

Evaluation of Soybean Varieties Resistant to Soybean Cyst Nematode in Iowa—2018



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Introduction

Use of resistant soybean varieties is a very effective strategy for managing soybean cyst nematode (SCN), and numerous SCN-resistant soybean varieties are available for Iowa soybean farmers. Each year, SCN-resistant soybean varieties are evaluated in SCN-infested fields throughout Iowa by Iowa State University personnel. The research described in this report was performed to assess the agronomic performance of maturity group (MG) I, II, and III SCN-resistant soybean varieties and to determine the effects of the varieties on SCN numbers or population densities.

Materials and Methods

SCN-resistant soybeans were studied in northern, central, and southern Iowa based upon maturity group. The northern trials were located near Newell (northwest Iowa), Manly (north central Iowa) and Arlington (northeast Iowa). The central trials were located near Moorhead (west central Iowa), Ames (central Iowa), and Urbana (east central Iowa). The southern trials were located near Glenwood (southwest Iowa), Leighton (south central Iowa), and Fruitland (southeast Iowa).

Location-specific details.

Location	Initial SCN Population (eggs / 100 cc soil)	HG Type ¹	Planting Date	Harvest Date
Newell (NW)	3,353	2-	May 18 th	October 24 th
Manly (NC)	470	2-	May 22 nd	October 23 rd
Arlington (NE)	710	2-	May 17 th	October 25 th
Moorhead (WC)	1,206	1.2-	May 11 th	October 29 th
Ames (C)	218	2-	May 14 th	October 20 th
Urbana (EC)	448	2-	May 10 th	October 22 nd
Glenwood (SW)	232	0-	May 9 th	Too wet, not harvested
Leighton (SC)	625	2-	May 8 th	October 17 th
Fruitland (SE)	372	2-	May 7 th	October 18 th

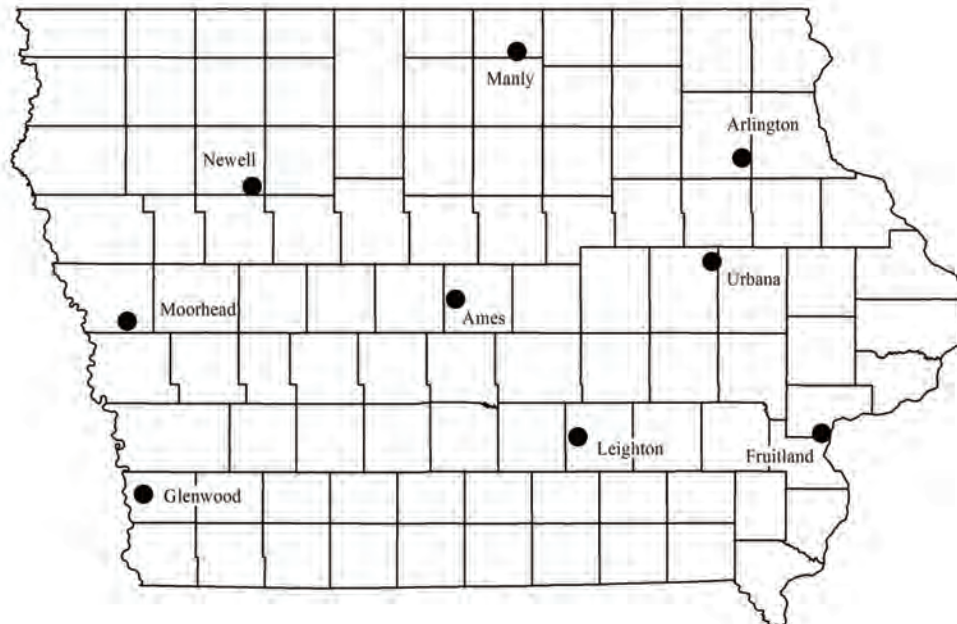
¹ In the SCN HG type test results, "1" indicates $\geq 10\%$ reproduction on Peking (PI 548402), and "2" indicates $\geq 10\%$ reproduction on PI 88788. "-" indicates an incomplete HG type test; populations were tested only on Peking, PI 88788, PI 90763, and PI 437654.

SCN-susceptible varieties also were planted in the experiments for comparison purposes. All plots were four 17-foot-long rows spaced 30 inches apart and were planted at 8 seeds per foot (140,000 seeds per acre), with four replications per variety. Seed companies were encouraged to treat their seed with fungicide and insecticide. Seeds that were received untreated were treated with CruiserMaxx® Vibrance® by Iowa State University personnel. A complete list of the seed treatments used on the varieties tested is included at the end of the report. Pre-plant herbicides Authority® Assist and Pendimethalin were applied to each location. All locations were sprayed with Flexstar®, FirstRate®, and Select Max® to control weeds during the growing season, and a second spray with Phoenix® was made at the Fruitland, Leighton, Arlington, and Ames locations. The Moorhead location was planted using "no-till" methods, and the Arlington location was planted into a terminated rye grass cover crop. At all other locations, the seed bed was tilled prior to planting.

At growth stage R6 all locations were scouted for foliar symptoms of sudden death syndrome (SDS). The Moorhead, Arlington, and Urbana locations had sufficient symptoms to warrant rating the plots. In each case the symptoms were uniformly spread throughout the experimental area, but SDS almost certainly influenced soybean yield. All plots were end trimmed to a length of 14 feet during September. For each location except Glenwood, the center two rows of each four-row plot were harvested with a plot combine, total seed weight per plot and seed moisture were determined, and total plot seed weights subsequently were converted to bushels per acre. The Glenwood location was not harvested because excessive soil moisture caused by rising river levels in the area made entering the plot area with machinery impossible. Resistant varieties and susceptible check varieties are grouped separately and are listed in the report in decreasing order of yield.

At the beginning of the growing season, plots were sampled for the presence of SCN. Soil samples, consisting of 10 one-inch-diameter, six- to eight-inch-deep soil cores were collected from the center 14 feet of the center two rows of each plot immediately after planting. SCN cysts were extracted from each soil sample, and SCN eggs were extracted from the cysts and counted. SCN egg population densities also were determined for each plot at the end of the growing season in an identical manner.

Because of the consistent relationship between higher soil pH and high SCN population densities, all varieties also were field tested for tolerance to iron deficiency chlorosis (IDC). Each variety was planted in a hill plot consisting of five seeds per hill, with four replications per variety, at two high pH field locations. Notes were taken for IDC symptoms at each location approximately four weeks after planting. Varieties were rated on a scale of “1” to “5” with a “1” indicating no symptoms of IDC present and a “5” indicating plant death due to IDC. The scores from each location were averaged together and an overall rating was assigned to each variety. One variety highly resistant to IDC and one variety susceptible to IDC also were included in the experiments as checks. Poor emergence of the highly resistant variety made it unusable in comparisons, but the susceptible variety scored an average of 3.0. The scores from these IDC field tests are listed in each location table in the report for reference.



Data Presentation

In the report, soybean yield and SCN reproduction are displayed graphically in addition to numerically in the tables. Yield is represented by the length of the green bars. SCN reproduction is represented by the length of the blue bars. SCN reproduction was determined by calculating the reproductive factor (RF) for each variety. RF is calculated by dividing the average final SCN population density by the average initial SCN population density for each variety. If a variety has an RF value of 5.0, the SCN population density for those plots was 5 times greater at harvest than it was at planting. And an RF value of 0.5 means the SCN population density for those plots at harvest was one half the population density at planting. The RF value is location specific and may vary substantially under different environmental conditions, soil types, and nematode populations.

Summary

The results of the experiments illustrate the benefits of growing SCN-resistant soybean varieties for management of this important soybean pest. At locations with the most significant SCN reproduction, many of the soybean varieties with SCN resistance had greater yields than susceptible varieties, although some resistant varieties had greater yields than others. At most locations, end-of-season SCN population densities were significantly greater in plots where susceptible varieties were grown relative to plots planted with resistant varieties. Nematode control is an extremely important aspect of growing SCN-resistant soybean varieties that must be considered when selecting soybean varieties. **Growing soybean varieties in SCN-infested fields solely to maximize soybean yields in the short term without any consideration of the effect of the varieties on SCN population densities will seriously reduce the productivity of the land for soybean production in the future.**

The results of these experiments illustrate that SCN-resistant varieties can suppress SCN reproduction and provide increased soybean yields relative to using susceptible varieties. Currently, there are three main genetic sources for SCN resistance genes in commercial soybean varieties, namely PI 88788, Peking, and PI 437654 (also known as Hartwig). Each of these sources of SCN resistance contains several genes that confer resistance to the nematode. Consequently, soybean varieties developed from the various sources of resistance may not all contain the same genes in the same combinations. All of these sources of resistance allow some limited reproduction of SCN. Resistant varieties must be used in an integrated management program, along with the use of nonhost crops, seed treatments, and scouting for early detection of SCN, to maximize yields and minimize reproduction of the pest on a long-term basis.

The data presented in this report are from a limited number of locations and should be used only as a beginning point for developing a SCN management program for any specific field. Performance of individual SCN-resistant soybean varieties in SCN-infested fields will vary among locations and years. **Growers are encouraged to evaluate several SCN-resistant soybean varieties at their own locations to determine the best varieties for their local conditions.**

Acknowledgments

Appreciation is expressed to the staff of the Iowa State University Research and Demonstration Farms. Gratitude also is expressed to Kermit Grote of Newell, Randy and Jess Lutz of Mason City, Alex Recker of Arlington, John Melby of Moorhead, Ed McKinley of Urbana, Matt Biermann of Glenwood, Mark Groenendyk of Leighton, and Ron Shepard of Fruitland for use of land for some of the experiments.

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Table 1. Newell (NW Iowa).

