

Soybean Planting Date Studies

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Introduction

Soybean planting date studies of various types have been conducted at the Nashua site since 1976. Earlier tests studied later planting dates (May through mid-June), differing maturity varieties, and soybeans planted with and without starter fertilizer and Ridomil fungicide soil treatments. Research reports on these studies can be found in previous annual progress reports and all were summarized in the 2001 report.

Materials and Methods

If weather and soil conditions permitted, the intended planting dates were late April, early May, mid-May, and June 1, from 1992 to the present. The exact date varied slightly from year to year, depending on soil conditions during planting. From 1976 through 1980 and 1999 through 2001, two maturities of soybeans were added for each planting date. A conventional tillage program (fall chisel plowing and spring field cultivation prior to planting) was used and rows were planted with a 30-in.-row planter following the previous year's corn crop. The test is set up in a completely randomized block design with three to four replications.

Results and Discussion

The optimal planting date varies from year to year due to weather; however, the long-term data from these studies indicates the most favorable planting time for soybeans is during the period from the last week of April through mid-May, providing soil conditions are ideal for planting and emergence. Surprisingly, in 29 years of testing at the Northeast Research Farm, a killing frost has never reduced the stands enough to cause a yield loss. Research has shown that soybean populations have little effect on final

yields, which would explain why frost hasn't reduced soybean yields at Nashua for very early planting dates. It must be added that plots were not located in low lying areas, which have a better chance of frost damage. Table 1 is a summary of the 1999–2004 planting dates and a yield comparison of an early-adapted (2.0–2.1 RM) and a late-adapted (2.7–2.8 RM) maturity soybean variety. When the last six years' results were averaged for this site, there was little yield difference for planting dates from late April through the first 20 days of May. If anything, there was a small (1–1.5 bushel) advantage for beans planted in early May. The early June plantings yielded 4.8 bushels/acre less than late April through mid-May planting dates. A 3.8-bushel decrease in yield was noted for the early-maturing variety, when averaging all planting dates for the 1999–2004 study, and a 3.1-bushel decrease was noted in the 1976–1980 study (Table 2). The differences were less as the planting date got delayed, indicating that full-season varieties benefited most from earlier planting. More so than variety maturity, another possible factor of yield differences may be variety selection. Long-term yields showed a 12 bushels/acre increase in yield, which can partially be explained by advances in soybean genetics, as well as improved cultural practices and equipment. Late April through mid-May planting dates provide the best chance of attaining maximum soybean yield potential as compared with early June, when yields have been reduced nearly 9–10% in studies from 1992 to 2004 (Tables 1 and 3). Late May plantings also matured in late September/early October prior to the first fall freeze date, which is typically October 4.

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Table 1. Influence of planting date on growth parameters and final yield (1999–2004).

Planting date*	Emergence date	Average yield	Early maturity soyb variety	Late maturity soyb variety	Early maturity soyb variety	Late maturity soyb variety
------(month-day)-----		(bu/ac)	(%H ₂ O)	(%H ₂ O)	(bu/ac)	(bu/ac)
April 20	May 8	50.6	11.9	11.9	48.6	52.6
May 5	May 17	51.7	11.9	12.1	49.4	54.0
May 19	May 31	50.1	12.1	12.3	48.4	51.9
June 2	June 10	46.0	12.3	13.5	44.5	47.5
*Average date		49.6	12.1	12.5	47.7	51.5

Table 2. Influence of planting date on growth parameters and final yield (1976–1980).

Planting date*	Emergence date	Average yield	Early maturity soyb variety	Adapted maturity soyb variety	Early maturity soyb variety	Adapted maturity soyb variety
------(month-day)-----		(bu/ac)	(%H ₂ O)	(%H ₂ O)	(bu/ac)	(bu/ac)
May 1	May 20	34.6	10.3	10.5	31.9	37.3
May 10	May 24	39.3	10.3	10.4	37.8	40.8
May 20	May 30	39.6	10.2	10.5	38.3	40.9
June 1	June 10	38.8	10.4	11.6	37.5	40.2
June 10	June 17	33.9	11.8	14.6	33.0	34.9
*Average date		37.2	10.6	11.5	35.7	38.8

Table 3. Influence of planting date on growth parameters and final yield (1992–1998).

Planting date*	Emergence date*	Maturity date*	1992–1998 yield
------(month-day)-----			(bu/ac)
April 24	May 11	Sept 16	51.0
May 6	May 20	Sept 20	50.4
May 17	June 1	Sept 24	49.4
May 30	June 10	Sept 30	45.8

*Average date