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Soybean planting date

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Abstract

Many believe that the planting date for soybean is not as important as it is for corn. That is not the case. There is a yield benefit for planting early despite cold soil temperatures that slow plant growth during the seedling phase. The optimum time to plant soybean varies from year to year and from region to region. Numerous factors influence the decision on when to start planting soybean.

Keywords

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Disciplines

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Crop Production

Soybean planting date

by **Palle Pedersen**, Department of Agronomy

Many believe that the planting date for soybean is not as important as it is for corn. That is not the case. There is a yield benefit for planting early despite cold soil temperatures that slow plant growth during the seedling phase. The optimum time to plant soybean varies from year to year and from region to region. Numerous factors influence the decision on when to start planting soybean.

In 2005, there was a great deal of discussion about whether or not we should hold back on planting soybean because the soil was too cold, despite perfect seedbed conditions. Most textbooks say that we should have a soil temperature of at least 55 to 60 °F before we start planting soybean, or even wait until May 20.

I believe that those recommendations do not fit into our production practices anymore, as long as we are very critical about the seeds we plant. That means we must have good seed quality with no cracked seed coats and good germination. Then soil temperature should not be the key factor in determining when to plant soybean in Iowa. Instead, it should be the calendar day and the seedbed conditions.

Over the last three years, I have conducted research across Iowa with support from the checkoff through the Iowa Soybean Association. Fifteen of the 18 experiments that we conducted have shown a significant positive yield response to early planting dates. In general, the three experiments that did not show a positive response to early planting did not show a negative response to early planting either. In 2003, we saw an average yield loss of 0.25 bu/acre in Iowa when planting was delayed by one day after the optimum window. In 2004 and 2005, it was closer to 0.60 bu/acre/day. Some locations lost as much as 0.9 bu/acre/day from delayed planting.

How early should we plant? Regardless of soil temperatures, our data show that the southern two thirds of the state should start planting on April 25 if they have good seedbed conditions. “Mudding-in” soybeans just to plant early and causing soil compaction outweighs any benefit of early planting. The northern third of the state should wait to start planting until May 1. I do not recommend that growers in the southern two thirds of the state plant prior to April 25, nor do I recommend that growers in the northern third of the state plant prior to May 1.

What about diseases and insects?

Many farmers have been wondering if they should hold back on planting because of diseases, such as white mold and sudden death syndrome, or bean leaf beetles. The answer is no, we shouldn't hold back.

White mold can be managed by a combination of variety selection, lowering the seeding rate, and/or increasing the row spacing. Sudden death syndrome can be managed by variety selection, and it is often associated with the presence of soybean cyst nematodes, which also can be managed. Bean leaf beetles can very easily be managed with an insecticide. For more information on bean leaf beetles, see <http://www.ipm.iastate.edu/ipm/icm/2005/5-2-2005/integrated.html>.

There is a risk associated with early planting, and this risk should be evaluated prior to planting. Especially, we should be aware that air temperatures of 28 °F or cooler will kill the seedling if it has emerged. As long as it is below ground then we shouldn't be too concerned. Emergence will often take 2 to 3 weeks when planted during the last week of April or the first week of May. With the responses that we have seen in Iowa over the last 3 years, it should be a risk that we may want to consider. The most important thing is not to plant earlier than the dates that I've recommended. Planting early is not advisable unless you have good seedbed conditions and manage pathogens and pests if they reach threshold levels. You are not going to gain anything planting too early, and you will increase your risk of both replanting and a yield loss. For more information on soybean management practices, including planting dates, please visit the Web site at www.soybeanmanagement.info.



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