Wisconsin Crop Manager

Volume 15 Number 8 - - - University of Wisconsin Crop Manager - - - May 1, 2008

How Much Do I Lose By Delaying My Soybean Planting Date?

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Planting date is one of the most important and least expensive cultural considerations that impacts soybean yield. As adverse weather delays corn and soybean planting, it is important to know the yield cost of these delays for both marketing and management considerations. Research conducted at the University of Wisconsin, Arlington Research Station has shown an average yield loss of 0.4 bu per acre per day when soybean planting is delayed past the first week in May (Figure 1).

Yield loss in delayed plantings can be attributed to decreased pod number per acre (Robinson, 2008). Robinson (2008) found that pod number was the most important yield component in March, April, and early May planting dates. In late May and early June plantings, seed mass played an equally important role in determining yield. This indicates that delayed plantings of soybean can partially compensate for reduced pod number per acre through increased seed size.

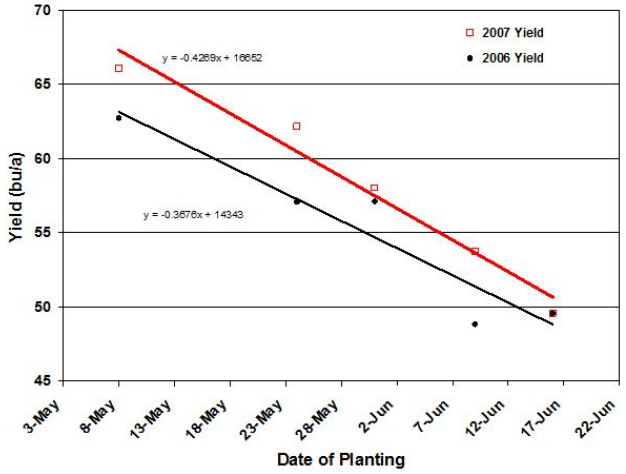

Figure 1. Planting Date Effect on Soybean Yield at Arlington WI in 2006 and 2007.

Reference

Andrew Robinson, 2008. Early planting influence on yield, protein, oil and seed vigor on indeterminate soybean. M.S. Thesis.

Soybean Seed Quality and Seeding Rates for 2008

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In January, we published an article entitled Read the Tag and Check the Germ in 2008 that discussed the 2008 soybean seed quality issues. This article is another reminder to growers to check the percent germination of all of your soybean seed lots prior to planting and adjust your soybean seeding rates accordingly. In a normal year, we assume 90% of the live soybean seed we plant will emerge. Therefore to estimate our stand population we conduct the following calculation:

Seeding rate x % germ x % expected emergence = estimated stand

In this example, our grower drills 180,000 seeds per acre of 94% germ seed, and assumes 90% emergence. The estimated soybean stand will be = 152,280 plants/acre. If the grower planted 80% germ seed the estimated soybean stand would be = 129,600 plants/acre. Under most environmental conditions 129,000 plants/acre would produce 100% yield potential, however if we do not achieve our assumed 90% emergence rate due to poor early season growing conditions, we rapidly approach stands where yield loss may occur.

We all understand the importance of planting date on soybean yield. In 2008, however I would be extremely cautious if considering planting soybean into cold wet soils. The questions regarding seed quality and vigor coupled with the lack of replant seed make me a little leery this year to really push our soybean plantings.

Lastly, it takes soybean longer than corn to emerge. Corn on average takes ~125 GDU's base 50° F where soybean takes ~145 GDU's base 50° F (Robinson 2008). Across planting dates, we saw a range of 7 to 30 days for soybean to emerge. A soybean is considered emerged when the cotyledons get above the soil surface. Planting date also greatly affected the percentage of seeds that emerged (Figure 1). Note the environmental impact of planting date and year on emergence across 2006 and 2007.

