

**Soybean****J.H. Orf, A. Lorenz, S.L. Naeve, A. Killam, G. Decker, and D. Weston**

Each year Minnesota Agricultural Experiment Station scientists conduct performance tests of appropriately adapted public and private soybean entries. Companies are charged a fee for each entry they enter to partially cover the costs of conducting these tests. One of the stipulations of the testing program is that the company is marketing or intends to begin marketing the entry in the next growing season. This information is also available electronically at the website [www1.extension.umn.edu/agriculture/soybean/](http://www1.extension.umn.edu/agriculture/soybean/) or [www.mnsoybean.org](http://www.mnsoybean.org)

The 2015 growing conditions were near ideal during most of the season. Most soybeans matured normally. Planting was generally earlier than many years. Harvest was accomplished with little delay and was mainly finished by mid October.

Tables **1** to **4** provide results from specific tests of available conventional special purpose, and transgenic entries adapted to the far northern, northern, central, and southern production zones. The map shows test locations and zone boundaries. All of these tests were planted between May 4 and June 10 at planting rates of 160,000 seeds/acre. Herbicides were used as necessary for good weed control. Row spacings were 12 inches at Crookston and 10 inches at Roseau, and 30 inches at all other locations. Plot combines were used to harvest the plots.

Tables **7** to **10** provide performance and characteristics data from special-use soybean entry tests. These tests were conducted to provide reliable data for growers who are interested in producing special-use soybeans, which are typically grown under contract. Tables **5** and **6** not populated due to lack of entries in 2015.

Table **11** provides important characteristics of publicly developed entries in the 2015 tests.

Tables **12** to **14** provide results from the performance tests of soybean cyst nematode resistant entries in infested field sites near Callaway, Danvers, Downer, Gary, Fairfax, Lamberton, Rosemount, Thief River Falls, and Waseca.

Tables **15** to **17** present SCN information from greenhouse tests conducted by the nematology laboratory at the University of Minnesota Southern Research and Outreach Center-Waseca. The greenhouse data are from evaluations of entries from the zone trials in soil with an HG type 0 (race 3) population of soybean cyst nematode. Comparisons are best made relative to the susceptible check entry within a column. *HG types for the fields were not available at time of publication.*

**To better understand and use the data provided in these tables, please read the following additional information very carefully.**

***Relative Maturity and Calendar Dates of Maturity***

Soybeans are photoperiod sensitive; that is, they respond to changing day length, so the actual calendar date of maturity achievement is affected by latitude. Each entry has a narrow range (about 100 miles) of north-south adaptation. Soybean yield and quality are best achieved when physiological maturity occurs before a season ending freeze occurs. Maturity is determined visually by noting the actual date when 95 percent of the pods show their genetically programmed mature color. The dates for 2015 are provided in the tables. Harvest dates are typically 7 to 14 days later, depending upon drying conditions. Almost all entries were essentially mature before frost.

Relative maturity ratings are also provided for each entry. These ratings consist of a number for the maturity group designations (000, 00, 0, 1, 2) followed by a decimal and another number, ranging from 0-9, which indicates a ranking within each maturity group. For example the entry MN0101 indicates a 0.1, making it an early group 0, while MN0901, with a 0.9 rating, the latest group 0. The values for public entries are developed after observing them for several years in many locations. Relative maturity ratings for private entries in these tables were provided by their owners, and were developed in a similar manner.

**Yield**

Because maturity is a very important attribute, entries are arranged in the tables in order of their actual or estimated 2015 calendar date of maturity and not yield performance.

Later maturing entries usually can be expected to have higher yields than earlier maturing types. If you wish to correctly compare yields, do so only between entries with similar calendar dates of maturity, usually within 3 to 5

days. More reliable comparisons can be made using yields from several consecutive years. All yield determinations were made from replicated tests harvested with a plot combine.

The yield information is presented as a percent of the mean of the test. The actual mean value is given at the bottom of each table. Values over 100 indicate the entry had a yield greater than the mean while those less than 100 have a yield less than the mean.

LSD values associated with data in these tables are measures of variability within the trials. The LSD numbers beneath the yield columns indicate whether the difference between yields is due to genetics or other factors, such as variations in the environment. If yield differences between two entries equals or exceeds the LSD value, the higher-yielding entry probably was superior in yield. A difference less than the LSD value is probably due to environmental factors. The LSD values are given on the percent of mean data, not the actual yields. A 20% level of significance is used in all these tables. This means that yield differences exceeding the stated LSD value are real 80% of the time.

**Chlorosis**

Chlorosis is a yield-limiting condition in soybeans grown in alkaline soils with high calcium carbonate or calcium sulfate ions present, making iron unavailable and causing the soybean plants to turn yellow. This yellowing is visually scored on a 1 to 5 scale, where 1 shows no yellowing and 5 has severe yellowing that may even include death of the plant.

Research has shown that for every unit increase in chlorosis, for example going from a 2 to a 3, a 20% reduction in yield may occur. All iron deficiency chlorosis (IDC) ratings in tables are from tests conducted on high lime (high pH) soils near Danvers in 2015. Comparing chlorosis scores of entries permits you to estimate how well they perform relative to each other. Actual chlorosis ratings can vary depending on the specific site and year of test. Because of this high level of variability it is usually very difficult to identify the best performing entries. Producers with a known history of IDC problems may find it more useful to avoid entries with the most severe (4 or 5) IDC ratings. Different organizations may use different scales or descriptions. A comparison of three different chlorosis rating systems follows.

Numerical Score		Rating
1-5 scale	1-9 scale	
1 to 2	1 to 2.5	Tolerant (T)
2.1 to 3	2.6 to 5	Moderately Tolerant (MT)
3.1 to 4	5.1 to 7.5	Moderately Susceptible (MS)
4.1 to 5	7.5 to 9	Susceptible (S)

**Protein and Oil**

Protein and oil values were determined from mature seed using near infrared reflectance analysis equipment. **The table values are for the 2015 season only.** Protein and oil information is presented on a percent of the mean for each test. The actual mean values, expressed on a 13% moisture basis, are given at the bottom of each table. Values over 100 indicate the protein and/or oil contents of the entry are greater than the mean value while those less than 100 have protein and/or oil contents less than the mean. Absolute values of protein and oil can vary from year to year. The following formula is used to adjust the protein and oil values to another moisture basis.

$$\frac{100\text{-desired moisture}}{87} \times \text{protein or oil value given in the table}$$

The value of a bushel of soybeans (APV) based on its oil and protein content can be calculated by:

$$APV = 60 [Po (X) + \frac{Pm}{.44}(Y)]$$

Where:

APV = Approximate value of a bushel of soybeans

Po = soybean oil price (in \$ per pound)

Pm = price of 44% meal (in \$ per pound)\*

X = oil content at 13% moisture (in decimals)

Y = protein content at 13% moisture (in decimals)

And:

$$\frac{\text{* price of meal \$/ton}}{2000} = \text{\$/pound}$$

The value of an acre of soybeans can be calculated by multiplying the APV by the yield in bushels per acre.

### **Phytophthora**

Phytophthora root rot is a soil-borne disease that occurs in heavy wet soils. Infection generally occurs during germination. Phytophthora root rot can cause significant yield reductions if susceptible varieties are planted in poorly drained, infested fields. Variety selection is the best defense against this yield reducing pathogen. There are several known races of this fungus, so it is important to know which are present in a particular field. Genes can be incorporated into varieties to provide resistance to specific races of this disease.

Genes for resistance to various races of Phytophthora root rot are listed in the following table.

Gene	Races
Rps1-a	1, 2, 10, 11, 13, 15-18, 24, 26, 27
Rps1-b	1, 2, 10, 11, 13, 15-18, 24, 26, 27
Rps1-c	1, 3-9, 13-15, 17, 18, 21, 22
Rps1-k	1-3, 6-11, 13, 15, 17, 21, 23, 24, 26
Rps3-a	1-5, 8, 9, 11, 13, 14, 16, 18, 23, 25
Rps4	1-4, 10, 12-16, 18-21, 25
Rps6	1-4, 10, 12, 14-16, 18-21, 25

Some published information refers to Phytophthora "tolerance" or "field resistance," which is not race-specific and should not be confused with race specific resistance as indicated in the above table. Reliable tests for tolerance have not yet been fully developed.

Data tables in this report indicate which Phytophthora gene or genes is/are present in each entry. A<sup>1</sup> is used where the claimed resistance was not verified by greenhouse evaluation.

### **Soybean Cyst Nematode**

Soybean Cyst Nematode (SCN) is a microscopic round worm that infects and reproduces in soybean roots. It was first identified in Minnesota in 1978 and is now known to occur in most Minnesota counties where soybeans are grown. Both the area of infestation and number of nematodes per unit of soil appear to be increasing. Several HG types (or races) of this pest are known to occur in Minnesota. When SCN numbers are high (> than 5,000 eggs/100 cc soil), significant yield losses can occur. Rotations to non-host crops and planting of resistant entries can assist in reducing nematode populations as well as reducing its impact on yield.

Yield performance results of susceptible (S), moderately susceptible (MS), moderately resistant (MR) and resistant (R) entries planted in infested fields in northern, central and southern Minnesota are provided in Tables 12 to 14. The source for SCN resistance in these tables were supplied by the entrants. In Tables 15 to 17 the resistance ratings were given based on a greenhouse bioassay with five replicates using an HG Type 0 (Race 3) SCN population. A female index (FI) was calculated for each entry using Lee 74 as the susceptible check.  $FI = (\# \text{ of cysts on entry} / \# \text{ of cysts on Lee 74}) \times 100$ . If the FI was < 10%, an entry was considered R. If the FI was 10 – 30%, it was considered MR. If the FI was 30-60%, it was considered MS1, and greater than 60% S.

For proper management of fields with SCN, it is recommended that entries with an R rating be planted. If the SCN population numbers are relatively low (<1500) an entry with an MR rating might be considered. LR and S rated entries should not be considered for planting in fields where SCN is present. Some entries are rated as tolerant, however no data from the northern United States has verified the usefulness of tolerant entries in maintaining yield and reducing SCN numbers.

