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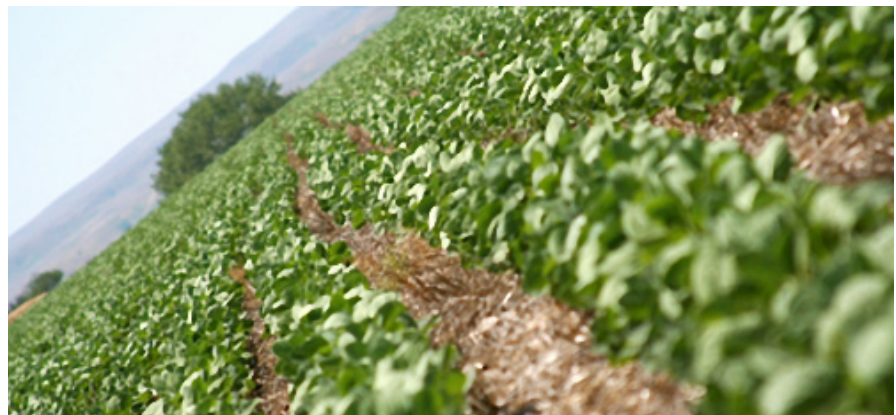
This circular reports the agronomic performance of entries in the 2012 South Dakota performance trials for glyphosate-resistant. Major factors in variety selection include yield, maturity, lodging resistance, and *Phytophthora* root rot resistance.

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- Yield
- Maturity
- Lodging resistance
- *Phytophthora* root rot resistance

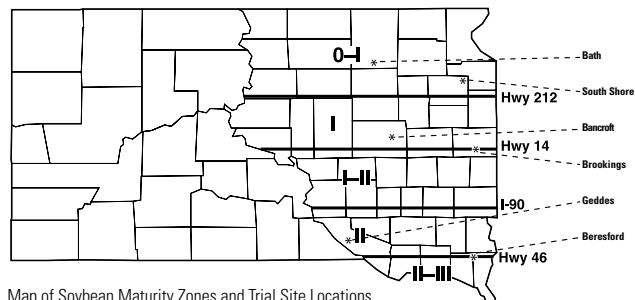
## Soybean Variety Performance Trials Results - Bancroft

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Soybean production is greatly affected by variety selection. This circular reports the agronomic performance of entries in the 2012 South Dakota performance trials for glyphosate-resistant and non-glyphosate-resistant soybean varieties. Major factors in variety selection include yield, maturity, lodging resistance, and *Phytophthora* root rot resistance.

Soybean varieties are classified according to maturity groups that in turn are adapted to maturity zones. Maturity zones are based on day length and therefore are affected by latitude. The very early maturity group-00 varieties are best suited to Canada and bordering regions of the U.S., while maturity group-0, group-I, and group-II varieties are suited to South Dakota. The later groups III-VIII are suited to Iowa, Nebraska, and south to Texas.



Map of Soybean Maturity Zones and Trial Site Locations

Inoculation of seed with the appropriate nitrogen-fixing bacterium is a good practice. Always inoculate if seeding soybeans in soils not previously cropped to soybeans. On older soybean ground, there is no guarantee that N-fixing bacteria will be present to inoculate the seed, thus, consider inoculation cheap insurance that N-fixing bacteria will be present.

Use care when evaluating the yield performance of entries in each table. Entries tested for two years may also have a top yield group value in the 2012 yield column. Each company selects the appropriate maturity group trial (maturity group-0, -I, or -II trial) and locations for their

entries. There are, however, no standard regional or national check varieties for maturity. It is suggested you compare the reported maturity rating of every entry you are considering with the days to maturity (DTM) calculated for each entry at each location.

*Phytophthora* root rot (PRR) is an important soybean disease in South Dakota and is often controlled or managed with the use of resistant varieties. Resistance to *Phytophthora* root rot is fungus-race specific. Thus, resistance to one PRR race does not always impart resistance to other races. Knowledge of the prevalent PRR races in your area is important. If you suspect you have a PRR problem, using

varieties with a wide range of root resistance is strongly suggested. The gene resistance of each variety to PRR is supplied by each seed company (proprietary entries) or by the USDA (Uniform Soybean Tests, Northern States, public entries). The PRR gene for each entry, as given by the seed company is reported in each yield table. Specific race resistance to PRR can be determined by cross-referencing the PRR gene reported in each yield table with table A (glyphosate-resistant entries) to find the resistant races. Currently, races -1, -3, and -4 are the most common races in South Dakota.