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology ¹	IDC	SCN # (eggs/100cc) ²	SCN RF ³	Yield (bu/acre)
Beck's XL Brand	253R4	2.5	Peking	GT	2.5	1,300	0.2	77.1
Pioneer	P19A14X	1.9	Peking	RR2X	3.1	3,325	0.9	73.5
Pioneer	P21A28X	2.1	Peking	RR2X	2.0	1,050	0.3	72.8
NuTech	7224	2.2	Peking	GT	1.5	2,475	0.8	72.3
LATHAM	L2295R2X	2.2	PI 88788	RR2X	2.5	5,525	2.7	71.4
Asgrow	AG21X9	2.1	PI 88788	RR2X	2.0	4,600	1.9	70.5
LATHAM	L2239R2X	2.2	Peking	RR2X	3.1	3,225	1.2	69.8
Champion	24L17N	2.4	PI 88788	LL	1.8	8,775	2.4	69.8
Stine	24RH62	2.4	PI 88788	RR2Y	2.0	12,025	4.1	69.6
Asgrow	AG23X9	2.3	Peking	RR2X	2.5	2,575	0.7	69.2
Kruger Seeds	K2X-2052	2.0	PI 88788	RR2X	2.3	5,900	2.8	69.0
Dairyland Seed	DSR-1950/R2Y	1.9	PI 88788	RR2Y	3.5	6,900	2.6	69.0
Prairie Brand	PB-2197R2	2.1	PI 88788	RR2Y	2.4	5,375	2.0	68.8
Miller Hybrids	2479CLL	2.4	PI 88788	LL	1.6	13,050	4.9	68.6
Stine	19RF32	1.9	PI 88788	RR2Y	3.9	5,975	1.9	68.5
Golden Harvest	GH1852X	1.8	PI 88788	RR2X	2.6	8,350	1.7	68.1
Golden Harvest	GH1915X	1.9	PI 88788	RR2X	3.0	5,125	0.8	68.0
Pfister	20R23	2.0	PI 88788	RR2Y	2.9	4,725	2.3	68.0
Dyna-Gro	S24XT08	2.4	PI 88788	RR2X	3.1	5,850	1.9	67.9
Stine	21RI32	2.1	PI 88788	RR2Y	2.9	7,825	2.2	67.5
NK	S20-J5X	2.0	PI 88788	RR2X	2.5	9,825	3.2	67.5
NuTech	3205L	2.0	PI 88788	LL	3.4	7,175	1.8	67.4
Prairie Brand	PB-1947R2	1.9	PI 88788	RR2Y	2.9	8,475	2.6	67.0
Prairie Brand	PB-1787R2	1.7	PI 88788	RR2Y	2.8	7,775	1.4	67.0
Beck's	2559X2	2.5	PI 88788	RR2X	2.8	4,600	1.0	67.0
Merschman	Osage 1824LL	2.4	PI 88788	LL	1.5	5,625	2.0	66.3
Jacobsen	669NR2	1.9	PI 88788	RR2X	3.5	8,850	3.7	66.2
FOUR STAR SEED	3X241	2.4	PI 88788	RR2X	2.5	6,225	2.6	66.1
Jacobsen	761NR2X	2.1	PI 88788	RR2X	1.9	5,050	1.4	66.0
Dyna-Gro	S21XT77	2.1	PI 88788	RR2X	1.7	6,000	2.4	65.9
Champion	22X09N	2.2	Pek./PI88.*	RR2X	2.7	4,600	1.2	65.7
Beck's XL Brand	213R4	2.1	Peking	GT	1.9	2,700	0.7	65.5
Pioneer	P23A32X	2.3	PI 88788	RR2X	1.9	9,100	3.8	65.4
FS HiSOY	23X70	2.3	Peking	RR2X	2.7	4,550	2.0	65.3
Miller Hybrids	2162CRX	2.1	PI 88788	RR2X	2.3	7,800	2.4	65.2
LATHAM	L2249L	2.2	PI 88788	LL	2.3	7,375	3.4	65.0
Federal Hybrids	F2380N	2.3	PI 88788	RR2X	3.1	1,475	0.4	64.8
NK	S21-W8X	2.1	PI 88788	RR2X	2.8	4,300	1.0	64.2
Federal Hybrids	F2090N	2.0	PI 88788	RR2X	1.8	4,950	2.2	64.1
Prairie Brand	PB-2228R2	2.2	PI 88788	RR2Y	2.4	5,000	2.8	64.0
Stine	20RD20	2.0	PI 88788	RR2Y	1.3	8,175	3.0	64.0
Merschman	Comanche 1626LL	2.6	PI 88788	LL	1.8	6,625	2.9	63.7
Miller Hybrids	2472CRX	2.4	PI 88788	RR2X	3.5	7,250	2.2	63.7
Beck's	2339X2	2.3	Peking	RR2X	2.4	3,475	1.2	63.6
Dairyland Seed	DSR-2330/R2Y	2.3	PI 88788	RR2Y	2.3	10,125	5.5	63.6
FS HiSOY	25X70	2.5	PI 88788	RR2X	3.0	11,650	3.0	63.5
Dairyland Seed	DSR-2110/R2Y	2.1	PI 88788	RR2Y	2.0	5,675	2.4	63.3
Jacobsen	678NR2X	1.8	PI 88788	RR2X	2.1	5,175	1.5	63.1
Hoegemeyer HPT	LL1900 N	1.9	PI 88788	LL	2.5	8,400	2.5	62.9
Pioneer	P23A15X	2.3	PI 88788	RR2X	2.8	7,350	2.6	62.9
Federal Hybrids	F1880N	1.8	PI 88788	RR2X	2.1	4,775	1.0	62.8

Table 1. Newell (NW Iowa) continued.

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology ¹	IDC	SCN # (eggs/100cc) ²	SCN RF ³	Yield (bu/acre)
Stine	20BB02	2.0	PI 88788	GT	2.9	9,600	3.0	62.7
Beck's	1889X2	1.8	PI 88788	RR2X	2.1	4,150	1.3	62.4
LG Seeds	LGS2007RX	2.0	PI 88788	RR2X	2.7	8,150	3.8	62.3
Dyna-Gro	S21XT49	2.1	PI 88788	RR2X	2.2	6,825	3.0	61.4
FS HiSOY	22X80	2.2	Peking	RR2X	3.0	1,725	0.4	61.4
Pioneer	P18A98X	1.8	PI 88788	RR2X	2.3	7,575	2.2	61.2
Legacy Seeds	LS-2139N	2.1	PI 88788	RR2X	2.5	6,350	1.2	60.9
LATHAM	L2187GT	2.1	PI 88788	GT	2.9	9,725	4.3	59.7
Kruger Seeds	K2X-1862	1.8	PI 88788	RR2X	2.0	5,700	1.6	59.7
Pfister	24R201	2.4	PI 88788	RR2Y	2.5	10,750	3.5	59.4
Legacy Seeds	LS-2339N	2.3	PI 88788	RR2X	3.2	7,600	2.3	59.1
NuTech	3236L	2.3	PI 88788	LL	2.9	8,075	2.1	59.1
NuTech	7239X	2.3	PI 88788	RR2X	2.2	6,150	1.5	58.5
FOUR STAR SEED	3X190	1.9	PI 88788	RR2X	3.8	8,800	1.8	58.3
FS HiSOY	24X80	2.4	PI 88788	RR2X	3.2	4,825	1.0	57.6
LG Seeds	LGS1635RX	1.6	PI 88788	RR2X	3.3	9,200	3.1	57.1
Kruger Seeds	K2X-2261	2.2	PI 88788	RR2X	2.0	8,850	1.6	55.2
NuTech	3174L	1.7	PI 88788	LL	1.8	10,825	3.6	54.1
Mean		2.1	-	-	2.5	3,496	2.2	65.0
LSD ⁴ (P = 0.10)		-	-	-	-	4,084	-	6.8
<i>NK</i>	<i>S24-K2</i>	2.4	None	RR2Y	2.4	5,967	1.5	63.5
<i>Kruger Seeds</i>	<i>K2-2301</i>	2.3	None	RR2Y	3.8	7,650	1.5	56.4
<i>Dyna-Gro</i>	<i>39RY25</i>	2.5	None	RR2Y	3.0	11,625	3.3	48.7
Mean		2.4	-	-	3.1	8,414	2.1	56.2

Values presented in tables are means. Entries are listed in decreasing order of yield.

Italicized entries are widely available SCN-susceptible varieties entered by Iowa State University for comparison purposes.

¹ GT = glyphosate tolerant, RR2Y = Roundup Ready 2 Yield®, RR2X = Roundup Ready 2 Xtend®, LL = LibertyLink®. May not reflect all herbicide tolerances. Consult product literature or seed dealer for more complete information.

² Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 3,353 eggs per 100 cc soil; HG type 2- (43% on PI 88788, 2% on Peking).

³ Reproductive factor (RF) = average final SCN egg population density / average initial SCN egg population density; RF 1.0 = no change in SCN population density over growing season.

⁴ Least significant difference: values are from Fisher's least-significant-difference test, NS = no significant differences among the varieties.

* Both Peking and PI 88788 sources of resistance

Table 2. Manly (NC Iowa).

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology ¹	IDC	SCN # (eggs/100cc) ²	SCN RF ³	Yield (bu/acre)
LATHAM	L2295R2X	2.2	PI 88788	RR2X	2.5	1,800	4.5	69.0
Stine	20BB02	2.0	PI 88788	GT	2.9	1,425	11.4	68.9
Prairie Brand	PB-1947R2	1.9	PI 88788	RR2Y	2.9	2,350	4.7	67.8
Prairie Brand	PB-2228R2	2.2	PI 88788	RR2Y	2.4	1,350	1.9	67.8
Pfister	20R23	2.0	PI 88788	RR2Y	2.9	1,700	8.5	67.7
Golden Harvest	GH1915X	1.9	PI 88788	RR2X	3.0	975	1.8	67.4
Jacobsen	761NR2X	2.1	PI 88788	RR2X	1.9	2,025	7.4	67.0
Pioneer	P19A14X	1.9	Peking	RR2X	3.1	550	1.1	66.8
Stine	19RF32	1.9	PI 88788	RR2Y	3.9	2,125	4.5	66.7
Golden Harvest	GH1852X	1.8	PI 88788	RR2X	2.6	1,025	1.9	66.5
NK	S20-J5X	2.0	PI 88788	RR2X	2.5	1,450	4.8	66.3
Kruger Seeds	K2X-2052	2.0	PI 88788	RR2X	2.3	1,425	3.0	66.3
Dyna-Gro	S21XT77	2.1	PI 88788	RR2X	1.7	1,400	2.3	66.2
Jacobsen	669NR2	1.9	PI 88788	RR2X	3.5	1,350	3.0	66.2
Asgrow	AG21X9	2.1	PI 88788	RR2X	2.0	1,625	4.3	66.2
Miller Hybrids	2479CLL	2.4	PI 88788	LL	1.6	1,750	4.4	66.0
Federal Hybrids	F1880N	1.8	PI 88788	RR2X	2.1	1,800	9.0	65.9
NK	S21-W8X	2.1	PI 88788	RR2X	2.8	1,675	4.5	65.8
Federal Hybrids	F2090N	2.0	PI 88788	RR2X	1.8	1,875	5.0	65.7
Pioneer	P21A28X	2.1	Peking	RR2X	2.0	100	0.3	65.6
Beck's XL Brand	253R4	2.5	Peking	GT	2.5	475	1.5	65.5
Pioneer	P23A15X	2.3	PI 88788	RR2X	2.8	3,150	8.4	65.4
FOUR STAR SEED	3X241	2.4	PI 88788	RR2X	2.5	1,825	4.6	65.4
Prairie Brand	PB-2197R2	2.1	PI 88788	RR2Y	2.4	1,125	3.5	65.3
Champion	24L17N	2.4	PI 88788	LL	1.8	1,950	4.6	65.2
NuTech	3174L	1.7	PI 88788	LL	1.8	1,500	6.0	65.1
NuTech	7239X	2.3	PI 88788	RR2X	2.2	450	1.0	65.1
Jacobsen	678NR2X	1.8	PI 88788	RR2X	2.1	1,350	2.3	65.1
LATHAM	L2187GT	2.1	PI 88788	GT	2.9	2,175	2.6	65.0
Dyna-Gro	S24XT08	2.4	PI 88788	RR2X	3.1	1,025	1.3	65.0
Pioneer	P23A32X	2.3	PI 88788	RR2X	1.9	3,475	4.2	65.0
NuTech	3236L	2.3	PI 88788	LL	2.9	2,700	9.0	64.9
Dairyland Seed	DSR-2330/R2Y	2.3	PI 88788	RR2Y	2.3	1,500	6.7	64.9
Miller Hybrids	2472CRX	2.4	PI 88788	RR2X	3.5	2,050	4.6	64.8
Stine	21RI32	2.1	PI 88788	RR2Y	2.9	2,775	3.6	64.7
Beck's	2339X2	2.3	Peking	RR2X	2.4	1,075	3.3	64.7
LG Seeds	LGS2007RX	2.0	PI 88788	RR2X	2.7	2,725	8.4	64.7
Stine	20RD20	2.0	PI 88788	RR2Y	1.3	1,300	3.5	64.6
Beck's	1889X2	1.8	PI 88788	RR2X	2.1	950	2.1	64.6
Stine	24RH62	2.4	PI 88788	RR2Y	2.0	1,950	5.2	64.5
Legacy Seeds	LS-2339N	2.3	PI 88788	RR2X	3.2	1,525	5.1	64.3
Dairyland Seed	DSR-1950/R2Y	1.9	PI 88788	RR2Y	3.5	1,650	3.1	64.1
Dairyland Seed	DSR-2110/R2Y	2.1	PI 88788	RR2Y	2.0	2,125	5.0	63.9
NuTech	3205L	2.0	PI 88788	LL	3.4	1,825	5.2	63.7
FS HiSOY	24X80	2.4	PI 88788	RR2X	3.2	1,950	3.5	63.7
Prairie Brand	PB-1787R2	1.7	PI 88788	RR2Y	2.8	1,825	2.8	63.5
Miller Hybrids	2162CRX	2.1	PI 88788	RR2X	2.3	1,775	4.7	63.5
NuTech	7224	2.2	Peking	GT	1.5	250	0.8	63.3
Legacy Seeds	LS-2139N	2.1	PI 88788	RR2X	2.5	1,100	1.3	62.7
Hoegemeyer HPT	LL1900 N	1.9	PI 88788	LL	2.5	1,925	6.4	62.4
Champion	22X09N	2.2	Pek./PI88.*	RR2X	2.7	625	1.4	62.3

Table 2. Manly (NC Iowa) continued.