Management information is available from web site [www.soybeans.umn.edu](http://www.soybeans.umn.edu) or from the Minnesota Soybean Research and Promotion Council, 151 St. Andrews Court, Suite 710, Mankato, MN 56001, 1-888-896-9678, [www.mnsoybean.org](http://www.mnsoybean.org)

### **White Mold**

White mold, also known as Sclerotinia stem rot, develops in infested fields when high relative humidity and moderate temperatures occur during soybean flowering. Planting less susceptible entries in wider row spacings or at lower populations is the most effective method of reducing the severity of white mold. Accurate ratings for resistance to white mold are difficult to obtain because both infection and disease development are dependent on weather conditions. Because of this variability, performance can change significantly among locations and years depending on the interaction of plant development, precipitation, relative humidity, and temperature. White mold severity also tends to be greater if lodging occurs. Growers concerned about performance in the presence of white mold should select varieties that show consistently less white mold during several years of testing. MN0091 and MN0701 are public varieties with better than average resistance to white mold.

### **Brown Stem Rot**

Brown stem rot (BSR) is a fungal disease that can cause yield losses in certain situations. The disease occurs most frequently when soybeans follow soybeans but can occur where soybeans are planted every other year. Resistant entries, or longer rotations, assist in the management of this disease. MN0304, MN0902CN, MN1302, Freeborn, IA2008R, are available public entries with resistance to BSR. Some information refers to "tolerance" or "field resistance." Reliable tests for tolerance or field resistance have not yet been developed.

### **Special-Use Entries**

There continues to be increased interest in producing soybeans with special characteristics important to specialty food product manufacturers, such as tofu, natto, miso, and soy milk. Soybean scientists previously developed some of these special-use entries, which were general releases, but more recently entries have been released under exclusive or nonexclusive licenses to specific companies who then contract with growers for production. For further information contact Minnesota Crop Improvement Association at web site [www.mncia@tc.umn.edu](mailto:www.mncia@tc.umn.edu) or telephone number 612-625-7766.

### **Seed Treatments**

Entrants were allowed to enter treated seed in 2015. The type of seed treatment, as provided by the originator, is designated as follows:

AC = Acceleron, CM = Cruiser Maxx, CMV = Cruiser Maxx + Vibrance, SCE = SmartCote Extra, CMVC = Cruiser Maxx, Vibrance, Clariva pn, CMO = Cruiser Maxx w/OPTIMIZE, PPST = PPST 2030, PSX = PSX, TPVI = Trilex 2000 + Poncho/VOTiVO + ILeVO, WB = Weco Blend.

Research indicates that under some conditions seed treatments can affect the final yield. The exact situations are not always clear but when comparing entries note if a seed treatment was used on the seed for being tested.

In some tables the entry type is indicated in a separate column. The designations: CV, Conventional variety (non-transgenic); LL, LibertyLink (glufosinate resistant); GT (glyphosate tolerant); R2, Round Ready 2 Yield (glyphosate resistant); and STS, (Sulfonylurea tolerant).

### **Test Plot Research**

Bob Bouvette, Ron Faber, Curtis Reese, Mark Hanson, Gerald Holz, Tom Hoverstad, and Steve Quiring supervised test plot establishment and management.

**Entrants in 2015 trials and their addresses.**

<b>Company</b>	<b>Email</b>
Anderson Seeds	kelsey.anderson528@gmail.com
Bayer CropScience / Credez	nick.weidenbenner@bayer.com
Dairyland Seed Co.	rmorgan@dairylandseed.com
Hefty Seed Co.	byounggren@polarcomm.com
Integra Seed	dgregers@wilburellis.com
Monsanto	david.heimkes@monsanto.com
Mycogen Seeds	bfdue@dow.com
NorthStar Genetics	brian@northstargenetics.com
NuTech Seed LLC	stevesict@nutechseed.com
Peterson Farms Seed	johng@petersonfarmsseed.com
Pioneer Hi-Bred	mike.johnston@pioneer.com
Prairie Brand Seeds	ben@prairiebrandseed.com
Richland IFC, Inc.	matt@richlandorganics.com
Schillinger Genetics	cnikkel@schillgen.com
Sodak Genetics	jack.ingemansen@sdstate.edu
Thunder Seed Inc.	jeff@thunderseed.com
Titan Pro SCI	marcneuman@titanprosci.com
Viking Seed	jake@alseed.com

Table 1. Performance and characteristics of conventional, special purpose and transgenic soybean entries, far northern zone; Crookston, Roseau and Thief River Falls 2013-2015.

Entry	Originator	Mat. Date	Yield, % of Mean			% of Mean		Mat. Rating	Phyto. Gene	Chlorosis Score	Seed Treat	Trans Trait
			2013-2015	2014-2015	2015	Protein	Oil					
H007R5	Hefty Seed Co	9-9	-	-	95	101	93	00.7	Rps1c	3.0	None	R2
H008L3	Hefty Seed Co	9-10	-	-	91	103	100	00.8	Rps1k	3.6	None	LL
MN0083	Minnesota AES	9-10	-	-	86	105	97	00.8	Rps6	3.8	None	CV
PB-00766R2	Prairie Brand	9-10	-	108	92	100	97	00.7	Rps1c	1.8	PSX	R2
NS 0060NR2	NorthStar Genetics	9-10	-	-	96	99	98	00.6	Rps1c	4.8	CMV	R2
32005 RR2Y	Thunder Seed	9-10	89	99	99	103	102	00.5	Rps1c	1.5	CMV	R2
35007N RR2Y	Thunder Seed	9-10	-	107	89	100	94	00.7	Rps1c	3.5	CMV	R2
H007Y12	Hefty Seed Co	9-11	-	-	96	103	100	00.7	Rps1c	1.3	None	R2
NS 0080R2	NorthStar Genetics	9-11	-	-	101	96	100	00.8	Rps1c	2.4	CMV	R2
NS 0095LL	NorthStar Genetics	9-11	-	-	100	103	104	00.9	Rps1k	3.8	CMV	LL
H008R3	Hefty Seed Co	9-12	-	102	101	98	101	00.8	Rps1c	1.8	None	R2
P008T22R2	Dupont Pioneer	9-12	-	-	103	100	102	00.8	Rps1c	1.0	PPST	R2
5B007R2	Mycogen Seeds	9-12	-	-	106	98	97	00.7	Rps1c	1.6	CMVC	R2
34006 RR2Y	Thunder Seed	9-12	-	-	107	98	99	00.6	Rps1c	2.8	CM	R2
PB-00844R2	Prairie Brand	9-13	104	109	106	95	98	00.8	Rps1c	2.0	PSX	R2
DSR-C905/R2Y	Dairyland Seed Co	9-13	110	113	106	99	103	00.9	Rps1c	1.3	CMO	R2
20031	Integra Seed	9-14	-	114	104	98	98	00.7	Rps1c	3.5	WB	R2
H009R5	Hefty Seed Co	9-15	-	-	86	101	103	00.9	Rps1c	2.5	None	R2
PB-00950R2	Prairie Brand	9-15	114	99	97	99	100	00.9	Rps1c	2.5	PSX	R2
PB-0146R2	Prairie Brand	9-16	-	-	102	99	109	0.1	Rps1c	2.3	PSX	R2
5J009R2	Mycogen Seeds	9-16	-	103	99	100	96	0.1	Rps1k	2.8	CMVC	R2
5G009R2	Mycogen Seeds	9-16	104	96	100	99	100	00.9	Rps1c	1.8	CMVC	R2
PB-00856R2	Prairie Brand	9-17	-	-	104	101	103	00.8	Rps1c+3a	3.3	PSX	R2
DSR-C918/R2Y	Dairyland Seed Co	9-17	-	104	110	103	99	00.9	Rps1k	3.5	CMO	R2
20126	Integra Seed	9-17	-	-	127	100	100	0.1	Rps3a	2.5	WB	R2
5B012R2	Mycogen Seeds	9-17	-	103	102	99	101	0.1	None	2.0	CMVC	R2
Astro R2Y	Thunder Seed	9-17	-	102	101	99	101	00.8	Rps1k	3.5	CM	R2
NS 0081NR2	NorthStar Genetics	9-18	-	-	100	101	102	00.8	Rps1c+3a	3.3	CMV	R2
NS0111R2	NorthStar Genetics	9-18	-	-	112	98	108	0.1	Rps1c	4.3	CMV	R2
NS 0129LL	NorthStar Genetics	9-18	-	-	105	99	103	0.1	Rps1k	3.0	CMV	LL
20084N	Integra Seed	9-18	-	-	103	100	102	00.8	Rps3a	3.3	WB	R2
20087	Integra Seed	9-18	-	-	113	101	101	00.8	Rps1k	3.6	WB	R2
PB-0291R2	Prairie Brand	9-19	108	105	106	100	98	0.1	Rps1c+3a	3.3	PSX	R2
H009R3	Hefty Seed Co	9-20	-	105	111	101	98	00.9	Rps3a	3.0	None	R2
H01R4	Hefty Seed Co	9-20	-	93	112	99	100	0.1	Rps1c+3a	3.3	None	R2
X15021R2	Prairie Brand	9-21	-	-	115	101	98	0.1	S	2.3	PSX	R2
Mean		9-14	38.7 bu/a	37.4 bu/a	42.1 bu/a	34.0%	18.4%					
LSD 20%			3%	3%	3%							

LSD numbers beneath yield columns indicate whether the difference between yields is due to genetics or other factors, such as variations in environment.

If yield difference between two entries equals or exceeds the LSD value the higher-yielding entry probably was superior in yield.

A difference less than the LSD value probably is due to environmental factors.

Table 2. Performance and characteristics of conventional, special purpose and transgenic soybean entries, northern zone; Crookston, Moorhead and Shelly 2013-2015.

