

PERFORMANCE OF COMMERCIAL SOYBEANS IN ILLINOIS

THE UNIVERSITY OF ILLINOIS commercial soybean testing program was started in 1969 as a result of requests by seedsmen that their private varieties be tested. There were 106 conventional and 661 roundup resistant varieties from 67 seed companies tested in 2005. This total included 254 varieties entered as 'Producer Nominated' varieties, fees for the Producer Nominated varieties were paid by the Illinois Soybean Checkoff Board.

The purpose of this commercial soybean testing program is to provide unbiased, objective, and accurate testing of all varieties entered. The tests are conducted on as uniform a soil as is available in the testing area. Small plots are used to reduce the chance of soil and climatic variations occurring between one variety plot and another.

The results of these tests should help you judge the merits of varieties in comparison with other private and public varieties. Because your soils and management may differ from those of the test location, you may wish to plant variety strips of the higher-performing varieties on your farm. The results printed in this circular should help you decide which varieties to try.

TEST PROGRAM

Selection of entries. Seed companies in Illinois and surrounding states were invited to enter soybean varieties, brands, or blends in the 2005 Illinois soybean performance trials. Entrants were required to enter all nonirrigated, 30-inch-row-width trials on a regional basis. To finance the testing program, a fee of \$80 per location was charged for each variety entered by the seed company. Most of these varieties, brands, or blends are commercially available, but some experimental varieties were also entered. A total of 3,485 entries were tested in 2005.

Number and location of tests. In 2005, tests were conducted at 13 locations in the state (see map). These sites represent the major soils and maturity zones of the state.

Nonirrigated, 30-inch-row-width trials, conventional and roundup resistant, were conducted on a regional basis. The regions are as follows:

- Region 1 Erie, Mt. Morris and DeKalb
- Region 2 Monmouth, Goodfield and Dwight
- Region 3 Perry, New Berlin and Urbana
- Region 4 Brownstown and Belleville
- Region 5 Carbondale and Harrisburg

Seven-inch-row-width conventional and roundup resistant trials were conducted at Urbana.

Field plot design. Entries of each test were replicated three times in a randomized complete block or alpha lattice design. The 30-inch-row trial plots consisted of four rows, each 21 feet long. The center two rows of each plot were harvested to measure yield. The 7-inch-row trial plots consisted of eight rows, each 21 feet long. The center six rows were harvested to measure yield.

Fertility and weed control. All test locations were at a high level of fertility. Herbicides were used at all test locations for weed control. Weed control for the roundup resistant trials consisted of post-emergence applications of Roundup as needed, **no pre-emergence herbicide was used.** Plots were also weeded by hand if needed.

Method of planting and harvesting. The 30-inch-row variety trials were planted with a modified bean planter. A custom-built, cone type, narrow-row drill was used to plant the 7-inch trials. Harvesting was done with a small-plot combine. No allowances were made for soybeans that may have been lost as a result of

combining or shattering.

Soybean Cyst Nematode. Soil samples were taken from variety plots at each location in August and evaluated for cyst populations.

Threshold numbers of cysts per 100cc of soil are as follows:

Low	1-5
Medium	6-25
High	>25

PERFORMANCE DATA

Yield. Soybean yield was measured in bushels (60 pounds) per acre at a moisture content of 13 percent. An electronic moisture monitor was used on the combine for all moisture readings.

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

Lodging. The amount of lodging was rated at harvest time. The following scale was used:

- 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

Height. Height was measured shortly before harvest as the average length of plants from the ground to the tip of the main stem.

Shattering. The percentage of open pods was estimated at harvest time. The following scale was used:

- 1 - No shattering
- 2 - 1 to 10% of pods open
- 3 - 10 to 25% of pods open
- 4 - 25 to 50% of pods open
- 5 - Over 50% of pods open

Shattering was not significant at any location.

SUGGESTIONS FOR COMPARING ENTRIES

It is impossible to obtain an exact measure of performance when conducting any test of plant material. Harvesting efficiency 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 out yields 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, lodging, plant height and shattering.

As an aid in comparing soybean varieties, brands, and blends within a single trial, certain statistical tests have been devised. One of these tests, the least significant difference (L.S.D.), when used in the manner suggested by Carner and Swanson¹ is quite simple to apply and is more appropriate than most other tests. When two varieties are compared and the difference between them is greater than the tabulated L.S.D. value, the varieties are judged to be "significantly different."

