

Specialty Soybean Test - North

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Introduction

The purpose of this test is to evaluate the experimental food-type soybean lines adapted to northern Iowa. The 2000 Specialty Test included commodity yellow hilum, large-seeded high protein, small-seeded, and lipoxygenase free experimental lines, and for comparison of agronomic traits, commercially grown varieties released by Iowa State University. Large-seeded, large seeded high protein, small-seeded,

Methods

The specialty soybean test for the northern district was planted at four Iowa locations including Ames, Greene, Kanawha, and Sioux Rapids. At each location, three replications of four-row plots were planted. The plots were 12 feet long with a row spacing of 27 inches. The seeding rate was nine seeds per foot. Agronomic characteristics evaluated at Kanawha 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.

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-seeded soybeans are used in the production of miso and are consumed as a vegetable. Large-seeded high protein soybeans are used for tofu production. Small-seeded soybeans are used to create natto. 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.

Results

The test results of the lipoxygenase free variety IA2036LF, the large-seeded high protein varieties IA2053 and IA2054, the small-seeded varieties IA2055, IA2056, IA2057, IA2058, IA2059 and IA2060, the commodity yellow hilum variety IA2061, and the commodity variety IA2021 are summarized in Table 1. The data obtained from the test helped determine that these ten specialty soybean varieties should be released.

Acknowledgments

Thank you David Rueber, Northern Research Farm Superintendent, for helping select the plot site, for applying the pre-plant herbicide, for preparing the seed bed, and for harvesting the border rows.

Table 1. 2000 Specialty Soybean Test North, Iowa State University.

Ames, Greene, Kanawha, and Sioux Rapids, Iowa

Entry	Yield	Mat.	Lodg.	Height	Seed weight		Protein	Oil	Emergence	Chlorosis	Character
	bu/a	date	score	inches	mg/sd	sds/lb	%	%	score	score	
IA2021	57.0	9/8	1.9	34	173	2630	34.4	19.8	2	3.6	Commodity check
IA2061	59.0	9/12	2.0	39	187	2430	35.8	19.8	2	3.4	Commod., yellow hilum
IA1008	55.0	9/6	1.5	40	193	2350	36.2	18.6	4	4.1	SCN resistant**
IA1009	56.5	9/7	2.3	35	156	2910	35.2	18.9	4	3.9	SCN resistant**
IA2036	55.8	9/9	3.0	41	155	2930	36.4	17.6	2	3.6	SCN resistant**
IA1007	51.8	9/8	1.3	35	268	1700	37.6	18.5	4	3.1	Large seed
IA2043	56.4	9/10	1.6	35	270	1680	36.6	18.6	5	4.0	Large seed
IA2012	51.7	9/11	1.7	36	270	1680	37.4	18.3	5	3.8	Large seed
IA2045	50.4	9/12	1.6	35	275	1650	36.6	18.9	5	3.0	Large seed
IA2040	52.6	9/13	1.9	39	288	1580	37.8	18.5	4	3.8	Large seed
HP204	47.5	9/8	2.5	42	222	2050	38.7	18.1	4	3.3	L. seed & high protein
IA2053	55.7	9/9	1.9	37	225	2020	39.1	17.8	5	3.1	L. seed & high protein
IA2044	52.8	9/9	1.6	36	260	1750	37.9	18.9	5	3.9	L. seed & high protein
IA2016	49.6	9/9	2.6	42	227	2000	38.9	18.0	2	3.8	L. seed & high protein
IA2042	54.4	9/10	2.1	39	226	2010	38.5	18.0	4	4.0	L. seed & high protein
IA2017	49.0	9/10	2.3	39	209	2170	38.6	17.9	3	3.3	L. seed & high protein
IA2046	54.1	9/11	2.0	38	263	1730	37.7	18.1	5	4.3	L. seed & high protein
IA2047	51.5	9/11	1.7	37	265	1720	38.3	18.5	4	4.3	L. seed & high protein
IA2048	50.7	9/11	1.8	38	266	1710	38.5	18.4	4	4.1	L. seed & high protein
Vinton 81	44.7	9/11	2.4	42	224	2030	39.2	17.8	4	3.3	L. seed & high protein
IA2054	53.2	9/12	2.1	42	213	2130	39.1	17.4	4	3.3	L. seed & high protein
IA2049	51.5	9/13	1.6	37	262	1730	38.2	18.5	5	4.1	L. seed & high protein
IA2041	51.1	9/13	1.8	40	199	2280	40.1	17.7	3	3.8	L. seed & high protein
IA2020	45.8	9/13	2.4	41	240	1890	38.5	18.6	5	3.5	L. seed & high protein
IA2034	48.7	9/17	2.1	41	212	2140	39.4	17.4	4	3.0	L. seed & high protein
IA2023	42.8	9/8	2.8	38	82	5540	40.5	14.2	1	3.9	Small seed
IA2055	48.7	9/9	2.7	37	82	5540	35.0	17.9	3	3.5	Small seed
IA2056	47.5	9/10	2.8	36	79	5750	34.9	17.8	3	4.0	Small seed
IA2058	46.3	9/10	2.9	36	79	5750	34.6	17.9	2	3.9	Small seed
IA2035	46.3	9/10	2.9	37	76	5980	40.7	14.1	4	3.6	Small seed
IA2059	48.0	9/11	2.9	36	81	5610	34.8	17.9	2	3.8	Small seed
IA2057	47.3	9/11	2.8	36	80	5680	34.6	18.0	2	3.5	Small seed
IA2060	47.4	9/12	2.3	38	84	5410	36.2	17.8	2	3.8	Small seed
IA2011	53.2	9/10	1.7	39	199	2280	36.8	19.1	2	3.0	Lacks lipoxigenase-2
IA2036LF	53.8	9/8	3.2	43	155	2930	36.8	17.8	3	3.9	Lipoxigenase free**
IA2027	47.1	9/11	2.2	43	231	1970	38.3	19.2	5	3.5	Lipoxigenase free
IA2032	50.1	9/12	2.1	41	246	1850	38.3	19.3	4	3.5	Lipoxigenase free
IA2025	47.0	9/12	1.9	38	225	2020	39.4	18.4	3	3.9	Lipoxigenase free
IA2029	44.9	9/14	2.6	39	215	2110	38.9	18.6	2	4.1	Lipoxigenase free

**Cultivar has resistance to the soybean cyst nematode and yellow hilum color.

Yield: Bushels/acre at 13% moisture

Maturity: Month/Day

Lodging: 1=Erect, 5= Prostrate

Protein and oil: 13%-moisture basis

Emergence score: 1=Excellent, 5=Poor

Iron-deficiency chlorosis score: 1=No chlorosis, 5=Severe chlorosis