Entry	Originator	Mat. Date	Yield, % of Mean			% of Mean		Mat. Rating	Phyto. Gene	Chlorosis Score	Seed Treat	Trans Trait
			2013-2015	2014-2015	2015	Protein	Oil					
MN0107	Minnesota AES	9-15	-	-	84	105	98	0.1	Rps1k	3.0	None	CV
P03T68R2	DuPont Pioneer	9-18	-	-	92	101	98	0.3	Rps1c	3.5	None	R2
5G009R2	Mycogen Seeds	9-18	-	-	90	98	102	00.9	Rps1c	3.4	CMVC	R2
5401	Thunder Seed	9-18	-	88	85	101	103	0.1	Rps1k	2.0	CMVC	LL
PB-0146R2	Prairie Brand	9-19	-	-	93	98	108	0.1	Rps1c	2.9	CM	R2
DSR-0305/R2Y	Dairyland Seed Co	9-19	107	118	102	102	101	0.3	Rps1k	2.4	PSX	R2/STS
DSR-0404/R2Y	Dairyland Seed Co	9-19	116	118	107	99	101	0.4	Rps3a <sup>1</sup>	3.0	PSX	R2
3601	Thunder Seed	9-19	-	-	107	95	107	0.1	Rps1c	2.3	CMVC	R2
H02R3	Hefty Seed	9-20	-	-	98	98	102	0.2	Rps3a <sup>1</sup>	2.6	None	R2
X14033R2	Prairie Brand	9-20	-	-	103	106	99	0.3	Rps1c	2.0	None	R2
5B033R2	Mycogen Seeds	9-20	-	108	103	98	101	0.3	Rps1k	2.5	WB	R2
5B040R2	Mycogen Seeds	9-20	114	104	109	101	99	0.4	Rps3a	2.6	WB	R2
P05T24R	DuPont Pioneer	9-21	-	-	101	101	100	0.5	Rps1k	3.0	None	GT
PB-0598R2	Prairie Brand	9-21	-	-	106	101	98	0.5	Rps3a	2.5	PSX	R2
MK0249	Richland IFC, Inc	9-21	60	75	81	94	99	0.2	Rps1a <sup>1</sup>	2.9	PSX	CV
NS 0200NR2	NorthStar Genetics	9-21	-	-	92	101	98	0.2	Rps1c	3.0	CMV	R2
20327	Integra Seed	9-21	-	-	96	105	97	0.3	Rps1c	2.4	WB	R2
3503	Thunder Seed	9-21	-	104	109	102	98	0.3	Rps1c	3.3	CM	R2
5205	Thunder Seed	9-21	104	85	96	102	101	0.5	Rps1k	3.8	CM	LL
PB-0441R2	Prairie Brand	9-22	-	-	101	99	99	0.4	Rps3a	2.8	PPST	R2
15R04	Peterson Farms Seed	9-22	-	109	98	101	103	0.4	Rps3a	2.3	CMV	R2
NS 0480NR2	NorthStar Genetics	9-22	-	-	106	101	97	0.4	Rps3a	2.8	CMV	R2
5N050R2	Mycogen Seeds	9-22	-	109	104	100	96	0.5	Rps3a	2.8	CMVC	R2
Shenenne	No. Dakota AES	9-22	-	-	102	97	103	0.7	Rps1c	3.1	None	CV
MN0809CN	Minnesota AES	9-23	-	-	98	103	105	0.8	S	3.3	None	CV
CZ 0525 LL	Bayer CropScience/Credenz	9-23	-	-	101	101	103	0.5	None	3.5	None	LL
PB-0676R2	Prairie Brand	9-24	-	-	104	102	97	0.6	Rps3a	2.8	PSX	R2
DSR-0619/R2Y	Dairyland Seed Co	9-24	-	-	108	103	101	0.6	Rps3a	4.0	PSX	R2
MK0508 <sup>*</sup>	Richland IFC, Inc	9-24	94	73	74	101	96	0.8	Rps1a <sup>1</sup>	2.3	CMO	CV
3205	Thunder Seed	9-24	110	105	113	97	99	0.5	None	2.9	CM	R2
EXP603 <sup>*</sup>	Richland IFC, Inc	9-25	-	-	88	101	92	0.6	None	3.0	CNO	CV
NS 0651NR2	NorthStar Genetics	9-25	-	-	110	102	102	0.6	Rps3a	3.0	CMV	R2
20600	Integra Seed	9-25	-	-	109	98	99	0.6	None	3.0	WB	R2
5B066R2	Mycogen Seeds	9-25	114	102	101	97	99	0.6	None	3.0	CMVC	R2
16R06N	Peterson Farms Seed	9-26	-	-	110	102	98	0.6	Rps1c	2.0	CMV	R2
PB-0777R2	Prairie Brand	9-27	-	-	114	96	103	0.6	Rps1c	4.0	PSX	R2
15R07N	Peterson Farms Seed	9-27	-	115	106	98	101	0.6	Rps1c	1.9	CMV	R2
Mean		9-22	44.5 bu/a	44.1 bu/a	58.0 bu/a	33.0 %	18.8 %					
LSD 20%			2%	2%	2%							

<sup>1</sup> Greenhouse test results do not agree with originator's designation.

\* Designates Special Purpose Variety

LSD numbers beneath yield columns indicate whether the difference between yields is due to genetics or other factors, such as variations in environment.

If yield difference between two entries equals or exceeds the LSD value the higher-yielding entry probably was superior in yield.

A difference less than the LSD value probably is due to environmental factors.

Table 3. Performance and characteristics of conventional, special purpose and transgenic soybean entries, central zone; Becker, Morris and Rosemount 2013-2015.

