

# 2023 Evaluation of Iowa Soybean Varieties Resistant to Soybean Cyst Nematode



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# Evaluation of Iowa Soybean Varieties Resistant to Soybean Cyst Nematode

## authors

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# Evaluation of Soybean Varieties Resistant to Soybean Cyst Nematode in Iowa in 2023

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## Summary

- Nine experiments were conducted in 2023, three across northern, three across central, and three across southern Iowa. The work was supported primarily by soybean checkoff funding from the Iowa Soybean Association.
- The same set of soybean varieties were studied in all three experiments across northern, central, or southern Iowa, but varieties varied from north to central to south.
- There were 70 SCN-resistant soybean varieties and 2 susceptible varieties included in each experiment. Overall, the resistant varieties were of 23 different brands.
- Most varieties contained SCN resistance from PI 88788. Twenty-five varieties in the northern experiments, 18 in the central experiments, and 9 in the southern experiments had Peking SCN resistance. Two entries in the central experiments and one in the southern experiments were blends of soybeans with resistance from Peking and from PI 88788.
- Initial SCN population densities ranged from 1,174 eggs per 100 cm<sup>3</sup> of soil near Fruitland (southeast) to 3,537 eggs per 100 cm<sup>3</sup> of soil near Laurens (northwest).
- Reproduction of the SCN populations in the fields in which the experiments were conducted ranged from 32.6 to 69.7% on PI 88788 (HG Type 2). The SCN populations in the fields near Glenwood and Oskaloosa also had 12.1 and 18.6% reproduction on Peking, respectively, making them HG Type 1.2.
- Average yield of SCN-resistant varieties ranged from 42 bushels per acre near Glenwood (southwest) to 70 bushels per acre near Manly (north central).
- Results show a range of yield performance of SCN-resistant varieties and high yields of many varieties with the Peking source of SCN resistance. Most varieties with Peking resistance also had very low end-of-season SCN egg population densities.
- The largest season-long changes in SCN population densities were in the experiment conducted near Fruitland (southeast). Average soil egg population densities increased from 1,174 eggs per 100 cm<sup>3</sup> of soil at planting to 19,730 at harvest on varieties with PI 88788 SCN resistance. In contrast, end-of-season population densities with Peking SCN-resistant varieties averaged 567 eggs per 100 cm<sup>3</sup> soil.
- Farmers are **strongly advised** to grow soybean varieties with the Peking source of SCN resistance in rotation with high-yielding PI 88788 SCN-resistant varieties that support low levels of SCN reproduction in fields infested with the nematode.
- The information in this report is collected to help farmers select SCN-resistant varieties with the common PI 88788 source of resistance and with the uncommon Peking resistance that provide high yields and low levels of SCN reproduction.

## 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. The work was funded in part by the soybean checkoff through the Iowa Soybean Association.

## Materials and Methods

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

### Location-specific details.

Location	Initial SCN Population (eggs / 100 cc soil)	HG Type <sup>1</sup>	Planting Date	Harvest Date
Laurens (NW)	3,537	2 -	5/3/23	10/10/23
Manly (NC)	1,733	2 -	5/4/23	10/5/23
Oelwein (NE)	1,752	2 -	5/10/23	10/2/23
Glidden (WC)	2,337	2 -	5/11/23	10/3/23
Ames (C)	1,349	2 -	5/23/23	10/10/23
Urbana (EC)	1,192	2 -	5/5/23	10/4/23
Glenwood (SW)	1,829	1.2 -	5/1/23	10/6/23
Oskaloosa (SC)	1,420	1.2 -	5/2/23	10/9/23
Fruitland (SE)	1,174	2 -	5/9/23	10/17/23

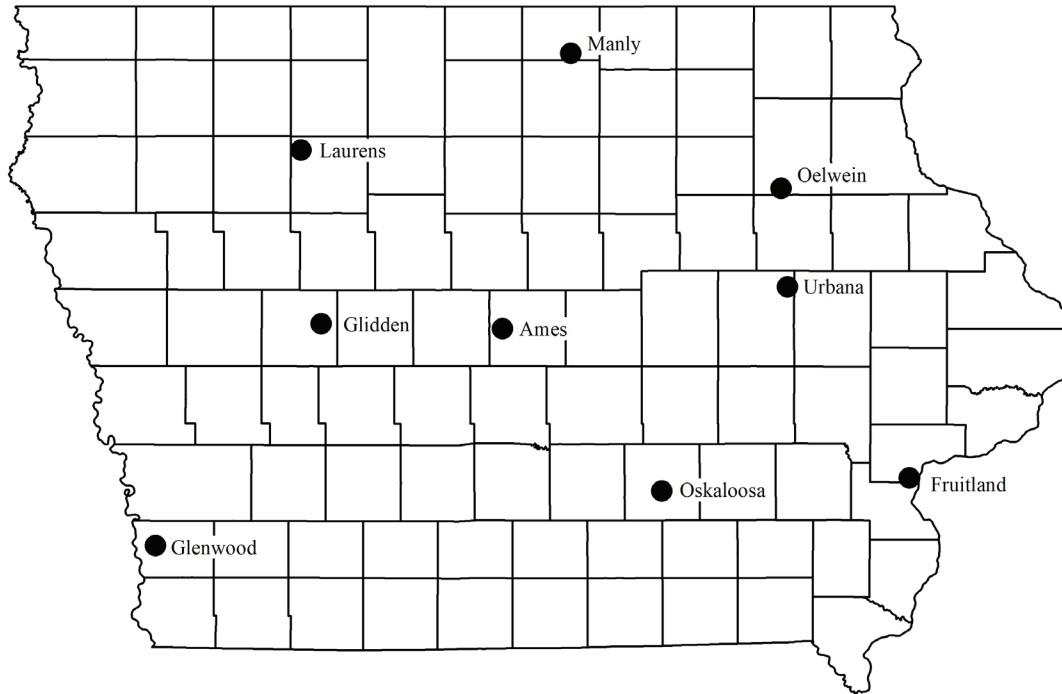
<sup>1</sup> In the SCN HG type test results, “1” indicates  $\geq 10\%$  reproduction on Peking (PI 548402), and “2” indicates  $\geq 10\%$  reproduction on PI 88788. “-” indicates an incomplete HG type test; populations were tested only on Peking, PI 88788, PI 90763, and PI 437654.

SCN-susceptible varieties also were grown in each experiment 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® Supreme and Spartan® were applied to all locations, except for Fruitland where Buccaneer® 5 Extra, Anthem® Maxx, and Aquesta™ were applied. All locations were sprayed with Flexstar®, FirstRate®, Warrant®, and Select Max® herbicides during the growing season. Laurens and Glenwood were sprayed a second time with Phoenix® herbicide. The Laurens and Oskaloosa locations were planted using “no-till” methods and the Urbana and Glenwood locations were planted using “minimum-till” methods. At all other locations, the seed bed was conventionally tilled.

At growth stage R6 (full seed) all locations were scouted for foliar symptoms of sudden death syndrome (SDS). The Laurens location had sufficient symptoms to warrant rating the plots. The symptoms were uniformly spread throughout the experimental area, and SDS very likely affected soybean yields.

All plots were end trimmed to 14 feet in September. For each location, 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 seed weights subsequently were converted to bushels per acre. In the tables in this report resistant varieties and susceptible check varieties are grouped separately and listed in decreasing order of yield.

At the beginning of the growing season, every plot was sampled for SCN. Soil samples consisted of 10 one-inch-diameter, six- to eight-inch-deep soil cores 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 were also determined for each plot at the end of the growing season in an identical manner.



## 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 a RF value of 5.0, the SCN population density for those plots was 5 times greater at harvest than it was at planting. A 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.