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology ¹	IDC	SCN # (eggs/100cc) ²	SCN RF ³	Yield (bu/acre)
FOUR STAR SEED	3X190	1.9	PI 88788	RR2X	3.8	2,400	5.6	62.2
LATHAM	L2249L	2.2	PI 88788	LL	2.3	1,475	2.5	62.1
Pioneer	P18A98X	1.8	PI 88788	RR2X	2.3	1,100	2.9	62.1
FS HiSOY	25X70	2.5	PI 88788	RR2X	3.0	2,375	4.1	61.9
Merschman	Osage 1824LL	2.4	PI 88788	LL	1.5	1,925	4.8	61.8
Asgrow	AG23X9	2.3	Peking	RR2X	2.5	275	0.6	61.3
Beck's XL Brand	213R4	2.1	Peking	GT	1.9	500	0.4	60.9
FS HiSOY	22X80	2.2	Peking	RR2X	3.0	600	1.3	60.8
Federal Hybrids	F2380N	2.3	PI 88788	RR2X	3.1	850	1.9	60.6
Pfister	24R201	2.4	PI 88788	RR2Y	2.5	3,250	4.2	60.3
Dyna-Gro	S21XT49	2.1	PI 88788	RR2X	2.2	1,000	1.7	60.3
LATHAM	L2239R2X	2.2	Peking	RR2X	3.1	375	0.9	60.0
Merschman	Comanche 1626LL	2.6	PI 88788	LL	1.8	1,250	2.9	60.0
Kruger Seeds	K2X-1862	1.8	PI 88788	RR2X	2.0	775	0.8	59.9
LG Seeds	LGS1635RX	1.6	PI 88788	RR2X	3.3	2,725	4.0	59.6
Kruger Seeds	K2X-2261	2.2	PI 88788	RR2X	2.0	2,450	7.5	58.9
FS HiSOY	23X70	2.3	Peking	RR2X	2.7	750	1.7	58.5
Beck's	2559X2	2.5	PI 88788	RR2X	2.8	3,050	8.7	58.4
	Mean	2.1	-	-	2.5	1,580	3.9	64.1
	LSD ⁴ (P = 0.10)	-	-	-	-	1,369	-	3.1
<i>Kruger Seeds</i>	<i>K2-2301</i>	<i>2.3</i>	<i>None</i>	<i>RR2Y</i>	<i>3.8</i>	<i>4,600</i>	<i>13.1</i>	<i>63.5</i>
<i>NK</i>	<i>S24-K2</i>	<i>2.4</i>	<i>None</i>	<i>RR2Y</i>	<i>2.4</i>	<i>5,125</i>	<i>8.9</i>	<i>58.8</i>
<i>Dyna-Gro</i>	<i>39RY25</i>	<i>2.5</i>	<i>None</i>	<i>RR2Y</i>	<i>3.0</i>	<i>4,450</i>	<i>6.1</i>	<i>58.7</i>
	Mean	2.4	-	-	3.1	4,725	9.4	60.3

Values presented in tables are means. Entries are listed in decreasing order of yield.

Italicized entries are widely available SCN-susceptible varieties entered by Iowa State University for comparison purposes.

¹ GT = glyphosate tolerant, RR2Y = Roundup Ready 2 Yield®, RR2X = Roundup Ready 2 Xtend®, LL = LibertyLink®. May not reflect all herbicide tolerances. Consult product literature or seed dealer for more complete information.

² Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 470 eggs per 100 cc soil; HG type 2- (44% on PI 88788, 0% on Peking).

³ Reproductive factor (RF) = average final SCN egg population density / average initial SCN egg population density; RF 1.0 = no change in SCN population density over growing season.











































⁴ Least significant difference: values are from Fisher's least-significant-difference test, NS = no significant differences among the varieties.

* Both Peking and PI 88788 sources of resistance

Table 3. Arlington (NE Iowa). NOTE: This site had significant SDS – disease ratings are listed in the table.

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology ¹	IDC	SDS Index ²	SCN # (eggs/100cc) ³	SCN RF ⁴	Yield (bu/acre)
LATHAM	L2295R2X	2.2	PI 88788	RR2X	2.5	2.2	975	1.1	68.2
Pioneer	P21A28X	2.1	Peking	RR2X	2.0	3.3	300	0.2	66.3
Miller Hybrids	2472CRX	2.4	PI 88788	RR2X	3.5	4.5	1,075	1.4	66.1
Kruger Seeds	K2X-2052	2.0	PI 88788	RR2X	2.3	0.0	300	0.7	65.2
FS HiSOY	25X70	2.5	PI 88788	RR2X	3.0	3.9	500	1.0	65.1
Beck's XL Brand	253R4	2.5	Peking	GT	2.5	0.0	50	0.1	64.6
Jacobsen	761NR2X	2.1	PI 88788	RR2X	1.9	8.9	1,425	2.4	64.2
Miller Hybrids	2479CLL	2.4	PI 88788	LL	1.6	2.8	2,050	4.1	64.1
Merschman	Osage 1824LL	2.4	PI 88788	LL	1.5	2.2	1,500	1.6	63.7
FOUR STAR SEED	3X241	2.4	PI 88788	RR2X	2.5	8.9	575	0.7	63.3
Miller Hybrids	2162CRX	2.1	PI 88788	RR2X	2.3	0.0	675	0.9	63.1
Pioneer	P23A32X	2.3	PI 88788	RR2X	1.9	1.1	250	0.5	63.0
NK	S20-J5X	2.0	PI 88788	RR2X	2.5	3.9	1,000	2.2	62.6
Prairie Brand	PB-2228R2	2.2	PI 88788	RR2Y	2.4	1.7	1,500	2.5	62.3
Stine	21RI32	2.1	PI 88788	RR2Y	2.9	7.2	750	0.9	62.0
Dyna-Gro	S21XT77	2.1	PI 88788	RR2X	1.7	1.1	375	1.2	62.0
Merschman	Comanche 1626LL	2.6	PI 88788	LL	1.8	1.1	1,000	1.1	61.6
Asgrow	AG21X9	2.1	PI 88788	RR2X	2.0	0.0	675	1.8	61.5
Beck's	2559X2	2.5	PI 88788	RR2X	2.8	1.1	925	2.1	61.4
Dyna-Gro	S21XT49	2.1	PI 88788	RR2X	2.2	35.6	725	1.8	61.2
Asgrow	AG23X9	2.3	Peking	RR2X	2.5	1.1	250	0.3	61.2
LG Seeds	LGS1635RX	1.6	PI 88788	RR2X	3.3	3.3	925	1.6	61.1
NK	S21-W8X	2.1	PI 88788	RR2X	2.8	2.2	800	1.2	61.0
Prairie Brand	PB-1787R2	1.7	PI 88788	RR2Y	2.8	13.3	700	1.0	60.9
Federal Hybrids	F2090N	2.0	PI 88788	RR2X	1.8	7.2	500	2.2	60.8
Champion	24L17N	2.4	PI 88788	LL	1.8	4.1	1,300	1.3	60.4
LATHAM	L2249L	2.2	PI 88788	LL	2.3	9.5	575	0.6	60.3
Pioneer	P23A15X	2.3	PI 88788	RR2X	2.8	0.0	1,150	1.8	59.9
NuTech	7239X	2.3	PI 88788	RR2X	2.2	4.5	625	1.6	59.6
LG Seeds	LGS2007RX	2.0	PI 88788	RR2X	2.7	3.3	350	0.7	59.6
NuTech	3205L	2.0	PI 88788	LL	3.4	4.4	675	1.2	59.5
Pfister	24R201	2.4	PI 88788	RR2Y	2.5	4.4	825	1.9	59.4
Prairie Brand	PB-2197R2	2.1	PI 88788	RR2Y	2.4	8.9	1,300	3.1	59.3
Golden Harvest	GH1915X	1.9	PI 88788	RR2X	3.0	0.0	275	0.3	59.1
Stine	20RD20	2.0	PI 88788	RR2Y	1.3	6.3	875	1.9	59.0
Dyna-Gro	S24XT08	2.4	PI 88788	RR2X	3.1	12.2	700	0.7	59.0
Stine	24RH62	2.4	PI 88788	RR2Y	2.0	5.6	1,525	2.3	58.8
Golden Harvest	GH1852X	1.8	PI 88788	RR2X	2.6	4.5	925	1.3	58.8
Champion	22X09N	2.2	Pek./PI88.*	RR2X	2.7	4.4	475	0.7	58.7
Pioneer	P19A14X	1.9	Peking	RR2X	3.1	1.7	250	0.3	58.7
NuTech	7224	2.2	Peking	GT	1.5	2.9	300	0.5	58.5
FOUR STAR SEED	3X190	1.9	PI 88788	RR2X	3.8	8.9	1,200	1.3	58.2
Dairyland Seed	DSR-2330/R2Y	2.3	PI 88788	RR2Y	2.3	10.0	1,725	2.2	57.9
Legacy Seeds	LS-2139N	2.1	PI 88788	RR2X	2.5	6.7	375	0.4	57.8
Dairyland Seed	DSR-2110/R2Y	2.1	PI 88788	RR2Y	2.0	11.1	500	0.6	57.7
FS HiSOY	22X80	2.2	Peking	RR2X	3.0	6.7	450	0.9	57.7
Pfister	20R23	2.0	PI 88788	RR2Y	2.9	11.7	750	1.5	57.4
LATHAM	L2239R2X	2.2	Peking	RR2X	3.1	7.2	200	0.3	56.8
Kruger Seeds	K2X-1862	1.8	PI 88788	RR2X	2.0	2.2	450	0.6	56.5
Legacy Seeds	LS-2339N	2.3	PI 88788	RR2X	3.2	10.0	725	2.4	56.2
Hoegemeyer HPT	LL1900 N	1.9	PI 88788	LL	2.5	4.8	350	0.8	56.2

Table 3. Arlington (NE Iowa) continued. NOTE: This site had significant SDS – disease ratings are listed in the table.