Entry	Originator	Mat.	Yield, % of Mean			% of Mean		Mat.	Phyto.	Chlorosis	Seed	Trans
		Date	2013-2015	2014-2015	2015	Protein	Oil	Rating	Gene	Score	Treat	Trait
3022L	NuTech Seed, LLC	9-7	-	-	74	97	104	0.2	Rps1a	3.3	SCE	LL
7063 G2 Genetics	NuTech Seed, LLC	9-7	-	-	84	95	105	0.6	Rps1c	3.3	SCE	GT
EXP603*	Richland IFC, Inc	9-8	-	-	66	105	87	0.6	None	3.3	None	CV
MK42*	Richland IFC, Inc	9-9	-	-	68	106	97	0.7	Rps1c <sup>1</sup>	3.0	None	CV
MK0508*	Richland IFC, Inc	9-9	76	63	58	99	91	0.8	Rps1a	2.3	None	CV
DSR-0619/R2Y	Dairyland Seed	9-10	-	-	96	103	99	0.6	Rps3a	2.0	CMO	R2
3606N R2Y	Thunder Seed	9-10	-	-	99	102	100	0.6	None	1.3	None	R2
3066L	NuTech Seed, LLC	9-11	-	-	83	102	106	0.6	S	3.0	SCE	LL
CZ 0525 LL	Bayer CropScience/Credenz	9-11	-	-	86	104	103	0.5	None	3.5	TPVI	LL
5205LLN	Thunder Seed	9-11	-	88	75	102	102	0.5	None	1.5	None	LL
MK1016*	Richland IFC, Inc	9-11	72	70	51	105	93	1.0	Rps1a	3.0	None	CV
AG0835	Asgrow	9-12	-	107	106	96	98	0.8	Rps1c	2.3	AC	R2
DSR-0904/R2Y	Dairyland Seed	9-12	118	109	91	99	101	0.9	Rps3a	2.8	CMO	R2
6097R2 G2 Genetics	NuTech Seed, LLC	9-12	-	-	80	94	113	0.9	Rps3a	3.5	SCE	R2
TP-08R53	Titan Pro	9-12	-	103	103	99	100	0.8	Rps1c	3.3	None	R2
P10T91R	DuPont Pioneer	9-13	-	102	102	96	103	1.0	Rps1k	1.8	PPST	GT
3408N RR2Y	Thunder Seed	9-13	130	106	107	97	101	0.8	None	1.3	None	R2
16R09N	Peterson Farms Seed	9-13	-	-	88	99	99	0.9	Rps1c	1.5	None	R2
AG0934	Asgrow	9-13	-	96	103	103	101	0.9	Rps3a	2.0	AC	R2
DSR-0711/R2Y	Dairyland Seed	9-13	-	104	99	96	102	0.7	Rps1k	3.5	CMO	R2
CZ 0767RY	Bayer CropScience/Credenz	9-13	-	-	88	101	100	0.7	None	2.3	TPVI	R2
PB-0966R2	Prairie Brand	9-14	-	-	104	100	101	0.9	Rps1c	3.3	PSX	R2
Roberts	So Dakota AES	9-14	116	93	68	101	103	0.6	Rps1k	4.5	None	CV
CZ 0848 LL	Bayer CropScience/Credenz	9-14	-	-	92	101	101	0.8	None	2.0	TPVI	LL
14R11N	Peterson Farms Seed	9-15	113	100	104	102	99	1.1	Rps1k	1.5	None	R2
TP09R45	Titan Pro	9-16	-	-	106	98	98	0.9	Rps1c	2.8	None	R2
Codington	So Dakota AES	9-16	96	92	77	100	100	0.9	Rps1a	2.3	None	CV
MK9101*	Richland IFC, Inc	9-16	104	85	72	106	100	1.1	Rps1a	3.3	None	CV
5411LLN	Thunder Seed	9-17	121	95	87	103	105	1.1	None	2.0	None	LL
15R14N	Peterson Farms Seed	9-17	-	106	105	99	102	1.4	None	2.3	None	R2
DSR-1120/R2Y	Dairyland Seed	9-18	113	100	90	100	104	1.1	Rps1k	4.1	CMO	R2
MK41*	Richland IFC, Inc	9-18	-	-	83	107	89	1.4	Rps1c	3.5	None	CV
TP11R33	Titan Pro	9-18	-	-	108	105	99	1.1	Rps1k	2.0	None	R2
1234R2N	Viking Seed	9-18	-	107	98	103	101	1.2	Rps1k	2.3	None	R2
P15T46R2	DuPont Pioneer	9-18	-	-	103	99	101	1.5	Rps1c	3.5	PPST	R2
PB-1466R2	Prairie Brand	9-18	-	106	101	102	97	1.4	Rps1k	4.3	PSX	R2
X15143R2	Prairie Brand	9-19	-	-	116	100	103	1.4	Rps1c	3.5	PSX	R2
CZ 1332 LL	Bayer CropScience/Credenz	9-19	-	-	103	104	94	1.3	None	2.8	TPVI	LL
DSR-1340/R2Y	Dairyland Seed	9-19	-	104	83	100	96	1.3	Rps1c	2.0	CMO	R2
MN1312CN	Minnesota AES	9-20	-	-	99	102	95	1.3	Rps1a	1.9	None	CV
1722N	Viking Seed	9-20	-	-	105	100	98	1.7	None	4.0	None	R2
3126L	NuTech Seed, LLC	9-20	-	-	108	105	95	1.2	S	1.4	SCE	LL
MN1410	Minnesota AES	9-20	-	-	77	102	106	1.4	Rps1k	2.8	None	CV
PB-1586R2	Prairie Brand	9-20	-	-	112	99	97	1.5	Rps1k	3.0	PSX	R2
AG1435	Asgrow	9-20	-	107	110	100	99	1.4	Rps1c	3.0	AC	R2
7138 G2 Genetics	NuTech Seed, LLC	9-21	-	-	101	100	102	1.3	Rpsk	3.5	SCE	GT
3511N RR2Y	Thunder Seed	9-21	-	102	110	103	106	1.1	None	1.1	None	R2
153R2Y	Anderson Seeds	9-22	-	-	110	96	103	1.5	Rps1c	3.5	None	R2
3614N R2Y	Thunder Seed	9-22	-	-	116	97	104	1.4	None	1.8	None	R2
1518N	Viking Seed	9-22	-	-	85	102	94	1.5	None	1.5	None	R2
X15175R2	Prairie Brand	9-22	-	-	100	99	96	1.7	Rps1c	3.5	PSX	R2
DSR-1515/R2Y	Dairyland Seed	9-23	137	99	109	101	100	1.5	Rps1k	3.0	CMO	R2
3114 RR2Y	Thunder Seed	9-23	-	91	97	98	102	1.4	None	1.5	None	R2
AG1733	Asgrow	9-23	122	108	110	97	100	1.7	Rps1c	2.0	AC	R2
SD2172R2Y	Sodak Genetics	9-23	-	106	104	99	103	1.0	Rps1k	2.8	None	R2
CZ 1623 LL	Bayer CropScience/Credenz	9-23	-	-	102	103	99	1.6	None	3.3	TPVI	LL
1522R2N	Viking Seed	9-23	117	110	108	100	105	1.0	None	3.0	None	R2
175R2Y	Anderson Seeds	9-23	-	-	102	100	102	1.7	Rps1k	4.5	None	R2
7169 G2 Genetics	NuTech Seed, LLC	9-24	-	-	105	94	104	1.6	Rps1a+Rps6	3.5	SCE	GT
CZ 1787 RY	Bayer CropScience/Credenz	9-24	-	-	101	100	97	1.7	None	2.5	TPVI	RY
15M22	Titan Pro	9-24	116	102	114	98	101	1.5	Rps1c	2.6	None	R2
Davison	So Dakota AES	9-24	-	-	83	101	97	2.2	None	4.3	None	CV
Brookings	So Dakota AES	9-24	-	91	82	102	96	1.7	Rps1k	3.0	None	CV
PB-1794R2	Prairie Brand	9-25	-	108	111	100	100	1.9	Rps1c	3.9	PSX	R2
MN1701CN	Minnesota AES	9-25	-	-	113	102	101	1.7	S	1.5	None	CV
7172R2 G2 Genetics	NuTech Seed, LLC	9-25	-	-	102	99	100	1.7	S	3.5	SCE	R2
205R2Y	Anderson Seeds	9-25	-	-	108	97	101	2.0	Rps1k	3.3	None	R2
DSR-1721/R2Y	Dairyland Seed	9-25	-	-	108	101	101	1.7	Rps1k	3.5	CMO	R2
2000R2N	Viking Seed	9-25	-	96	106	100	98	2.0	Rps1c	2.0	None	R2
PB-1822R2	Prairie Brand	9-26	-	107	110	100	100	1.8	Rps1k	4.0	PSX	R2
1909R2N	Viking Seed	9-27	-	104	97	103	103	1.9	Rps1k	2.3	None	R2
185R2Y	Anderson Seeds	9-27	-	-	113	99	102	1.8	Rps1k	3.5	None	R2
PB-1947R2	Prairie Brand	9-27	-	112	112	102	98	1.9	Rps1c	3.9	PSX	R2
20M1	Titan Pro	9-27	119	98	118	100	105	2.0	Rps1c	3.4	None	R2
1776R2N	Viking Seed	9-27	-	-	108	98	100	1.7	Rps1k	3.6	None	R2



P20T79R2	DuPont Pioneer	9-27	-	-	115	97	100	2.0	Rps1c	3.8	PPST	R2
P22T69R	DuPont Pioneer	9-27	113	106	115	98	103	2.2	Rps1k	4.0	PPST	GT
15R18N	Peterson Farms Seed	9-28	-	104	102	100	101	1.8	Rps1k	3.0	None	R2
206R2Y	Anderson Seeds	9-28	-	-	112	97	99	2.0	Rps1c	3.0	None	R2
3205L	NuTech Seed, LLC	9-28	-	-	107	99	99	2.0	Rps1c	3.3	SCE	LL
7217R2 G2 Genetics	NuTech Seed, LLC	9-28	-	-	106	92	101	2.1	S	2.8	SCE	R2
PB-1956R2	Prairie Brand	9-28	-	111	111	100	97	1.9	Rps1c	3.5	PSX	R2
2055R2N	Viking Seed	9-28	-	-	109	99	94	2.0	Rps1c	2.5	None	R2
DSR-1990/R2Y	Dairyland Seed	9-28	-	98	106	102	95	1.9	Rps1k	3.3	CMO	R2
CZ 1845 LL	Bayer CropScience/Credenz	9-28	-	-	94	96	101	1.8	None	3.8	TPVI	LL
7204R2 G2 Genetics	NuTech Seed, LLC	9-29	-	95	104	97	96	2.0	Rps1c	4.5	SCE	R2
TP-17R54	Titan Pro	9-29	-	108	121	100	101	1.7	Rps1c	3.1	None	R2
7240 G2 Genetics	NuTech Seed, LLC	9-29	-	-	111	96	107	2.4	Rps1a	4.5	SCE	R2
PB-2156R2	Prairie Brand	9-29	-	-	109	97	104	2.1	Rps1c	3.8	PSX	R2
3619N R2Y	Thunder Seed	9-30	-	-	128	97	100	1.9	None	2.5	None	R2
O.2018NAT12	Viking Seed	9-30	-	-	106	95	99	2.0	None	4.5	None	R2
DSR-2330/R2Y	Dairyland Seed	9-30	-	-	104	98	102	2.3	Rps1k	3.3	CMO	R2
MN1806CN	Minnesota AES	9-30	-	-	117	99	103	1.8	Rps1k	2.0	None	CV
TP-20R44	Titan Pro	9-30	-	107	122	98	103	2.0	Rps1k	2.1	None	R2
DSR-2110/R2Y	Dairyland Seed	9-30	-	-	114	102	96	2.1	Rps1c	2.5	CMO	R2
TP-20R25	Titan Pro	9-30	-	-	135	98	104	2.0	Rps1k	3.3	None	R2
TP-18R24	Titan Pro	9-32	-	106	126	100	104	1.8	Rps1k	4.3	None	R2
TP-21R55	Titan Pro	10-3	-	-	124	96	107	2.1	Rps1k	2.8	None	R2
Mean		9-22	47.1 bu/a	56.6 bu/a	58.1 bu/a	34.6 %	18.3 %					
LSD 20%			3%	3%	3%							

<sup>†</sup> Greenhouse test results do not agree with originator's designation.

\* Designates Special Purpose Variety

LSD numbers beneath yield columns indicate whether the difference between yields is due to genetics or other factors, such as variations in environment.

If yield difference between two entries equals or exceeds the LSD value the higher-yielding entry probably was superior in yield.

A difference less than the LSD value probably is due to environmental factors.

Table 4. Performance and characteristics of conventional and transgenic soybean entries, southern zone; Waseca, Lamberton and Westbrook 2013-2015.