## Acknowledgments

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*This research was supported by soybean checkoff funds from the Iowa Soybean Association and by the Iowa Agriculture and Home Economics Experiment Station at Iowa State University.*

Table 1. Laurens (NW Iowa).

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology <sup>1</sup>	SDS Index <sup>2</sup>	SCN # (eggs/100cc) <sup>3</sup>	SCN Numbers Decreased		Yield (bu/acre)
							SCN RF <sup>4</sup>		
AgriGold	G2450XF	2.4	PI 88788	XF	1.9	5,275	1.4		75.5
LG Seeds	LGS2505E3	2.5	Peking	E3	1.1	400	0.2		73.2
Dyna-Gro	S25EN74	2.5	Peking	E3	3.3	675	0.2		73.1
LATHAM	L 1881 E3	1.8	Peking	E3	0.8	750	0.3		72.5
LG Seeds	LGS1832E3	1.8	Peking	E3	0.0	925	0.1		72.4
NK	NK19-T8E3S	1.9	Peking	E3	1.4	775	0.2		72.3
Hoegemeyer Hybrids	1903 E	1.9	Peking	E3	3.3	600	0.2		72.1
Champion	2093EN	2.0	Peking	E3	0.8	725	0.3		71.7
Asgrow	AG22XF3	2.2	PI 88788	XF	2.5	6,975	4.5		71.5
Asgrow	AG19XF3	1.9	PI 88788	XF	2.8	3,475	0.7		71.0
Cornelius	CB18XF88	1.8	PI 88788	XF	0.0	3,875	1.1		70.7
Hoegemeyer Hybrids	2484 E	2.1	Peking	E3	2.2	1,325	0.4		70.7
Kruger	K2115XF	2.1	PI 88788	XF	4.2	5,625	1.1		70.0
P3	2218E	1.8	PI 88788	E3	2.8	3,650	1.1		69.9
NK	NK20-K2XF	2.0	PI 88788	XF	0.6	3,575	1.0		69.5
Champion	1994EN	1.9	Peking	E3	1.1	850	0.2		69.4
AgriGold	G2107E3	2.1	Peking	E3	1.1	775	0.3		69.3
Xitavo	XO 1822E	1.8	PI 88788	E3	4.4	2,200	0.7		69.3
Golden Harvest	GH2004XF	2.0	PI 88788	XF	0.3	2,625	0.8		69.1
LG Seeds	LGS2364XF	2.3	PI 88788	XF	1.9	6,075	1.5		68.8
LATHAM	L 2031 E3	2.0	Peking	E3	1.1	1,025	0.6		68.5
Hoegemeyer Hybrids	2123 E	2.1	Peking	E3	3.1	1,425	0.3		68.1
Channel	2123RXF	1.9	PI 88788	XF	3.1	4,350	1.0		68.0
Loyal Brand	L2150E	2.1	Peking	E3	0.3	1,000	0.2		67.6
Asgrow	AG24XF3	2.4	PI 88788	XF	0.8	4,400	1.0		67.6
Pioneer	P18A73E	1.8	Peking	E3	1.1	500	0.1		67.6
Pioneer	P23A40E	2.3	PI 88788	E3	0.8	5,850	2.1		67.1
Xitavo	XO 1632E	1.6	PI 88788	E3	4.4	3,975	1.0		67.1
Stine	20EG02	2.0	PI 88788	E3	1.7	2,775	0.5		67.0
Golden Harvest	GH1973E3S	1.9	Peking	E3/STS	0.3	650	0.2		67.0
NuTech	22N03E	2.2	PI 88788	E3	0.8	2,825	0.9		66.9
Beck	2009XF	2.0	PI 88788	XF	16.1	3,125	1.1		66.7
NK	NK16-Z6E3	1.6	Peking	E3	11.7	475	0.2		66.4
NuTech	20N05E	2.0	PI 88788	E3	2.2	3,500	1.1		66.3
Loyal Brand	L2130E	2.1	PI 88788	E3	5.6	3,625	0.9		66.1
AgriGold	G2306XF	2.3	PI 88788	XF	2.2	4,750	2.0		65.6
Cornelius	CB22XF52	2.2	PI 88788	XF	1.7	3,575	1.0		65.6
Golden Harvest	GH2083E3S	2.0	PI 88788	E3/STS	1.7	4,100	0.9		65.5
NuTech	18N03E	1.8	PI 88788	E3	0.8	4,250	0.9		65.2
Merschman	Neptune 2317E	1.7	PI 88788	E3	8.3	1,975	0.6		65.1
NK	NK21-C2E3	2.1	PI 88788	E3	2.5	3,100	1.0		64.7
P3	2322E	2.2	PI 88788	E3	1.7	4,400	0.7		64.7
Kruger	K1804XF	1.8	PI 88788	XF	2.8	4,000	1.1		64.5
Beck	1630E3	1.6	PI 88788	E3	15.0	3,700	1.5		64.1
LATHAM	L 1121 E3	1.1	Peking	E3	7.2	800	0.4		64.0
Pioneer	P21A53E	2.1	PI 88788	E3	0.8	6,000	1.6		63.0
Loyal Brand	L1950E	1.9	PI 88788	E3	9.4	4,950	1.6		62.9
Dyna-Gro	SNEN84	2.0	Peking	E3	2.5	1,800	0.7		62.8
Dyna-Gro	S19XF62	1.9	PI 88788	XF	3.3	5,675	1.8		62.7
LATHAM	L 1661 E3	1.6	Peking	E3	0.0	1,050	0.2		62.4
Jacobsen	J1873E3	1.8	Peking	E3	18.9	1,025	0.5		61.7

Table 1. Laurens (NW Iowa) continued.

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology <sup>1</sup>	SDS Index <sup>2</sup>	SCN # (eggs/100cc) <sup>3</sup>	SCN Numbers Decreased		Yield (bu/acre)
							SCN RF <sup>4</sup>	Yield	
Xitavo	XO 2444E	2.4	PI 88788	E3	6.7	3,300	1.1	61.6	
Merschman	Cheyenne 2220E	2.0	PI 88788	E3	2.8	3,900	0.8	61.5	
NK	NK22-C4E3	2.2	PI 88788	E3	8.3	5,150	1.4	60.9	
Stine	19EG92	1.9	Peking	E3	10.6	2,175	0.5	60.8	
Jacobsen	J1933E3	1.9	PI 88788	E3	18.3	2,175	0.6	59.6	
Xitavo	XO 2323E	2.3	PI 88788	E3	8.1	5,000	1.8	58.9	
Stine	18FD02	1.8	PI 88788	XF	13.6	3,275	0.9	58.7	
Connect	CT2123E	2.1	Peking	E3	16.1	975	0.3	58.3	
Channel	1923RXF	1.9	PI 88788	XF	24.4	2,250	0.6	58.3	
Stine	14EE21	1.4	Peking	E3	22.2	1,350	0.3	57.9	
Kruger	K1914XF	1.9	PI 88788	XF	14.7	3,225	0.6	57.3	
Stine	21EE62	2.1	Peking	E3	17.2	425	0.1	56.8	
FS HiSOY	HS 21E20	2.1	PI 88788	E3	16.9	4,725	1.4	56.6	
LG Seeds	LGS1735XF	1.7	PI 88788	XF	0.6	4,625	2.4	56.6	
Connect	CT2323E	2.3	PI 88788	E3	15.8	3,525	1.1	56.2	
Beck	1950E3	1.9	Peking	E3	21.7	2,150	0.4	55.9	
Merschman	Chippewa 2323E	2.3	PI 88788	E3	22.2	4,425	1.1	53.5	
Kruger	K2294XF	2.2	PI 88788	XF	3.6	4,475	1.2	51.9	
Beck	2227XF	2.2	PI 88788	XF	28.6	5,550	2.4	48.0	
	Mean	2.0	-	-	6.3	2,978	0.9	64.9	
	LSD <sup>5</sup> (P = 0.10)	-	-	-	-	2,427	-	7.3	
<i>Iowa State University</i>	<i>IA2104RA12</i>	2.3	<i>None</i>	<i>None</i>	6.4	11,675	2.6	58.0	
<i>Nu Pride Genetics</i>	<i>8261 GT</i>	2.7	<i>None</i>	<i>GT</i>	52.78	6,200	1.7	36.1	
	Mean	2.5	-	-	29.6	8,938	2.2	47.0	

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

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

<sup>1</sup> E3 = Enlist E3<sup>®</sup>, GT = glyphosate-tolerant, STS = sulfonyleurea-tolerant soybean, XF = XtendFlex<sup>®</sup>.