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology ¹	IDC	SDS Index ²	SCN # (eggs/100cc) ³	SCN RF ⁴	Yield (bu/acre)
Jacobsen	669NR2	1.9	PI 88788	RR2X	3.5	14.1	1,225	1.5 	54.9 
Prairie Brand	PB-1947R2	1.9	PI 88788	RR2Y	2.9	8.9	425	0.7 	54.7 
Federal Hybrids	F1880N	1.8	PI 88788	RR2X	2.1	16.6	875	1.0 	54.6 
LATHAM	L2187GT	2.1	PI 88788	GT	2.9	15.2	350	0.6 	54.4 
Stine	20BB02	2.0	PI 88788	GT	2.9	15.3	700	1.1 	54.3 
Federal Hybrids	F2380N	2.3	PI 88788	RR2X	3.1	9.5	525	0.7 	54.0 
FS HiSOY	24X80	2.4	PI 88788	RR2X	3.2	17.0	925	1.2 	53.6 
FS HiSOY	23X70	2.3	Peking	RR2X	2.7	13.3	325	0.5 	52.9 
Beck's	1889X2	1.8	PI 88788	RR2X	2.1	20.0	1,000	0.8 	51.6 
Dairyland Seed	DSR-1950/R2Y	1.9	PI 88788	RR2Y	3.5	28.5	525	0.5 	51.2 
Jacobsen	678NR2X	1.8	PI 88788	RR2X	2.1	19.2	575	0.5 	51.0 
Beck's	2339X2	2.3	Peking	RR2X	2.4	11.5	475	0.5 	50.8 
Stine	19RF32	1.9	PI 88788	RR2Y	3.9	26.4	750	1.4 	49.7 
Beck's XL Brand	213R4	2.1	Peking	GT	1.9	12.5	150	0.3 	49.4 
Pioneer	P18A98X	1.8	PI 88788	RR2X	2.3	8.2	975	2.3 	47.7 
Kruger Seeds	K2X-2261	2.2	PI 88788	RR2X	2.0	14.7	1,450	1.7 	43.9 
NuTech	3236L	2.3	PI 88788	LL	2.9	30.0	1,475	1.7 	41.1 
NuTech	3174L	1.7	PI 88788	LL	1.8	56.4	650	0.6 	38.5 
	Mean	2.1	-		2.5	11.5	754	1.2	58.0
	LSD ⁵ (P = 0.10)	-	-		-	-	685	-	6.7
<i>Kruger Seeds</i>	<i>K2-2301</i>	<i>2.3</i>	<i>None</i>	<i>RR2Y</i>	<i>3.8</i>	<i>22.5</i>	<i>1,500</i>	<i>3.5</i> 	<i>40.9</i> 
<i>Dyna-Gro</i>	<i>39RY25</i>	<i>2.5</i>	<i>None</i>	<i>RR2Y</i>	<i>3.0</i>	<i>14.2</i>	<i>1,750</i>	<i>4.1</i> 	<i>39.5</i> 
<i>NK</i>	<i>S24-K2</i>	<i>2.4</i>	<i>None</i>	<i>RR2Y</i>	<i>2.4</i>	<i>31.1</i>	<i>2,775</i>	<i>3.5</i> 	<i>35.7</i> 
	Mean	2.4	-	-	3.1	22.6	2,008	3.7	38.7

Values presented in tables are means. Entries are listed in decreasing order of yield.

Italicized entries are widely available SCN-susceptible varieties entered by Iowa State University for comparison purposes.

¹ GT = glyphosate tolerant, RR2Y = Roundup Ready 2 Yield®, RR2X = Roundup Ready 2 Xtend®, LL = LibertyLink®. May not reflect all herbicide tolerances. Consult product literature or seed dealer for more complete information.

² Sudden Death Syndrome (SDS) disease index (0-100) = (SDS incidence x SDS severity)/9. Nijiti et al. Crop Science 38:673-678 (1998). SDS incidence was uniform in this field but likely influenced soybean yield.

³ Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 710 eggs per 100 cc soil; HG type 2- (26% on PI 88788, 1% on Peking).

⁴ Reproductive factor (RF) = average final SCN egg population density / average initial SCN egg population density; RF 1.0 = no change in SCN population density over growing season.

⁵ Least significant difference: values are from Fisher's least-significant-difference test, NS = no significant differences among the varieties.

* Both Peking and PI 88788 sources of resistance

Table 4. Moorhead (WC Iowa). NOTE: This site had significant SDS – disease ratings are listed in the table.

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology ¹	IDC	SDS Index ²	SCN # (eggs/100cc) ³	SCN RF ⁴	Yield (bu/acre)
Pioneer	P25A70R	2.5	Peking	GT	2.5	11.7	275	0.2	80.6
Hoegemeyer HPT	2994 NR	2.9	PI 88788	GT	3.0	6.7	1,050	0.8	80.2
FOUR STAR SEED	3X271	2.7	PI 88788	RR2X	4.2	1.9	875	0.8	79.9
LG Seeds	C2888RX	2.8	PI 88788	RR2X	3.6	0.6	900	1.2	79.8
Beck's XL Brand	253R4	2.5	Peking	GT	2.5	4.2	325	0.2	79.7
Hoegemeyer HPT	2590 NR	2.5	Peking	GT	2.7	14.5	350	0.3	79.3
Pioneer	P24A99X	2.4	PI 88788	RR2X	2.0	7.0	1,575	2.0	78.6
Beck's	2899X2	2.8	PI 88788	RR2X	3.8	0.0	1,100	0.9	78.0
FS HiSOY	28X70	2.8	PI 88788	RR2X	2.8	1.1	1,450	1.3	77.5
LATHAM	L2887R2X	2.8	PI 88788	RR2X	3.8	0.0	1,250	0.8	76.8
Prairie Brand	PB-2486R2	2.4	PI 88788	RR2Y	2.6	10.6	1,100	0.8	75.9
Asgrow	AG29X9	2.9	PI 88788	RR2X	3.5	0.8	2,225	1.9	75.8
Pioneer	P25A27X	2.5	PI 88788	RR2X	2.5	5.3	1,500	1.0	75.6
Dyna-Gro	S28XT58	2.8	PI 88788	RR2X	3.4	2.8	875	1.1	75.4
Golden Harvest	GH2981X	2.9	PI 88788	RR2X	2.4	5.3	425	0.5	75.1
NuTech	7239X	2.3	PI 88788	RR2X	2.2	7.2	1,250	2.3	74.6
Beck's	2559X2	2.5	PI 88788	RR2X	2.8	9.2	1,225	0.9	74.5
Stine	24RH62	2.4	PI 88788	RR2Y	2.0	3.9	1,150	1.1	74.1
Miller Hybrids	2659CLL	2.6	PI 88788	LL	2.6	18.9	2,900	2.6	73.9
Jacobsen	774NR2X	2.4	PI 88788	RR2X	3.0	12.2	450	0.5	73.5
LG Seeds	LGS2759RX	2.7	PI 88788	RR2X	3.8	8.6	1,425	1.3	73.0
Asgrow	AG27X9	2.7	Peking	RR2X	3.0	5.0	350	0.2	72.9
Pfister	24R201	2.4	PI 88788	RR2Y	2.5	10.3	900	1.2	72.8
Stine	27RI02	2.7	PI 88788	RR2Y	2.3	8.6	1,875	0.9	72.4
Pioneer	P29A25X	2.9	PI 88788	RR2X	1.5	4.7	875	0.9	72.2
Stine	25BB32	2.5	PI 88788	GT	3.3	0.0	1,275	1.4	72.1
Jacobsen	878NR2X	2.8	PI 88788	RR2X	2.5	1.9	1,300	0.9	72.1
Pioneer	P27A17X	2.7	Peking	RR2X	2.5	10.0	325	0.2	71.8
Golden Harvest	GH2041X	2.0	PI 88788	RR2X	2.3	0.0	1,175	0.6	71.5
Jacobsen	764NR2	2.4	PI 88788	RR2Y	1.6	14.7	1,500	1.4	71.5
Champion	26X09N	2.6	PI 88788	RR2X	3.0	7.5	2,250	1.9	71.4
Prairie Brand	PB-2628L	2.6	PI 88788	LL	1.5	12.5	1,600	1.3	71.1
Beck's	2339X2	2.3	Peking	RR2X	2.4	5.8	1,125	0.8	71.0
NuTech	7287X	2.8	PI 88788	RR2X	3.8	2.5	600	0.5	70.8
Champion	28X78N	2.8	PI 88788	RR2X	3.8	0.3	1,200	0.9	70.7
Hoegemeyer HPT	2811 NR	2.8	PI 88788	GT	1.8	13.9	1,525	1.5	70.5
NuTech	3252L	2.5	PI 88788	LL	1.5	14.2	1,825	2.0	70.5
Stine	30BB20	3.0	PI 88788	GT	1.9	19.2	1,450	1.7	70.4
NK	S27-M8X	2.7	PI 88788	RR2X	2.9	5.6	1,650	1.2	70.1
Dyna-Gro	S31XT59	3.1	PI 88788	RR2X	1.9	6.7	950	0.6	69.8
Pfister	32R201	3.2	PI 88788	RR2Y	3.2	4.4	775	0.5	69.7
Miller Hybrids	2672CRX	2.6	PI 88788	RR2X	2.8	18.4	1,025	0.6	69.2
Stine	29RI32	2.9	PI 88788	RR2Y	3.4	2.2	675	1.1	68.9
Hoegemeyer HPT	LL2599 N	2.5	PI 88788	LL	1.8	9.5	2,075	1.0	68.4
Federal Hybrids	F2880N	2.8	PI 88788	RR2X	3.1	5.3	700	0.7	68.3
Kruger Seeds	K2X-2863	2.8	PI 88788	RR2X	3.8	3.3	1,000	1.4	67.6
Federal Hybrids	F2590N	2.5	PI 88788	RR2X	3.0	8.3	450	0.3	66.7
FS HiSOY	29X80	2.9	PI 88788	RR2X	2.4	4.7	1,025	0.8	66.6
Dyna-Gro	S25XT99	2.5	PI 88788	RR2X	3.5	18.1	1,050	0.7	66.5
LATHAM	L2582L	2.5	PI 88788	LL	1.3	8.6	2,475	1.7	66.0
Kruger Seeds	K2X-3353	3.3	PI 88788	RR2X	3.7	3.9	1,025	0.8	65.5

Table 4. Moorhead (WC Iowa) continued. NOTE: This site had significant SDS – disease ratings are listed in the table.

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology ¹	IDC	SDS Index ²	SCN # (eggs/100cc) ³	SCN RF ⁴	Yield (bu/acre)
Dairyland Seed	DSR-3555/R2Y	3.5	PI 88788	RR2Y	3.2	3.3	950	1.0	65.4
Miller Hybrids	3072CRX	3.0	PI 88788	RR2X	3.4	2.8	700	0.8	64.9
FOUR STAR SEED	3X290	2.9	PI 88788	RR2X	2.4	10.0	900	1.0	64.5
FS HiSOY	32X80	3.2	PI 88788	RR2X	3.5	3.9	1,500	1.2	64.3
Prairie Brand	PB-2876R2	2.8	PI 88788	RR2Y	2.8	14.7	1,175	1.6	64.1
Prairie Brand	PB-2228R2	2.2	PI 88788	RR2Y	2.4	1.7	675	0.6	63.6
Merschman	Sioux 1628LL	2.8	PI 88788	LL	2.9	5.3	725	0.6	63.4
LG Seeds	LGS2444RX	2.4	PI 88788	RR2X	3.0	31.1	1,825	3.3	63.2
FS HiSOY	30X80	3.0	PI 88788	RR2X	2.9	8.1	1,050	0.9	61.8
Merschman	McKinley 1931LL	3.1	PI 88788	LL	3.5	11.7	1,225	1.4	61.7
Beck's	296L4	2.9	PI 88788	LL	3.5	7.8	275	0.3	61.5
LATHAM	L3197R2X	3.1	PI 88788	RR2X	3.3	16.4	1,600	1.1	60.3
Federal Hybrids	F3090N	3.0	PI 88788	RR2X	2.4	10.6	1,225	1.5	59.8
Dairyland Seed	DSR-3028/R2Y	3.0	PI 88788	RR2Y	3.2	6.7	1,250	0.6	58.5
NK	S25-B6X	2.5	PI 88788	RR2X	2.5	13.6	925	0.7	57.9
LATHAM	L2982GT	2.9	PI 88788	GT	3.3	9.8	1,650	1.1	57.2
Dairyland Seed	DSR-3250/R2Y	3.2	PI 88788	RR2Y	3.1	11.1	1,100	0.7	53.6
NuTech	3236L	2.3	PI 88788	LL	2.9	26.4	6,725	5.5	46.1
Mean		2.7	-	-	2.8	8.1	1,234	1.1	69.6
	LSD ⁵ (P = 0.10)	-	-	-	-	-	1,046	-	6.5
<i>Asgrow</i>	<i>AG27X8</i>	2.7	None	RR2X	3.7	19.7	5,775	4.5	57.6
<i>Dyna-Gro</i>	<i>39RY25</i>	2.5	None	RR2Y	3.5	30.0	5,475	5.6	52.9
<i>NK</i>	<i>S24-K2</i>	2.4	None	RR2Y	1.9	18.3	5,975	5.2	51.7
Mean		2.5	-	-	3.0	22.7	5,742	5.1	54.1

Values presented in tables are means. Entries are listed in decreasing order of yield.

