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1970 PERFORMANCE OF COMMERCIAL SOYBEANS IN ILLINOIS

(WITH 1969-1970 AVERAGES)

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IN 1970, SOYBEAN YIELDS IN ILLINOIS are estimated to be 31.0 bushels per acre. This is approximately 7 percent below the record high state average of 33.5 bushels per acre recorded in 1969. A total production of 207 million bushels is anticipated.

High-profit soybean production begins with the selection of the best variety, brand, or blend of varieties available. This selection must have a high yield potential as well as good standability, proper maturity, and ease of combining. This circular can help you select the best variety, brand, or blend because it includes measurements of yield per acre, maturity, and lodging.

This information can serve as a starting point. Choose several entries that seem to best fit your needs. Plant them side by side, preferably in strips, next to your present variety. Then see how they compare. Look at standability, disease resistance, maturity, and yield. Each factor can affect your profits. The best variety for you is the one that produces the highest yield on *your* field.



Location of
1970 test fields.

PLAN OF THE TESTS

Selection of entries. For 1970, soybean producers in Illinois and surrounding states were invited to enter varieties, brands, or blends in the Illinois soybean performance trials. To finance the testing program, a fee of 30 dollars was charged for each entry entered by the seed producer. Most of these varieties, brands, or blends are commercially available, but producers also entered experimental varieties.

Entries. A total of 56 entries were tested in 1970. These are listed in Tables 1, 2, and 3.

Number and location of tests. Three separate tests were conducted in Illinois in 1970. These sites represent major soils and maturity zones of the state.

Field-plot design. The tests were set up in a randomized complete block design with four replications. There were four rows per plot at Brownstown and DeKalb, and three rows per plot at Urbana. The middle two rows of each four-row plot and the middle row of each three-row plot were harvested to measure yield. Each plot was 30 feet long.

Fertility and weed control. All test locations were at a high level of fertility. Shown below are results of P_1 and K soil tests and applied fertilizer treatments for 1970.

	P_1 test	K test	<i>Applied P_2O_5</i> (lb./acre)	<i>Applied K_2O</i> (lb./acre)
DeKalb	41	300+	120	120
Urbana	66	430	...	...
Brownstown	93	321	96	96

A herbicide was used at DeKalb and Urbana to control weeds. At Brownstown, cultivation was the weed control method.

Method of planting and harvest. All plots were hand-planted and harvested to insure maximum precision. However, no allowances were made for beans that may have been lost in harvest.

MEASURING PERFORMANCE

Yield. Soybean yield (see Tables 1, 2, and 3) was measured in bushels (60 pounds) per acre at a moisture content of 12 percent. An electronic moisture tester was used for all moisture readings.

Lodging. The amount of lodging was rated shortly before harvest. The following scores were used to compare entries:

1. Almost all plants erect.
2. All plants leaning slightly or a few plants down.
3. All plants leaning moderately (45°), or 25 to 50 percent of the plants down.
4. All plants leaning considerably, or 50 to 80 percent of the plants down.
5. Almost all plants down.

Maturity. Maturity was stated as the date when approximately 95 percent of the pods were ripe.

Height. Height was measured at or shortly before harvest time. It is the average length of plants from the ground to the tip of the main stem.

Comparing entries. In any test of plant material, it is impossible to measure performance exactly. Samples may vary, soils may not be uniform, and many other conditions may produce variability. Results of repeated tests are more reliable than those of a single year or a single strip test. When one variety consistently outyields another at several test locations and over several years of testing, the chances are good that this difference is real and should be considered in selecting a variety. However, yield is not the only indicator. You should also consider maturity and lodging.

As an aid in comparing soybean varieties, brands, and blends, certain statistical tests have been devised. One test is Bayes L.S.D. When two entries in a trial are compared, and the difference between them is greater than the tabulated L.S.D. value, the entries are said to be "significantly different."

GROWING CONDITIONS ON 1969 TEST FIELDS

DeKalb. The DeKalb test was located on the University's Northern Illinois Research Center near Shabbona in DeKalb County. Richard Bell is the field manager and Derreld L. Mulvaney is the area agronomist in charge of research at the center. The soil type is Flanagan silt loam, a dark brown adequately drained soil of high fertility. The area was in soybeans in 1969. The 1970 growing conditions were about normal except for an unusually wet fall. Planting and harvesting were done on June 9 and November 6 respectively.

Urbana. This test was located on the Agronomy South Farm of the University of Illinois at Urbana-Champaign in Champaign County. M. G. Oldham is the farm manager. The field on which the test plots were grown was a level heavy-textured Drummer silty clay loam. This area was in soybeans in 1969. Growing conditions were about normal except for an unusually wet fall. Planting and harvesting were done on June 8 and November 13 respectively.

Brownstown. This test was located on the University's Brownstown Research Center in Fayette County. A. T. Christiansen is the farm manager. The test plots were located on a Cisne silt loam, a poorly drained, gray prairie soil with a well-developed claypan. Natural fertility of this soil is not high, but good fertilization practices and crop rotations have brought the yield potential of the field up to a moderately high level. Growing conditions were abnormal in 1970. The spring and fall were abnormally wet. During the summer, an extensive drouth prevailed. Planting and harvesting were done on June 11 and November 10 respectively.