Entry	Originator	Mat. Date	Yield, % of Mean			% of Mean		Mat. Rating	Phyto. Gene	Chlorosis Score	Seed Treat	Trans Trait
			2013-2015	2014-2015	2015	Protein	Oil					
3022L	NuTech Seed, LLC	9-6	-	-	76	100	104	0.2	Rps1a	4.0	SCE	LL
7063 G2 Genetics	NuTech Seed, LLC	9-11	-	-	97	97	107	0.6	Rps1c	2.5	SCE	GT
3066L	NuTech Seed, LLC	9-15	-	-	102	102	105	0.6	S	3.3	SCE	LL
6097R2 G2 Genetics	NuTech Seed, LLC	9-16	-	-	99	93	111	0.9	Rps3a	3.6	SCE	R2
7138 G2 Genetics	NuTech Seed, LLC	9-21	-	-	90	99	101	1.3	Rps1k	3.0	SCE	GT
P15T46R2	DuPont Pioneer	9-21	-	-	101	99	103	1.5	Rps1c	4.0	PPST	R2
PB-1466R2	Prairie Brand	9-21	-	105	113	106	98	1.4	Rps1k	2.5	PSX	R2
MN1410	Minnesota AES	9-21	-	-	87	99	101	1.4	Rps1K	1.5	None	CV
3126L	NuTech Seed, LLC	9-22	-	-	105	106	97	1.2	S	3.0	SCE	LL
MK41*	Richland IFC, Inc	9-22	-	-	96	108	93	1.4	Rps1c	3.3	None	CV
3614N R2Y	Thunder Seed	9-22	-	-	98	96	104	-	None	1.3	None	R2
DSR-1340/R2Y	Dairyland Seed	9-23	-	90	101	100	99	1.3	Rps1c	2.0	CMO	R2
15M22	Titan Pro	9-23	106	96	110	99	105	1.5	Rps1c	2.8	None	R2
PB-1586R2	Prairie Brand	9-23	-	-	84	97	97	1.5	Rps1k	2.5	PSX	R2
7169 G2 Genetics	NuTech Seed, LLC	9-23	-	-	98	95	105	1.6	Rps1a+Rps6	2.8	SCE	GT
3114 RR2Y	Thunder Seed	9-23	105	111	82	99	97	-	None	1.0	None	R2
DSR-1515/R2Y	Dairyland Seed	9-24	100	94	101	98	106	1.5	Rps1k	2.8	CMO	R2
TP-21R55	Titan Pro	9-24	-	-	97	103	101	2.1	Rps1c	3.8	None	R2
153R2Y	Anderson Seeds	9-24	-	105	109	97	105	1.5	Rps1c	3.4	None	R2
AG1733	Asgrow	9-24	-	-	99	100	104	1.7	Rps1c	2.5	AC	R2
Davison	So Dakota AES	9-24	-	-	95	99	96	2.2	None	5.0	None	CV
SD2172R2Y	Sodak Genetics	9-25	-	98	101	96	106	1.0	Rps1k	4.0	None	R2
CZ 1787 RY	Bayer CropScience/Credenz	9-25	-	-	111	99	100	1.7	None	3.0	TPVI	R2
7172R2 G2 Genetics	NuTech Seed, LLC	9-25	-	-	89	99	103	1.7	S	2.5	SCE	R2
Brookings	So Dakota AES	9-25	-	93	93	101	101	1.7	Rps1k	3.5	None	CV
e1993*	Schillinger Genetics	9-25	-	-	99	100	97	1.9	Rps1k	3.0	CMV	CV
1522R2N	Viking Seed	9-26	-	-	108	99	102	1.5	Rps1c	3.8	None	R2
175R2Y	Anderson Seeds	9-26	-	106	103	101	106	1.7	Rps1k	4.3	None	R2
205R2Y	Anderson Seeds	9-26	-	104	113	100	102	2.0	Rps1k	2.3	None	R2
CZ 1623 LL	Bayer CropScience/Credenz	9-27	-	-	84	101	97	1.6	None	4.0	TPVI	LL
X15175R2	Prairie Brand	9-27	-	-	88	101	96	1.7	Rps1c	3.0	PSX	R2
DSR-1990/R2Y	Dairyland Seed	9-27	-	103	102	101	103	1.9	Rps1k	2.8	CMO	R2
1909R2N	Viking Seed	9-27	-	106	119	104	99	1.9	Rps1k	2.8	None	R2
CZ 1845 LL	Bayer CropScience/Credenz	9-28	-	-	106	94	105	1.8	None	3.0	TPVI	LL
185R2Y	Anderson Seeds	9-28	-	105	101	100	102	1.8	Rps1k	3.8	None	R2
PB-1822R2	Prairie Brand	9-28	-	107	101	100	97	1.8	Rps1k	3.5	PSX	R2
DSR-1721/R2Y	Dairyland Seed	9-28	-	-	114	101	100	1.7	Rps1k	3.3	CMO	R2
2000R2N	Viking Seed	9-28	106	101	109	102	93	2.0	Rps1c	3.8	None	R2
206R2Y	Anderson Seeds	9-28	-	-	112	101	99	2.0	Rps1c	3.6	None	R2
3205L	NuTech Seed, LLC	9-28	-	-	102	98	100	2.0	Rps1c	4.3	SCE	LL
AG1935	Asgrow	9-28	-	106	126	99	99	1.9	Rps1c	4.3	AC	R2
PB-1794R2	Prairie Brand	9-29	-	88	99	98	98	1.7	Rps1k	3.0	PSX	R2
7204R2 G2 Geneti	NuTech Seed, LLC	9-29	-	99	90	99	96	2.0	Rps1c	3.8	SCE	R2
AG2035	Asgrow	9-29	-	89	103	102	98	2.0	Rps1c	2.5	AC	R2
1776R2N	Viking Seed	9-29	-	-	99	100	99	1.7	Rps1k	2.5	None	R2
TP-20R25	Titan Pro	9-29	-	-	102	102	98	2.0	Rps1k	3.9	None	R2
7217R2 G2 Genetics	NuTech Seed, LLC	9-29	-	-	107	95	99	2.1	S	3.8	SCE	R2
P22T69R	DuPont Pioneer	9-29	-	97	118	99	103	2.2	Rps1k	3.3	PPST	GT
20M1	Titan Pro	9-29	106	108	82	97	99	2.0	Rps1c	1.3	None	R2
3619N R2Y	Thunder Seed	9-29	-	-	96	97	98	-	None	1.8	None	R2
PB-1947R2	Prairie Brand	9-30	-	104	114	100	100	1.9	Rps1c	5.0	PSX	R2
PB-1956R2	Prairie Brand	9-30	-	101	119	102	97	1.9	Rps1c	4.8	PSX	R2
DSR-2110/R2Y	Dairyland Seed	9-30	-	-	107	102	95	2.1	Rps1c	3.0	CMO	R2
2055R2N	Viking Seed	9-30	-	-	113	102	98	2.0	Rps1c	4.0	None	R2
CZ 2312 LL	Bayer CropScience/Credenz	9-30	-	-	105	94	99	2.3	None	4.3	TPVI	LL
P20T79R2	DuPont Pioneer	9-30	-	-	103	98	100	2.0	Rps1c	3.3	PPST	R2
PB-2024R2	Prairie Brand	10-1	117	109	100	104	101	2.1	Rps1k	3.6	PSX	R2
PB-2296R2	Prairie Brand	10-1	-	-	91	100	96	2.2	Rps1c	4.3	PSX	R2
2282R2N	Viking Seed	10-1	-	-	101	96	99	2.2	Rps1c	4.0	None	R2
CZ 2474 RY	Bayer CropScience/Credenz	10-1	-	-	88	103	96	2.4	None	2.0	TPVI	R2
PB-2230R2	Prairie Brand	10-2	109	101	110	102	92	2.1	Rps1k	3.0	PSX	R2
AG2336	Asgrow	10-2	-	-	101	103	96	2.3	Rps1c	5.0	AC	R2
CZ 2510 LL	Bayer CropScience/Credenz	10-2	-	-	86	103	97	2.5	None	3.6	TPVI	LL
7240 G2 Genetics	NuTech Seed, LLC	10-2	92	104	111	93	104	2.4	Rps1k	3.8	SCE	GT
AG2136	Asgrow	10-2	-	-	95	100	99	2.1	Rps1c	4.5	AC	R2
2301R2N	Viking Seed	10-2	-	103	100	101	101	2.3	Rps1c	4.6	None	R2
O.2188NAT12	Viking Seed	10-2	-	-	95	98	98	2.0	None	3.3	None	R2
PB-2156R2	Prairie Brand	10-3	-	-	98	97	101	2.1	Rps1c	4.0	PSX	R2
DSR-2330/R2Y	Dairyland Seed	10-3	-	-	99	103	101	2.3	Rps1k	2.5	CMO	R2
e2282*	Schillinger Genetics	10-3	-	-	92	103	95	2.2	Rps1k	2.8	CMV	CV
MN1806CN	Minnesota AES	10-3	-	-	116	98	98	1.8	Rps1k	3.5	None	CV
PB-2486R2	Prairie Brand	10-4	-	-	90	101	98	2.4	Rps1k	3.8	PSX	R2
PB-2188R2	Prairie Brand	10-4	-	99	93	101	96	2.1	Rps1c	3.4	PSX	R2
O.2299N	Viking Seed	10-6	-	104	99	100	95	2.2	None	4.3	None	R2
P25T51R	DuPont Pioneer	10-7	-	101	100	103	99	2.5	Rps1c+Rps3a	4.0	PPST	GT
O.2399AT12	Viking Seed	10-8	-	-	101	104	99	2.3	None	3.0	None	R2
Mean		9-27	55.4 bu/a	58.4 bu/a	71.2 bu/a	34.6%	18.5 %					
LSD 20%			3%	3%	2%							

LSD numbers beneath yield columns indicate whether the difference between yields is due to genetics or other factors, such as variations in environment.

If yield difference between two entries equals or exceeds the LSD value the higher-yielding entry probably was superior in yield.

A difference less than the LSD value probably is due to environmental factors.





Table 7. Characteristics of special-use soybean entries, central zone;  
Becker, Danvers and Rosemount 2015.