May not reflect all herbicide tolerances. Consult product literature or seed dealer for more complete information.

<sup>2</sup> 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.

<sup>3</sup> Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 3,537 eggs per 100 cc soil; HG type 2- (59.7% on PI 88788, 0.1% on Peking).

<sup>4</sup> 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.

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

Table 2. Manly (NC Iowa).

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology <sup>1</sup>	SCN # (eggs/100cc) <sup>2</sup>	SCN Numbers Decreased		Yield (bu/acre)
						SCN RF <sup>3</sup>		
LATHAM	L 2031 E3	2.0	Peking	E3	3,800	3.0		76.4
Merschman	Neptune 2317E	1.7	PI 88788	E3	5,700	5.0		75.6
Dyna-Gro	S20EN84	2.0	Peking	E3	1,700	1.1		75.3
Champion	1994EN	1.9	Peking	E3	1,000	0.5		75.2
LG Seeds	LGS1832E3	1.8	Peking	E3	325	0.4		75.2
Hoegemeyer Hybrids	2484 E	2.1	Peking	E3	875	0.5		75.2
Pioneer	PI8A73E	1.8	Peking	E3	650	0.3		75.1
Jacobsen	J1873E3	1.8	Peking	E3	2,850	2.7		74.9
LATHAM	L 1661 E3	1.6	Peking	E3	975	0.8		74.7
Golden Harvest	GH2004XF	2.0	PI 88788	XF	4,175	2.7		74.6
NK	NK16-Z6E3	1.6	Peking	E3	3,750	1.5		74.3
Hoegemeyer Hybrids	1903 E	1.9	Peking	E3	1,150	0.5		74.2
NK	NK22-C4E3	2.2	PI 88788	E3	8,925	4.2		74.1
Xitavo	XO 1632E	1.6	PI 88788	E3	6,675	3.0		73.9
Loyal Brand	L1950E	1.9	PI 88788	E3	4,425	2.6		73.4
Loyal Brand	L2130E	2.1	PI 88788	E3	5,600	3.0		73.2
LATHAM	L 1881 E3	1.8	Peking	E3	1,075	0.7		73.1
P3	2322E	2.2	PI 88788	E3	5,875	3.0		72.8
NK	NK21-C2E3	2.1	PI 88788	E3	4,500	1.2		72.7
Xitavo	XO 1822E	1.8	PI 88788	E3	8,125	12.0		72.6
Hoegemeyer Hybrids	2123 E	2.1	Peking	E3	2,450	1.5		72.1
Champion	2093EN	2.0	Peking	E3	1,950	0.8		71.9
Golden Harvest	GH1973E3S	1.9	Peking	E3/STS	2,800	2.2		71.8
NK	NK19-T8E3S	1.9	Peking	E3	3,400	1.6		71.6
P3	2218E	1.8	PI 88788	E3	4,750	2.9		71.5
Beck	1630E3	1.6	PI 88788	E3	7,800	3.4		71.5
Kruger	K1804XF	1.8	PI 88788	XF	6,450	4.7		71.4
Dyna-Gro	S25EN74	2.5	Peking	E3	1,625	0.6		71.4
LG Seeds	LGS2505E3	2.5	Peking	E3	800	0.7		71.3
NuTech	20N05E	2.0	PI 88788	E3	9,350	5.8		71.1
NuTech	18N03E	1.8	PI 88788	E3	6,250	4.8		70.9
Beck	2009XF	2.0	PI 88788	XF	8,000	4.8		70.7
Connect	CT2323E	2.3	PI 88788	E3	8,575	4.0		70.7
Stine	21EE62	2.1	Peking	E3	1,375	0.9		70.2
Cornelius	CB22XF52	2.2	PI 88788	XF	9,175	4.4		69.6
Jacobsen	J1933E3	1.9	PI 88788	E3	4,975	1.7		69.3
Asgrow	AG22XF3	2.2	PI 88788	XF	6,550	5.0		69.3
LATHAM	L 1121 E3	1.1	Peking	E3	1,100	0.8		69.3
Stine	14EE21	1.4	Peking	E3	2,500	3.1		69.3
NuTech	22N03E	2.2	PI 88788	E3	2,500	3.3		69.2
Pioneer	P21A53E	2.1	PI 88788	E3	15,325	9.1		69.1
AgriGold	G2107E3	2.1	Peking	E3	800	0.5		69.1
Loyal Brand	L2150E	2.1	Peking	E3	800	0.6		68.7
Cornelius	CB18XF88	1.8	PI 88788	XF	10,900	6.7		68.6
NK	NK20-K2XF	2.0	PI 88788	XF	7,875	3.8		68.2
Kruger	K1914XF	1.9	PI 88788	XF	6,300	4.3		68.2
AgriGold	G2306XF	2.3	PI 88788	XF	8,525	9.2		67.3
Merschman	Cheyenne 2220E	2.0	PI 88788	E3	4,225	3.7		67.3
Pioneer	P23A40E	2.3	PI 88788	E3	10,350	8.0		67.2
Merschman	Chippewa 2323E	2.3	PI 88788	E3	7,875	6.7		67.1
AgriGold	G2450XF	2.4	PI 88788	XF	7,375	3.8		67.1



Table 2. Manly (NC Iowa) continued.

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology <sup>1</sup>	SCN # (eggs/100cc) <sup>2</sup>	SCN Numbers Decreased		Yield (bu/acre)
						Initial	Final	
Xitavo	XO 2444E	2.4	PI 88788	E3	8,700	3.9	66.8	
Stine	20EG02	2.0	PI 88788	E3	7,575	3.1	66.7	
Connect	CT2123E	2.1	Peking	E3	875	0.4	66.5	
Asgrow	AG24XF3	2.4	PI 88788	XF	7,575	12.1	66.2	
LG Seeds	LGS2364XF	2.3	PI 88788	XF	6,875	4.1	66.1	
Dyna-Gro	S19XF62	1.9	PI 88788	XF	4,175	3.8	66.1	
Channel	2123RXF	1.9	PI 88788	XF	9,050	3.0	66.0	
Asgrow	AG19XF3	1.9	PI 88788	XF	7,175	4.6	65.8	
Stine	19EG92	1.9	Peking	E3	6,375	2.2	65.8	
Beck	1950E3	1.9	Peking	E3	6,625	11.0	65.6	
Beck	2227XF	2.2	PI 88788	XF	4,300	2.2	65.6	
Golden Harvest	GH2083E3S	2.0	PI 88788	E3/STS	8,500	4.4	64.6	
Channel	1923RXF	1.9	PI 88788	XF	7,000	3.3	64.6	
Xitavo	XO 2323E	2.3	PI 88788	E3	8,350	3.6	64.4	
Stine	18FD02	1.8	PI 88788	XF	10,925	8.2	64.1	
Kruger	K2115XF	2.1	PI 88788	XF	12,425	7.2	63.4	
LG Seeds	LGS1735XF	1.7	PI 88788	XF	6,175	2.9	62.4	
Kruger	K2294XF	2.2	PI 88788	XF	7,750	5.8	62.0	
FS HiSOY	HS 21E20	2.1	PI 88788	E3	14,125	8.0	60.9	
Mean		2.0	-	-	5,563	3.7	69.7	
LSD <sup>4</sup> (P = 0.10)		-	-	-	4,178	-	4.8	
<i>Nu Pride Genetics</i>	<i>8261 GT</i>	2.7	<i>None</i>	<i>GT</i>	7,075	5.1		
<i>Iowa State University</i>	<i>IA2104RA12</i>	2.3	<i>None</i>	<i>None</i>	15,100	5.3		
Mean		2.5	-	-	11,088	5.2	58.0	

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

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

<sup>1</sup> E3 = Enlist E3®, GT = glyphosate-tolerant, STS = sulfonyleurea-tolerant soybean, XF = XtendFlex®.