The L.S.D. is a number expressed in bushels per acre and

presented following the average yield for each location. An L.S.D. level of 25% is shown. Find the highest yielding soybean variety within the regional table or single location table of interest, subtract the 25% L.S.D. value from the highest yielding variety, every variety with a greater yield than the resulting number is 'statistically the same' as the highest yielding variety. Consider the merits of the varieties in this group when making varietal selections.

In a study of the frequencies of occurrence of three types of statistical errors and their relative seriousness, Carmer² found strong arguments for an optimal significance level in the range $\alpha = 0.20$ to 0.40 , where α is the Type I statistical error rate for comparisons between means that are really equal. Herein, a value of $\alpha = 0.25$ is used in computing the L.S.D. 25-percent level shown in the tables.

To make the best use of the information presented in this circular and to avoid any misunderstanding or misrepresentation of it, the reader should consider an additional caution about comparing varieties. Readers who compare varieties in different trials or row spacings should be extremely careful, because no statistical tests are presented for that purpose. Readers should note that the difference between a single varieties performance at one location or row spacing and its performance at another is caused primarily by environmental effects and random variability. Furthermore, the difference between the performance of variety A in one trial or row spacing and the performance of variety B in another trial or row spacing is the result not only of environmental effects and random variability, but of genetic effects as well.

¹Carmer, S.G. and M.R. Swanson. "An Evaluation of Ten Pairwise Multiple Comparison Procedures by Monte Carlo Methods." Journal of American Statistical Association 68:66-74. 1973.

²Carmer, S.G. "Optimal Significance Levels for Application of the Least Significant Difference in Crop Performance Trials." Crop Science 16:95-99, 1976.

2005 SOYBEAN LOCATIONS



2005 TEST FIELDS

Erie

Location: Slaymaker farm, Whiteside county, west of Rock Falls, northwestern Illinois.

Soil Type: Beaucoup silty clay loam.

Cooperator: Robert Slaymaker.

Planting Date: May 10.

Harvest Date: October 10.

Herbicide: Pre-Boundary, Dual. Post- FirstRate, Select.

Roundup trial: Post- Roundup.

Tillage: fall chisel, spring field cultivate.

S.C.N.: medium.

Mt. Morris

Location: Nelson farm, Ogle county, North of Mt. Morris, north central Illinois.

Cooperator: Rick Nelson.

Soil type: Muscatine silt loam.

Planting Date: May 10.

Harvest Date: October 11.

Herbicide: Pre-FirstRate, Dual. Post-FirstRate, Select.

Roundup Trial: Post- Roundup.

Tillage: spring chisel, field cultivate.

S.C.N.: low.

DeKalb

Location: University of Illinois, Northern Illinois Agronomy Research Center, DeKalb County, southwest of DeKalb.

Soil type: Flanagan silt loam.

Cooperators: Lyle Paul, research director; Dave Lindgren, farm foreman.

Planting date: May 10.

Harvest dates: October 11.

Herbicide: Pre-FirstRate, Dual.

Roundup trial: Post- Roundup.

Tillage: fall plow, spring mulch finisher.

S.C.N.: medium.

Monmouth

Location: University of Illinois, Northwestern Illinois Agricultural Research and Demonstration Center, Warren County, northwest of Monmouth.

Soil type: Muscatine silt loam.

Cooperators: Eric Adey, agronomist; Martin Johnson, farm foreman.

Planting date: May 6.

Harvest date: September 30.

Herbicide: Pre-FirstRate, Doal II Magnum, Array. Post- Raptor.

Roundup trial: Post- Roundup.

Tillage: fall chisel, spring field cultivate.

S.C.N.: low.

Goodfield

Location: Wurmnest farm, Woodford county, north of Goodfield, central Illinois.
 Cooperator: Mike Wurmnest.
 Soil Type: Ipava silt loam.
 Planting date: May 6. Harvest date: September 17 & 27.
 Herbicide: Pre-Boundary, Dual. Post-FirstRate, Select.
 Roundup trial: Post- Roundup.
 Tillage: spring Disk, soil finisher.
 S.C.N. low.

Dwight

Location: Grundy County, Hoffman Farm.
 Soil type: Reddick silty clay loam.
 Cooperator: Allen Hoffman.
 Planting date: May 7. Harvest dates: September 21 & October 3.
 Herbicide: Pre-Dual, Post-FirstRate, Select.
 Roundup trial : Post- Roundup.
 Tillage: spring disk twice, soil finisher.
 S.C.N.: high.