Table A. *Phytophthora* Root Rot race resistance by gene code and name.

PRR Code	Gene Name	Race Resistance
0	rps1	None
1A	Rps1, Rps1a	1-2,10-11,13,15-18,24
1B	Rps1b	1,3-9,13-15,18,21-22
1C	Rps1c	1-3,6-11,13,15,17,21,23-24
1K	Rps1k	1-11,13-15,17-18,21-22,24
2	Rps2	1-5,9-20
3,3a	Rps3, 3a	1-5,8-9,11,13-14,16,18,23,25
4	Rps4	1-4,10,12-16,18-21,25
5	Rps5	1-5,8-9,11-14,18,20,25
6	Rps6	1-4,10,12,14-16,18-21,25
7	Rsp7	16,18,19
K6	Rps1k, Rps6	1-22,24-25
C3	Rps1c, Rps3	1-10,13-18,22-25
B3	Rps1b	1-9,13-16,18,21-23,25
NR	NR	Not Reported

Table B. General test information.	
LOCATION	Glyphosate resistant soybean trial results - MG-0, -I, and -II
COOPERATOR:	E. Weerts Farm Inc. - Bancroft
SOIL TYPE:	Houdek-Stickney-Tetonka loam, 0-3% slope
TILLAGE:	No-till
FERTILITY YIELD-GOAL:	70 bushels
PREVIOUS CROP:	Corn
ROW SPACE:	30 inches
SEEDING POPULATION	165,000/acre
SOIL INOCULANT:	Nitragin-brand Soybean Soil Implant down the seed tube by label instructions
WEED CONTROL:	1 oz. Sharpen with burn down, 1 qt. Roundup
INSECT CONTROL:	None
DISEASE CONTROL:	None
DATE SEEDED:	May 17, 2012

Table C. Explanation of performance table references [.]	
No.	Explanation of references
[1]	Seed treatment as reported by seed company.
[2]	Phytophthora root rot (PRR) gene reported by seed company, cross-reference with table A.
[3]	Maturity rating reported by seed company.
[4]	Days to maturity (DTM) – the number of days to maturity from seeding to 95% brown pod. If data is missing [.] the plots were exposed to a killing frost before they attained the 95% brown pod stage.
[5]	Lodging ratings: 0= all plants erect, 3= 50% of plants lodged at 45°-angle, 5= all plants flat. Shatter ratings: 1= none, 2= 1-10%, 3= 10-20%, 4= 25-50%, 5= > 50% pods shattered.
[6]	Least Significant Difference (LSD 0.05) – the difference two values within a column must equal or exceed to be significantly different from one another at the 0.05 level of probability. If the difference is less than the LSD value the difference between the values is nonsignificant (NS).
[7]	TPG-avg. – the minimum value within a column that entry yield values must equal or exceed to qualify for the top-performance group (TPG).
[8]	TPG-avg. – the maximum value within a column that lodging or shatter rating values must equal or be less than to qualify for the TPG.
[9]	Coefficient of variation (C.V.) - the percent of experimental error associated with a test trial. Ideally, the CV values for yield are less than 15%. If the yield CV values exceed 15% the trial contained too much experimental error to be a valid, thus no data analysis for the table yield column is reported.

Table 1. Glyphosate-resistant soybean variety performance results - MG-0, Bancroft				
Brand/ Variety __Seed Trt.[1] __PRR Gene[2] __Mat. rtg.[3]	DTM [4]	Yield Averages* bu/a		2012
		2-Yr	2012	Ldg. Rtg. (1-5) [5]
SODAK GENET./ SD1093RR __NR __0 __ 0.9	107	48	46	1
HEFTY/ H07Y12 __NR __1k __ 0.7	108	.	53	1
HEFTY/ EXP-H02R3 __NR __1k __ 0.2	104	.	53	1
SODAK GENET./ SD2061R2Y __Cruiser Maxx __1c __ 0.6	110	.	52	1
HEFTY/ EXP-H08R3 __NR __3 __ 0.8	108	.	51	1
HEFTY/ H06Y11 __NR __0 __ 0.6	113	.	42	1
SODAK GENET./ SD2091R2Y __Cruiser Maxx __1c __ 0.9	112	.	34	1
Test avg. :	109	48	47	1
High avg. :	113	.	53	1
Low avg. :	104	.	34	1
[6] Test LSD (.05):		.	6	0
[7] Min.TPG-avg. :			47	.
[8] Max.TPG-avg. :			.	1
[9] Test Coef. Var.:		.	7	0
No. Entries:	7	1	7	7

NOTE: Table reference numbers [1-9] are explained in Table C.  
 \* Shaded values within a yield or lodging rating column are included in the top-performance group (TPG). Therefore, look for varieties that have shaded values within each yield or lodging rating column.