Italicized entries are widely available SCN-susceptible varieties entered by Iowa State University for comparison purposes.

¹ GT = glyphosate tolerant, RR2Y = Roundup Ready 2 Yield®, RR2X = Roundup Ready 2 Xtend®, LL = LibertyLink®. May not reflect all herbicide tolerances. Consult product literature or seed dealer for more complete information.

² Sudden Death Syndrome (SDS) disease index (0-100) = (SDS incidence x SDS severity)/9. Nijiti et al. Crop Science 38:673-678 (1998). SDS incidence was uniform in this field but likely influenced soybean yield.

³ Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 1,206 eggs per 100 cc soil; HG type 1.2- (53% on PI 88788, 10% on Peking).

⁴ Reproductive factor (RF) = average final SCN egg population density / average initial SCN egg population density; RF 1.0 = no change in SCN population density over growing season.

⁵ Least significant difference: values are from Fisher's least-significant-difference test, NS = no significant differences among the varieties.

Table 5. Ames (C Iowa).

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology ¹	IDC	SCN # (eggs/100cc) ²	SCN RF ³	Yield (bu/acre)
Asgrow	AG29X9	2.9	PI 88788	RR2X	3.5	800	8.0	77.7
Stine	30BB20	3.0	PI 88788	GT	1.9	425	2.8	76.8
Dairyland Seed	DSR-3555/R2Y	3.5	PI 88788	RR2Y	3.2	1,050	2.6	76.1
LATHAM	L2887R2X	2.8	PI 88788	RR2X	3.8	1,050	10.5	75.7
LATHAM	L2982GT	2.9	PI 88788	GT	3.3	2,525	12.6	75.2
Federal Hybrids	F2590N	2.5	PI 88788	RR2X	3.0	1,675	9.6	74.1
Federal Hybrids	F2880N	2.8	PI 88788	RR2X	3.1	700	7.0	73.5
Miller Hybrids	2659CLL	2.6	PI 88788	LL	2.6	3,225	21.5	73.3
FOUR STAR SEED	3X290	2.9	PI 88788	RR2X	2.4	425	2.8	72.8
Kruger Seeds	K2X-2863	2.8	PI 88788	RR2X	3.8	1,125	7.5	72.6
Beck's	2899X2	2.8	PI 88788	RR2X	3.8	1,275	8.5	72.3
Beck's	2559X2	2.5	PI 88788	RR2X	2.8	3,075	11.2	72.2
FS HiSOY	32X80	3.2	PI 88788	RR2X	3.5	625	3.6	72.2
LG Seeds	LGS2444RX	2.4	PI 88788	RR2X	3.0	325	2.6	72.1
Pioneer	P25A70R	2.5	Peking	GT	2.5	225	0.7	72.1
Dairyland Seed	DSR-3250/R2Y	3.2	PI 88788	RR2Y	3.1	375	3.8	72.0
Merschman	McKinley 1931LL	3.1	PI 88788	LL	3.5	725	4.1	71.6
Beck's XL Brand	253R4	2.5	Peking	GT	2.5	550	3.7	71.4
FS HiSOY	29X80	2.9	PI 88788	RR2X	2.4	825	4.7	71.4
Hoegemeyer HPT	2590 NR	2.5	Peking	GT	2.7	250	2.5	71.0
LG Seeds	LGS2759RX	2.7	PI 88788	RR2X	3.8	2,650	26.5	70.9
FOUR STAR SEED	3X271	2.7	PI 88788	RR2X	4.2	2,625	11.7	70.4
Miller Hybrids	2672CRX	2.6	PI 88788	RR2X	2.8	3,175	14.1	70.3
Hoegemeyer HPT	LL2599 N	2.5	PI 88788	LL	1.8	2,075	20.8	70.1
FS HiSOY	30X80	3.0	PI 88788	RR2X	2.9	800	6.4	70.1
Stine	29RI32	2.9	PI 88788	RR2Y	3.4	525	1.6	69.9
Champion	28X78N	2.8	PI 88788	RR2X	3.8	875	5.0	69.8
Pioneer	P29A25X	2.9	PI 88788	RR2X	1.5	225	0.5	69.7
Miller Hybrids	3072CRX	3.0	PI 88788	RR2X	3.4	75	0.8	69.5
Dyna-Gro	S28XT58	2.8	PI 88788	RR2X	3.4	1,950	5.6	69.3
Hoegemeyer HPT	2811 NR	2.8	PI 88788	GT	1.8	725	5.8	68.9
LATHAM	L3197R2X	3.1	PI 88788	RR2X	3.3	1,900	12.7	68.8
LG Seeds	C2888RX	2.8	PI 88788	RR2X	3.6	1,675	6.7	68.7
Dyna-Gro	S25XT99	2.5	PI 88788	RR2X	3.5	1,325	7.6	68.6
Kruger Seeds	K2X-3353	3.3	PI 88788	RR2X	3.7	3,850	30.8	67.9
Prairie Brand	PB-2628L	2.6	PI 88788	LL	1.5	1,075	6.1	67.7
Pfister	32R201	3.2	PI 88788	RR2Y	3.2	5,825	23.3	67.7
Federal Hybrids	F3090N	3.0	PI 88788	RR2X	2.4	2,350	6.7	67.7
FS HiSOY	28X70	2.8	PI 88788	RR2X	2.8	1,425	11.4	67.7
Prairie Brand	PB-2228R2	2.2	PI 88788	RR2Y	2.4	350	3.5	67.6
NK	S27-M8X	2.7	PI 88788	RR2X	2.9	2,325	18.6	67.5
Pioneer	P27A17X	2.7	Peking	RR2X	2.5	175	0.5	67.4
Asgrow	AG27X9	2.7	Peking	RR2X	3.0	575	1.0	67.3
LATHAM	L2582L	2.5	PI 88788	LL	1.3	1,450	11.6	67.1
Golden Harvest	GH2981X	2.9	PI 88788	RR2X	2.4	1,550	8.9	67.1
Hoegemeyer HPT	2994 NR	2.9	PI 88788	GT	3.0	550	4.4	67.0
Stine	27RI02	2.7	PI 88788	RR2Y	2.3	1,100	2.2	66.9
Stine	25BB32	2.5	PI 88788	GT	3.3	1,300	3.7	66.5
Beck's	296L4	2.9	PI 88788	LL	3.5	200	0.8	66.2
Merschman	Sioux 1628LL	2.8	PI 88788	LL	2.9	2,200	12.6	65.8
Dyna-Gro	S31XT59	3.1	PI 88788	RR2X	1.9	775	5.2	65.8

Table 5. Ames (C Iowa) continued.

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology ¹	IDC	SCN # (eggs/100cc) ²	SCN RF ³	Yield (bu/acre)
Jacobsen	878NR2X	2.8	PI 88788	RR2X	2.5	1,275	8.5	65.6
NuTech	7287X	2.8	PI 88788	RR2X	3.8	2,900	6.8	64.4
Dairyland Seed	DSR-3028/R2Y	3.0	PI 88788	RR2Y	3.2	1,100	3.4	64.3
Prairie Brand	PB-2486R2	2.4	PI 88788	RR2Y	2.6	1,575	12.6	63.7
Champion	26X09N	2.6	PI 88788	RR2X	3.0	1,675	11.2	63.4
Beck's	2339X2	2.3	Peking	RR2X	2.4	500	4.0	63.2
NuTech	3252L	2.5	PI 88788	LL	1.5	3,000	5.5	62.7
Prairie Brand	PB-2876R2	2.8	PI 88788	RR2Y	2.8	4,750	14.6	62.6
NK	S25-B6X	2.5	PI 88788	RR2X	2.5	2,025	8.1	62.6
Pioneer	P24A99X	2.4	PI 88788	RR2X	2.0	650	3.3	60.5
NuTech	7239X	2.3	PI 88788	RR2X	2.2	2,125	8.5	59.2
Pfister	24R201	2.4	PI 88788	RR2Y	2.5	1,150	6.6	59.1
Jacobsen	764NR2	2.4	PI 88788	RR2Y	1.6	5,375	11.9	58.3
Pioneer	P25A27X	2.5	PI 88788	RR2X	2.5	1,925	6.4	57.9
Jacobsen	774NR2X	2.4	PI 88788	RR2X	3.0	1,550	4.4	57.3
Stine	24RH62	2.4	PI 88788	RR2Y	2.0	1,075	7.2	56.9
NuTech	3236L	2.3	PI 88788	LL	2.9	6,725	53.8	51.7
Golden Harvest	GH2041X	2.0	PI 88788	RR2X	2.3	3,350	13.4	51.2
Mean		2.7	-	-	2.8	1,618	8.7	67.6
LSD ⁴ (P = 0.10)		-	-	-	-	2,408	-	5.9
<i>Asgrow</i>	<i>AG27X8</i>	2.7	<i>None</i>	<i>RR2X</i>	3.7	8,050	46.0	66.8
<i>NK</i>	<i>S24-K2</i>	2.4	<i>None</i>	<i>RR2Y</i>	1.9	3,125	9.6	60.8
<i>Dyna-Gro</i>	<i>39RY25</i>	2.5	<i>None</i>	<i>RR2Y</i>	3.5	3,750	25.0	60.7
Mean		2.5	-	-	3.0	4,975	26.9	62.8

Values presented in tables are means. Entries are listed in decreasing order of yield.

Italicized entries are widely available SCN-susceptible varieties entered by Iowa State University for comparison purposes.

¹ GT = glyphosate tolerant, RR2Y = Roundup Ready 2 Yield®, RR2X = Roundup Ready 2 Xtend®, LL = LibertyLink®. May not reflect all herbicide tolerances. Consult product literature or seed dealer for more complete information.

² Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 218 eggs per 100 cc soil; HG type 2- (36% on PI 88788, 4% on Peking).

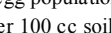









































³ Reproductive factor (RF) = average final SCN egg population density / average initial SCN egg population density; RF 1.0 = no change in SCN population density over growing season.

⁴ Least significant difference: values are from Fisher's least-significant-difference test, NS = no significant differences among the varieties.

Table 6. Urbana (EC Iowa). NOTE: This site had significant SDS – disease ratings are listed in the table.

