

Does Early Planting along with Late Maturing Soybean Varieties Increase Yields?

Purpose:

Traditionally growers plant soybean varieties that will reach maturity based on the projected crop heat units (CHU) for their particular area. This practice is usually combined with planting soybeans in mid-May. One management strategy that consistently leads to higher yields is early planting. Another strategy may be to plant late maturing varieties for a given area. With the introduction of CruiserMaxx seed treatment higher plant populations can often be achieved under more stressful conditions making it possible to plant earlier. This project is being conducted to determine if an early planting strategy along with the use of late maturing varieties can increase yield potential in Ontario.

The yield response to 3 soybean varieties will be measured at an early planting date (April 15-May 5), a normal planting date (May 6-20) and a late date (May 21-June 5) over the three years of this study. (2010-2012) Varieties will be chosen over a range of maturities from a full season maturity for that site up to a full season + 400 CHU's maturity.

Methods:

Eight small plot trials were conducted in 2010. Three sites were conducted at public research stations and six were conducted by Monsanto Canada Inc. The trials were located near Seaforth, Chatham, Ridgetown, Elora, Kemptville, Ayr, St. Hugues, and Coteau-du-lac. Plots were seeded using 3 varieties, including 1 variety that was planted with and without CruiserMaxx seed treatment. Each variety was planted on 3 planting dates: one early, one normal, and one late planting. These treatments were replicated at least 3 times. Sub-plot size was 5 feet x 30 feet.

Results:

The 2010 growing season was exceptional. April was warmer and drier than usual allowing very early planting dates at some sites. With above average temperatures and timely rains throughout the year, yields were very high. There was no significant insect or disease pressure at the test locations. Early planting combined with the great growing season meant that early planted soybeans had outstanding yields, although the late planted plots also had above average yields.

In Table 1, below, the yield results for the trials are summarized. The table shows the variety yield advantage gained for the early planting date over the later planting dates. At the bottom of the table the overall yield loss from later planting is shown across all sites for the year. There was an advantage to planting earlier in this study, about 3 bu/ac more over a normal planting date, and 10 bu/ac compared to a late planting.

Crop Advances: Field Crop Reports

Table 1: Summary of Yield Results for Early Planting Date and Long Day Soybean Varieties

Location and Seed Variety			Planting Date		
Treatment	Variety	Seed Trt	Bu/ac	Bu/ac	Bu/ac
ELORA			29-Apr-10	20-May-10	15-Jun-10
1	2760RY	UN	68.7	66.4	52.7
2	2760RY	CR	70.6	65.0	56.1
3	2960RY	CR	71.3	68.3	55.7
4	3111RY	CR	71.8	67.7	48.4
		Average	70.61	66.85	53.21
		Yield Loss		-3.76	-17.40
SEAFORTH			29-Apr-10	16-May-10	25-May-10
1	28-10RY	UN	51.30	50.10	43.60
2	28-10RY	CR	54.40	47.40	47.50
3	29-60RY	CR	56.50	54.70	51.00
		Average	54.07	50.73	47.37
		Yield Loss		-3.33	-6.70
ST. HUGUES			13-May-10	24-May-10	9-Jun-10
1	28-10RY	UN	59.58	53.43	48.30
2	28-10RY	CR	61.40	54.78	49.58
3	29-60RY	CR	61.60	60.30	56.50
4	29-10RY	CR	56.58	53.18	54.08
		Yield Loss		-4.37	-7.68
AYR			24-Apr-10	4-May-10	21-May-10
1	28-10RY	UN	69.40	70.00	63.90
2	28-10RY	CR	73.00	71.80	65.40
3	29-60RY	CR	76.50	74.60	74.40
		Average	72.97	72.13	67.90
		Yield Loss		-0.83	-5.07
CDL			26-Apr-10	13-May-10	23-May-10
1	28-10RY	UN	55.10	58.10	51.50
2	28-10RY	CR	56.30	58.70	53.80
3	29-60RY	CR	61.90	45.80	60.60
		Average	57.77	54.20	55.30
		Yield Loss		-3.57	-2.47
CHATHAM			20-Apr-10	17-May-10	4-Jun-10
1	31-11RY	UN	99.40	90.60	69.60
2	31-11RY	CR	105.9	88.80	58.70
3	33-10RY	CR	102.6	91.60	67.90
4	RC3125	CR	96.30	94.40	68.30
		Average	101.05	91.35	66.13
		Yield Loss		-9.70	-34.93

Table 1. (continued)

Treatment	Variety	Seed Trt	Bu/ac	Bu/ac	Bu/ac
RIDGETOWN			29-Apr-10	26-May-10	12-Jun-10
1	31-11RY	UN	50.63	50.22	41.50
2	31-11RY	CR	50.32	50.73	43.45
3	33-10RY	CR	46.98	48.40	41.91
4	RC3125	CR	43.68	45.07	39.34
Average			47.90	48.60	41.55
Yield Loss				0.70	-6.35
KEMPTVILLE			24-Apr-10	7-May-10	17-May-10
1	2760 RY	UN	67.24	65.13	70.14
2	2760 RY	CR	62.07	69.65	66.13
3	2960 RY	CR	79.58	85.16	89.23
4	3111 RY	CR	95.02	90.21	89.31
Average			75.98	77.54	78.70
Yield Loss				1.56	2.73
CROSS SITE AVERAGE			67.52	64.60	57.78
Total Average Yield					
Yield Loss				-2.91	-9.73

UN = no seed treatment, CR = crusier max seed treatment

Summary:

1. Early plating date had an advantage of approximately 3 bu/ac over a more traditional planting date, and 10 bu/ac over a later planting window. This is a significant improvement in yield considering it costs nothing to plant early.
2. On average the longest day varieties yielded more than the adapted varieties, however the results were mixed at some sites. More site year data will be necessary.
3. Some varieties show greater yield gains than others with an early planting date. Planting a late maturing bean past the middle of May caused significant yield reductions and is not recommended.

Next Steps:

This was the second year of a 3 year project so additional data must be collected to make robust conclusions.

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Project Contacts:

Horst Bohner, Soybean Specialist, OMAFRA, horst.bohner@ontario.ca

Hugh J. Earl, University of Guelph, hjearl@uoguelph.ca

Adam Pfeffer, Monsanto Canada Inc, adam.j.pfeffer@monsanto.com