

SOYBEAN YIELD EVALUATION

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Soybeans suited to the Massachusetts growing season fell into the maturity groups 00, 0 and I. Twenty-three genotypes falling into these groups were grown at the Research Farm in South Deerfield in 1983, for seed yield evaluation. These included named varieties and plant introductions as listed in Table 1. Each genotype was grown in 25 cm rows and 8 genotypes were also grown in 75 cm rows. All were planted May 20 at a density of 90 seeds/m² with 3 replicates. Normal cultural management practices were followed, the soybeans were inoculated with a granular soil applied peat based inoculum and weed control was achieved through the use of alachlor and linuron (Lasso and Lorox).

Table 1. Seed yield (12.5% moisture) and yield components of 23 short-season soybean genotypes.

Variety	Maturity Group	Yield (bu/ac)	Seeds per Plant	Seeds per Pod	Seed Size (mg)
Giant Green	I	79.9	25.1	2.2	141
PI227.327	00	78.4	51.2	2.38	131
PI204.652	0	77.5	25.3	2.42	150
PI68.4742	I	76.2	37.8	2.29	126
Clay	0	74.1	25.3	2.01	196
Capital	0	70.7	27.2	2.23	134
Evans	0	70.5	15.9	2.26	148
PI257.428	0	70.3	31.5	2.19	146
FC03.609	I	70.3	32.3	2.13	209
PI181.532	I	69.8	26.8	2.04	124
PI132.201	I	66.2	38.5	2.15	104
Altona	00	66.2	12.4	2.35	159
Flambeau	00	57.7	24.0	2.52	101
PI70.087	I	57.1	25.2	1.85	190
PI54.855	00	52.9	12.8	2.08	181
Acme	00	51.6	16.5	2.36	149
PI70.241	I	50.9	14.1	1.76	226
PI84.668	I	50.7	32.7	1.92	145
FC30.233	0	50.7	12.3	1.68	235
PI205.085	I	50.3	18.4	1.80	172
PI153.265	0	45.5	20.4	2.21	119
PI189.861	0	42.7	10.5	2.19	118
PI131.531	I	38.1	12.9	1.83	141
LSD 5%		29.5	15.1	0.38	29.3

Seed yield ranged from 38.1 to 79.9 bushels per acre (Table 1) for soybeans grown in the 25 cm row width plots. Evans, a maturity group 0 soybean has been previously recommended for this area and these results showed it to yield among the best of the genotypes evaluated. Each of three maturity groups had genotypes in the higher yielding category.

The components of seed yield, pods per plant, seeds per pod and seed size are given in Table 1. Of the components of yield pod number per plant had the greatest simple correlation with seed yield. However, because pod number per plant was negatively correlated to plant density and plant densities were variable depending on germination of seed, then a better correlation with yield ($r = 0.52$) came from pod number per unit crop area. The high pod numbers of some genotypes, for example PI227.327, was partially related to their lower established densities compared to other genotypes. Seed number per pod was also positively correlated with seed yield ($r = 0.35$), however, differences among genotypes were less than for pod number per plant and seed size. While seed varied in size from 118 to 235 mg per seed, seed size showed no relationship to yielding ability of the genotypes.

For short-season soybeans the recommendation is to grow these in narrow rows. The importance of this recommendation is shown in Table 2. In all cases seed yield was improved by narrowing row width from 75 to 25 cm and in all cases except for PI54.855 this was significant. Pod number per plant was the seed yield component responsible for this increased seed yield from narrow rows. Our research has shown that narrow rows have improved canopy light relations compared to wide rows and this leads to a greater ability to support the growth of pods (and seeds) to maturity.

Table 2. Seed yield and pod number per plant of 8 soybean genotypes grown in narrow and wide rows.

Variety	Seed Yield		Pods per Plant	
	25 cm	75 cm	25 cm	75 cm
	— bu/ac —			
Evans	70.5	51.8	15.9	9.4
PI181.532	69.8	48.2	26.8	20.7
Altona	66.2	53.3	12.4	8.6
Flambeau	57.7	53.7	24.0	12.3
PI54.855	52.9	51.9	12.8	12.1
FC30.233	50.7	35.9	12.3	8.6
PI205.085	50.3	41.7	18.4	10.3
PI789.861	42.7	32.7	10.5	10.1