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology ¹	IDC	SDS Index ²	SCN # (eggs/100cc) ³	SCN RF ⁴	Yield (bu/acre)
Stine	27RI02	2.7	PI 88788	RR2Y	2.3	1.4	1,575	2.3	79.3
Beck's XL Brand	253R4	2.5	Peking	GT	2.5	1.7	150	0.3	77.4
Stine	25BB32	2.5	PI 88788	GT	3.3	0.3	1,525	2.8	76.5
LATHAM	L2582L	2.5	PI 88788	LL	1.3	1.7	875	2.2	75.6
Jacobsen	774NR2X	2.4	PI 88788	RR2X	3.0	5.3	575	2.3	73.0
Asgrow	AG29X9	2.9	PI 88788	RR2X	3.5	1.7	825	4.7	71.6
Miller Hybrids	2659CLL	2.6	PI 88788	LL	2.6	1.9	1,250	1.6	70.9
LATHAM	L2982GT	2.9	PI 88788	GT	3.3	2.2	550	1.5	69.9
Hoegemeyer HPT	2994 NR	2.9	PI 88788	GT	3.0	5.6	275	0.6	69.9
NuTech	3252L	2.5	PI 88788	LL	1.5	3.9	325	0.6	69.9
FS HiSOY	28X70	2.8	PI 88788	RR2X	2.8	0.8	600	2.4	69.9
LG Seeds	C2888RX	2.8	PI 88788	RR2X	3.6	2.2	700	3.1	69.7
Prairie Brand	PB-2486R2	2.4	PI 88788	RR2Y	2.6	3.0	1,350	4.2	69.5
Stine	24RH62	2.4	PI 88788	RR2Y	2.0	4.7	800	3.6	69.4
LATHAM	L2887R2X	2.8	PI 88788	RR2X	3.8	0.0	775	1.5	68.8
Prairie Brand	PB-2628L	2.6	PI 88788	LL	1.5	1.4	550	2.0	68.6
Stine	29RI32	2.9	PI 88788	RR2Y	3.4	1.7	800	3.2	68.4
Dyna-Gro	S28XT58	2.8	PI 88788	RR2X	3.4	2.8	600	1.1	67.8
Jacobsen	878NR2X	2.8	PI 88788	RR2X	2.5	0.8	350	0.9	67.5
Champion	28X78N	2.8	PI 88788	RR2X	3.8	0.6	700	2.3	67.0
Federal Hybrids	F2880N	2.8	PI 88788	RR2X	3.1	1.7	1,550	3.3	66.7
Beck's	2899X2	2.8	PI 88788	RR2X	3.8	1.7	1,200	1.7	65.9
NuTech	7287X	2.8	PI 88788	RR2X	3.8	1.1	1,275	2.6	65.4
Pioneer	P24A99X	2.4	PI 88788	RR2X	2.0	0.8	975	1.7	65.3
Jacobsen	764NR2	2.4	PI 88788	RR2Y	1.6	4.4	1,100	2.9	65.0
Merschman	McKinley 1931LL	3.1	PI 88788	LL	3.5	3.3	350	1.2	64.8
Golden Harvest	GH2041X	2.0	PI 88788	RR2X	2.3	8.1	550	2.4	64.7
LG Seeds	LGS2759RX	2.7	PI 88788	RR2X	3.8	8.3	1,150	2.1	64.6
Hoegemeyer HPT	LL2599 N	2.5	PI 88788	LL	1.8	4.5	1,000	3.3	64.3
FOUR STAR SEED	3X271	2.7	PI 88788	RR2X	4.2	2.2	925	0.9	64.0
Champion	26X09N	2.6	PI 88788	RR2X	3.0	5.0	1,400	4.3	63.7
Pfister	24R201	2.4	PI 88788	RR2Y	2.5	5.9	600	2.2	63.6
NK	S27-M8X	2.7	PI 88788	RR2X	2.9	5.6	725	1.3	63.1
Hoegemeyer HPT	2811 NR	2.8	PI 88788	GT	1.8	14.7	1,175	1.7	63.0
Dyna-Gro	S31XT59	3.1	PI 88788	RR2X	1.9	1.9	375	1.1	62.9
Kruger Seeds	K2X-3353	3.3	PI 88788	RR2X	3.7	3.3	1,025	2.3	62.7
Pioneer	P25A27X	2.5	PI 88788	RR2X	2.5	1.4	1,150	1.8	62.1
Hoegemeyer HPT	2590 NR	2.5	Peking	GT	2.7	11.1	0	0.0	62.0
NuTech	7239X	2.3	PI 88788	RR2X	2.2	3.4	425	1.4	61.7
FS HiSOY	30X80	3.0	PI 88788	RR2X	2.9	5.8	500	1.2	61.3
Beck's	2339X2	2.3	Peking	RR2X	2.4	2.5	250	0.8	60.6
Asgrow	AG27X9	2.7	Peking	RR2X	3.0	5.0	75	0.1	60.6
Stine	30BB20	3.0	PI 88788	GT	1.9	12.0	650	1.4	60.4
Merschman	Sioux 1628LL	2.8	PI 88788	LL	2.9	6.1	250	0.6	59.9
Federal Hybrids	F2590N	2.5	PI 88788	RR2X	3.0	6.1	450	0.9	59.6
LATHAM	L3197R2X	3.1	PI 88788	RR2X	3.3	5.5	1,950	2.8	58.9
Kruger Seeds	K2X-2863	2.8	PI 88788	RR2X	3.8	4.5	675	1.1	58.7
Miller Hybrids	2672CRX	2.6	PI 88788	RR2X	2.8	16.1	600	1.5	58.1
Miller Hybrids	3072CRX	3.0	PI 88788	RR2X	3.4	1.7	875	2.1	58.0
Pioneer	P25A70R	2.5	Peking	GT	2.5	7.2	125	0.7	57.7
Beck's	2559X2	2.5	PI 88788	RR2X	2.8	8.9	1,125	2.1	57.6

Table 6. Urbana (EC Iowa) continued. NOTE: This site had significant SDS – disease ratings are listed in the table.

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology ¹	IDC	SDS Index ²	SCN # (eggs/100cc) ³	SCN RF ⁴	Yield (bu/acre)
Dairyland Seed	DSR-3555/R2Y	3.5	PI 88788	RR2Y	3.2	5.8	300	0.9 	57.1 
Federal Hybrids	F3090N	3.0	PI 88788	RR2X	2.4	5.0	800	1.5 	57.1 
Pioneer	P29A25X	2.9	PI 88788	RR2X	1.5	0.8	900	1.3 	56.9 
Golden Harvest	GH2981X	2.9	PI 88788	RR2X	2.4	3.6	525	1.8 	56.7 
FS HiSOY	29X80	2.9	PI 88788	RR2X	2.4	6.4	1,150	1.7 	56.3 
LG Seeds	LGS2444RX	2.4	PI 88788	RR2X	3.0	23.3	1,275	1.8 	53.1 
FOUR STAR SEED	3X290	2.9	PI 88788	RR2X	2.4	15.6	700	2.2 	52.2 
Prairie Brand	PB-2228R2	2.2	PI 88788	RR2Y	2.4	4.5	1,000	3.3 	52.0 
Dairyland Seed	DSR-3028/R2Y	3.0	PI 88788	RR2Y	3.2	5.0	925	2.8 	51.9 
FS HiSOY	32X80	3.2	PI 88788	RR2X	3.5	13.6	575	0.6 	51.8 
NK	S25-B6X	2.5	PI 88788	RR2X	2.5	17.5	600	0.9 	51.1 
Pioneer	P27A17X	2.7	Peking	RR2X	2.5	24.2	150	0.6 	50.8 
Dairyland Seed	DSR-3250/R2Y	3.2	PI 88788	RR2Y	3.1	3.3	750	3.8 	50.2 
Prairie Brand	PB-2876R2	2.8	PI 88788	RR2Y	2.8	12.8	450	1.1 	50.0 
Beck's	296L4	2.9	PI 88788	LL	3.5	15.3	225	0.6 	48.4 
NuTech	3236L	2.3	PI 88788	LL	2.9	20.3	2,600	14.9 	48.3 
Pfister	32R201	3.2	PI 88788	RR2Y	3.2	15.0	775	1.9 	47.8 
Dyna-Gro	S25XT99	2.5	PI 88788	RR2X	3.5	31.7	900	2.4 	43.7 
	Mean	2.7	-	-	2.8	6.3	786	2.0	62.1
	LSD ⁵ (P= 0.10)	-	-	-	-	-	848	-	6.6
<i>NK</i>	<i>S24-K2</i>	<i>2.4</i>	<i>None</i>	<i>RR2Y</i>	<i>1.9</i>	<i>8.1</i>	<i>1,525</i>	<i>6.1</i> 	<i>57.7</i> 
<i>Asgrow</i>	<i>AG27X8</i>	<i>2.7</i>	<i>None</i>	<i>RR2X</i>	<i>3.7</i>	<i>29.2</i>	<i>2,575</i>	<i>4.0</i> 	<i>45.3</i> 
<i>Dyna-Gro</i>	<i>39RY25</i>	<i>2.5</i>	<i>None</i>	<i>RR2Y</i>	<i>3.5</i>	<i>31.7</i>	<i>2,000</i>	<i>7.3</i> 	<i>41.3</i> 
	Mean	2.5	-	-	3.0	23.0	2,033	5.8	48.1

Values presented in tables are means. Entries are listed in decreasing order of yield.

Italicized entries are widely available SCN-susceptible varieties entered by Iowa State University for comparison purposes.

¹ GT = glyphosate tolerant, RR2Y = Roundup Ready 2 Yield®, RR2X = Roundup Ready 2 Xtend®, LL = LibertyLink®. May not reflect all herbicide tolerances. Consult product literature or seed dealer for more complete information.

² Sudden Death Syndrome (SDS) disease index (0-100) = (SDS incidence x SDS severity)/9. Nijiti et al. Crop Science 38:673-678 (1998). SDS incidence was uniform in this field but likely influenced soybean yield.

³ Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 448 eggs per 100 cc soil; HG type 2- (35% on PI 88788, 1% on Peking).




































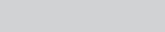






⁴ Reproductive factor (RF) = average final SCN egg population density / average initial SCN egg population density; RF 1.0 = no change in SCN population density over growing season.

⁵ Least significant difference: values are from Fisher's least-significant-difference test, NS = no significant differences among the varieties.

Table 7. Leighton (SC Iowa).

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology ¹	IDC	SCN # (eggs/100cc) ²	SCN RF ³	Yield (bu/acre)
FS HiSOY	35X80	3.5	PI 88788	RR2X	3.5	3,175	7.1	74.0
Stine	37RJ23	3.7	PI 88788	RR2Y	3.4	2,375	4.1	73.6
LATHAM	L2887R2X	2.8	PI 88788	RR2X	3.8	3,075	6.5	72.9
Beck's	2899X2	2.8	PI 88788	RR2X	3.8	2,450	10.9	72.5
Miller Hybrids	3570BGT	3.5	PI 88788	GT	3.2	4,000	8.9	72.0
Golden Harvest	GH2981X	2.9	PI 88788	RR2X	2.4	1,750	2.8	71.9
Golden Harvest	GH3324X	3.3	PI 88788	RR2X	2.9	2,750	3.1	71.2
Kruger Seeds	K2X-3353	3.3	PI 88788	RR2X	3.7	2,725	6.8	71.2
MorSoy	MS 3708 RXT	3.7	PI 88788	RR2X	3.3	1,150	1.2	71.2
Federal Hybrids	F2880N	2.8	PI 88788	RR2X	3.1	3,000	6.3	71.1
Pioneer	P37A27X	3.7	PI 88788	RR2X	3.5	2,150	4.8	70.9
Pioneer	P31A22X	3.1	PI 88788	RR2X	2.9	850	1.4	70.7
Stine	30BB20	3.0	PI 88788	GT	1.9	1,350	1.8	70.6
Pioneer	P35A33X	3.5	PI 88788	RR2X	3.2	2,275	4.3	70.4
NuTech	7337	3.3	PI 88788	GT	3.5	2,325	2.8	70.1
Jacobsen	878NR2X	2.8	PI 88788	RR2X	2.5	1,625	2.5	70.1
Dyna-Gro	S33XT79	3.3	PI 88788	RR2X	2.9	3,800	38.0	70.0
Hoegemeyer HPT	LL3455 NS	3.4	PI 88788	LL	3.0	2,875	3.7	69.8
Kruger Seeds	K2X-3662	3.6	PI 88788	RR2X	2.8	2,475	2.1	69.6
Dyna-Gro	S34XT69	3.4	PI 88788	RR2X	3.3	2,550	6.8	69.6
MorSoy	MS 3611 RXT	3.6	PI 88788	RR2X	3.6	1,175	1.8	69.4
Hoegemeyer HPT	3679 NX	3.6	PI 88788	RR2X	3.0	2,125	2.4	69.3
NuTech	3321L	3.2	PI 88788	LL	3.0	3,425	5.3	69.3
Federal Hybrids	F3480N	3.4	PI 88788	RR2X	3.3	1,850	3.1	69.3
FS HiSOY	39X70	3.9	PI 88788	RR2X	3.6	7,150	19.1	69.0
Champion	35L07N	3.5	PI 88788	LL	3.1	5,450	8.4	68.9
Jacobsen	960NR2X	3.0	PI 88788	RR2X	2.5	1,800	1.4	68.9
Hoegemeyer HPT	3422 NR	3.4	PI 88788	GT	2.2	1,475	3.3	68.8
Dairyland Seed	DSR-3555/R2Y	3.5	PI 88788	RR2Y	3.2	3,475	5.0	68.8
Pioneer	P33A53X	3.3	PI 88788	RR2X	3.5	4,375	9.7	68.7
Prairie Brand	PB-3586R2	3.5	PI 88788	RR2Y	3.3	3,325	3.9	68.6
MorSoy	MS 3678 RXT	3.6	PI 88788	RR2X	1.6	2,800	7.0	68.6
LATHAM	L3448R2X	3.4	PI 88788	RR2X	3.3	1,575	1.1	68.4
Stine	32RF02	3.2	PI 88788	RR2Y	3.3	2,300	4.6	68.4
FS HiSOY	34X60	3.4	PI 88788	RR2X	3.2	1,475	4.9	68.4
Pioneer	P36A18X	3.6	PI 88788	RR2X	3.5	2,050	4.1	68.4
NuTech	7287X	2.8	PI 88788	RR2X	3.8	1,800	4.2	68.3
Miller Hybrids	3239CLL	3.2	PI 88788	LL	3.4	3,350	5.0	68.3
Miller Hybrids	3559CLL	3.5	PI 88788	LL	2.8	2,225	8.9	68.1
Prairie Brand	PB-3648R2	3.6	PI 88788	RR2Y	3.8	1,900	2.7	67.6
Pfister	32R201	3.2	PI 88788	RR2Y	3.2	4,225	8.0	67.6
LG Seeds	C3985RX	3.9	PI 88788	RR2X	3.5	4,925	8.2	67.6
Asgrow	AG36X6	3.6	PI 88788	RR2X	3.9	3,350	26.8	67.3
NK	S31-Y2X	3.1	PI 88788	RR2X	3.4	2,700	4.5	67.2
Dyna-Gro	S36XT09	3.6	PI 88788	RR2X	3.5	1,975	2.4	67.2
Miller Hybrids	3859CLL	3.8	PI 88788	LL	3.5	4,950	9.9	67.2
FOUR STAR SEED	3X290	2.9	PI 88788	RR2X	2.4	2,150	4.5	67.0
Beck's	3353X2	3.3	PI 88788	RR2X	3.9	2,500	6.3	66.9
Prairie Brand	PB-3487R2	3.4	PI 88788	RR2Y	3.1	2,950	9.8	66.7
LG Seeds	LGS3357RX	3.3	PI 88788	RR2X	2.7	3,625	3.9	66.5
Beck's	3091X2	3.0	PI 88788	RR2X	2.7	2,000	1.9	66.1

