



Extension FactSheet

Horticulture and Crop Science, 2001 Fyffe Court, Columbus, OH 43210-1096

Yield of Early Maturing Soybeans

Dr. Jim Beuerlein, Extension Agronomist

The reduced period of growth between emergence and pod fill for short-season varieties results in smaller plants with fewer nodes at which to set pods. Full-season varieties remain vegetative for a longer period before flowering, and therefore produce more nodes where pods can form. This larger plant size results in greater (per plant) yield potential, which is only partially realized due to reduced sunlight availability later in the season when those late-maturing varieties are filling pods. Early-maturing varieties fill pods earlier in the season when days are longer and the sun is more directly over head and more sunlight is available for photosynthesis.

Yield data taken from the Ohio Soybean Performance Trials (1990–98) is plotted as a function of relative maturity in the figure shown here and shows that maturity rating has little effect on yield potential when using narrow rows. Producers feel that later-maturing varieties tend to produce higher yields and have shifted to later-maturing varieties over the past 15 years, hoping to increase productivity. This has resulted in many producers having difficulty getting soybeans harvested early enough to allow timely wheat planting.

Because early-maturing soybeans plants are small, more plants per acre are needed to maintain high yields. Ohio soybean producers typically do not increase seeding rates when planting short-season varieties, and yields are lower than pos-

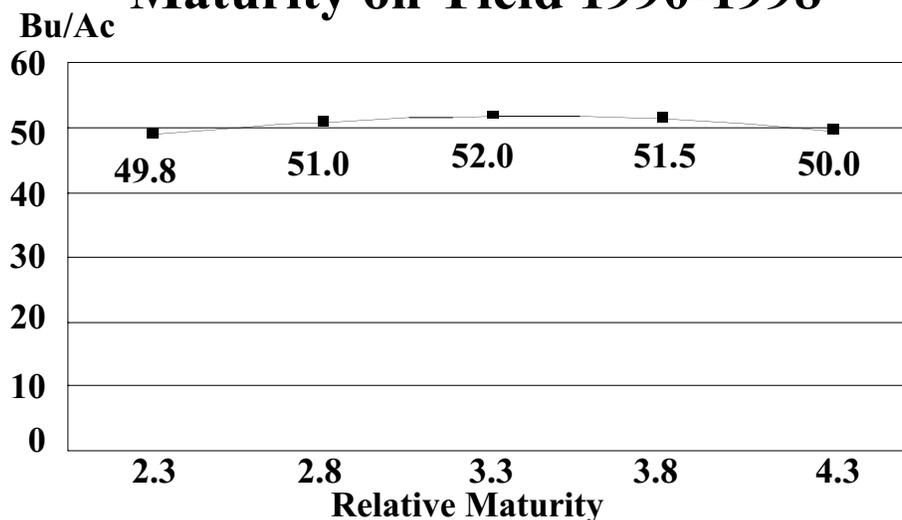
sible. If the yield of early-maturing varieties can be increased by 1.5 to 2.0 bushels per acre then they become as profitable as the later, maturing varieties and also allow the timely seeding of wheat.

Planting some acreage to early-maturing varieties provides:

1. A wider harvest window so more acres could be harvested at the proper (higher) moisture to get higher test weights.
2. Access to early cash markets may increase a farm's average soybean price.
3. Wheat could be planted more timely, which would improve winter hardiness, yield, and profit.
4. Soybean harvest would be less rushed and possibly less hazardous.
5. Total farm profits would increase.

Four short-season varieties with relative maturities of 1.6, 1.9, 2.2, and 2.5 were seeded at rates of 200,000-, 250,000-, and 300,000-seeds per acre on farms in central and northern Ohio. The two-year study was conducted in Union, Hardin, Allen, Crawford, Henry, VanWert, and Fulton Counties in 1997 and 1998 on producer fields using the farm's machinery for plots of one to two acres in size. County extension agents helped with planting and harvest, and collected other necessary data. The results of this work are shown in this table.

Effect of Soybean Relative Maturity on Yield 1990-1998



Effect of Variety Maturity and Seeding Rate on the Yield of Four Soybean Varieties in 1997–98.

Relative Maturity	Seeding Rate			Avg.
	200,000	250,000	300,000	
1.6	47.4	49.7	50.	49.3
1.9	52.2	53.8	54.7	53.6
2.2	53.7	55.2	55.6	54.8
<u>2.5</u>	<u>55.2</u>	<u>55.9</u>	<u>56.0</u>	<u>55.7</u>
Avg.	52.2	53.7	54.3	53.4

LSD (0.05) Relative Maturity = 1.9

LSD (0.05) Seeding Rate = 0.9

LSD (0.05) Variety x Seeding Rate = 1.9

These data indicate that early-maturing varieties respond to increased seeding rates more than later-maturing varieties. Increasing the seeding rate of short-season varieties can increase yield, making them more productive and almost equal to the yield of full-season varieties. Earlier soybean harvest followed by earlier planting of wheat can increase farm profits significantly through improved profitability of the wheat enterprise.

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Keith L. Smith, Associate Vice President for Ag. Adm. and Director, OSU Extension

TDD No. 800-589-8292 (Ohio only) or 614-292-1868

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