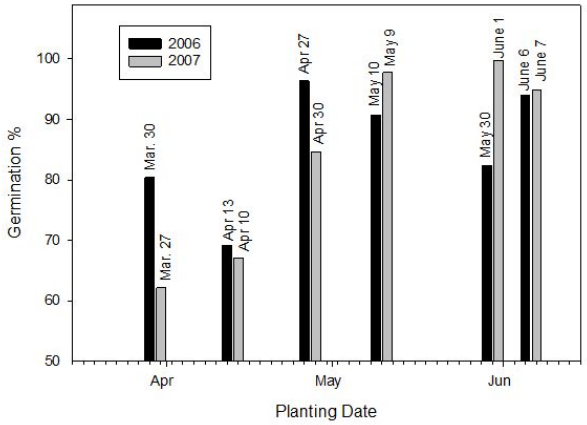

Figure 1. Planting Date Effect on Percent Soybean Emergence at W. Lafayette, IN 2006 and 2007.

Reference

Andrew Robinson, 2008. Early planting influence on yield, protein, oil and seed vigor on indeterminate soybean. M.S. Thesis.

Corn Planting Progress

Joe Lauer, Corn Agronomist

Farmers are getting anxious about the delays occurring for corn planting this year. Little field work has taken place so far and planting will be further delayed not only in Wisconsin but throughout the U.S. Corn Belt. Research data indicates that the optimum date for corn planting in southern Wisconsin is May 1 and in the north it is May 5.

Since 1979, farmers have started planting (5% planted) between April 22 and May 8 (Figure 1). Half of the acres have been planted by between May 5 and May 23. Planting is essentially complete (95% planted) between May 27 and June 18. Since 1997 farmers have more consistently started planting earlier (April 22 to April 27) with over half of the acres planted by May 15, except for 2002.

One of the characteristics of record yielding years is earlier than normal planting date. In general, early planting "sets-up" the growing season and may result in higher yields. Record corn yield years have occurred in 1981, 1986, 1991, 1994, 1999, and 2005. Record years had 50% of corn planted by May 15, except for 1991 when it took until May 17 to plant 50% of the acres.

Low yielding years like 1979, 1983, 1993 and 1996 had 50% of acres planted on May 22 or later. An exception was 1988 when 50% of corn acres were planted by May 11. Planting progress was unique in 1988 - it was the shortest planting season measured beginning (5%) on May 2 and finishing (95%) on May 24.

With the exception of extreme high- and low-yielding years, no good relationship is observed between planting progress and grain yield. Above-average yields can still occur even though planting may be delayed. Likewise, lower than average yields can occur even though planting progress is faster than normal. The bottom-line is that there is still a lot of growing season remaining and a lot can happen.

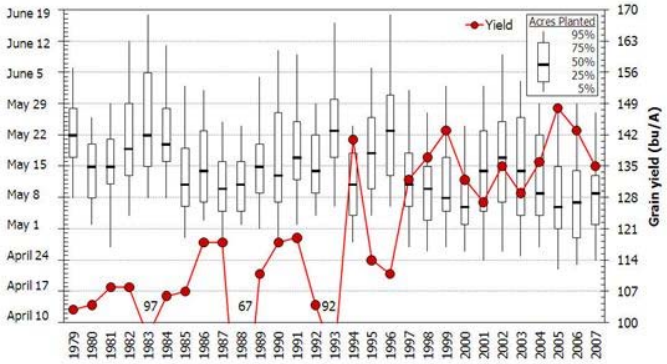

Figure 1. "Candlestick" graph of corn planting progress and grain yield (source: USDA-NASS). The beginning of the bottom "wick" is the date when 5% of Wisconsin corn acres are planted in Wisconsin, the bottom of the "candle" is 25%, the line in the middle of the candle is 50%, the top of the candle is 75%, and the top of the wick is when 95% of corn acres are planted.

No-See'm Weeds

Chris Boerboom, Extension Weed Scientist

Despite the recent snow for some, cold weather, and wet fields, weeds are still germinating and emerging (Figure 1). However, pressure may mount to plant corn or soybeans without controlling these weeds first. Many of these weeds are quite small and may not even appear to be present when scouted from the road. (Ok, scouting from the road is not scouting.) However, they are there and they probably have a 2

week or greater head start on any crop to be planted. The concern is that these weeds will be larger, more competitive, and harder to control unless controlled at planting. Seedbed tillage certainly solves the problem and resets the clock for these weeds, but if tillage is skipped (I've heard this termed as "impromptu no-till"), be prepared to adjust the weed management program to compensate. Here are some thoughts.