May not reflect all herbicide tolerances. Consult product literature or seed dealer for more complete information.

<sup>2</sup> Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 1,733 eggs per 100 cc soil; HG type 2- (69.7% on PI 88788, 9.3% on Peking).

<sup>3</sup> 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.

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

Table 3. Oelwein (NE Iowa).

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology <sup>1</sup>	SCN # (eggs/100cc) <sup>2</sup>	SCN Numbers Decreased		Yield (bu/acre)
						SCN RF <sup>3</sup>		
Beck	2009XF	2.0	PI 88788	XF	7,675	3.7		70.2
LATHAM	L 2031 E3	2.0	Peking	E3	1,900	2.5		70.1
Connect	CT2323E	2.3	PI 88788	E3	4,200	4.5		69.9
Stine	18FD02	1.8	PI 88788	XF	6,225	4.2		69.4
Hoegemeyer Hybrids	2123 E	2.1	Peking	E3	1,150	0.7		69.3
NK	NK19-T8E3S	1.9	Peking	E3	1,025	0.7		68.6
Dyna-Gro	S19XF62	1.9	PI 88788	XF	3,800	1.6		68.1
LG Seeds	LGS1832E3	1.8	Peking	E3	900	0.7		68.0
Loyal Brand	L1950E	1.9	PI 88788	E3	2,900	1.8		67.9
Merschman	Chippewa 2323E	2.3	PI 88788	E3	5,125	3.7		67.8
Kruger	K1804XF	1.8	PI 88788	XF	4,625	2.3		67.6
Golden Harvest	GH1973E3S	1.9	Peking	E3/STS	1,150	0.6		67.2
Xitavo	XO 1822E	1.8	PI 88788	E3	4,350	3.2		66.6
Kruger	K2115XF	2.1	PI 88788	XF	12,250	4.9		66.5
LATHAM	L 1881 E3	1.8	Peking	E3	1,025	0.5		66.3
Golden Harvest	GH2004XF	2.0	PI 88788	XF	4,575	3.5		66.2
Stine	20EG02	2.0	PI 88788	E3	4,450	3.8		65.9
AgriGold	G2306XF	2.3	PI 88788	XF	3,700	3.5		65.9
Champion	1994EN	1.9	Peking	E3	625	0.4		65.8
Cornelius	CB22XF52	2.2	PI 88788	XF	7,425	5.1		65.8
Jacobsen	J1933E3	1.9	PI 88788	E3	4,900	2.4		65.4
NK	NK16-Z6E3	1.6	Peking	E3	1,425	1.0		65.3
Dyna-Gro	SNEN84	2.0	Peking	E3	1,975	0.8		65.3
Channel	2123RXF	1.9	PI 88788	XF	9,475	4.4		65.1
P3	2218E	1.8	PI 88788	E3	7,150	4.9		64.9
LG Seeds	LGS2364XF	2.3	PI 88788	XF	11,475	9.0		64.9
Merschman	Neptune 2317E	1.7	PI 88788	E3	7,250	5.3		64.6
Dyna-Gro	S25EN74	2.5	Peking	E3	1,025	0.5		64.5
NuTech	20N05E	2.0	PI 88788	E3	4,900	1.8		64.4
Champion	2093EN	2.0	Peking	E3	2,175	0.9		64.3
Asgrow	AG24XF3	2.4	PI 88788	XF	6,050	3.3		64.1
Connect	CT2123E	2.1	Peking	E3	1,100	0.4		64.0
AgriGold	G2450XF	2.4	PI 88788	XF	10,425	4.8		63.9
Cornelius	CB18XF88	1.8	PI 88788	XF	6,550	4.1		63.9
Xitavo	XO 2444E	2.4	PI 88788	E3	3,850	1.6		63.9
Beck	1630E3	1.6	PI 88788	E3	10,775	5.1		63.8
Loyal Brand	L2130E	2.1	PI 88788	E3	4,975	4.1		63.7
LATHAM	L 1661 E3	1.6	Peking	E3	1,100	0.8		63.6
Asgrow	AG19XF3	1.9	PI 88788	XF	7,325	4.2		63.3
Pioneer	P18A73E	1.8	Peking	E3	1,000	0.5		63.2
NK	NK21-C2E3	2.1	PI 88788	E3	6,375	4.3		63.1
Stine	19EG92	1.9	Peking	E3	6,750	4.4		63.1
NuTech	18N03E	1.8	PI 88788	E3	4,450	2.6		63.0
Hoegemeyer Hybrids	2484 E	2.1	Peking	E3	1,300	0.6		62.9
NuTech	22N03E	2.2	PI 88788	E3	8,125	4.5		62.8
Asgrow	AG22XF3	2.2	PI 88788	XF	6,925	4.3		62.7
Xitavo	XO 1632E	1.6	PI 88788	E3	13,050	9.2		62.7
Jacobsen	J1873E3	1.8	Peking	E3	875	0.5		62.6
Stine	21EE62	2.1	Peking	E3	425	0.3		62.6
Stine	14EE21	1.4	Peking	E3	3,600	2.4		62.5
LG Seeds	LGS2505E3	2.5	Peking	E3	1,500	0.7		62.4

Table 3. Oelwein (NE Iowa) continued.

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology <sup>1</sup>	SCN # (eggs/100cc) <sup>2</sup>	SCN Numbers Decreased		Yield (bu/acre)
						SCN RF <sup>3</sup>		
Hoegemeyer Hybrids	1903 E	1.9	Peking	E3	1,075	0.7		62.3
Pioneer	P23A40E	2.3	PI 88788	E3	6,950	3.2		62.1
LATHAM	L 1121 E3	1.1	Peking	E3	950	0.5		62.0
NK	NK22-C4E3	2.2	PI 88788	E3	4,400	4.0		61.5
NK	NK20-K2XF	2.0	PI 88788	XF	11,975	7.7		61.3
Beck	2227XF	2.2	PI 88788	XF	10,150	5.1		61.3
Kruger	K1914XF	1.9	PI 88788	XF	8,800	4.3		61.3
Pioneer	P21A53E	2.1	PI 88788	E3	9,900	6.2		61.0
Channel	1923RFX	1.9	PI 88788	XF	8,100	6.4		60.5
Merschman	Cheyenne 2220E	2.0	PI 88788	E3	5,100	3.0		60.4
P3	2322E	2.2	PI 88788	E3	10,425	4.5		60.3
AgriGold	G2107E3	2.1	Peking	E3	1,650	0.8		60.2
Kruger	K2294XF	2.2	PI 88788	XF	14,025	5.4		60.2
Loyal Brand	L2150E	2.1	Peking	E3	1,625	0.8		60.0
Beck	1950E3	1.9	Peking	E3	9,050	7.7		59.5
FS HiSOY	HS 21E20	2.1	PI 88788	E3	10,175	7.5		57.7
LG Seeds	LGS1735XF	1.7	PI 88788	XF	9,250	4.6		57.3
Golden Harvest	GH2083E3S	2.0	PI 88788	E3/STS	8,975	6.6		56.9
Xitavo	XO 2323E	2.3	PI 88788	E3	6,000	2.7		55.4
	Mean	2.0	-	-	5,370		2.0	63.9
	LSD <sup>4</sup> (P = 0.10)	-	-	-	4,830		-	5.3
<i>Nu Pride Genetics</i>	<i>8261 GT</i>	<i>2.7</i>	<i>None</i>	<i>GT</i>	<i>12,925</i>		<i>7.6</i>	<i>54.6</i>
<i>Iowa State University</i>	<i>IA2104RA12</i>	<i>2.3</i>	<i>None</i>	<i>None</i>	<i>15,350</i>		<i>5.4</i>	<i>48.2</i>
	Mean	2.5	-	-	14,138		6.5	51.4