SOURCES OF SEED

Multiline 303	Ainsworth Seed Co.	Mason City
Bellatti Beans	Louis Bellatti	Mt. Pulaski
B-T 654	Bergmann-Taylor Seeds, Inc.	St. Jacob
B-T 655	Bergmann-Taylor Seeds, Inc.	St. Jacob
Variety Exp. 16488	Marshall Butzow	Sidney
Blend Exp. 26691	Marshall Butzow	Sidney
Blend 211	Marshall Butzow	Sidney
Blend 212	Marshall Butzow	Sidney
Blend 423	Marshall Butzow	Sidney
C.I. 23	Central Illinois Seed, Inc.	Springfield
C.I. 33	Central Illinois Seed, Inc.	Springfield
C.I. 43	Central Illinois Seed, Inc.	Springfield
F.F.R. 95670	Farmers Forage Research Coop.	Lafayette, Ind.
F.F.R. 951054	Farmers Forage Research Coop.	Lafayette, Ind.
Marshall	Improved Variety Research, Inc.	Adel, Iowa
Kitoski 700	Kitowski Seed Co.	Nashville
McCurdy Beans	W. O. McCurdy and Sons	Fremont, Iowa
Morton Brand Beans	Roy A. Morton and Sons, Inc.	Bowen
Palmer	Burt Reiter, Jr.	Manteno
Reiter Beans	Burt Reiter, Jr.	Manteno
S.R.F. Beans	Soybean Research Foundation, Inc.	Mason City
Super Soy 440	Stewart Hybrids	Princeville
Super Soy 451	Stewart Hybrids	Princeville
Super Soy T-100	Stewart Hybrids	Princeville
Sphar 300	Sphar and Company	Mt. Carmel
Sphar 400	Sphar and Company	Mt. Carmel
Thoele Bean	Ralph B. Thoele	Teutopolis

Table 1. — DeKalb (Planted in 30-inch rows)

Entry	Total acre yield (bu.)	Maturity	Lodging score	Height (in.)
Super Soy 440.....	51.2	Oct. 10	4.0	40.0
Corsoy.....	51.2	Oct. 5	4.8	39.0
Marshall.....	50.8	Oct. 12	4.2	37.0
McCurdy 100+.....	50.7	Oct. 10	5.0	41.5
Beeson.....	50.6	Oct. 12	4.0	39.0
McCurdy 101.....	47.9	Oct. 10	4.0	40.0
Super Soy T-100.....	46.3	Oct. 4	4.8	39.0
Blend 212.....	45.5	Oct. 9	3.8	40.0
Variety Exp. 16488.....	43.9	Oct. 9	3.5	41.0
Hark.....	43.4	Sept. 29	5.0	35.2
Bellatti 21.....	42.7	Oct. 9	4.5	40.5
Bellatti 26.....	42.1	Oct. 16	4.8	37.5
S.R.F. X67161.....	36.7	Sept. 30	5.0	34.0
Av. of all entries.....	46.4	.....	4.4	38.8
L.S.D.....	2.6	.....	.5	1.3
C.V.....	4.5	.....	...	....

Table 3. — Brownstown (Planted in 24-inch rows)

Entry	Total acre yield (bu.)	Matu- rity	Lodg- ing score	Height (in.)	2-year averages (1969-1970)		
					Total yield (bu.)	Lodg- ing score	Height (in.)
S.R.F. X6866.....	25.4	Oct. 2	1.0	28.0	.....	.....	.....
Blend 423.....	19.4	Oct. 5	1.0	28.5	.....	.....	.....
F.F.R. 951054.....	19.4	Sept. 30	1.0	29.0	.....	.....	.....
Sphar 400.....	18.2	Oct. 2	1.0	29.0	.....	.....	.....
B-T 654.....	17.2	Sept. 28	1.0	30.0	.....	.....	.....
Calland.....	17.2	Sept. 23	1.0	30.5	.....	.....	.....
B-T 655.....	15.1	Oct. 2	1.0	28.5	.....	.....	.....
Clark 63.....	15.1	Sept. 28	1.0	28.0	31.8	2.1	38.5
S.R.F. X67132.....	15.1	Oct. 4	1.0	27.8	.....	.....	.....
Cutler.....	14.8	Sept. 28	1.0	28.0	32.6	1.5	37.0
S.R.F. 300.....	14.5	Sept. 19	1.2	29.5	.....	.....	.....
Morton Brand 444.....	13.9	Sept. 25	1.0	30.0	.....	.....	.....
Kitoski 700.....	13.6	Oct. 4	1.0	29.5	.....	.....	.....
Multiline 303.....	13.6	Sept. 28	1.0	29.5	.....	.....	.....
Wayne.....	12.4	Sept. 21	1.0	29.5	31.4	1.4	37.2
Beeson.....	11.8	Sept. 23	1.0	28.5	.....	.....	.....
Bellatti L263.....	11.8	Sept. 28	1.0	27.0	.....	.....	.....
Bellatti L263A.....	11.5	Sept. 28	1.0	27.0	.....	.....	.....
S.R.F. X67110.....	10.9	Sept. 25	1.0	29.2	.....	.....	.....
Sphar 300.....	9.7	Sept. 28	1.0	29.0	.....	.....	.....
Bellatti-E.....	9.4	Sept. 24	1.0	29.0	28.4	2.6	38.0
Morton Brand 334.....	7.9	Sept. 23	1.0	27.2	.....	.....	.....
Thoele Bean.....	6.7	Sept. 28	1.0	35.0	.....	.....	.....
Av. of all entries.....	14.1	1.0	29.0
Av. of 2-year entries.....	31.0	1.9	37.7
L.S.D.....	2.5
L.S.D. for 2-year entries.....	2.0
C.V.....	1.4	1.0	.4	N.S.

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Urbana, Illinois

January, 1971

Issued in furtherance of Cooperative Extension Work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. JOHN B. CLAR, Director, Cooperative Extension Service, University of Illinois at Urbana-Champaign.

(10M-1-71-16710)