Table 7. Leighton (SC Iowa) continued.

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology ¹	IDC	SCN # (eggs/100cc) ²	SCN RF ³	Yield (bu/acre)
Champion	32X89N	3.2	PI 88788	RR2X	3.3	2,750	4.8 	66.1 
Hoegemeyer HPT	LL3813 N	3.8	PI 88788	LL	2.8	5,050	10.1 	65.8 
Asgrow	AG29X8	2.9	PI 88788	RR2X	3.4	4,025	4.0 	65.8 
NuTech	7295	2.9	PI 88788	GT	2.2	2,150	4.1 	65.6 
NuTech	3341L	3.4	PI 88788	LL	2.5	3,000	4.6 	65.6 
LATHAM	L3187L	3.1	PI 88788	LL	3.3	2,650	5.6 	65.5 
LATHAM	L3197R2X	3.1	PI 88788	RR2X	3.3	3,850	6.4 	65.4 
FS HiSOY	37X70	3.7	PI 88788	RR2X	3.1	1,550	4.1 	65.4 
LATHAM	L2982GT	2.9	PI 88788	GT	3.3	2,225	3.4 	64.8 
Merschman	Truman 1438LL	3.8	PI 88788	LL	3.8	8,250	17.4 	64.1 
Federal Hybrids	F3090N	3.0	PI 88788	RR2X	2.4	3,575	7.5 	64.1 
Beck's	394L4	3.9	PI 88788	LL	3.7	6,300	7.9 	64.0 
Stine	38RE02	3.8	PI 88788	RR2Y	3.9	1,425	3.2 	63.9 
Beck's	366L4	3.6	PI 88788	LL	3.9	11,300	10.8 	63.7 
FS HiSOY	38X70	3.8	PI 88788	RR2X	3.3	2,850	6.0 	63.6 
Merschman	Monroe 1736LL	3.6	PI 88788	LL	4.0	7,400	6.3 	63.4 
MorSoy	MS 3747 RXT	3.7	PI 88788	RR2X	4.0	5,850	6.2 	61.6 
NK	S37-H5X	3.7	PI 88788	RR2X	3.4	5,450	5.1 	61.2 
	Mean	3.4	-	-	3.2	3,171	6.3	68.0
	LSD ⁴ (P = 0.10)	-	-	-	-	2,869	-	4.0
<i>Asgrow</i>	<i>AG27X8</i>	2.7	<i>None</i>	<i>RR2X</i>	3.7	6,125	8.8 	59.8 
<i>NK</i>	<i>S24-K2</i>	2.4	<i>None</i>	<i>RR2Y</i>	1.9	8,125	6.3 	51.3 
<i>Dyna-Gro</i>	<i>39RY25</i>	2.5	<i>None</i>	<i>RR2Y</i>	3.5	4,600	7.4 	43.8 
	Mean	2.5	-	-	3.0	6,283	7.5	51.6

Values presented in tables are means. Entries are listed in decreasing order of yield.

Italicized entries are widely available SCN-susceptible varieties entered by Iowa State University for comparison purposes.

¹ GT = glyphosate tolerant, RR2Y = Roundup Ready 2 Yield®, RR2X = Roundup Ready 2 Xtend®, LL = LibertyLink®. May not reflect all herbicide tolerances. Consult product literature or seed dealer for more complete information.

² Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 625 eggs per 100 cc soil; HG type 2- (15% on PI 88788, 0% on Peking).



































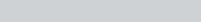
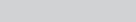






³ Reproductive factor (RF) = average final SCN egg population density / average initial SCN egg population density; RF 1.0 = no change in SCN population density over growing season.

⁴ Least significant difference: values are from Fisher's least-significant-difference test, NS = no significant differences among the varieties.

Table 8. Fruitland (SE Iowa).

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology ¹	IDC	SCN # (eggs/100cc) ²	SCN RF ³	Yield (bu/acre)
Federal Hybrids	F3480N	3.4	PI 88788	RR2X	3.3	5,200	29.7	59.8
FS HiSOY	34X60	3.4	PI 88788	RR2X	3.2	6,400	32.0	59.6
Pioneer	P33A53X	3.3	PI 88788	RR2X	3.5	6,975	27.9	58.8
Pfister	32R201	3.2	PI 88788	RR2Y	3.2	4,475	13.8	58.6
Champion	35L07N	3.5	PI 88788	LL	3.1	6,775	33.9	58.5
Beck's	366L4	3.6	PI 88788	LL	3.9	6,000	21.8	57.5
Stine	37RJ23	3.7	PI 88788	RR2Y	3.4	7,700	22.0	57.3
LATHAM	L3448R2X	3.4	PI 88788	RR2X	3.3	8,300	27.7	57.0
Stine	32RF02	3.2	PI 88788	RR2Y	3.3	9,275	21.8	57.0
FS HiSOY	35X80	3.5	PI 88788	RR2X	3.5	11,750	21.4	56.7
Prairie Brand	PB-3487R2	3.4	PI 88788	RR2Y	3.1	5,750	20.9	56.4
MorSoy	MS 3708 RXT	3.7	PI 88788	RR2X	3.3	10,375	20.8	56.4
Miller Hybrids	3859CLL	3.8	PI 88788	LL	3.5	8,800	35.2	56.1
Dairyland Seed	DSR-3555/R2Y	3.5	PI 88788	RR2Y	3.2	5,850	8.1	55.7
Asgrow	AG36X6	3.6	PI 88788	RR2X	3.9	10,625	26.6	55.3
Hoegemeyer HPT	3679 NX	3.6	PI 88788	RR2X	3.0	7,400	24.7	55.2
Miller Hybrids	3559CLL	3.5	PI 88788	LL	2.8	3,575	6.2	55.2
Prairie Brand	PB-3586R2	3.5	PI 88788	RR2Y	3.3	7,525	18.8	54.9
Merschman	Monroe 1736LL	3.6	PI 88788	LL	4.0	11,225	23.6	54.5
MorSoy	MS 3611 RXT	3.6	PI 88788	RR2X	3.6	3,650	16.2	54.3
Miller Hybrids	3239CLL	3.2	PI 88788	LL	3.4	6,225	20.8	54.2
Beck's	3091X2	3.0	PI 88788	RR2X	2.7	4,400	13.5	54.1
Jacobsen	960NR2X	3.0	PI 88788	RR2X	2.5	4,375	12.5	54.1
NuTech	3341L	3.4	PI 88788	LL	2.5	8,925	35.7	53.9
Pioneer	P37A27X	3.7	PI 88788	RR2X	3.5	12,225	44.5	53.8
Merschman	Truman 1438LL	3.8	PI 88788	LL	3.8	5,275	13.2	53.7
Pioneer	P35A33X	3.5	PI 88788	RR2X	3.2	8,200	19.3	53.7
Pioneer	P36A18X	3.6	PI 88788	RR2X	3.5	9,025	36.1	53.7
Kruger Seeds	K2X-3662	3.6	PI 88788	RR2X	2.8	10,450	19.0	53.6
Golden Harvest	GH3324X	3.3	PI 88788	RR2X	2.9	9,475	31.6	53.5
Hoegemeyer HPT	LL3813 N	3.8	PI 88788	LL	2.8	7,675	11.4	53.5
Dyna-Gro	S36XT09	3.6	PI 88788	RR2X	3.5	8,350	37.1	53.5
MorSoy	MS 3747 RXT	3.7	PI 88788	RR2X	4.0	9,250	13.2	53.1
Prairie Brand	PB-3648R2	3.6	PI 88788	RR2Y	3.8	10,425	34.8	52.9
Beck's	394L4	3.9	PI 88788	LL	3.7	6,750	16.9	52.9
Dyna-Gro	S34XT69	3.4	PI 88788	RR2X	3.3	8,750	29.2	52.9
NuTech	3321L	3.2	PI 88788	LL	3.0	3,950	14.4	52.7
FS HiSOY	37X70	3.7	PI 88788	RR2X	3.1	3,050	7.2	52.5
FS HiSOY	39X70	3.9	PI 88788	RR2X	3.6	11,850	31.6	52.3
Asgrow	AG29X8	2.9	PI 88788	RR2X	3.4	10,225	40.9	52.3
NK	S37-H5X	3.7	PI 88788	RR2X	3.4	9,325	20.7	52.2
NuTech	7287X	2.8	PI 88788	RR2X	3.8	6,450	17.2	51.9
Miller Hybrids	3570BGT	3.5	PI 88788	GT	3.2	10,225	31.5	51.7
Stine	38RE02	3.8	PI 88788	RR2Y	3.9	9,150	20.3	51.6
LG Seeds	C3985RX	3.9	PI 88788	RR2X	3.5	20,425	58.4	51.6
LATHAM	L2887R2X	2.8	PI 88788	RR2X	3.8	9,850	16.4	51.5
LATHAM	L3197R2X	3.1	PI 88788	RR2X	3.3	9,600	34.9	51.3
Golden Harvest	GH2981X	2.9	PI 88788	RR2X	2.4	4,700	20.9	50.7
Champion	32X89N	3.2	PI 88788	RR2X	3.3	9,050	24.1	50.6
Hoegemeyer HPT	3422 NR	3.4	PI 88788	GT	2.2	7,775	28.3	50.4
Hoegemeyer HPT	LL3455 NS	3.4	PI 88788	LL	3.0	6,625	33.1	50.3

Table 8. Fruitland (SE Iowa) continued.

