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Tips for managing late-planted soybeans

By Joy Drohan

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Photo: United Soybean Board.

If you grow soybean, chances are you've experienced a time or two where you've had to plant late. It happens almost annually somewhere because soybean tends to be planted on soils that are not as well drained. Planting dates have been moving earlier. Growers realized over the past few decades that they typically increase their chances of getting a high yield if they plant early. But if wet conditions prevent this, what management practices can help make up for the delay in planting?

If you grow soybean, chances are you've experienced a time or two where you've had to plant late. It happens almost annually somewhere because soybean tends to be planted on soils that are not as well drained.

What is considered late, of course, depends on where you are located. In southern Ontario, for instance, planting typically occurs between May 1 and 20, says CCA Horst Bohner, provincial soybean specialist with the Ontario Ministry of Agriculture, Food, and Rural Affairs. So "late planting" refers to very late May and June. He considers July-planted beans to be double cropping.

For Kansas, mid-April to the end of May is typical for planting, and late planting happens after June 15, says Ignacio Ciampitti, associate professor in farming systems at Kansas State University.

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“There has been a trend in modern soybean production to plant early and to use long-season varieties to achieve higher yields,” Bohner says. “This strategy has proven effective when soil conditions allow for early planting, but it’s also changed perceptions of what a ‘normal’ planting date is for soybeans.”

A normal planting date in southern Ontario 40 years ago was May 25–June 5 because soybeans can’t tolerate a killing frost once they emerge. Under this planting regime, seed would emerge within 7 days of planting because of warm soil conditions.

So growers these days want to plant earlier, but if wet conditions prevent this, what management practices can help make up for the delay in planting?

Maturity Group

Soybeans don’t always have to be planted early to yield well or mature normally in the fall.

Research shows that weather conditions during late summer tend to influence crop yield more than does the planting date. This is because of the photoperiod effect—plant development tends to adjust throughout the growing season with day length. Bohner says that a one-month delay in planting typically results in only a 9- or 10-day delay in maturity.

Soybeans are triggered to flower by decreasing day length. You want to allow the plants to grow vegetatively for as long as possible to maximize the number of nodes where pods can form before growth is slowed by reproductive stages, says Laura Lindsey, soybean and small-grain specialist at Ohio State University.

Research in southern Ontario shows that an adapted variety still has more than 90% yield potential when seeded in early June (Table 1). Bohner generally doesn't recommend switching to an early maturing variety until the third week of June or into July.

Table 1. Effect of planting date on yield (Source: Bohner, 2017)

^a Average of 22 trials across Ontario from 2010–2012, OMAFRA, University of Guelph, and Monsanto.

Planting date ^a	Yield	Percent of full yield
	bu/ac	%
April 15–May 5	63.8	100
May 6–20	63.3	99
May 21–June 5	58.5	92

By staying with the typical maturity group for your area, the potential for maximum yield is maintained. Growers have to balance possible yield loss from late planting with possible yield loss from soil compaction by planting before the field is ready.

Increase Seeding Rate



The key to getting a solid yield with late-planted soybeans is to maximize the number of pods per acre, Bohner says. With later planting, the plants have fewer nodes from

Difference in plant maturity due to changes in planting date (left: early planted; right: late planted). Photo courtesy of Ignacio Ciampitti.

which to form pods because all growth stages are shortened. To minimize this effect, Bohner recommends that farmers increase their seeding rate by about 10% with late planting because the plants won't grow as tall, so more plants can be supported. This denser seeding rate also lifts the height of the lowest pods so they are harvestable.

"You want full canopy closure by the beginning of pod set or earlier," Bohner says. Bare ground wastes the most intense solar radiation, which occurs in June and July, and lets weeds sprout.

Ciampitti notes that you can be more aggressive on seeding rate in an irrigated field, but he'd stay closer to 10% more seeds for a late-planted dryland field.

Decrease Row Width

Bohner, Ciampitti, and Lindsey recommend planting in 7.5- or 15-inch rows if you're planting late. The later in the growing season soybeans are planted, the greater the yield increase due to narrow rows, according to Lindsey.

"On the positive side," Bohner says, "soybeans are so adaptive. Early planting provides more yield on average. You see yield penalties depending more on when moisture comes in the reproductive phases rather than earlier on. If you get lucky, sometimes a late-planted crop under good conditions can yield better than an earlier crop planted into mediocre soil conditions."

Even with late-planted soybeans in southern Ontario, Bohner says that we're talking about a reduction in yield from maybe 55 bu/ac to 50 bu/ac. It's not a drastic

reduction down to, say, 40 bu/ac.

He generally sees the greatest problems with low yields coming in no-till fields with wider rows because the plants can't close the canopy gaps as quickly.

Bohner emphasizes that for late planting, growers should make sure ahead of time that their soil nutrients are correct. You don't want nutrient deficiencies to hold you back because you don't have time to catch up.

"Certainly in much of Ontario, on average, we battle with too much rain in the spring when we want things to be dry," he says. "And then when we want moisture in August, it doesn't come.

References

Bohner, H. (2017). Best management practices for late-planted soybeans. *Field Crop News*. <https://fieldcropnews.com/2017/05/best-management-practices-for-late-planted-soybeans/>

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