

Getting Soybeans Planted



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With corn planting off to a very slow start this year, few people have been worrying about getting soybeans planted. Though we've been saying in recent years that early planting of soybean helps increase yield potential, corn typically loses

yield faster than soybean as planting is delayed. So it is appropriate to plant corn first, before soybean.

How early is "early" when it comes to soybean planting? Based on planting date responses we have seen in recent years, we consider the period from mid-April through the first week of May as providing the best chance at high yields. In general, the planting date response of soybean parallels that of corn on a percentage (not bushel) basis, but lags the response in corn by a week to 10 days.

According to trials run under relatively good conditions over the past three years, daily yield losses for soybean are about 0.3, 0.4, and 0.5 percent per day of planting delay for the first, second, and third 10-day period in May. Total loss in potential is about 15 percent by the end of May, compared to about 25 percent loss, on average, for corn planted that late.

It is clear that early planting only increases the yield potential in soybean – it will do little to prevent yield loss if weather conditions, especially in August, result in crop stress. And, in a season like 2012, with very dry conditions through July and then adequate rain in August and September, planting early can actually decrease yield in some cases. This happens because extended stress through flowering can cause the soybean plant to lose its ability to respond favorably to improved conditions by setting and filling more pods. Conversely, a wet start to the season followed by dry weather will often mean more benefit from early planting, if that means producing and starting to fill more pods before stress begins.

Soybean's sensitivity to day length means that later-planted soybeans flower in fewer days than earlier-planted ones, so planting delays only modestly delay maturity. We can expect maturity to be a day later for every five days or so later we plant, but this varies widely from year to year. The response to day length also means that there's no reason to switch to earlier varieties with late planting; in fact, earlier-maturing varieties tend to have less ability to come back from periods of mid-season stress than do later-maturing ones. This is why we saw later varieties yield more than early ones in some of our trials in 2012.

While we tend to be a little more relaxed about getting just the right seeding rate for soybeans than we do for corn, soybean seed costs have risen to the point where we don't want to over-

seed as much as we have in the past. Though we rarely see this, it's also possible in some cases that high soybean plant populations might increase lodging or stress, and actually lower yields, especially in wider rows, where plants are closer together. With yields usually maximized at 80,000 to 100,000 plants per acre, aiming to establish 100,000 to 120,000 plants is a reasonable target, and one that allows for lower than expected emergence.

Decreased pod set due to stress in 2012 means that seed this year tends to be larger than normal. This can sometimes mean more stress cracks or mechanical damage, but germination percentages are generally reported to be good, and it appears that seed quality isn't much of an issue.

Even with good seed germination, we often find soybeans seeds establishing plants at lower percentages than we see with corn. Part of this is due to lower standard (warm) germination percentages, and part to the fact that soybean seeds, which need to stay healthy long enough to drag the large cotyledons up and out of the soil, often struggle to emerge, especially if conditions are wetter or cooler than normal, or if soils form a crust after planting.

To help make seeding rate decisions for soybean, Dennis Bowman and I developed a seeding rate calculator – or rather, we resuscitated one that we had running some years ago. The web-based PC version is available at ow.ly/ko8gL; the Android app is at ow.ly/ko8sm and the iPhone/iPad online spreadsheet is at ow.ly/ko8au.

The calculator asks either for weight and seeds per lb for seed units sold by weight, or for seeds per unit for seed sold by number. It then asks for the % warm germination, which is required to be on the seed tag or container, and for the cost per unit. Field size and row spacing are also requested.

The only subjective information requested by the calculator is an estimate what percentage of germinable seed is expected to emerge and establish plants under the soil conditions and perhaps the weather forecast at planting. Under very good conditions it is reasonable to expect close to 100 percent of good seed to emerge. But if soils are cold or wet (or likely to get wet), this percentage should be decreased. The calculator goes from 100 down to 70 percent, with the idea that expecting less than 70 percent emergence of good seed should be a signal to wait for better conditions before planting.

The calculator returns seed spacing down the row, seed requirements per acre and for the field, and the amount of time it will take to plant the field. While we developed the calculator for soybean, it works for corn or small grain seed as well. Δ

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