Perry

Location: Pike County, Rod Webel Farm, west central Illinois.
 Soil type: Ipava/Keomah silt loam
 Cooperator: Mike Vose, farm foreman.
 Planting date: May 5. Harvest dates: September 22 & October 1.
 Herbicide: Pre-Boundary, Post-FirstRate, Poast Plus.
 Roundup trial: Post- Roundup.
 Tillage: spring field cultivate, Dyna drive.
 S.C.N.: low.

New Berlin

Location: King farm, Sangamon county, north of New Berlin, Central Illinois.
 Cooperator: Ike King.
 Soil type: Sable silty clay loam.
 Planting date: May 5. Harvest date: September 13 & October 6.
 Herbicide: Pre-Boundary, Post-FirstRate, Select.
 Roundup trial: Post- Roundup.
 Tillage: fall chisel, spring field cultivate.
 S.C.N. low .

Urbana

Location: University of Illinois, Crop Sciences Research & Education Center, Champaign County, east central Illinois.
 Soil type: Flanagan silt loam.
 Cooperators: Robert Dunker, farm manager; Mike Kleiss, farm foreman.
 Planting dates: May 7.
 Harvest date: September 18, 19, 22, October 2, 9.
 Herbicide: Pre-Boundary, Post-FirstRate, Select, Raptor.
 Roundup trial: Post- Roundup.
 Tillage: spring ripper, soil finisher.
 S.C.N.: low.

Brownstown

Location: University of Illinois, Brownstown Agronomy Research Center, Fayette County, south central Illinois.
 Soil type: Cisne silt loam.
 Cooperators: Lindell Deal, field worker.
 Planting date: May 11. Harvest dates: September 24, October 3.
 Herbicide: Pre- Canopy XL & Dual. Post-Assure II, Basagran.
 Roundup trial: Post- Roundup.
 Tillage: spring disk, combination tillage tool.
 S.C.N.: medium.

Belleville

Location: Southern Illinois University Research Center, east of Belleville, St. Clair County.
 Soil type: Ebbert silt loam.
 Cooperators: Dr. Ed Varsa, research director; Ron Krausz, field manager.
 Planting date: May 12.
 Harvest date: October 4.
 Herbicide: PPI- Triscept+Treflan+Authority. Post- Flexstar.
 Roundup trial: Post- Roundup.
 Tillage: spring disk, field cultivate, cultumulch.
 S.C.N.: low.

Carbondale

Location: Oval Myers farm, North of Carbondale, Jackson County, extreme southern Illinois.
 Soil type: Weir silt loam.
 Cooperators: Dr. Ed Varsa, research director; Paul Pinnon, field manager.
 Planting date: May 13.
 Harvest dates: September 23 & October 7, 16.
 Herbicide: Pre- Canopy XL, Dual. Post-FirstRate, Select.
 Roundup trial: Post- Roundup.
 Tillage: spring disk & field cultivate.
 S.C.N.: low.

Harrisburg

Location: Wintizer farm, Saline County, extreme southern Illinois.
 Soil type: Harco silt loam/Patton silty clay loam.
 Cooperator: Kevin Wintizer.
 Planting date: May 12.
 Harvest dates: September 23 & October 7, 15.
 Herbicide: Pre- Canopy XL,- Dual. Post-FirstRate, Select.
 Roundup trial: Post- Roundup.
 Tillage: fall disked , spring disk, field cultivate.
 S.C.N.: low.

GROWING SEASON RAINFALL, 2005

Location	May	June	July	Aug	Sept
Erie	2.90	1.50	1.30	4.45	2.75
Mt. Morris	1.50	1.00	2.30	3.50	4.00
DeKalb	2.08	2.87	1.86	3.36	1.40
Monmouth	2.15	2.07	1.58	3.09	5.86
Goodfield	0.40	0.40	2.30	1.80	1.10
Dwight	0.70	0.90	3.70	3.50	1.10
Perry	1.04	1.98	2.32	5.39	3.45
New Berlin	1.10	2.10	1.00	2.20	1.20
Urbana	1.08	2.57	4.07	2.05	5.50
Brownstown	1.11	1.34	2.07	3.49	3.53
Belleville	0.08	1.60	4.80	3.40	9.50
Carbondale	2.97	1.04	5.73	2.57	3.83
Harrisburg	2.16	3.43	0.92	2.40	3.31

