Minimize Soybean Yield Loss from Late Planting

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Abstract
Soybean responds significantly to early planting. Despite cold soil temperatures and slow plant growth during the seedling phase, there is a yield benefit from early planting, which seems to be influenced by field yield potential. The yield benefit is a result of increased seasonal canopy photosynthesis, greater number of main-stem nodes, potential for earlier flowering, increased crop growth rate during pod set and greater seed filling rate. Based on 24 experiments conducted across Iowa since 2003 with the support from the checkoff and the Iowa Soybean Association, there is a 79 percent probability of achieving the highest yield by planting the last week of April (southern two thirds of Iowa) or the first week of May (northern one third of Iowa) compared with approximately May 20.

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Minimize Soybean Yield Loss from Late Planting

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Soybean responds significantly to early planting. Despite cold soil temperatures and slow plant growth during the seedling phase, there is a yield benefit from early planting, which seems to be influenced by field yield potential.

The yield benefit is a result of increased seasonal canopy photosynthesis, greater number of main-stem nodes, potential for earlier flowering, increased crop growth rate during pod set and greater seed filling rate. Based on 24 experiments conducted across Iowa since 2003 with the support from the checkoff and the Iowa Soybean Association, there is a 79 percent probability of achieving the highest yield by planting the last week of April (southern two thirds of Iowa) or the first week of May (northern one third of Iowa) compared with approximately May 20.
This year, however, early planting hasn’t been easy and today less than 5 percent of the soybean acres have been planted. The weather conditions since April 1 haven’t been that favorable for planting either corn or soybean in the state of Iowa and many still have more than half of their corn acres to plant. That means that we all start losing part of our soybean yield potential day by day.

We are all getting close to the “desperate mode.” Despite that, we should still try to stay calm since we can still get good soybean yields if we have perfect weather conditions in July and August. However, no one can predict that now.

Soil conditions at and following planting are the primary drivers for planting and stand establishment. Numerous factors influence the decision on when to plant soybeans. “Mudding-in” soybean just to plant early – causing soil compaction and poor seed placement – outweighs any benefit of early planting. Soybean cannot better tolerate wet seedbed conditions than corn. I would say it is the opposite. In addition, seed quality this year is not perfect which can lead to higher plant mortality than normal because of the cool wet seedbed.

Warmer and drier soils will give us a faster emergence and since soybean seed doesn’t stay viable as long as corn seed under cooler and wetter conditions soybean seeds are weaker and more susceptible right now to for example soilborne pathogens. One of the soilborne pathogens that prefer cool wet conditions is Pythium and the only way to protect your crops from this disease is using a fungicide seed treatment.

Every bushel will count this year and we want to give the plant as good as a start as possible. To minimize yield loss from delayed planting it is recommended to plant your high productive fields first since it is often here where delayed planting is most costly (Figure 1.)

![Graph](image1.png)

**Figure 1.** A model of soybean planting date response in Iowa based on soybean yield potential. High yielding environment is above state yield average and low yielding environment is below state yield average.
These fields are often the best drained fields as well so for many this year it will be obvious to plant here first. Other things like timely weed management and planting into weed free field and daily scouting for bean leaf beetles is also critical. More information about soybean management can be found at [www.soysbeanmanagement.info](http://www.soysbeanmanagement.info).

*Palle Pedersen is an assistant professor of agronomy with research and extension responsibilities in soybean production.*

**Category:** Crop Production

**Crop:** Soybean

**Tags:** late planting date yields Soybean