Brand/ Variety Seed Trt.[1] PRR Gene [2] Mat. rtg. [3]	DTM [4]	Yield Averages* bu/a		2012
		2-Yr	2012	Ldg. Rtg.
				(1-5) [5]
DAIRYLAND/ DSR-1808/R2Y __Cruiser Maxx __1c __ 1.8	121	57	54	1
ASGROW/ AG1431 __Acceleron+Poncho/Votivo __1c __ 1.4	114	56	53	1
PRAIRIE BR./ PB-1823R2 __NR __NR __ 1.8	117	56	52	1
REA/ 75G12 __NR __1c __ 1.5	114	55	52	1
PRAIRIE BR./ PB-1591R2 __NR __NR __ 1.5	114	55	50	1
WENSMAN/ W 3140R2 __Acceleron __0 __ 1.4	116	55	49	1
MUSTANG/ 11302 __Acceleron __3 __ 1.1	110	55	47	1
CHANNEL/ 1405R2 __Acceleron __1c __ 1.4	115	54	52	1
WENSMAN/ W 3120R2 __Acceleron __1c __ 1.2	119	54	52	1
REA/ 78G12 __NR __1c __ 1.8	119	54	51	1
ASGROW/ AG1631 __Acceleron+Poncho/Votivo __1c __ 1.6	117	54	46	1
PRAIRIE BR./ PB-1722R2 __NR __NR __ 1.7	118	53	47	1
PRAIRIE BR./ PB-1743R2 __NR __NR __ 1.7	119	52	52	1
HEFTY/ H16Y11 __NR __1c __ 1.6	119	52	50	1
HEFTY/ H17Y12 __NR __1k __ 1.7	118	52	50	1
STINE/ 16RA02 __Cruiser __1k __ 1.7	120	52	48	1
CHANNEL/ 1805R2 __Acceleron __1c __ 1.8	116	52	44	1
G-2 GENETICS/ 6162 __Trilex+Allegiance+Gaucho __1c __ 1.6	118	52	43	1
PIONEER/ 91Y90 __PPST Pkg. __NR __ 1.9	116	51	50	1
REA/ 72G21 __NR __1c __ 1.3	117	50	46	1
REA/ 71G20 __NR __0 __ 1.1	110	50	45	1
HEFTY/ H16Y12 __NR __1k __ 1.6	117	50	43	1
HEFTY/ H18Y12 __NR __0 __ 1.8	115	48	42	1
HEFTY/ H15Y12 __NR __3 __ 1.5	115	.	55	1
NORTHSTAR/ NS 1916NR2 __Acceleron __1c __ 1.9	120	.	55	1
SODAK GENET./ SD2172R2Y __Cruiser Maxx __1c __ 1.7	119	.	55	1
PRAIRIE BR./ PB-2042R2 __NR __NR __ 1.9	118	.	54	1
MUSTANG/ 19723 __Acceleron __0 __ 1.9	115	.	53	1
WENSMAN/ W3190NR2 __Acceleron __1k __ 1.9	120	.	53	1
PRAIRIE BR./ EXP 12161 __NR __NR __ 1.6	118	.	52	1
PIONEER/ 91Y74 __PPST Pkg. __1k __ 1.7	120	.	51	1
HEFTY/ H12Y11 __NR __3 __ 1.2	113	.	51	1
HEFTY/ H10Y12 __NR __1k __ 1	111	.	51	1
MUSTANG/ 14323 __Acceleron __1c __ 1.4	115	.	50	1
PIONEER/ 91Y81 __PPST Pkg. __1c __ 1.8	119	.	50	1
HEFTY/ H13Y11 __NR __1c __ 1.3	114	.	50	1
HEFTY/ EXP-H14R3 __NR __1c __ 1.4	115	.	50	1
PRAIRIE BR./ PB-1566R2 __NR __NR __ 1.5	118	.	50	1
WENSMAN/ W 3160NR2 __Acceleron __1c __ 1.6	116	.	50	1
HEFTY/ EXP-H10R3 __NR __3 __ 1	115	.	49	1

