

Specialty Soybean Test—South

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Introduction

The purpose of this test is to evaluate the experimental food-type soybean lines adapted for southern Iowa. The 2004 Specialty Test included Soybean Cystnematode (SCN)-resistant yellow hilum, large seed, large seed high protein, small seed, and lipoxygenase-free experimental lines, and for comparison of agronomic traits, commercially grown varieties released by Iowa State University. Large seed, large seed high protein, small seed, and lipoxygenase-free soybean varieties grown in Iowa are used to fill a niche in the food-bean market. These soybeans are mainly exported to Japan. Large seed soybeans are used in the production of miso, a soy product used to make soup, and are consumed as a vegetable. Large seed high protein soybeans are used for tofu production. Small seed soybeans are used to create natto, a Japanese breakfast food. Lipoxygenase-free soybeans have less of the “beany” flavor associated with conventional varieties. This flavor trait is desirable in producing soy-based foods like soy milk.

Methods

The specialty soybean test for the southern district was planted at five Iowa locations:

Ames, Carlisle, Lewis, Osceola, and Ottumwa. At each location, three replications of four-row plots were planted. The plots were 12 ft long with a 27-in. row spacing. The seeding rate was nine seeds/ft. Agronomic characteristics evaluated at Lewis included plant height and lodging susceptibility. The center two rows were harvested using a self-propelled research plot combine. The moisture and weight of each plot were measured on the combine during harvest. The harvested seed was brought to Ames for seed weight calculation and oil and protein analysis.

Results

The test results of the small seed experimental line A01-406045; the large seed high protein experimental lines A01-409033, A01-509032, and A01-608035; and the commodity varieties IA2065, IA3023, and Macon are summarized in Table 1. The data obtained from the test helped determine that A01-406045, A01-409033, A01-509032, and A01-608035 should be released.

Acknowledgments

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Table 1. 2004 Specialty Soybean Test—South, Iowa State University—Ames, Carlisle, Lewis, Osceola, and Ottumwa, Iowa.

Entry	Yield ¹ (bu/a)	Maturity ² date	Lodging ³ score	Height (in.)	Seed (mg/sd)	Weight (sds/lb)	Protein ⁴ (%)	Oil (%)	Character
IA2065	57.9	9/14	2.9	30	171	2650	34.4	20.5	Commodity check
IA3023	68.9	9/23	2.6	34	174	2610	33.7	19.2	Commodity check
Macon	62.9	9/24	3.0	36	190	2380	35.5	18.7	Commodity check
IA2068	57.7	9/13	3.1	33	156	2900	33.9	18.8	SCN resistant, yellow hilum
IA2062	52.0	9/14	2.6	27	281	1610	36.4	18.3	Large seed
IA2063	54.3	9/16	3.2	35	291	1560	37.1	18.0	Large seed
IA2040	51.5	9/17	2.9	36	292	1550	37.7	17.8	Large seed
IA3009	50.1	9/23	3.3	32	295	1540	36.4	18.6	Large seed
IA3015	47.4	9/24	3.7	35	293	1550	36.2	18.1	Large seed
+IA1018	54.5	9/9	3.1	31	210	2160	38.0	18.0	Large seed & high protein
+IA2074	54.5	9/13	3.0	29	235	1930	38.8	17.4	Large seed & high protein
IA2054	56.3	9/15	2.9	37	218	2090	38.4	17.1	Large seed & high protein
IA3021	52.1	9/15	2.9	34	239	1900	38.0	18.3	Large seed & high protein
IA2020	49.3	9/15	3.4	37	247	1840	38.5	18.2	Large seed & high protein
IA3011	56.2	9/16	2.9	34	234	1940	39.7	17.3	Large seed & high protein
IA2034	55.0	9/17	3.3	37	223	2030	38.9	17.0	Large seed & high protein
IA3001	52.0	9/18	3.5	39	205	2210	38.7	18.1	Large seed & high protein
IA3006	48.2	9/18	3.1	31	264	1720	37.6	18.2	Large seed & high protein
IA3022	53.7	9/24	3.2	36	216	2100	39.4	16.9	Large seed & high protein
IA3016	49.5	9/24	3.6	33	242	1870	37.4	17.7	Large seed & high protein
+IA4003	52.2	9/25	3.3	36	200	2260	38.5	17.5	Large seed & high protein
+IA1016	46.0	9/10	2.9	29	94	4810	35.2	17.8	Small seed
IA2056	48.9	9/12	3.2	32	91	5010	34.3	18.1	Small seed
IA2055	45.1	9/13	3.5	32	89	5090	33.9	18.2	Small seed
IA2057	46.2	9/14	3.5	32	89	5070	34.3	18.1	Small seed
IA2058	45.1	9/14	3.5	33	89	5100	34.3	18.0	Small seed
IA2060	50.4	9/16	3.1	33	92	4910	35.2	18.1	Small seed
IA4002	44.6	9/26	3.6	38	85	5320	38.5	15.8	Small seed
IA2027	47.2	9/14	3.1	38	230	1970	37.5	18.7	Lipoxygenase-free
IA3006LF	50.2	9/16	3.0	30	258	1760	37.8	18.3	Lipoxygenase-free
IA2040LF	53.5	9/18	2.9	35	284	1600	37.9	18.2	Lipoxygenase-free
IA3008LF	49.1	9/18	3.4	37	92	4930	34.8	17.8	Lipoxygenase-free
IA3006PR	48.8	9/19	3.1	33	255	1780	38.4	18.2	<i>Phytophthora</i> resistant

¹Yield: bushels/acre at 13% moisture²Maturity: month/day³Lodging: 1=erect, 5= prostrate⁴Protein and oil: 13% moisture basis

+Available for licensing from the Iowa State University Research Foundation for commercial planting in 2005. The experimental line designation of IA1016 was A01-406045, IA1018 was A01-409033, IA2074 was A01-509032, and IA4003 was A01-608035.