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

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

<sup>1</sup> E3 = Enlist E3®, GT = glyphosate-tolerant, STS = sulfonylurea-tolerant soybean, XF = XtendFlex®.

May not reflect all herbicide tolerances. Consult product literature or seed dealer for more complete information.

<sup>2</sup> Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 1,752 eggs per 100 cc soil; HG type 2- (58.7% on PI 88788, 2.4% on Peking).

<sup>3</sup> 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.

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

Table 4. Glidden (WC Iowa).

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology <sup>1</sup>	SCN # (eggs/100cc) <sup>2</sup>	SCN Numbers Decreased		Yield (bu/acre)
						SCN RF <sup>3</sup>		
Stine	21EE62	2.1	Peking	E3	1,500	0.6		61.1
LG Seeds	LGS2348E3	2.3	PI 88788	E3	8,575	3.4		60.6
LG Seeds	LGS2505E3	2.5	Peking	E3	1,575	0.8		60.0
Connect	CT2123E	2.1	Peking	E3	550	0.3		59.5
Jacobsen	J2213E3	2.2	PI 88788	E3	1,175	0.4		58.9
Dyna-Gro	S25EN74	2.5	Peking	E3	2,300	0.7		58.8
Hoegemeyer Hybrids	2123 E	2.1	Peking	E3	1,700	0.9		58.5
Stine	24FD32	2.4	PI 88788	XF	5,075	3.2		58.3
LATHAM	L 2551 E3	2.5	Peking	E3	2,300	0.5		57.7
Hoegemeyer Hybrids	2484 E	2.4	Peking	E3	2,950	1.4		57.7
Champion	253E Blend	2.5	Peking/PI 88788	E3	6,600	4.2		57.6
Channel	2424RXF	2.4	PI 88788	XF	6,450	4.4		57.5
AgriGold	G2893E3	2.8	PI 88788	E3	21,550	5.3		57.5
P3	1928E	2.8	PI 88788	E3	8,200	3.7		56.9
Jacobsen	J2243E3	2.2	PI 88788	E3	10,450	4.1		56.4
FS HiSOY	HS 32E30	3.2	PI 88788	E3	8,625	3.3		56.2
Golden Harvest	GH2313XF	2.3	PI 88788	XF	12,775	5.9		56.0
LATHAM	L 2458 E3	2.4	PI 88788	E3	7,075	3.8		56.0
NuTech	24N05E	2.4	Peking	E3	650	0.2		55.8
NK	NK27-A7XF	2.7	PI 88788	XF	10,125	3.9		55.8
Cornelius	CB23XF63	2.3	PI 88788	XF	15,550	6.8		55.4
NuTech	27N03E	2.7	Peking	E3	1,625	0.8		55.3
Pioneer	P25A16E	2.5	Peking	E3	4,100	1.4		55.3
Hoegemeyer Hybrids	2763 E	2.7	Peking	E3	1,975	0.6		55.2
Beck	2550E3	2.5	Peking	E3	1,050	0.3		55.2
Cornelius	CB25XF99	2.5	PI 88788	XF	10,675	11.5		54.9
NuTech	27N06E	2.7	PI 88788	E3	13,050	3.7		54.6
Golden Harvest	GH2544XF	2.5	PI 88788	XF	5,950	3.3		54.6
NK	NK26-M6E3	2.6	PI 88788	E3	7,200	6.3		54.6
Asgrow	AG28XF3	2.8	PI 88788	XF	8,725	5.2		54.0
Stine	25FD02	2.5	PI 88788	XF	9,775	4.7		53.9
Xitavo	XO 3224E	3.2	Peking	E3	1,675	0.9		53.8
Asgrow	AG26XF3	2.6	PI 88788	XF	11,050	5.6		53.7
AgriGold	G2950XF	2.9	PI 88788	XF	13,925	7.8		53.6
Connect	CT2623E	2.6	PI 88788	E3	9,550	8.1		53.4
Xitavo	XO 2613E	2.6	PI 88788	E3	6,375	2.6		53.2
FS HiSOY	HS 25E30	2.5	Peking	E3	1,275	0.7		53.1
Xitavo	XO 3014E	3.0	PI 88788	E3	9,200	3.6		53.1
Stine	27EE32	2.7	Peking	E3	1,600	0.8		52.3
NK	NK29-Z4E3	2.9	PI 88788	E3	10,000	4.4		52.3
Dyna-Gro	S25XF64	2.5	PI 88788	XF	12,675	11.8		52.1
Stine	27EG22	2.7	Peking	E3	1,775	0.7		51.9
Beck	2559XF	2.5	PI 88788	XF	9,200	2.9		51.7
FS HiSOY	HS 26E20	2.6	PI 88788	E3	14,050	6.0		51.2
Jacobsen	J2893XF	2.8	PI 88788	XF	20,050	8.6		51.1
NK	NK28-P6XF	2.8	PI 88788	XF	11,925	4.5		51.1
Dyna-Gro	S26EN53	2.6	PI 88788	E3	5,100	2.5		50.9
Beck	3300E3	3.3	Peking	E3	1,275	0.3		50.9
Hoegemeyer Hybrids	2724 E	2.7	PI 88788	E3	10,100	6.6		50.2
Merschman	Cherokee 2529E	2.9	PI 88788	E3	11,875	3.4		50.0
Kruger	K2604XF	2.6	PI 88788	XF	10,200	4.9		50.0

Table 4. Glidden (WC Iowa) continued.

