

Iowa Crop Performance Test—Soybeans

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Introduction

Iowa Crop Performance Test—Soybeans. This test is conducted each year to provide information farmers need to select the best varieties or brands for their production conditions. Seed companies, Iowa farmers, and the Iowa Crop Improvement Association may include entries in these tests. This information can be downloaded from <http://www.croptesting.iastate.edu/>.

The experiments grown in 2007 at the Southeast Research Farm were planted May 18 and harvested October 6. There were 97 Roundup® Ready lines in two experiments (early-season and full-season). There was also a 20-entry “miscellaneous” experiment containing conventional-herbicide public lines, low-linolenic public and commercial lines, and Vistive® lines.

Materials and Methods

Entries were grown in four-row plots with a row spacing of 30 in. The seeding rate was eight seeds/foot (140,000 seeds/acre), unless a different rate was requested by the entrant. Entries in the larger tests were evaluated in one of two experiments, based on maturity group (MG). The early group included entries with a MG rating of 2.8–3.2. The full-season entries had a MG rating of 3.3–3.9.

Each experiment was evaluated at four locations in south central and southeast Iowa, with four replications per location. For the southeast district, test locations were near Creston, Melrose, Fairfield, and Crawfordsville. Entries designated as resistant to soybean cyst nematodes were also submitted to a soybean

cyst nematode (SCN) reproduction test in a growth chamber.

Weights, Moisture Content, and Yield. The plots were harvested with a self-propelled plot combine. Seed weights and moisture content were collected on the combine. Yields are reported in bushels/acre at a moisture content of 13% and as a percentage of the mean yield of the test.

Maturity. An entry was considered mature when 95% of the pods had turned brown. Seven to 10 days of good drying weather were required beyond that date before the soybeans were ready to combine. Maturity was evaluated at one location in each district. Maturity date was reported as “days from the beginning of September.” A “7” was September 7 and “32” was October 2.

Lodging. Scores were based on the average erectness of the main stem of all plants at maturity: 1=all plants erect, 2=slight lodging, 3=plants lodged at 45° angle, 4=severe lodging, and 5=all plants flat. Lodging was scored at all locations in each district.

Protein and Oil Content. The protein and oil content of the entries were determined with an Infratec near-infrared transmittance analyzer. The Infratec analyzer was calibrated by the Department of Agricultural and Biosystems Engineering at Iowa State University. Whole-grain samples from all plots were analyzed. The reported values are an average across each district and are reported at 13% moisture.

Variety Selection and Data Interpretation. The primary consideration in selecting a variety or brand for planting is harvestable yield. The average performance of an entry over two or more years should be considered when data are available.

Results and Discussion

A yield summary is shown in Table 1 for the Crawfordsville location. The complete final report, including all descriptive information and all data collected, can be viewed online at <http://www.croptesting.iastate.edu/>. Care should be used in comparing entries that occur in different tables of the final report. Growing conditions were not identical for each test, therefore, yield of an entry varies among tests. Information from individual locations highlights how variable yields can be in different environments.

Even though two entries have similar genetic potential for yield and other characteristics, their performance may differ because of variation in fertility and other environmental conditions among plots at the test sites.

This test was conducted as an experiment, not a contest. The amount of error in the test was estimated by the LSD (least significant difference) values provided at the bottom of each table. If the difference between two entries is greater than the LSD value, it is reasonably certain that the entries differ in their genetic potential for the character. Likewise, if the difference between two entries is less than the LSD value, it can be assumed that no difference exists between the two entries.

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Table 1. Yield^a summary information for Crawfordsville.

	<u>Average</u>	<u>Minimum</u>	<u>Maximum</u>	<u>LSD_(0.25)</u>
MG 2.8–3.2	56.0	44.9	62.3	2.3
MG 3.3–3.9	51.5	43.8	56.9	1.9
Miscellaneous test	47.5	42.3	53.8	1.6

^aYield is listed as bushels/acre, adjusted to 13% moisture.