Entry	Originator	Mat.	Special	Hilum	Phyto.	Chlorosis		Trans
		Rating	Characteristics	Color	Gene	Score	Seeds/Lb.	Trait
M2B11-17Y054	Minnesota AES	9-8	Small, Black	Black	Rps1a	1.8	4,536	CV
M08-450124	Minnesota AES	9-10	Early, Small	Yellow	Rps1a	2.5	3,979	CV
MK42	Richland IFC, Inc	9-10	General Use/Food	Yellow	Rps1c	3.0	2,413	CV
MN0702CN	Minnesota AES	9-11	SCN	Yellow	Rps1k	2.0	3,463	CV
Sheyenne	No. Dakota AES	9-13	General Use/Food	Yellow	Rps1c	2.0	3,172	CV
MK1016	Richland IFC, Inc	9-13	General Use/Food	Yellow	Rps1	3.0	5,815	CV
M06-322059	Minnesota AES	9-15	Large, Hi Protein	Yellow	Rps1a	2.6	2,362	CV
MN0809CN	Minnesota AES	9-15	SCN	Yellow	Rps1k	2.0	2,716	CV
91M10	DuPont Pioneer	9-16	General Use/Food	Yellow	Rps1a	2.5	2,577	CV
M07-303013	Minnesota AES	9-16	Large, Hi Protein	Yellow	S	3.8	2,607	CV
M07-254043	Minnesota AES	9-17	Small, Hi Oil	Yellow	S	2.6	4,404	CV
MN1312CN	Minnesota AES	9-18	SCN	Yellow	Rps1a	3.0	2,871	CV
e1665	Schillinger Genetics	9-19	Large	Yellow	S	3.3	2,783	CV
M07-244073	Minnesota AES	9-21	Small, Hi Oil	Yellow	S	2.9	3,877	CV
MN0908CN	Minnesota AES	9-21	SCN	Yellow	S	2.6	2,637	CV
MK0249	Richland IFC, Inc	9-21	General Use/Food	Yellow	Rps1a	2.9	4,775	CV
e2162	Schillinger Genetics	9-24	Large	Yellow	Rps1c	2.4	2,520	CV
MK0508	Richland IFC, Inc	9-24	General Use/Food	Yellow	Rps1a	2.3	5,670	CV
e2062	Schillinger Genetics	9-26	Large	Yellow	Rps1c	3.0	2,387	CV
Mean		9-17						

Table 8. Performance of special-use soybean entries, central zone; Becker, Danvers and Rosemount 2015.

Entry	Originator	Mat.	YIELD % of Mean	% of Mean	
		Date	2015	Protein	Oil
M2B11-17Y054	Minnesota AES	9-8	78	98	107
M08-450124	Minnesota AES	9-10	97	97	102
MK42	Richland IFC, Inc	9-10	77	102	100
MN0702CN	Minnesota AES	9-11	100	103	99
Sheyenne	Minnesota AES	9-13	107	95	103
MK1016	Richland IFC, Inc	9-13	63	101	96
M06-322059	Minnesota AES	9-15	95	106	99
MN0809CN	Minnesota AES	9-15	122	101	102
91M10	DuPont Pioneer	9-16	110	101	103
M07-303013	Minnesota AES	9-16	98	118	83
M07-254043	Minnesota AES	9-17	87	101	106
MN1312	Minnesota AES	9-18	113	99	96
e1665	Schillinger Genetics	9-19	121	102	98
M07-244073	Minnesota AES	9-21	110	102	104
MN0908CN	Minnesota AES	9-21	113	99	100
MK0249	Richland IFC, Inc	9-21	88	87	104
e2162	Schillinger Genetics	9-24	125	105	97
MK0508	Richland IFC, Inc	9-24	80	93	100
EXP603	Richland IFC, Inc	9-25	95	93	96
e2062	Schillinger Genetics	9-26	122	99	100
Mean		9-17	47.8 bu/a	35.8 %	18 %
LSD 20%			1%		

LSD numbers beneath yield columns indicate whether the difference between yields is due to gen variations in environment. If yield difference between two entries equals or exceeds the LSD value probably was superior in yield. A difference less than the LSD value probably is due to environme

Table 9. Characteristics of special-use soybean entries, southern zone; Lamberton, Waseca and Westbrook 2015.

Entry	Originator	Mat.	Special	Hilum	Phyto.	Chlorosis	Seeds/Lb.	Trans
		Date	Characteristics	Color	Gene	Score		Trait
M07-298022	Minnesota AES	9-15	General Use/Food	Yellow	S	1.3	2,534	CV
MN1312CN	Minnesota AES	9-17	SCN	Yellow	Rps1a	1.0	2,817	CV
M06-318018	Minnesota AES	9-18	Very Hi Protein	Yellow	Rps1a	1.3	2,338	CV
MN1311	Minnesota AES	9-18	General Use/Food	Yellow	Rps1k	1.3	3,065	CV
MK9101	Richland IFC, Inc	9-18	General Use/Food	Yellow	Rps1a	3.3	2,257	CV
e1665	Schillinger Genetics	9-21	Yield	Yellow	S	1.8	2,766	CV
M07-322-4006	Minnesota AES	9-21	Large, Protein	Yellow	Rps1k	1.3	1,955	CV
M06-288155	Minnesota AES	9-22	SCN	Yellow	S	1.5	2,871	CV
MN1612CN	Minnesota AES	9-22	SCN	Yellow	Rps6	1.8	2,439	CV
MK41	Richland IFC, Inc	9-22	General Use/Food	Yellow	Rps1c	3.3	2,268	CV
M07-2074210	Minnesota AES	9-24	Small	Yellow	Rpd1a	1.5	4,725	CV
M04-295008	Minnesota AES	9-25	Large, Protein	Yellow	Rpds1k	1.5	1,964	CV
M06-288190	Minnesota AES	9-26	General Use	Buff	Rps1a	1.3	2,653	CV
MN1701CN	Minnesota AES	9-27	SCN	Yellow	S	2.0	2,945	CV
MN1806CN	Minnesota AES	9-27	SCN	Yellow	Rps1k	1.3	2,637	CV
e2062	Schillinger Genetics	9-28	Yield	Yellow	Rps1c	1.5	2,413	CV
e2162	Schillinger Genetics	9-28	Yield	Yellow	Rps1c	1.0	2,607	CV
Mean		9-23						

Table 10. Performance of special-use soybean entries, southern zone; Lamberton, Waseca and Westbrook 2015.

<i>Entry</i>	<i>Originator</i>	<i>Mat. Date</i>	<i>YIELD % OF Mean</i>	<i>% of Mean</i>		<i>Chlorosis Score</i>
			<i>2015</i>	<i>Protein</i>	<i>Oil</i>	
M07-298022	Minnesota AES	9-15	101	99	101	1.3
MN1312CN	Minnesota AES	9-17	102	97	98	1.0
M06-318018	Minnesota AES	9-18	103	115	87	1.3
MN1311	Minnesota AES	9-18	112	95	108	1.3
MK9101	Richland IFC, Inc	9-18	84	100	103	3.3
e1665	Schillinger Genetics	9-21	115	99	99	1.8
M07-322-4006	Minnesota AES	9-21	103	104	101	1.3
M06-288155	Minnesota AES	9-22	116	98	102	1.5
MN1612CN	Minnesota AES	9-22	118	98	102	1.8
MK41	Richland IFC, Inc	9-22	107	102	94	3.3
M07-2074210	Minnesota AES	9-24	98	97	100	1.5
M04-295008	Minnesota AES	9-25	111	103	97	1.5
M06-288190	Minnesota AES	9-26	113	97	102	1.3
MN1701CN	Minnesota AES	9-27	118	96	103	2.0
MN1806CN	Minnesota AES	9-27	113	98	103	1.3
e2062	Schillinger Genetics	9-28	125	99	102	1.5
e2162	Schillinger Genetics	9-28	119	102	98	1.0
Mean		9-22	60.0 bu/a	36.5 %	18 %	
LSD 20%			1%			

LSD numbers beneath yield columns indicate whether the difference between yields is due to genetics or other factors, such as variations in environment. If yield difference between two entries equals or exceeds the LSD value the higher-yielding entry probably was superior in yield. A difference less than the LSD value probably is due to environmental factors.



Table 11. Characteristics of publicly developed general use soybean varieties entered in 2015 tests, and/or seed produced in Minnesota in 2015.

<b>Entry</b>	<b>Originator</b>	<b>Mat. Rating</b>	<b>Hilum Color</b>	<b>Phyto. Gene</b>	<b>BSR Reaction</b>	<b>SCN Reaction</b>	<b>Chlorosis Score</b>	<b>Trans Trait</b>
MN0083	Minnesota AES	00.8	Yellow	Rps6	-	S	2.5	CV
MN0095	Minnesota AES	00.9	Imperfect Black	Rps1a	-	S	1.8	CV
Trail	No. Dakota AES	0.0	Yellow	S	S	S	2.8	CV
MN0107	Minnesota AES	0.1	Yellow	Rps1k	-	S	4.0	CV
ND1406HP	No. Dakota AES	0.6	Yellow	S	-	S	3.0	CV
Roberts	So. Dakota AES	0.6	Gray	Rps1k	-	S	2.8	CV
MN0702CN	Minnesota AES	0.7	Yellow	Rps1k	-	R	2.0	CV
Sheyenne	No. Dakota AES	0.7	Yellow	Rps1c	-	S	1.8	CV
MN0806CN	Minnesota AES	0.8	Yellow	S	-	R	2.8	CV
MN0808CN	Minnesota AES	0.8	Yellow	Rps1c	-	R	2.8	CV
MN0908CN	Minnesota AES	0.8	Yellow	S	-	R	2.5	CV
Codington	So. Dakota AES	0.9	Black	Rps1a	-	S	3.0	CV
MN1011CN	Minnesota AES	1.0	Yellow	Rps1a	-	R	2.5	CV
MN1012SP	Minnesota AES	1.2	Yellow	Rps1a	-	S	3.7	CV
MN1311	Minnesota AES	1.3	Yellow	Rps1k	-	S	2.7	CV
MN1312CN	Minnesota AES	1.3	Yellow	Rps1a	-	R	2.7	CV
MN1410	Minnesota AES	1.4	Buff	Rps1k	-	S	2.3	CV
MN1612CN	Minnesota AES	1.6	Yellow	Rps6	-	R	2.6	CV
Brookings	So. Dakota AES	1.7	Brown	Rps1k	-	S	2.5	CV
MN1701CN	Minnesota AES	1.7	Yellow	S	-	R	3.3	CV

Table12. Performance and characteristics of soybean entries,northern zone at soybean cyst nematode infested sites; Callaway, Downer, Gary and Thief River Falls 2015.

