2003 Edible Soybean Variety Evaluations

Robert Kratochvil
Extension Specialist-Field Crops
University of Maryland

The Maryland Soybean Board provided funding for evaluation of food soybean varieties in Maryland during 2003. Information that is related to the management of the test is in Table 1. The 2003 production year was challenging because of the record precipitation that was received. Above average rainfall during May and June (12.7 inches) kept the field site continually wet and delayed planting of the study until July 7, an unusually late date for full-season production. July rainfall following planting totaled 8.5 inches with two significant thunderstorm events during the latter half of July producing most that total. This excessive moisture stress resulted in the soybean seedlings having a difficult time physiologically developing adequate canopy growth during their vegetative stage of development. This lack of early development resulted in plants that were very short (Table 2), and caused yields that were 50-75% less than normally attained. Yield information for the fifteen varieties tested are found in Table 2.

Six locally developed varieties representing Schillinger Seeds' food soybean breeding program were evaluated. They had Maturity Group IV and early Maturity Group V designations and were at or near the top of the test for yield (Table 2). In addition, two natto type varieties from Montague Farms in Virginia were tested for a second year. One of those varieties, MFS 516, was the top producer in both the full-season and double crop tests conducted in 2002. It was not the best yielding variety in 2003 but it again expressed its suitability for production in this area with a yield that was not significantly different from the best variety in the test.

The 2003 test included evaluation of the varieties for both oil and protein content. Schillinger Seeds FP 44252Y was a particularly high protein variety at 48% protein (Table 2). Two of the Schillinger Seeds varieties equaled or exceeded 20% oil content, FP 42262Y and FP 42193Y (Table 2). Increased interest in enhanced trait (value-added) varieties, like these, has encouraged breeders to devote some of their breeding resources toward their development. The efforts of those programs will soon produce varieties with value-added traits such as reduced linolenic acid, modified oil content, and reduced phytic acid.

Table 1. The 2003 food soybean variety test plot information.

WYE RESEARCH AND EDUCATION CENTER Queen Anne's County - Queenstown, MD	
Planting Date:	July 7
Row Spacing:	7.5 inches
Soil Type:	Matapeake silt loam
Soil Test:	pH 6.9, P Index- Medium, K Index- Optimum
Previous Crop:	Corn
Fertilizer:	None
Lime:	None
Herbicide:	Preemergence:1 pt/A Dual II Magnum and 0.4 lb/A Sencor
Plots:	7 rows – 25' long
Seeding Rate:	140 000 seeds/acre or 2 seeds/ft of row
Tillage:	Conventional

Table 2. Yield for select food soybean varieties grown under full-season conditions at Wye Research and Education Center in 2003.

VARIETY	MATURITY DATE	DAYS TO MATURITY (FROM PLANTING)	PLANT HEIGHT (INCHES)	SEEDS/ POUND	YIELD BU/ACRE @ 13%	OIL CONTENT %	PROTEIN CONTENT %
Schillinger Seeds FP 42262Y	14-Oct.	99	22	3289	27.5	20.6	39.6
Schillinger Seeds FP 44252Y	16-Oct.	101	19	3062	27.1	17	48
Schillinger Seeds FP 41082Y	16-Oct.	101	21	3237	26.5	18	43.4
Schillinger Seeds FP 521133Y	19-Oct.	104	20	2831	25.3	18.2	43.2
Illinois Line (Chesapeake Flds)	18-Oct.	103	21	2761	24.6	19.7	41.5
Montague Farms MFS 516	19-Oct.	104	20	3976	23.3	17.5	43.3
Schillinger Seeds FP 51292Y	18-Oct.	103	20	2882	19.8	18.6	41.9
Stressland	13-Oct.	98	19	4026	19.5	19	41.7
Schillinger Seeds FP 42193Y	13-Oct.	98	18	3436	17.0	20	40.6
Ohio FG-1	2-Oct.	87	16	2965	15.5	17.6	44.1
VA 95-7456	15-Oct.	100	17	2327	11.2	18.5	41.6
Vinton 81	25-Sep.	80	14	3292	9.7	16.5	45.2
Iowa 3001	26-Sep.	81	15	3288	8.0	17	45.7
Japanese L1,L2,L3	16-Oct.	101	13	2979	7.0	16.7	42.5
Montague Farms MFS 553	15-Oct.	100	13	6974	6.4	15.9	42.7
Mean	12-Oct.	98	18	3221	17.9	18.1	43.0