soils may improve chances for emergence following rainfall, since seeds are not triggered to germinate and emerge as rapidly in cool soils, so they often may survive longer in cool, wet soils than in warm, wet soils.

The major risk from low spring temperatures is not from a delay in germination and emergence but from frost events after plants have emerged. Clearly, the chances of this happening are greater with early planting, especially early planting into warm soils, or when soils

warm up rapidly to bring on germination and early emergence. The most recent occurrence of this over a wide area in Illinois was in 2005, when air temperatures dropped into the upper 20s for one or two nights during the first week of May. Corn planted early enough to have emerged and grown to the 2-leaf stage or so was damaged, and some was killed, while later-planted corn mostly escaped. Frost that late was unusual, as was having had soils warm enough long enough for corn to be that size when the frost occurred.

So should you plant corn into soil at 40-degree temperatures the first or second week of April when the soil is in great shape to plant? I would answer yes, but with a few "buts." First, we do not expect yields of corn planted in the first week of April to be higher than those of corn planted the third or fourth week of April. We have, in fact, had a few instances when corn planted in late April yielded more than corn planted early in April. This doesn't happen often enough to rule out early planting, but it does mean that the main reason to plant in early April is to be done by late April – to avoid late-planting yield loss – not because the earliest plantings will produce the highest yields. Another caution is to plant early only when seedbed conditions stay favorable; if it rains or is still wet, don't try to get back in too soon.

It typically requires about 110 to 120 growing degree-days for corn to emerge. With highs in the mid-60s and lows in the 40s to low 50s, we accumulate less than 10 GDD per day, so it can easily take two to three weeks for the crop to emerge. That by itself has not usually been a problem, but it still is a long time during which problems can develop that hinder emergence. So early-planted corn should be watched carefully, especially when GDD accumulations pick up and the crop approaches emergence. While we hope that we won't need to replant, a final advantage of very early planting (as long as it warms up so the crop emerges early as well) is that replanting can be done early enough to avoid large penalties from late (re)planting. Δ

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