Entry	Originator	Mat. Date	Yield, % of Mean			% of Mean		Mat. Rating	Phyto. Gene	Chlorosis Score	SCN Rating	Seed Treat	Trans Trait
			2013-15	2014-15	2015	Protein	Oil						
NS 0060NR2	NorthStar Genetics	9-11	-	-	87	98	99	00.6	Rps1c	1.3	MR	CMV	R2
PB-00766R2	Prairie Brand	9-12	-	96	86	97	101	0.7	Rps1c	1.8	MR	PSX	R2
PB-00844R2	Prairie Brand	9-12	-	-	89	96	100	0.8	Rps1c	1.3	S	PSX	R2
NS 0081NR2	NorthStar Genetics	9-15	-	108	89	100	104	0.8	Rps1c+Rps3a	1.5	MR	CMV	R2
NS 0111R2	NorthStar Genetics	9-15	-	-	96	99	105	0.1	Rps1c	1.5	S	CMV	R2
3022L	NuTech Seed, LLC	9-17	-	-	82	99	102	0.2	Rps1a	1.3	MR	SCE	LL
7063 G2 Genetics	NuTech Seed, LLC	9-18	92	115	104	95	103	0.6	Rps1c	1.0	MS	SCE	GT
5N050R2	Mycogen Seeds	9-21	-	-	101	102	97	0.5	Rps3a	1.5	MR	CMVC	R2
PB-0598R2	Prairie Brand	9-22	81	83	99	100	97	0.5	Rps3a	1.8	MR	PSX	R2
NS 0200NR2	NorthStar Genetics	9-22	-	124	97	103	95	0.2	Rps1c	1.3	MR	CMV	R2
3066L	NuTech Seed, LLC	9-23	-	-	99	106	104	0.6	S	2.0	S	SCE	LL
NS 0480NR2	NorthStar Genetics	9-23	-	-	105	102	99	0.4	Rps3a	2.0	R	CMV	R2
5205LLN	Thunder Seed	9-23	-	-	101	100	96	0.5	Rps1k	1.6	S	CM	LL
PB-0676R2	Prairie Brand	9-24	-	-	104	102	101	0.6	Rps3a	1.5	MR	PSX	R2
DSR-0711/R2Y	Dairyland Seed	9-24	-	-	103	98	101	0.7	Rps1k	2.5	MR	CMO	R2
NS 0651NR2	NorthStar Genetics	9-24	-	-	104	104	100	0.6	Rps3a	1.8	MR	CMV	R2
3606RS	Thunder Seed	9-25	-	-	111	102	96	0.6	None	1.3	MR	None	R2
DSR-0619/R2Y	Dairyland Seed	9-25	-	108	110	107	96	0.6	Rps3a	1.3	MR	CMO	R2
3408	Thunder Seed	9-27	-	109	110	97	101	0.8	Rps1c	1.8	MR	CM	R2
PB-0777R2	Prairie Brand	9-27	112	104	112	99	98	0.6	Rps1c	1.8	MR	PSX	R2
DSR-0904/R2Y	Dairyland Seed	9-27	-	-	106	101	102	0.9	Rps3a	1.5	MS	CMO	R2
15R07N	Peterson Farms Seed	9-29	-	-	107	96	101	0.6	Rps1c	1.3	MR	None	R2
Mean		9-21	31.3 bu/a	25.7 bu/a	58.5 bu/a	34.7 %	18.3 %						
LSD 20%			3%	4%	2%								

LSD numbers beneath yield columns indicate whether the difference between yields is due to genetics or other factors, such as variations in environment.

If yield difference between two entries equals or exceeds the LSD value the higher-yielding entry probably was superior in yield.

A difference less than the LSD value probably is due to environmental factors.

Table 13. Performance and characteristics of soybean entries, central zone at soybean cyst nematode infested sites; Danvers, Fairfax and Rosemount 2013-2015.

Entry	Originator	Mat. Date	Yield, % of Mean			% of Mean		Mat. Rating	Phyto. Gene	Chlorosis Score	SCN Rating	Seed Treat	Trans Trait
			2013-15	2014-15	2015	Protein	Oil						
6097R2 G2 Genetics	NuTech Seed, LLC	9-17	-	-	79	95	110	0.9	Rps3a	2.0	S	SCE	R2
MN0808CN	Minnesota AES	9-17	-	78	85	97	98	0.8	Rps1c	2.3	R	None	CV
MN0809CN	Minnesota AES	9-17	-	-	90	102	98	0.8	S	2.8	R	None	CV
P10T91R	DuPont Pioneer	9-18	-	-	99	97	101	1.0	Rps1k	2.5	MR	PPST	GT
AG0934	Asgrow	9-18	-	108	107	102	98	0.9	Rps3a	2.3	R	AC	R2
MN0702CN	Minnesota AES	9-18	-	85	85	105	96	0.7	Rps1k	2.0	R	None	CV
AG0835	Asgrow	9-19	-	105	104	98	98	0.8	Rps1c	2.3	MR	AC	R2
15R14N	Peterson Farms Seed	9-21	-	-	100	97	101	1.4	Rps1c	1.8	MR	None	R2
7138 G2 Genetics	NuTech Seed, LLC	9-22	-	-	97	103	103	1.3	Rps1k	4.0	MR	SCE	GT
AG1435	Asgrow	9-22	-	113	100	103	102	1.4	Rps1c	1.8	MR	AC	R2
MN1312CN	Minnesota AES	9-22	-	-	85	106	93	1.3	Rps1a	2.0	R	None	CV
P15T46R2	DuPont Pioneer	9-23	-	-	95	99	101	1.5	Rps1c	2.8	R	PPST	R2
153R2Y	Anderson Seeds	9-24	-	-	103	99	101	1.5	Rps1c	2.0	MR	None	R2
7169 G2 Genetics	NuTech Seed, LLC	9-24	-	-	106	98	102	1.6	Rps1a+Rps6	1.5	R	SCE	GT
7172R2 G2 Genetics	NuTech Seed, LLC	9-24	-	-	108	101	101	1.7	S	2.1	MR	SCE	R2
3126L	NuTech Seed, LLC	9-24	-	-	104	102	92	1.2	S	3.0	MR	SCE	LL
175R2Y	Anderson Seeds	9-25	-	-	102	100	99	1.7	Rps1k	3.5	MR	None	R2
AG1733	Asgrow	9-25	114	115	113	99	101	1.7	Rps1c	1.8	R	AC	R2
NS 1661NR2	NorthStar Genetics	9-25	-	-	108	102	99	1.6	Rps1c	2.5	MR	CMV	R2
7217R2 G2 Genetics	NuTech Seed, LLC	9-26	-	-	101	94	101	2.1	S	4.5	MR	SCE	R2
MN1612CN	Minnesota AES	9-26	-	-	87	103	102	1.6	Rps6	3.0	MR	None	CV
185R2Y	Anderson Seeds	9-27	-	-	110	98	102	1.8	Rps1k	2.0	MR	None	R2
16R17N	Peterson Farms Seed	9-27	-	-	109	99	102	1.7	None	4.0	MR	None	R2
206R2Y	Anderson Seeds	9-29	-	-	101	101	99	2.0	Rps1c	3.3	MR	None	R2
15R18N	Peterson Farms Seed	9-29	-	-	103	97	98	1.8	Rps1k	2.8	MR	None	R2
205R2Y	Anderson Seeds	9-30	-	-	102	102	102	2.0	Rps1k	2.0	MR	None	R2
7204R2 G2 Genetics	NuTech Seed, LLC	9-30	-	97	102	101	97	2.0	Rps1c	2.5	MR	SCE	R2
15R20N	Peterson Farms Seed	9-30	-	-	110	101	101	2.0	Rps1c	5.0	MR	None	R2
3205L	NuTech Seed, LLC	10-1	-	-	99	96	100	2.0	Rps1c	3.8	MR	SCE	LL
P22T69R	DuPont Pioneer	10-1	-	-	96	102	103	2.2	Rps1k	3.0	R	PPST	GT
NS 2031NR2	NorthStar Genetics	10-1	-	-	111	100	98	2.0	Rps1c	3.5	MR	CMV	R2
Mean		9-24		47.2 bu/a	39.3 bu/a	55.0 bu/a	35.4%	18.2%					
LSD 20%				2%	2%	2%							

LSD numbers beneath yield columns indicate whether the difference between yields is due to genetics or other factors, such as variations in environment.

If yield difference between two entries equals or exceeds the LSD value the higher-yielding entry probably was superior in yield.

A difference less than the LSD value probably is due to environmental factors.

Table 14. Performance and characteristics of soybean entries in southern zone soybean cyst nematode infested sites; Fairfax, Lamberton and Waseca 2013-2015.