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology <sup>1</sup>	SCN # (eggs/100cc) <sup>2</sup>	SCN Numbers Decreased		Yield (bu/acre)
						SCN RF <sup>3</sup>		
Merschman	McKinley 2132E	3.2	PI 88788	E3	10,625	6.7		49.9
Golden Harvest	GH2922E3	2.9	PI 88788	E3	8,850	3.5		49.8
LG Seeds	LGS2334XF	2.3	PI 88788	XF	13,200	5.6		49.7
LATHAM	L 2907 XF	2.9	PI 88788	XF	7,425	4.6		49.6
Asgrow	AG27XF3	2.7	PI 88788	XF	9,675	4.3		49.3
Xitavo	XO 2963E	2.9	Peking	E3	2,400	1.1		49.1
Channel	2223RXF	2.2	PI 88788	XF	6,150	1.8		49.0
Merschman	Apache 1926E	2.6	PI 88788	E3	12,275	3.7		48.8
P3	2326E	2.6	PI 88788	E3	11,350	5.0		48.7
LG Seeds	LGS2554XF	2.5	PI 88788	XF	15,850	8.6		48.6
Merschman	Lincoln 2431E STS	3.1	PI 88788	E3	13,125	12.5		48.3
LATHAM	L 2894 E3	2.8	PI 88788	E3	16,950	5.9		48.2
Champion	294E Blend	2.9	Peking/PI 88788	E3	4,050	1.8		47.7
Beck	3140E3	3.1	PI 88788	E3	9,250	3.0		47.2
AgriGold	G2622XF	2.6	PI 88788	XF	8,150	3.3		46.7
Channel	2622RXF	2.6	PI 88788	XF	9,600	3.8		46.2
Pioneer	P28A65E	2.8	PI 88788	E3	13,750	4.0		44.5
NuTech	25N04E	2.5	PI 88788	E3	11,750	5.7		44.0
NK	NK28-B9E3	2.8	PI 88788	E3	7,175	5.4		43.1
	Mean	2.6	-	-	8,062	3.9		53.0
	LSD <sup>4</sup> (P = 0.10)	-	-	-	5,513	-		5.8
<i>Iowa State University</i>	<i>IA3054RA12</i>	3.0	<i>None</i>	<i>None</i>	22,575	12.2		50.5
<i>Nu Pride Genetics</i>	<i>8261 GT</i>	2.7	<i>None</i>	<i>GT</i>	16,225	7.0		39.2
	Mean	2.9	-	-	19,400	9.6		44.8

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

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

<sup>1</sup> E3 = Enlist E3<sup>®</sup>, GT = glyphosate-tolerant, STS = sulfonylurea-tolerant soybean, XF = XtendFlex<sup>®</sup>.

May not reflect all herbicide tolerances. Consult product literature or seed dealer for more complete information.

<sup>2</sup> Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 2,337 eggs per 100 cc soil; HG type 2- (44.4% on PI 88788, 0.8% on Peking).

<sup>3</sup> 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.

<sup>4</sup> 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 <sup>1</sup>	SCN # (eggs/100cc) <sup>2</sup>	SCN Numbers Decreased		Yield (bu/acre)
						SCN <sup>3</sup>		
LATHAM	L 2551 E3	2.5	Peking	E3	1,075	0.8		70.3
NK	NK26-M6E3	2.6	PI 88788	E3	1,825	1.6		70.3
Merschman	Cherokee 2529E	2.9	PI 88788	E3	3,725	2.7		70.2
Hoegemeyer Hybrids	2484 E	2.4	Peking	E3	200	0.2		69.9
Golden Harvest	GH2544XF	2.5	PI 88788	XF	1,675	1.6		69.8
Champion	253E Blend	2.5	Peking/PI 88788	E3	1,500	1.5		69.6
NuTech	24N05E	2.4	Peking	E3	175	0.2		68.8
LG Seeds	LGS2505E3	2.5	Peking	E3	3,425	1.4		68.5
Merschman	Apache 1926E	2.6	PI 88788	E3	6,375	4.4		68.1
Merschman	Lincoln 2431E	3.1	PI 88788	E3/STS	5,125	2.7		67.9
FS HiSOY	HS 32E30	3.2	PI 88788	E3	3,975	2.0		67.6
FS HiSOY	HS 26E20	2.6	PI 88788	E3	1,950	1.8		67.5
NuTech	27N03E	2.7	Peking	E3	400	0.4		67.4
Asgrow	AG27XF3	2.7	PI 88788	XF	2,125	1.1		67.3
Merschman	McKinley 2132E	3.2	PI 88788	E3	2,875	2.9		67.0
AgriGold	G2893E3	2.8	PI 88788	E3	5,775	4.4		66.9
Pioneer	P25A16E	2.5	Peking	E3	950	0.7		66.6
Hoegemeyer Hybrids	2724 E	2.7	PI 88788	E3	3,700	1.8		66.5
Dyna-Gro	S25XF64	2.5	PI 88788	XF	1,900	1.3		66.2
LATHAM	L 2894 E3	2.8	PI 88788	E3	4,750	2.1		66.1
P3	1928E	2.8	PI 88788	E3	2,850	3.4		66.0
Beck	3140E3	3.1	PI 88788	E3	1,875	2.3		65.7
AgriGold	G2622XF	2.6	PI 88788	XF	4,550	4.6		65.7
Champion	294E Blend	2.9	Peking/PI 88788	E3	2,375	1.8		65.3
Hoegemeyer Hybrids	2763 E	2.7	Peking	E3	1,375	0.8		65.3
NK	NK28-P6XF	2.8	PI 88788	XF	1,450	0.9		65.3
Cornelius	CB23XF63	2.3	PI 88788	XF	2,800	1.8		65.2
Golden Harvest	GH2922E3	2.9	PI 88788	E3	1,750	0.9		65.2
NuTech	25N04E	2.5	PI 88788	E3	5,050	3.9		64.8
Beck	2550E3	2.5	Peking	E3	875	0.5		64.6
Xitavo	XO 3014E	3.0	PI 88788	E3	2,675	2.4		64.5
NK	NK28-B9E3	2.8	PI 88788	E3	1,675	1.0		64.4
Dyna-Gro	S25EN74	2.5	Peking	E3	350	0.3		64.4
Stine	27EG22	2.7	Peking	E3	575	0.5		64.1
Golden Harvest	GH2313XF	2.3	PI 88788	XF	3,200	2.4		64.1
NuTech	27N06E	2.7	PI 88788	E3	3,175	3.2		64.0
FS HiSOY	HS 25E30	2.5	Peking	E3	250	0.1		63.9
LG Seeds	LGS2348E3	2.3	PI 88788	E3	4,475	2.7		63.9
P3	2326E	2.6	PI 88788	E3	1,675	1.0		63.7
NK	NK27-A7XF	2.7	PI 88788	XF	2,500	2.9		63.6
Stine	24FD32	2.4	PI 88788	XF	1,425	0.6		63.3
Channel	2424RXF	2.4	PI 88788	XF	1,825	2.0		63.1
Pioneer	P28A65E	2.8	PI 88788	E3	7,375	4.8		63.1
Beck	2559XF	2.5	PI 88788	XF	5,025	4.6		62.8
Asgrow	AG26XF3	2.6	PI 88788	XF	5,625	3.9		62.7
LG Seeds	LGS2334XF	2.3	PI 88788	XF	5,450	3.5		62.4
Xitavo	XO 3224E	3.2	Peking	E3	875	0.8		62.3
Stine	27EE32	2.7	Peking	E3	2,650	2.1		62.3
Connect	CT2623E	2.6	PI 88788	E3	5,650	3.7		62.2
Asgrow	AG28XF3	2.8	PI 88788	XF	1,075	0.8		62.1
Jacobsen	J2213E3	2.2	PI 88788	E3	1,175	1.5		61.3

Table 5. Ames (C Iowa) continued.