SOURCES OF SEED

- Atlas**, Mycogen Seeds, 9330 Zionsville Rd, Indianapolis, IN 46268 (800-692-6436)
- AgSource**, AgSource Seeds Inc, 1800 L Ave, Nevada, IA 50201 (515-382-8880)
- AgVenture**, AgVenture Seeds, 1763 E 200 N Rd, Hoopston, IL 60942 (800-987-6759)
- Asgrow**, Monsanto, 800 N Lindbergh Blvd. St. Louis, MO 63167 (800-335-2676)
- Baker**, Baker Seed Company, 610 W. Seminary St, West Salem, IL 62476 (618-456-8851)
- Beck's**, Beck's Superior Hybrids, 6767 E 276th St, Atlanta, IN 46031 (317-984-3508)
- Bergmann-Taylor**, Bergmann-Taylor Inc, 10073 Ellis Rd, St Jacob, IL 62281 (618-644-5522)
- Bio Gene**, Bio Gene Seeds, 5477 Tri-County Hwy, Sardinia, OH 45171 (888-862-3276)
- Bo-Jac**, Bo-Jac Seed Company, 245 1500th Ave, Mt. Pulaski, IL 62548 (217-792-5001)
- Brown**, Brown Seed Enterprises, Inc, 289 Co Rd 550 N, Neoga, IL 62447 (217-895-2335)
- Crow's**, Crow's Hybrid Corn Co, 612 E Dunlap St, Kentland, IN 47951 (800-331-7201)
- Dairyland**, Dairyland Seed Co. Inc, 3570 Hwy H, West Bend, WI 53095 (800-236-0163)
- DeKalb**, Monsanto, 800 N Lindbergh Blvd. St. Louis, MO 63167 (800-335-2676)
- Delta King**, Delta King Seed Co, PO Box 970, McCrory, AR 72101 (870-731-2992)
- Delta & Pine Land**, Delta & Pine Land, 1301 E 50th St, Lubbock, TX 79404 (806-740-1600)
- DeRaedt**, DeRaedt Seed Corp, 10 N 971 Tower Rd, Hampshire, IL 60140 (847-464-5553)
- Diener**, Diener Seeds, Inc. 371 N Diener Rd, Reynolds, IN 47980 (219-984-5837)
- Dyna-Gro**, UAP/Richter- Dyna-Gro Seed, 1267 W Washington, Pittsfield, IL 62363 (217-285-4461)
- Excel**, Agrinetics Inc. PO Box 151, Naperville, IL 60563 (630-355-1054)
- Excel**, Excel Brand, 116 E State, Camp Point, IL 62320 (800-593-7708)
- Excel**, Hartke Seed Farms, 22679 Sunset Rd. Litchfield, IL 62056 (217-324-2680)
- Excel**, Miller Bros Frm & Frt, 2001 Niemannsville Trail, Walshville, IL 62091 (217-456-9311)
- Farm Advantage**, Farm Advantage, 1275 Hwy 69, Belmond IA 50421 (641-444-3344)
- FS Hisoy**, Growmark Inc, 1701 Towanda Ave, Bloomington, IL 61701 (309-557-6399)
- Garst**, Garst Seed Co, 2369 30th St, PO Box 500 Slater, IA 50244 (800-831-6630)
- GMA**, GMA Seed Company, 2 Myrica Way, Old Lyme, CT 06371 (860-434-7599)
- Golden Harvest**, Golden Harvest Seeds Inc, PO Box 248, Pekin, IL 61555 (800-747-2127)
- Great Heart**, Great Heart Seed, 220 W Washington, Paris, IL 61944 (217-465-4132)
- Great Lakes**, Great Lakes Hybrids, 9915 W M-21, Ovid, MI 48879 (800-257-7333)
- Helena**, Helena Chemical Co, 11711 N Pennsylvania St, Suite 270, Carmel, IN 46032 (317-815-6370)
- Henkel**, Henkel Seeds, 107 Cedar Grove Rd, Mendota, IL 61342 (815-539-9317)
- Hoblit**, Hoblit Seed Company, PO Box 487, Atlanta, IL 61723 (217-648-2392)
- Hoffman**, Hoffman Seed House, 200 E 4th Street, PO Box 66 Hoffman, IL 62250 (618-495-2617)
- Horizon**, Horizon Genetics, PO Box 31, Mason City, IL 62664 (800-533-2879)
- Hubner**, Hubner Seed, 10280 W SR 28, West Lebanon, IN 47991 (765-893-4428)
- Hughes**, Hughes Seed Farms Inc, 206 N Hughes Rd, Woodstock, IL 60098 (815-338-2480)