Entry	Originator	Mat. Date	Yield, % of Mean			% of Mean		Mat. Rating	Phyto. Gene	Chlorosis Score	SCN Rating	Seed Treat	Trans Trait
			2013-15	2014-15	2015	Protein	Oil						
MN1410	Minnesota AES	9-20	-	-	76	105	101	1.4	Rps1k	1.5	S	None	CV
175R2Y	Anderson Seeds	9-23	-	97	85	101	100	1.7	Rps1k	1.5	MR	None	R2
7138 G2 Genetics	NuTech Seed, LLC	9-23	-	-	95	99	98	1.3	Rps1k	2.8	MR	SCE	GT
7169 G2 Genetics	NuTech Seed, LLC	9-23	-	-	99	99	103	1.6	Rps1a+Rps6	1.1	R	SCE	GT
153R2Y	Anderson Seeds	9-24	-	100	84	101	101	1.5	Rps1c	1.8	MR	None	R2
7172R2 G2 Genetics	NuTech Seed, LLC	9-24	-	-	102	100	98	1.7	S	1.0	MR	SCE	R2
AG1733	Asgrow	9-25	-	-	108	100	100	1.7	Rps1c	1.5	R	AC	R2
185R2Y	Anderson Seeds	9-26	-	104	109	99	99	1.8	Rps1k	1.8	MR	None	R2
TP-18R24	Titan Pro	9-26	-	106	105	99	101	1.8	Rps1k	1.8	MR	None	R2
TP-17R54	Titan Pro	9-26	-	104	92	99	98	1.7	Rps1k	1.0	MR	None	R2
TP-20R44	Titan Pro	9-27	-	86	104	100	102	2.0	Rps1k	1.5	MR	None	R2
7204R2 G2 Genetics	NuTech Seed, LLC	9-28	-	102	95	100	97	2.0	Rps1c	1.8	MR	SCE	R2
205R2Y	Anderson Seeds	9-29	-	86	109	101	100	2.0	Rps1k	1.1	MR	None	R2
AG1935	Asgrow	9-29	-	101	108	101	101	1.9	Rps1c	1.3	MR	AC	R2
TP-20R25	Titan Pro	9-29	-	-	110	100	98	2.0	Rps1k	1.5	MR	None	R2
3205L	NuTech Seed, LLC	9-30	-	-	88	99	98	2.0	Rps1c	2.0	MR	SCE	LL
TP-21R55	Titan Pro	9-30	-	-	110	99	99	2.1	Rps1c	1.8	MR	None	R2
206R2Y	Anderson Seeds	10-1	-	-	100	100	98	2.0	Rps1c	3.3	MR	None	R2
7217R2 G2 Genetils	NuTech Seed, LLC	10-1	-	-	100	98	99	2.1	S	2.0	MR	SCE	R2
AG2035	Asgrow	10-1	-	103	104	105	99	2.0	Rps1c	1.5	MR	AC	R2
P22T69R	DuPont Pioneer	10-2	111	107	102	101	105	2.2	Rps1k	1.8	R	PPST	GT
AG2136	Asgrow	10-2	-	-	112	96	104	2.1	Rps1c	1.8	MR	AC	R2
7240 G2 Genetics	NuTech Seed, LLC	10-3	117	98	106	95	103	2.4	Rps1k	1.5	R	SCE	GT
Mean		9-28	46.4 bu/a	42.9 bu/a	52.0 bu/a	34.1 %	18.8 %						
LSD 20%			2%	2%	2%								

LSD numbers beneath yield columns indicate whether the difference between yields is due to genetics or other factors, such as variations in environment.

If yield difference between two entries equals or exceeds the LSD value the higher-yielding entry probably was superior in yield.

A difference less than the LSD value probably is due to environmental factors.

Table 15. Greenhouse bioassay of soybean entries in northern zone for resistance to soybean cyst nematode; Callaway, Downer, Gary and Thief River Falls 2015.

<i>Entry</i>	<i>Originator</i>	<i>Mat. Date</i>	<i>SCN Resist. Source</i> <sup>1</sup>	<i>Greenhouse Test HG Type 0 (race 3)</i>	
				<i>FI</i>	<i>Res.</i> <sup>2</sup>
NS 0060NR2	NorthStar Genetics	9-11	PI 88788	19	MR
PB-00766R2	Prairie Brand	9-12	PI 88788	17	MR
PB-00844R2	Prairie Brand	9-12	PI 88788	106	S
NS 0081NR2	NorthStar Genetics	9-15	PI 88788	18	MR
NS 0111R2	NorthStar Genetics	9-15	PI 88788	120	S
3022L	NuTech Seed, LLC	9-17	PI 88788	26	MR
7063 G2 Genetics	NuTech Seed, LLC	9-18	PI 88788	59	MS
5N050R2	Mycogen Seeds	9-21	PI 88788	19	MR
PB-0598R2	Prairie Brand	9-22	PI 88788	18	MR
NS 0200NR2	NorthStar Genetics	9-22	PI 88788	14	MR
3066L	NuTech Seed, LLC	9-23	PI 88788	68	S
NS 0480NR2	NorthStar Genetics	9-23	PI 88788	9	R
5205LLN	Thunder Seed	9-23	PI 88788	110	S
PB-0676R2	Prairie Brand	9-24	PI 88788	16	MR
DSR-0711/R2Y	Dairyland Seed	9-24	PI 88788	16	MR
NS 0651NR2	NorthStar Genetics	9-24	PI 88788	18	MR
3606RS	Thunder Seed	9-25	PI 88788	13	MR
DSR-0619/R2Y	Dairyland Seed	9-25	PI 88788	17	MR
3408	Thunder Seed	9-27	PI 88788	11.0	MR
PB-0777R2	Prairie Brand	9-27	PI 88788	17.0	MR
DSR-0904/R2Y	Dairyland Seed	9-27	PI 88788	55.0	MS
15R07N	Peterson Farms Seed	9-29	PI 88788	28.0	MR

<sup>1</sup> Resistance source provided by originator.

<sup>2</sup> SCN resistance rating: R = resistant FI less than 10%; MR = moderately resistant FI 10-30%; MS=moderately susceptible F1 31-60%; S=susceptible F1 greater than 60%.

Table 16. Greenhouse bioassay of soybean entries of central zone for resistance to soybean cyst nematode; Danvers, Fairfax and Rosemount 2015.

<i>Entry</i>	<i>Originator</i>	<i>Mat. Date</i>	<i>SCN Resist. Source</i> <sup>1</sup>	<i>Greenhouse Test</i>	
				<i>HG Type 0 (race 3) FI</i>	<i>Res.</i> <sup>2</sup>
6097R2 G2 Genetics	NuTech Seed, LLC	9-17	PI 88788	90	S
MN0808CN	Minnesota AES	9-17	PI 88788	3	R
MN0809CN	Minnesota AES	9-17	PI 88788	9	R
P10T91R	DuPont Pioneer	9-18	PI 88788	14	MR
AG0934	Asgrow	9-18	PI 88788	9	R
MN0702CN	Minnesota AES	9-18	PI 88788	3	R
AG0835	Asgrow	9-19	PI 88788	23	MR
15R14N	Peterson Farms Seed	9-21	PI 88788	15	MR
7138 G2 Genetics	NuTech Seed, LLC	9-22	Peking	10	MR
AG1435	Asgrow	9-22	PI 88788	29	MR
MN1312CN	Minnesota AES	9-22	PI 88788	9	R
P15T46R2	DuPont Pioneer	9-23	PI 88788	8	R
153R2Y	Anderson Seeds	9-24	PI 88788	20	MR
7169 G2 Genetics	NuTech Seed, LLC	9-24	PEKING	1	R
7172R2 G2 Genetics	NuTech Seed, LLC	9-24	PI 88788	12	MR
3126L	NuTech Seed, LLC	9-24	PI 88788	19	MR
175R2Y	Anderson Seeds	9-25	PI 88788	22	MR
AG1733	Asgrow	9-25	PI 88788	8	R
NS 1661NR2	NorthStar Genetics	9-25	PI 88788	24	MR
7217R2 G2 Genetics	NuTech Seed, LLC	9-26	PI 88788	12	MR
MN1612CN	Minnesota AES	9-26	PI 88788	18	MR
185R2Y	Anderson Seeds	9-27	PI 88788	18	MR
16R17N	Peterson Farms Seed	9-27	PI 88788	18	MR
206R2Y	Anderson Seeds	9-29	PI 88788	29	MR
15R18N	Peterson Farms Seed	9-29	PI 88788	16	MR
205R2Y	Anderson Seeds	9-30	PI 88788	16	MR
7204R2 G2 Genetics	NuTech Seed, LLC	9-30	PI 88788	14	MR
15R20	Peterson Farms Seed	9-30	PI 88788	20	MR
3205L	NuTech Seed, LLC	10-1	PI 88788	13	MR
P22T69R	DuPont Pioneer	10-1	Peking	1	R
NS 2031NR2	NorthStar Genetics	10-1	PI 88788	24	MR

<sup>1</sup> Resistance source provided by originator: S = susceptible.

<sup>2</sup> SCN resistance rating: R = resistant FI less than 10%; MR = moderately resistant FI 10-30%; MS=moderately susceptible F1 31-60%; S=susceptible F1 greater than 60%.

Table 17. Greenhouse bioassay of soybean entries in southern zone for resistance to soybean cyst nematode; Fairfax, Lambertson and Waseca 2015.

Entry	Originator	Greenhouse Test			
		Mat. Date	SCN	HG Type 0	
			Resist. Source <sup>1</sup>	(race 3) FI	Res. <sup>2</sup>
MN1410	Minnesota AES	9-20	S	94	S
175R2Y	Anderson Seeds	9-23	PI 88788	22	MR
7138 G2 Genetics	NuTech Seed, LLC	9-23	PEKING	10	MR
7169 G2 Genetics	NuTech Seed, LLC	9-23	PEKING	1	R
153R2Y	Anderson Seeds	9-24	PI 88788	20	MR
7172R2 G2 Genetics	NuTech Seed, LLC	9-24	PI 88788	12	MR
AG1733	Asgrow	9-25	PI 88788	8	R
185R2Y	Anderson Seeds	9-26	PI 88788	18	MR
TP-18R24	Titan Pro	9-26	PI 88788	20	MR
TP-17R54	Titan Pro	9-26	PI 88788	13	MR
TP-20R44	Titan Pro	9-27	PI 88788	21	MR
7204R2 G2 Genetics	NuTech Seed, LLC	9-28	PI 88788	14	MR
205R2Y	Anderson Seeds	9-29	PI 88788	16	MR
AG1935	Asgrow	9-29	PI 88788	20	MR
TP-20R25	Titan Pro	9-29	PI 88788	17	MR
3205L	NuTech Seed, LLC	9-30	PI 88788	13	MR
TP-21R55	Titan Pro	9-30	PI 88788	13	MR
206R2Y	Anderson Seeds	10-1	PI 88788	29	MR
7217R2 G2 Genetiics	NuTech Seed, LLC	10-1	PI 88788	12	MR
AG2035	Asgrow	10-1	PI 88788	16	MR
P22T69R	DuPont Pioneer	10-2	PEKING	1	R
AG2136	Asgrow	10-2	PI 88788	13	MR
7240 G2 Genetics	NuTech Seed, LLC	10-3	PI 88788	1	R

<sup>1</sup> Resistance source provided by originator: S = susceptible.

<sup>2</sup> SCN resistance rating: R = resistant FI less than 10%; MR = moderately resistant FI 10-30%; MS=moderately susceptible F1 31-60%; S=susceptible F1 greater than 60%.