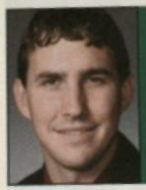
Planting factors to consider



Corn Source

By MARK LICHT

SPRING is generally a tough time of year to complete the most important task of the season in Iowa: spring planting. The last couple of years have proven to be challenging to get planting done in a timely fashion. In 2013 it started out looking promising but soon a rain pattern entered the state preventing timely planting for many in the northern half of the state. In 2014 it was cold in April and turned wet throughout May.

Spring planting is an extremely critical task for both corn and soybeans, but especially critical for corn. Planting success hinges on many factors such as soil moisture, temperature, seeding depth, planter down pressure and residue distribution.

As far as planting windows go, about mid-April to mid-May is the planting window where yield potential is 95% or greater. However, this does not mean corn cannot be planted earlier or later without attaining high yield potential. Typically, planting in early to mid-April will yield above 90% yield potential and requires balancing the risk of spring frosts, while planting later comes with increasing risk of losing yield potential.

Yield potential tends to drop off pretty quickly when planting occurs in late May or June. There are a couple of reasons for this lost yield potential. The first is the loss of 15-plus days from the growing season. Some yield potential is lost by switching to earlier-season corn hybrid maturities. And like early planting, late planting has frost risks, as well, only in the fall.

When to begin planting

While planting date considerations start by understanding ideal planting windows and spring frost risks, the more important part of the decision should be focused on soil conditions and the post-planting weather forecast. Soil temperature is what allows the seed to start the germination process and proceed to emergence. While the seed can imbibe moisture at temperatures below 50 degrees F, root and shoot growth will not occur. For emergence to occur, the seed must accumulate 90 to 120 heat units. This can occur in as little as five days or as long as 15 to 20 days.

The quicker the seed emerges, the closer the emerged stand will be to the seeding rate. The longer emergence takes, the more likely the root or shoot will be infected by pathogens, damaged by insects or simply dies before emerging.

Soil moisture all too often limits spring planting because it is greater than field capacity; simply put "it is too wet." All too often when planting delays start to occur, patience disappears and planting into marginal conditions ensue. Planting into soil conditions that are too wet results in sidewall compaction, which often spurs "mohawked" or "rootless" corn.

The mohawked phenomenon may go unnoticed for all or part of the year, especially if water and nutrients remain unlimited. If water or nutrients become limited, then the corn plant begins to suffer for it. And, in the event of high winds, lodging will likely occur.

The occurrence of rootless corn is much less common than mohawked corn and results when the seed furrow reopens after planting but before nodal roots develop. This restricts root development, and plants often suffer from water stress resulting in stand reductions and yield loss.

Soil condition is critical

Soil conditions at the time of and following planting are extremely critical. This is why it's important to pay close attention to the three-, five-, or even seven-day weather forecast once soil conditions allow planting to occur.

The most important thing to look for in the postplanting weather forecast is what temperatures will do. Ideally, look for a forecast that keeps soil temperatures adequate for germination and emergence to occur as rapidly as possible or, at least, not to be detrimental to the process.

Often, early planting can result in imbibitional chilling of the seed or growing shoot. Generally, imbibitional chilling will not affect the entire field, but it would not be uncommon to find 5% to 10% stand reductions.

Dead seeds and corkscrewing shoots are common symptoms, but imbibitional chilling can result in uneven emergence across the field, seedling disease susceptibility and overall loss of seedling vigor.

Bottom line:

- Plant corn when soil conditions are right, not based on a calendar date.
- Wait for soil temperature to be consistently above 50 degrees.
- Wait for soil moisture conditions to be right.
- Watch the weather forecast.

Just because soil conditions are good today does not mean they will be good during the critical germination period.

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IDEAL CORN PLANTING WINDOWS: These are the Iowa corn planting windows to achieve 95% yield potential or greater.

Recommendations for planting in Iowa

PLANT corn into soil that has a soil temperature greater than 50 degrees F, and when soil moisture conditions will minimize the chances of sidewall compaction.

Seeding depth should be 1.75 to 2 inches deep.

If you are planting corn in Iowa after mid-May, consider switching to an earlier corn relative maturity by approximately five days.