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology	IDC	SCN # (eggs/100cc) ¹	SCN RF ²	Yield (bu/acre)
Stine	30BB20	3.0	PI 88788	GT	1.9	9,875	17.2 	50.2 
Pioneer	P31A22X	3.1	PI 88788	RR2X	2.9	9,000	32.7 	50.2 
Jacobsen	878NR2X	2.8	PI 88788	RR2X	2.5	5,625	9.0 	50.1 
Federal Hybrids	F2880N	2.8	PI 88788	RR2X	3.1	8,250	10.6 	49.9 
FS HiSOY	38X70	3.8	PI 88788	RR2X	3.3	4,825	19.3 	49.9 
FOUR STAR SEED	3X290	2.9	PI 88788	RR2X	2.4	3,850	17.1 	49.7 
NK	S31-Y2X	3.1	PI 88788	RR2X	3.4	6,600	17.6 	49.6 
Kruger Seeds	K2X-3353	3.3	PI 88788	RR2X	3.7	6,650	12.1 	49.6 
Beck's	2899X2	2.8	PI 88788	RR2X	3.8	11,150	27.9 	49.4 
Dyna-Gro	S33XT79	3.3	PI 88788	RR2X	2.9	8,800	27.1 	49.4 
NuTech	7337	3.3	PI 88788	GT	3.5	10,175	20.4 	49.2 
LATHAM	L3187L	3.1	PI 88788	LL	3.3	6,800	16.0 	48.9 
Federal Hybrids	F3090N	3.0	PI 88788	RR2X	2.4	4,500	18.0 	48.0 
MorSoy	MS 3678 RXT	3.6	PI 88788	RR2X	1.6	11,000	36.7 	47.5 
Beck's	3353X2	3.3	PI 88788	RR2X	3.9	9,875	35.9 	47.0 
NuTech	7295	2.9	PI 88788	GT	2.2	5,150	10.8 	46.5 
LATHAM	L2982GT	2.9	PI 88788	GT	3.3	4,200	11.2 	45.9 
LG Seeds	LGS3357RX	3.3	PI 88788	RR2X	2.7	13,800	55.2 	44.7 
	Mean	3.4	-	-	3.2	7,968	23.7	52.8
	LSD ⁴ (P = 0.10)	-	-	-	-	5,895	-	4.9
<i>Asgrow</i>	<i>AG27X8</i>	2.7	<i>None</i>	<i>RR2X</i>	3.7	9,200	40.9 	43.7 
<i>NK</i>	<i>S24-K2</i>	2.4	<i>None</i>	<i>RR2Y</i>	1.9	4,600	36.8 	36.9 
<i>Dyna-Gro</i>	<i>39RY25</i>	2.5	<i>None</i>	<i>RR2Y</i>	3.5	5,375	14.3 	34.0 
	Mean	2.5	-	-	3.0	6,392	30.7	38.2

Values presented in tables are means. Entries are listed in decreasing order of yield.

Italicized entries are widely available SCN-susceptible varieties entered by Iowa State University for comparison purposes.

¹ GT = glyphosate tolerant, RR2Y = Roundup Ready 2 Yield®, RR2X = Roundup Ready 2 Xtend®, LL = LibertyLink®. May not reflect all herbicide tolerances. Consult product literature or seed dealer for more complete information.

² Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 372 eggs per 100 cc soil; HG type 2- (11% on PI 88788, 0% on Peking).

³ Reproductive factor (RF) = average final SCN egg population density / average initial SCN egg population density; RF 1.0 = no change in SCN population density over growing season.

⁴ Least significant difference: values are from Fisher's least-significant-difference test, NS = no significant differences among the varieties.

Table 9. Seed treatments used on varieties evaluated in 2018.

Brand	Seed Treatment	Brand	Seed Treatment	Brand	Seed Treatment
Asgrow*	Acceleron®	Golden Harvest	CruiserMaxx® Vibrance®	Miller Hybrids*	Shieldcoat™
Beck's	Escalate™	Hoegemeyer HPT	Right Stand®	MorSoy	CruiserMaxx® Vibrance®
Champion	Elevate™	Jacobsen	Acceleron®	NK	CruiserMaxx® Vibrance®
Dairyland Seed	CruiserMaxx® Optimize®	Kruger	Acceleron® FI	NuTech	SmartCote® Extra
Dyna-Gro	Equity® VIP	LATHAM*	SoyShield Plus™	Pfister	CruiserMaxx®
Federal Hybrids*	Maximum ArmourGuard™	Legacy Seeds	L-Coat Total	Pioneer	PPST
FOUR STAR SEED	Acceleron®	LG Seeds	CruiserMaxx® Vibrance®	Prairie Brand	CruiserMaxx®
FS HiSOY	Acceleron® FI	Merschman	Bonus Coated +™	Stine	CruiserMaxx® Vibrance®

*Some varieties were sent untreated. Seeds of those varieties, listed below, were treated with CruiserMaxx® Vibrance® by Iowa State University personnel.

- Asgrow: 36X6, 29X9
- Federal Hybrids: F2090N, F2280N, F2380N, F2590N, F2880N, F3090N, F3480N
- LATHAM: L2187GT, L2295R2X, L2239R2X, L2249L, L2582L, L2982GT, L3197R2X, L3448R2X
- Miller Hybrids: 2472CRX, 2479CLL, 2659CLL, 2672CRX, 2872CRX, 3072CRX, 3239CLL, 3259CLL, 3559CLL, 3570BGT, 3859CLL

Table 10. Contact information for companies represented in 2018 variety trials.

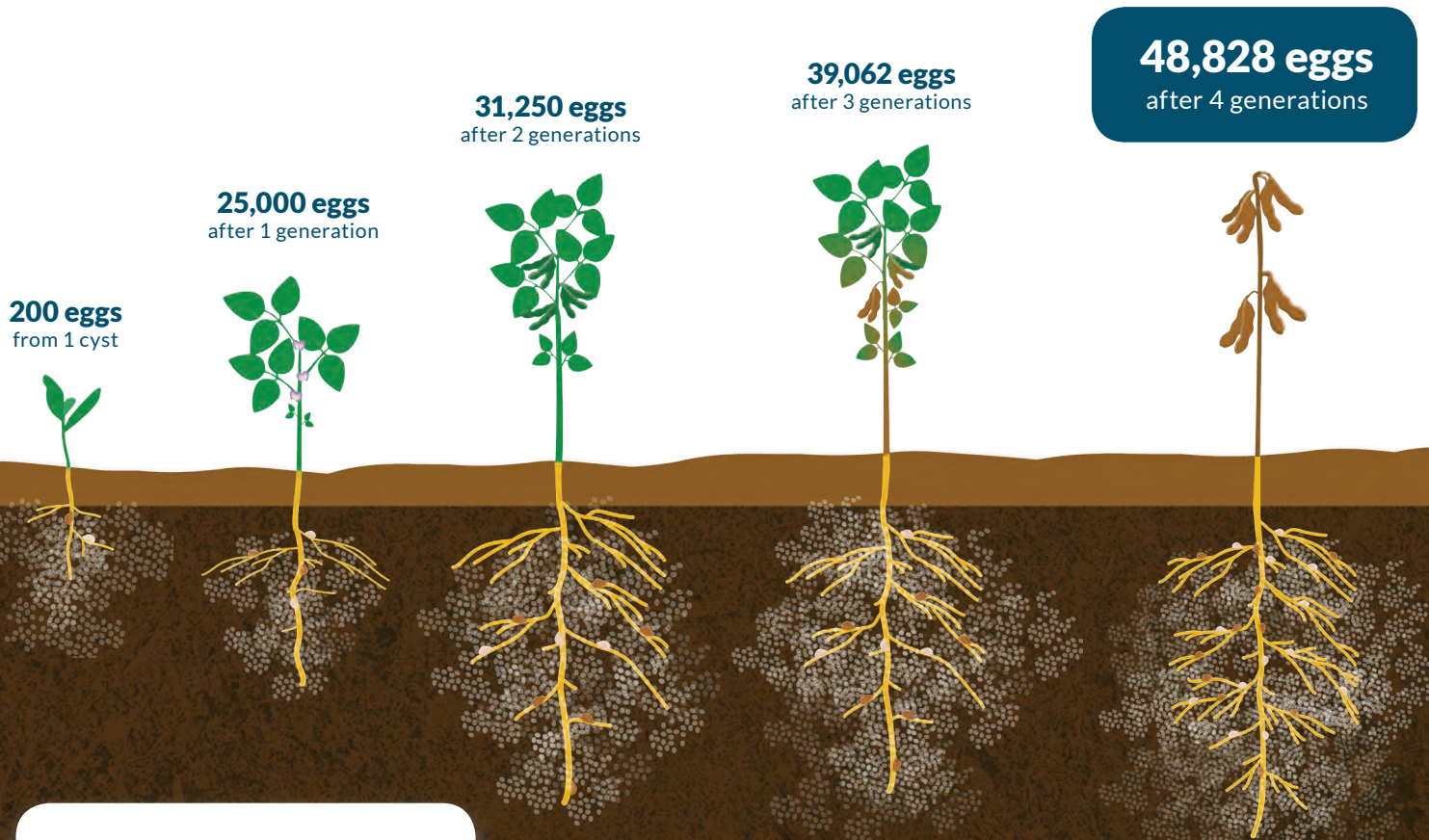
Beck's Hybrids phone: 515-318-8272 website: www.beckshybrids.com	Jacobsen Seed phone: 319-430-9433 website: www.jacobsenseed.com	Monsanto (Asgrow) phone: 319-350-0744 website: www.aganytime.com
Champion Seed phone: 515-460-2134 website: www.championseedofiowa.com	Kruger Seed phone: 515-238-4572 website: www.krugerseed.com	NuTech Seed, LLC phone: 402-661-4700 website: www.yieldleader.com
Dairyland Seed phone: 217-972-9839 website: www.dairylandseed.com	Latham Hi-Tech Seeds phone: 877-465-2842 website: www.lathamseeds.com	Nutrien Ag Solutions (Dyna-Gro) phone: 402-340-9153 website: www.nutrienagsolutions.com
Federal Hybrids phone: 712-830-9742 website: www.federalhybrids.com	Legacy Seeds, Inc. phone: 715-467-2556 website: www.legacyseeds.com	Pfister Seeds phone: 515-681-9092 website: www.pfisterseeds.com
FOUR STAR SEED COMPANY phone: 712-644-1400 website: www.4starseed.com	LG Seeds phone: 515-370-3377 website: www.lgseeds.com	Pioneer Hi-Bred phone: 515-418-0078 website: www.pioneer.com
Golden Harvest phone: 712-344-2527 website: www.goldenharvestseeds.com	Merschman Seeds phone: 319-837-6111 website: www.merschmanseeds.com	Prairie Brand Seeds, LLC phone: 515-733-2101 website: www.prairiebrand.com
GROWMARK, Inc. (FS HiSOY) phone: 309-557-6399 website: www.fsseeds.com	MFA Incorporated (MorSoy) phone: 573-876-5363 website: www.mfaseed.com	Stine Seed Company phone: 800-362-2510 website: www.stinseed.com
Hoegemeyer Hybrids phone: 402-654-3399 website: www.therightseed.com	Miller Hybrids phone: 319-656-2532 website: www.millerhybrids.com	Syngenta Seeds (NK) phone: 402-705-0289 website: www.syngenta-us.com/soybeans/nk

SCN reproduction puts rabbits to shame.

A new generation of SCN is born every 24 days during summer. Even with an attrition rate of 99% (meaning 1 percent of eggs survive each generation) one cyst can become 48,828 eggs in four generations.

What's worse, SCN is spreading, adapting and reproducing on SCN-resistant soybean varieties — **and yields are decreasing.**

Have you tested your fields lately? Head to TheSCNcoalition.com for soil sampling tips, testing labs and state-specific SCN management advice.



What's your number?

Take the test.  Beat the pest.

The **SCN** Coalition™

Funded by the soybean checkoff

www.TheSCNcoalition.com