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology <sup>1</sup>	SCN # (eggs/100cc) <sup>2</sup>	SCN Numbers Decreased		Yield (bu/acre)
						SCN RF <sup>3</sup>		
Beck	3300E3	3.3	Peking	E3	475	0.4		61.3
Channel	2622RXF	2.6	PI 88788	XF	800	1.5		61.3
LG Seeds	LGS2554XF	2.5	PI 88788	XF	3,825	2.3		61.0
NK	NK29-Z4E3	2.9	PI 88788	E3	3,825	4.6		61.0
Jacobsen	J2893XF	2.8	PI 88788	XF	6,050	3.8		60.8
Channel	2223RXF	2.2	PI 88788	XF	2,175	3.3		60.6
Stine	25FD02	2.5	PI 88788	XF	7,350	5.7		60.6
Xitavo	XO 2613E	2.6	PI 88788	E3	6,325	2.5		60.4
LATHAM	L 2907 XF	2.9	PI 88788	XF	3,950	2.8		60.3
Connect	CT2123E	2.1	Peking	E3	175	0.3		60.2
AgriGold	GT2950XF	2.9	PI 88788	XF	2,975	2.4		59.8
LATHAM	L 2458 E3	2.4	PI 88788	E3	3,475	4.5		59.8
Cornelius	CB25XF99	2.5	PI 88788	XF	1,675	1.5		58.7
Xitavo	XO 2963E	2.9	Peking	E3	2,275	0.8		58.7
Dyna-Gro	S26EN53	2.6	PI 88788	E3	3,725	6.8		57.8
Jacobsen	J2243E3	2.2	PI 88788	E3	3,250	2.2		57.6
Hoegemeyer Hybrids	2123 E	2.1	Peking	E3	1,025	0.8		57.6
Kruger	K2604XF	2.6	PI 88788	XF	2,350	1.7		55.8
Stine	21EE62	2.1	Peking	E3	1,400	1.6		55.8
	Mean	2.6	-	-	2,775		2.2	63.9
	LSD <sup>4</sup> (P = 0.10)	-	-	-	2,773		-	5.1
<i>Iowa State University</i>	<i>IA3054RA12</i>	3.0	<i>None</i>	<i>None</i>	4,650		3.0	53.9
<i>Nu Pride Genetics</i>	<i>8261 GT</i>	2.7	<i>None</i>	<i>GT</i>	4,125		4.9	45.5
	Mean	2.9	-	-	4,388		4.0	49.7

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

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

<sup>1</sup> E3 = Enlist E3®, GT = glyphosate-tolerant, STS = sulfonyleurea-tolerant soybean, XF = XtendFlex®.

May not reflect all herbicide tolerances. Consult product literature or seed dealer for more complete information.

<sup>2</sup> Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 1,349 eggs per 100 cc soil; HG type 2- (61.4% on PI 88788, 1.9% on Peking).

<sup>3</sup> 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.

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

Table 6. Urbana (EC Iowa).

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology <sup>1</sup>	SCN # (eggs/100cc) <sup>2</sup>	SCN Numbers Decreased		Yield (bu/acre)
						SCN RF <sup>3</sup>		
Beck	2550E3	2.5	Peking	E3	175	0.1		67.7
Xitavo	XO 3224E	3.2	Peking	E3	475	0.8		66.7
LG Seeds	LGS2334XF	2.3	PI 88788	XF	600	1.3		66.5
Xitavo	XO 3014E	3.0	PI 88788	E3	1,525	1.7		65.7
Asgrow	AG28XF3	2.8	PI 88788	XF	1,125	0.8		64.9
Merschman	Cherokee 2529E	2.9	PI 88788	E3	1,675	1.9		64.9
Hoegemeyer Hybrids	2763 E	2.7	Peking	E3	425	0.2		63.4
NuTech	27N03E	2.7	Peking	E3	125	0.1		62.6
LATHAM	L 2551 E3	2.5	Peking	E3	175	0.3		62.6
Jacobsen	J2213E3	2.2	PI 88788	E3	800	1.1		62.5
Asgrow	AG27XF3	2.7	PI 88788	XF	2,550	3.5		62.4
Beck	3300E3	3.3	Peking	E3	650	0.8		61.7
Channel	2424RFX	2.4	PI 88788	XF	1,100	0.9		61.4
NuTech	27N06E	2.7	PI 88788	E3	1,825	1.7		61.3
Merschman	Apache 1926E	2.6	PI 88788	E3	1,475	1.3		61.3
Merschman	McKinley 2132E	3.2	PI 88788	E3	1,275	0.9		61.0
P3	2326E	2.6	PI 88788	E3	5,050	2.1		61.0
NK	NK27-A7XF	2.7	PI 88788	XF	1,975	2.1		60.7
AgriGold	G2950XF	2.9	PI 88788	XF	875	1.5		60.6
Dyna-Gro	S26EN53	2.6	PI 88788	E3	1,750	1.0		60.6
Golden Harvest	GH2313XF	2.3	PI 88788	XF	2,125	1.2		60.6
Stine	27EG22	2.7	Peking	E3	150	0.1		60.6
Jacobsen	J2893XF	2.8	PI 88788	XF	1,875	1.6		60.4
FS HiSOY	HS 25E30	2.5	Peking	E3	850	0.6		60.3
Pioneer	P25A16E	2.5	Peking	E3	1,025	0.6		60.1
AgriGold	G2893E3	2.8	PI 88788	E3	3,300	2.0		60.0
LG Seeds	LGS2554XF	2.5	PI 88788	XF	3,500	2.6		59.8
LATHAM	L 2907 XF	2.9	PI 88788	XF	875	1.8		59.8
Xitavo	XO 2613E	2.6	PI 88788	E3	1,500	0.8		59.7
Champion	253E Blend	2.5	Peking/PI 88788	E3	650	0.3		59.7
Hoegemeyer Hybrids	2484 E	2.4	Peking	E3	175	0.2		59.4
LG Seeds	LGS2348E3	2.3	PI 88788	E3	950	0.8		59.2
Cornelius	CB23XF63	2.3	PI 88788	XF	1,350	0.9		59.1
LG Seeds	LGS2505E3	2.5	Peking	E3	200	0.2		59.1
NuTech	24N05E	2.4	Peking	E3	400	0.2		59.0
P3	1928E	2.8	PI 88788	E3	3,300	1.5		59.0
Dyna-Gro	S25EN74	2.5	Peking	E3	1,000	1.4		58.9
LATHAM	L 2894 E3	2.8	PI 88788	E3	1,675	2.2		58.6
FS HiSOY	HS 32E30	3.2	PI 88788	E3	3,475	2.5		58.5
Champion	294E Blend	2.9	Peking/PI 88788	E3	750	0.5		58.5
NK	NK29-Z4E3	2.9	PI 88788	E3	1,050	1.8		58.4
Stine	25FD02	2.5	PI 88788	XF	1,300	0.7		58.3
AgriGold	G2622XF	2.6	PI 88788	XF	825	0.9		58.3
Stine	24FD32	2.4	PI 88788	XF	1,100	1.3		58.2
Dyna-Gro	S25XF64	2.5	PI 88788	XF	2,125	1.8		58.2
Stine	21EE62	2.1	Peking	E3	150	0.1		58.0
Cornelius	CB25XF99	2.5	PI 88788	XF	2,025	0.8		58.0
NK	NK28-B9E3	2.8	PI 88788	E3	875	1.1		57.9
Hoegemeyer Hybrids	2123 E	2.1	Peking	E3	2,600	3.9		57.9
FS HiSOY	HS 26E20	2.6	PI 88788	E3	3,500	1.9		57.7
Merschman	Lincoln 2431E	3.1	PI 88788	E3/STS	1,625	2.0		57.7



Table 6. Urbana (EC Iowa) continued.