Our standard recommendation is still to apply a non-selective burndown herbicide such as glyphosate or Gramoxone before no-till planting. 2,4-D is a common addition to increase control of certain broadleaf weeds, which needs a 7 day delay before planting soybeans, or preemergence herbicides can be added for residual weed control.

If a preemergence herbicide program is planned, but tillage is skipped, be sure the herbicides have postemergence activity or add a herbicide that does. For instance, a herbicide like Harness Xtra has Harness and atrazine as components. The atrazine can burn off small broadleaf weeds, but the Harness component will not control emerged grasses and atrazine will only burn them off if they are very small (e.g. one or sometimes two leaves). This herbicide may benefit from the addition of a nonselective herbicide if the corn has not emerged or from a low cost, reduced rate of a selective grass herbicide if the corn has emerged.

If tillage and burndown treatments are both skipped and a postemergence program is planned, be prepared to apply your postemergence herbicide earlier than expected. The no-see'm weeds of today will rapidly reach 4- to 6-inches in height when they should be controlled.

Figure 1: Recently emerged common lambsquarters, common ragweed, and giant foxtail on April 28, 2008.

Insect Resistance Management and Refuge Requirements for Bt Corn

Eileen Cullen, Field Crops Extension Entomologist

Planting Bt corn hybrids this spring? If so, growers and consultants are required by law to have an insect resistance management (IRM) plan in place. An IRM plan is implemented by planting refuge corn acres on each farm where a Bt corn hybrid is planted. Refuge corn acres are hybrids that do not contain the Bt insect trait used in the Bt planting.

Planting a refuge is required by the U.S. Environmental Protection Agency as a condition of Bt corn registration. The purpose of planting a corn refuge on each farm for IRM is to prevent or delay development of insect resistance to Bt traits, thus maintaining effectiveness of Bt crops as a management tool. The refuge must be planted to 20% of corn acreage on each farm where Bt corn is planted, and there are specific configuration and distance requirements for planting the refuge.

A new University of Wisconsin Extension publication. *Insect Resistance Management and Refuge Requirements for Bt Corn* (UWEX Publication A3857) answers frequently asked questions about IRM and the refuge requirement for Bt corn. In addition to the questions below, Publication A3857 provides diagrams of refuge configuration examples, and a Bt insect trait chart to help distinguish between corn hybrids.

- What is insect resistance management (IRM)?
- Why is IRM important?
- What happens if I don't plant a refuge?
- Who checks for IRM compliance?
- What are the refuge requirements for single Bt trait hybrids with Lepidoptera ("caterpillar") protection?
- What are the refuge requirements for single Bt trait hybrids with corn rootworm protection?
- What are the refuge requirements for stacked Bt trait hybrids with both Lepidoptera and corn rootworm protection?
- How do you select the best Bt insect trait package?
- How long will Bt insect traits work?
- Where are Bt traits expressed in the corn plant?
- What if the Bt corn hybrid is not controlling the targeted insect?

Copies can be ordered from the UW Extension Learning Store:

http://learningstore.uwex.edu/Insect-Resistance-Management-and-Refuge-Requirements-for-Bt-Corn-P1269C252.aspx

Copies can also be obtained by contacting the UW Madison Nutrient and Pest Management (NPM) program at (608) 265-2660 or npm@hort.wisc.edu; or UW Madison Entomology Department (Eileen Cullen) at (608) 263-9146.

This is also a good time to revisit the National Corn Growers Association Insect Resistance Management Learning Center website, if you have not already done so.

Visit the "Insect Resistance Management Learning Center" at the National Corn Growers Association (NCGA) web site www.ncga.com for an online course. From the NCGA home page select the "Grower Resources" tab, then select "Insect Resistance Management".

At the time of seed purchase, farmers enter into a contractual agreement with the company supplying the Bt corn hybrid.

"Bt corn registrants and seed companies must obtain signed Grower or Technology agreements from farmers who purchase insect protected Bt hybrids. This is important because these agreements contractually bind the grower to comply with IRM requirements. Growers should not plant Bt corn unless they have signed the Grower/Technology agreement with the company selling the Bt corn product. If you haven't signed such as agreement, contact your seed dealer or the seed company immediately to get signed up." - from the NCGA Insect Resistance Management Learning Center website.

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