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## How Late Can Soybeans be Planted?

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## **Abstract**

Whether we like it, or not, there are many areas in Iowa where farmers are still waiting to plant soybeans and now, given the recent weather, many fields are going to need to be replanted. Based on the May 25 estimates from USDA, only 72 percent of our soybean acres were planted compared 80 percent last year. Bottom line: we can continue to plant soybeans until early July but a few management practices may need to be changed.

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# How Late Can Soybeans be Planted?

**ICM News**

*June 2, 2008*

**By Palle Pedersen, Department of Agronomy**

Whether we like it, or not, there are many areas in Iowa where farmers are still waiting to plant soybeans and now, given the recent weather, many fields are going to need to be replanted. Based on the May 25 estimates from USDA, only 72 percent of our soybean acres were planted compared 80 percent last year. Bottom line: we can continue to plant soybeans until early July but a few management practices may need to be changed.

Late planting of soybean is going to have a significant impact on our yield. Based on our research conducted throughout the state since 2003, with the help from the soybean checkoff and the Iowa Soybean Association, we start losing yield daily starting April 25 in central and southern Iowa and May 1 in northern Iowa.

We should try to be done planting soybeans one to two weeks after these dates. Yield

loss increases rapidly every day planting is delayed after May 15. Most of our current planting date information is based on planting conducted from late April to early June, therefore we do not have any new information on the yield penalty if the planting is done in late June and early July.

However, my predecessor, Keith Whigham, did do this kind of research from 1995 to 1997 (Table 1) and documented that the yield loss from planting in mid-June was much higher for northern and central Iowa than for southern Iowa. That is good news for the many farmers in southeastern Iowa who have not even started planting soybeans yet.

**Table 1. Effect of planting date on soybean yields in Iowa (1995-1997)**

Average Planting Date	Northern Iowa	Central Iowa	Southern Iowa
	% of maximum yield		
Late April	100*	96*	98*
Early May	96*	100*	100*
Mid May	99*	96*	98*
Early June	81	93	89
Mid June	61	59	82
Early July	33	45	47

\*Yields are statistically similar

The yield benefit we see from early planting 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. Late-planted soybean goes through the vegetative growth stages much faster than early-planted soybean. The reason is that in addition to temperature, soybean development is influenced by day length.

When soybean planting is delayed, vegetative growth is reduced since flowering can start as soon as the plants have one or two nodes. Thus, soybean planted later does not develop the same canopy biomass as soybean of the same variety planted earlier. Late-planted soybeans are therefore shorter. Research shows that this often results in lower podding heights. The lower pod heights are the result of sunlight reaching the nodes in the bottom of the thinner canopy.

The time from flowering to harvest maturity is generally the same when a variety is planted at different planting dates since it is controlled by the maturity group for that specific variety. Changing to an earlier maturing variety is not necessary unless the planting and/or replanting date is very late. It is recommended to plant the "original" full season variety until June 20 in northern and central Iowa and early July in southern Iowa. If planting occurs after these dates it is recommended shorten the maturity group by 0.5 to 1.0.

What about row spacing and seeding rates? In the mid-1980s a lot of research was done

throughout the Midwest assessing the impact of row spacing and plant population when making a replant decision. Most states concluded that narrow rows (less than 30-inch) should be used and seeding rate should be increased.

A lot of changes have occurred since the mid-1980s and I initiated some of this research in 2004 with the help from the soybean checkoff and the Iowa Soybean Association. We worked on different planting dates (late April through early June) and different seeding rates (75,000 to 225,000). We did not find any reason to increase seeding rate at later planting dates. The seeding rate is the same in late April as it is in early June. However, weed management should be a top priority at late planting simply because of the lack of canopy and competitiveness.

We are currently conducting research that examines various planting dates and row spacing responses and do only have preliminary data. Based on our data and other research literature it is highly recommended, if possible, not to plant soybeans now with your corn planter (30 inch rows or greater). Using a split-row planter or a drill should help you to increase light interception and biomass accumulation to maximize your yield when planting late.

More information on soybean planting and soybean management decisions can found at <http://www.soybeanmanagement.info/>

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

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Soybean

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