Variety Seed Trt.[1] PRR Gene [2] Mat. rtg. [3]	DTM [4]	Yield Averages* bu/a		2012
		2-Yr	2012	Ldg. Rtg.
				(1-5) [5]
STINE/ 16RD02 __Cruiser __1k __ 1.6	115	.	49	1
G-2 GENETICS/ 7183 __Trilex+Allegiance+Gaucho __1c __ 1.8	118	.	49	1
ASGROW/ AG1733 __Acceleron+Poncho/Votivo __1c __ 1.7	119	.	48	1
DAIRYLAND/ DSR-1710/R2Y __Cruiser Maxx __1c __ 1.7	118	.	48	1
G-2 GENETICS/ 7186 __Trilex+Allegiance+Gaucho __1k __ 1.7	117	.	48	1
PRAIRIE BR./ PB-1637R2 __NR __NR __ 1.6	113	.	48	1
CHANNEL/ 1606R2 __Acceleron __3a __ 1.6	116	.	47	1
NORTHSTAR/ NS 1726NR2 __Acceleron __1c __ 1.7	120	.	46	1
MUSTANG/ 15523 __Acceleron __1c __ 1.5	116	.	45	1
G-2 GENETICS/ 1191 __Trilex+Allegiance+Gaucho __1k __ 1.9	116	.	45	1
PRAIRIE BR./ EXP 12228P __NR __NR __ 1.9	121	.	45	1
HEFTY/ H18Y11 __NR __1c __ 1.8	117	.	44	1
PRAIRIE BR./ EXP 12245P __NR __NR __ 1.9	122	.	44	1
WENSMAN/ W 3142NR2 __Acceleron __1k __ 1.4	116	.	44	1
SODAK GENET./ SD2101R2Y __Cruiser Maxx __1k __ 1	110	.	44	1
SOKAK GENET./ SD2149R2Y __Cruiser Maxx __NR __ 1.4	111	.	44	1
SODAK GENET./ SD2181NR2 __Cruiser Maxx __1c __ 1.8	119	.	44	1
PIONEER/ 91Y30 __PPST Pkg. __1c __ 1.3	110	.	43	1
HEFTY/ H11Y12 __NR __3 __ 1.1	110	.	42	1
Test avg. :	116	53	48	1
High avg. :	122	57	55	1
Low avg. :	110	48	42	1
[6] Test LSD (.05):		NS**	5	0
[7] Min.TPG-avg. :		48	50	.
[8] Max.TPG-avg. :		.	.	1
[9] Test Coef. Var.:		6	7	0
No. Entries:	59	23	59	59

NOTE: Table reference numbers [1-9] are explained in Table C.  
\* Shaded values within a yield or lodging rating column are included in the top-performance group (TPG). Therefore, look for varieties that have shaded values within each yield or lodging rating column.  
\*\* Indicates differences between values within a yield or lodging rating column are non-significant (NS).

Table 3. Glyphosate-resistant soybean variety performance results - MG-II, Bancroft