- Illinois Pride**, Illinois Foundation Seeds Inc, 1083 County Rd. 900 N Tolono, IL 61880 (217-485-6260)
- IPAP**, Identity Preserved Agricultural Products, 9531 W 78th St. Ste. 120 Eden Prairie, MN 55344-3894 (260-417-1157)
- Kaltenberg**, Kaltenberg Seeds, PO Box 278, 5506 State Rd. 19 Waunakee, WI 53597-0278 (608-849-2312)
- Kitchen**, Kitchen Seed Company Inc, PO Box 286, Arthur, IL 61911 (217-543-3476)
- Kruger**, Kruger Seed Company, Hwy 20 East PO Box A, Dike, IA 50624 (800-772-2721)
- Latham**, Latham Seed Company, 131 180th Street, Alexander, IA 50420-8028 (641-692-3258)
- Lewis**, Lewis Hybrids, 530 W Maple Ave, Ursa, IL 62376 (217-964-2131)
- LG Seeds**, LG Seeds, 22827 Shissler Rd, Elmwood, IL 61529 (309-742-2211)
- Martin**, Martin Seeds, Incorporated, 10045 W 2nd St, Williamsport, IN 47993 (765-986-2030)
- M&D Seed**, M&D Seed, 8982 Ford Rd, Kinmundy, IL 62854 (618-547-3404)
- Merschman**, Merschman Seeds Inc, 103 Ave D, West Point, IA 52656 (800-848-7333)
- Midwest Seed Gen**, Midwest Seed Genetics, 23751 Hwy 30 East, Carroll, IA 51401 (800-369-8218)
- Miles**, Miles Seed, PO Box 22879, Owensboro, KY 42304 (800-666-4537 Ext. 260)
- Munson**, Munson Hybrids Inc, 1262 Knox Road 100 E, Galesburg, IL 61401 (309-343-8410)
- MWS**, MWS Seeds LLC, 2737 N 700 E Rd, Ashkum, IL, 60911 (815-698-2204)
- NK Brand**, NK 1301 W Washington St. Bloomington IL 61701 (309-823-9427)
- NU-AG**, NU-AG Seed, PO Box 345, Tuscola, IL 61953 (217-253-4066)
- Pioneer**, Pioneer Hi-Bred Int'l, 14171 Carole Dr, Bloomington, IL 61704 (309-821-9940)
- Prairie Brand**, Prairie Brand Seed Co, 15 X Ave, Story City, IA 50248 (800-544-8751)
- Public Varieties**, Illinois Foundation Seeds Inc, 1083 County Rd 900 N, Tolono, IL 61880 (217-485-6260)
- Quality Plus**, Quality Plus Seed Company, 562 State Hwy 16 Y, Monmouth, IL 61462-1063 (309-734-5764)
- Renk**, Renk Seed, 6800 Wilburn Rd, Sun Prairie, WI 53590 (608-837-7351)
- Roeschley**, Roeschley Hybrids, 8222 E 1500 N Rd, Graymont, IL 61743 (815-743-5938)
- Schillinger**, Schillinger Seeds Inc, 4200 Corporate Drive, Suite 106, West Des Moines, IA 50266 (515-225-1166)
- Sieben**, Sieben Hybrids Inc, 633 N College Ave, Geneseo, IL 61254 (309-944-5131)
- Southern States**, Southern States Coop, PO Box 26234, Richmond, VA 23260 (804-281-1203)
- Steyer**, Steyer Seed, 6154 N Co Rd 33, Tiffin, OH 44883 (800-231-4274)
- Stine**, Stine Seed Company, 2225 Laredo Trail, Adel, IA 50003 (515-677-2605)
- Stone**, Stone Seed Farms, 5965 W State Rt 97, Pleasant Plains, IL 62677 (217-546-8006)
- Trelay**, Trelay Seed Company, 11623 Hwy 80, Livingston, WI 53554 (608-943-6363)
- Trisler**, Trisler Seed Farms Inc, 3274 E 800 North Rd, Fairmount, IL 61841 (217-288-9301)
- Vigoro**, Royster-Clark Inc, 717 Robinson Road SE, Washington CH, OH 43160 (800-659-7790)
- Wilken**, Wilken Seed Grains Inc, RR 4 PO Box 770, Pontiac, IL 61764 (815-844-3458)
- Willcross**, Willcross Hybrids LLC, PO Box 560, Garden City, MO 64747 (877-866-6326)