

NARROW ROW SOYBEANS IN MASSACHUSETTS

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Ongoing research at the Massachusetts Agricultural Experiment Station Farm at South Deerfield has shown short-season soybeans, those falling into maturity 00 and 0 to be a feasible crop in Massachusetts. In 1981, we further studied varietal responses and the effect of changing row width and density on soybean yield and yield components (plant characteristics influencing yield such as pods per plant, seeds per pod and seed weight).

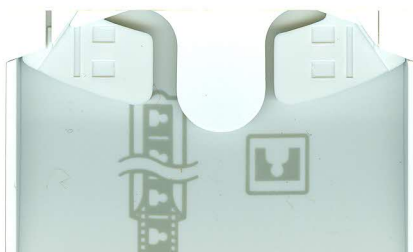
In the variety study three cultivars were planted in 10 inch rows in the third week of May. Altona is a 95 Day soybean, Evans is a 110 Day soybean and McCall intermediate. Evans showed this season a yield potential of 85 bushel per acre, Altona yielded 79 and McCall 72 bushel per acre. These are experimental plot yields and farmers should expect 15-25% lower yields from losses in planting irregularities and harvesting.

In a separate experiment two varieties, Altona and Evans, two row widths, 10 and 30 inches, and three densities, 101,100, 202,300 and 303,500 plants/acre were evaluated. Averaged across all row widths and densities, Evans yielded slightly more than Altona (Table 1), however this difference was not statistically significant. Narrowing the rows from 30 inches to 10 inches resulted in a highly significant, 23% yield increase of 13 bushel/acre when averaged over all densities (Table 1). The yield advantage of narrow rows over wide rows resulted from an increased number of pods per plant (Fig. 1). The other seed yield components, seeds per pod and seed weight, varied little with the change in row width.

The effect of density was to decrease the number of pods per plant as the plant density increased (Fig. 1). Although the highest density had 202,300 more plants than the lowest density, it yielded 5 bushel/acre less than the lowest density when both row widths were considered. Even though this was not statistically significant, using seeding rates greater than the recommended rates of 150,000 to 200,000 plants per acre did not result in greater yields.

Table 1. Main effects of variety, row width and plant density on seed yield of soybean (bushel per acre).

Variety	Yield	Row Width	Yield	Density	Yield
Altona	60	Narrow	68	Low	64
Evans	64	Wide	55	Medium	59
				High	59
Statistics:					
	non-significant	highly significant		non-significant	



STY AND ROOT SYSTEMS OF SOYBEAN

Abstract: The effect of plant density and row width on the root system of soybean was studied. The results showed that the root system of soybean was significantly affected by plant density and row width. The root system of soybean was significantly larger in narrow rows than in wide rows. The root system of soybean was significantly larger at low plant density than at high plant density.

Introduction: Soybean is one of the most important crops in the world. The yield of soybean is largely determined by the number of pods per plant. The number of pods per plant is affected by many factors, including plant density and row width. This study was conducted to determine the influence of plant density and row width on the number of pods per plant of Altona and Evans soybean.

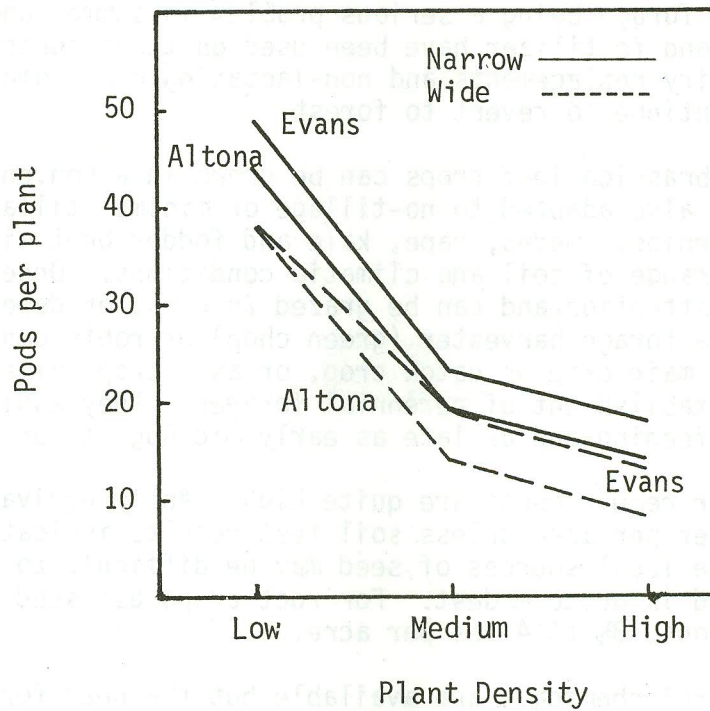


Figure 1. Influence of plant density and row width on pod number per plant of Altona and Evans soybean.