Brand/ Variety Seed Trt.[1] PRR Gene [2] Mat. rtg. [3]	DTM [4]	Yield Averages* bu/a		2012
		2-Yr	2012	Ldg. Rtg. (1-5) [5]
WENSMAN/ W 3200NR2 __Acceleron __1c+1k __ 2	119	56	49	1
MUSTANG/ 20622 __Acceleron __1c __ 2	118	55	50	1
WENSMAN/ W 3230R2 __Acceleron __1c __ 2.3	121	55	49	1
PRAIRIE BR./ PB-2242R2 __NR __NR __ 2.2	119	54	48	1
REA/ 80G11 __NR __1k __ 2	118	54	47	1
PRAIRIE BR./ PB-2419RR2 __NR __NR __ 2.4	123	53	48	1
PRAIRIE BR./ PB-2391R2 __NR __NR __ 2.3	121	53	47	1
ASGROW/ AG2031 __Acceleron+Poncho/Votivo __1c __ 2	118	53	45	1
DAIRYLAND/ DSR-2105/R2Y __Cruiser Maxx __1k __ 2.1	119	52	49	1
PRAIRIE BR./ PB-2544R2 __NR __NR __ 2.5	119	51	46	1
REA/ 84G20 __NR __1c __ 2.4	121	51	43	1
HEFTY/ H20Y12 __NR __1c __ 2	118	50	45	1
PRAIRIE BR./ PB-2143R2 __NR __NR __ 2.1	120	.	54	1
PRAIRIE BR./ PB-2650R2 __NR __NR __ 2.6	125	.	53	1
HEFTY/ EXP-H20R3 __NR __1c __ 2	119	.	52	1
HEFTY/ H22Y12 __NR __1c __ 2.2	120	.	51	1
G-2 GENETICS/ 7203 __Trilex+Allegiance+Gaucho __0 __ 2	122	.	51	1
MUSTANG/ 21993 __Acceleron __1k __ 2.1	120	.	50	1
HEFTY/ EXP-H21R3 __NR __1k __ 2.1	121	.	50	1
PRAIRIE BR./ PB-2366R2 __NR __NR __ 2.3	122	.	50	1
PRAIRIE BR./ PB-2230R2 __NR __NR __ 2.2	119	.	49	1
SODAK GENET./ SD2201NR2 __Cruiser Maxx __1c __ 2	121	.	49	1
MUSTANG/ 22823 __Acceleron __1k __ 2.2	120	.	48	1
HEFTY/ EXP-H24R3 __NR __3 __ 2.4	122	.	48	1
PRAIRIE BR./ PB-2351R2 __NR __NR __ 2.3	121	.	48	1
PRAIRIE BR./ EXP 12241 __NR __NR __ 2.4	120	.	48	1
WENSMAN/ W 3222NR2 __Acceleron __1c __ 2.2	122	.	48	1
PIONEER/ 92Y32 __PPST Pkg. __1c __ 2.3	122	.	47	1
HEFTY/ H23Y10 __NR __1c __ 2.3	122	.	46	1
HEFTY/ H23Y12 __NR __1k __ 2.3	121	.	46	1
G-2 GENETICS/ 7213 __Trilex+Allegiance+Gaucho __1c __ 2.1	119	.	46	1
MUSTANG/ 20823 __Acceleron __1c __ 2	120	.	45	1
G-2 GENETICS/ 7208 __Trilex+Allegiance+Gaucho __1c __ 2	118	.	41	1
NORTHSTAR/ NS 2077NR2 __Acceleron __1c __ 2	118	.	41	1
Test avg. :	120	53	48	1
High avg. :	125	56	54	1
Low avg. :	118	50	41	1
[6] Test LSD (.05):		NS**	5	0
[7] Min.TPG-avg. :		50	49	.
[8] Max.TPG-avg. :		.	.	1
[9] Test Coef. Var.:		5	6	0
No. Entries:	34	12	34	34

NOTE: Table reference numbers [1-9] are explained in Table C.

\* Shaded values within a yield or lodging rating column are included in the top-performance group (TPG). Therefore, look for varieties that have shaded values within each yield or lodging rating column.

\*\* Indicates differences between values within a yield or lodging rating column are non-significant (NS).

## Glyphosate-Resistant Soybean Variety Trial

### Maturity Group-0 (Table 1):

The two-year and 2012 test-yield averages were 48 and 47 bushels per acre, respectively; and the lodging score average was 1. There was only one variety that was tested for two years. Varieties had to average 47 bushels or higher to be in the top yield group for 2012. Among the varieties tested for 2012, variety yield differences had to differ by 6 bu. to be significantly different. Variety lodging rating values indicated that all entries scored a rating of 1 for lodging resistance in the varieties in 2012.

### Maturity Group-I (Table 2):

The two-year and 2012 test-yield averages were 53 and 48 bushels per acre; and the lodging rating average was 1. Varieties had to average 48 and 50 bushels or higher to be in the top yield group for two years and 2012, respectively. Variety yield differences among the two-year averages were not significant, while the 2012 variety yield differences had to differ by 5 bushels to be significantly different. The lodging rating values for all the entries equaled 1 for 2012.

### Maturity Group-II (Table 3):

The two-year and 2012 test-yield averages were 53 and 48 bushels per acre; the lodging rating average was 1. Varieties had to average 50 and 49 bushels or higher to be in the top yield group for two years and for 2012, respectively. Variety yield differences among the two-year averages were not significant (NS), while the 2012 variety yield differences had to differ by 5 bushels to be significantly different. All varieties were in the top performance group for lodging resistance because there was no significant difference in lodging rating values among the entries tested.