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology <sup>1</sup>	SCN # (eggs/100cc) <sup>2</sup>	SCN Numbers Decreased		Yield (bu/acre)
						SCN RF <sup>3</sup>		
Xitavo	XO 2963E	2.9	Peking	E3	850	1.0		57.6
Golden Harvest	GH2544XF	2.5	PI 88788	XF	500	0.7		57.6
Asgrow	AG26XF3	2.6	PI 88788	XF	2,175	2.1		57.6
Connect	CT2123E	2.1	Peking	E3	650	0.7		57.0
Connect	CT2623E	2.6	PI 88788	E3	2,400	2.0		56.8
Hoegemeyer Hybrids	2724 E	2.7	PI 88788	E3	1,900	1.6		56.7
NK	NK26-M6E3	2.6	PI 88788	E3	1,850	1.7		56.5
Stine	27EE32	2.7	Peking	E3	1,925	1.7		56.5
Golden Harvest	GH2922E3	2.9	PI 88788	E3	1,275	0.8		56.2
NK	NK28-P6XF	2.8	PI 88788	XF	775	0.9		55.8
Beck	2559XF	2.5	PI 88788	XF	1,525	1.0		55.1
Kruger	K2604XF	2.6	PI 88788	XF	1,050	1.1		55.0
Channel	2622RXF	2.6	PI 88788	XF	1,150	1.3		54.9
NuTech	25N04E	2.5	PI 88788	E3	1,425	1.1		54.8
LATHAM	L 2458 E3	2.4	PI 88788	E3	1,625	1.6		54.5
Pioneer	P28A65E	2.8	PI 88788	E3	1,925	1.4		54.1
Jacobsen	J2243E3	2.2	PI 88788	E3	1,350	1.1		52.5
Beck	3140E3	3.1	PI 88788	E3	2,275	3.0		52.1
Channel	2223RXF	2.2	PI 88788	XF	700	0.8		51.6
	Mean	2.6	-	-	1,418		1.3	59.2
	LSD <sup>4</sup> (P = 0.10)	-	-	-	1,421		-	6.3
<i>Nu Pride Genetics</i>	<i>8261 GT</i>	<i>2.7</i>	<i>None</i>	<i>GT</i>	<i>8,800</i>		<i>10.1</i>	<i>42.8</i>
<i>Iowa State University</i>	<i>IA3054RA12</i>	<i>3.0</i>	<i>None</i>	<i>None</i>	<i>8,400</i>		<i>5.9</i>	<i>40.3</i>
	Mean	2.9	-	-	8,600		8.0	41.6

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

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

<sup>1</sup> E3 = Enlist E3<sup>®</sup>, GT = glyphosate-tolerant, STS = sulfonylurea-tolerant soybean, XF = XtendFlex<sup>®</sup>.

May not reflect all herbicide tolerances. Consult product literature or seed dealer for more complete information.

<sup>2</sup> Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 1,192 eggs per 100 cc soil; HG type 2- (32.6% on PI 88788, 0.1% on Peking).







































<sup>3</sup> 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.

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

Table 7. Glenwood (SW Iowa).

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology <sup>1</sup>	SCN # (eggs/100cc) <sup>2</sup>	SCN Numbers Decreased		Yield (bu/acre)
						SCN RF <sup>3</sup>		
Hoegemeyer Hybrids	2763 E	2.7	Peking	E3	250	0.1		50.3
Beck	3300E3	3.3	Peking	E3	725	0.4		50.1
AgriGold	G3552XF	3.5	PI 88788	XF	9,675	6.0		49.8
LATHAM	L 3479 E3	3.4	PI 88788	E3	3,350	2.5		47.5
Xitavo	XO 2963E	2.9	Peking	E3	600	0.3		47.4
Xitavo	XO 3483E	3.4	PI 88788	E3	5,275	2.6		47.2
FS HiSOY	HS 35E10	3.5	PI 88788	E3	8,000	6.2		46.9
Hoegemeyer Hybrids	3413 E	3.4	Peking	E3	575	0.6		46.7
NuTech	33N04E	3.3	PI 88788	E3	3,600	2.3		46.5
Stine	27EE32	2.7	Peking	E3	700	0.6		46.4
NuTech	34N02E	3.4	Peking	E3	375	0.1		46.1
NuTech	31N07E	3.1	PI 88788	E3	5,675	4.7		46.0
Dyna-Gro	S31EN14	3.1	PI 88788	E3	4,850	2.5		45.8
Kruger	K3814XF	3.8	PI 88788	XF	6,350	5.4		45.7
Merschman	Monroe 2337E	3.7	PI 88788	E3	2,900	1.2		45.6
Connect	CT3023E	3.0	PI 88788	E3	5,550	3.1		45.5
Asgrow	AG30XF4	3.0	PI 88788	XF	7,475	2.8		45.4
Champion	324E Blend	3.2	Peking/PI 88788	E3	4,100	3.2		45.0
Stine	33EG02	3.3	Peking	E3	775	0.6		44.8
Xitavo	XO 3752E	3.7	PI 88788	E3	5,125	2.8		44.7
FS HiSOY	HS 37E10	3.7	PI 88788	E3	6,475	3.2		44.7
LG Seeds	LGS3216E3	3.2	PI 88788	E3	5,325	2.2		43.9
Channel	3223RFX	3.2	PI 88788	XF	4,125	1.6		43.9
NK	NK30-U4XF	3.0	PI 88788	XF	19,767	14.1		43.8
Connect	CT2923E	2.9	PI 88788	E3	3,550	2.3		43.7
Channel	2823RFX	2.8	PI 88788	XF	5,250	1.9		43.6
Asgrow	AG33XF3	3.3	PI 88788	XF	5,000	5.1		43.4
Dyna-Gro	S35XF44	3.5	PI 88788	XF	6,225	2.9		43.3
Merschman	Eisenhower 2439E	3.9	PI 88788	E3/STS	2,425	1.7		43.2
Beck	3650E3	3.6	PI 88788	E3	3,725	2.0		42.9
Asgrow	AG35XF4	3.5	PI 88788	XF	8,450	5.1		42.8
Stine	33FD32	3.3	PI 88788	XF	3,525	1.8		42.6
LG Seeds	LGS3253XF	3.2	PI 88788	XF	2,725	1.4		42.6
Asgrow	AG39XF3	3.9	PI 88788	XF	5,425	3.0		42.2
Stine	30FD20	3.0	PI 88788	XF	3,275	1.6		42.2
P3	2331E	3.1	PI 88788	E3	5,925	4.5		42.1
Pioneer	P29A19E	2.9	PI 88788	E3	12,900	6.1		42.1
AgriGold	G3279E3	3.2	PI 88788	E3	2,750	2.4		41.9
NK	NK36-H9E3S	3.6	PI 88788	E3	6,825	5.2		41.8
Xitavo	XO 3224E	3.2	Peking	E3	425	0.4		41.7
FS HiSOY	HS 33E20	3.3	PI 88788	E3	8,400	5.2		41.4
Beck	3850E3	3.8	PI 88788	E3	7,225	3.0		41.3
Beck	3337XF	3.3	PI 88788	XF	6,225	1.8		41.2
P3	2337E	3.7	PI 88788	E3	7,950	7.1		41.1
Asgrow	AG27XF3	2.7	PI 88788	XF	2,325	1.4		41.1
NK	NK30-B2E3	3.0	PI 88788	E3	5,950	2.6		41.0
AgriGold	G3577E3	3.5	PI 88788	E3	8,225	2.5		40.8
Channel	3124RFX	3.1	PI 88788	XF	7,025	3.7		40.6
Champion	3234EN	3.2	Peking	E3	975	0.8		40.6
NK	NK37-C1E3	3.7	PI 88788	E3	6,300	2.7		40.4
LATHAM	L 3123 E3	3.1	PI 88788	E3	3,375	1.5		40.2

Table 7. Glenwood (SW Iowa) continued.

							SCN Numbers Decreased	
Brand	Variety	Relative Maturity	Resistance	Herbicide Technology <sup>1</sup>	SCN # (eggs/100cc) <sup>2</sup>	SCN RF <sup>3</sup>	Yield (bu/acre)	
Merschman	Kennedy 1936E	3.6	PI 88788	E3	8,000	7.1 	39.8 	
Stine	37EG23	3.7	PI 88788	E3	11,125	12.4 	39.3 	
Stine	35EG29	3.5	PI 88788	E3	6,400	5.1 	38.5 	
Pioneer	P37A18E	3.7	PI 88788	E3	6,775	5.6 	38.5 	
Beck	3555XF	3.5	PI 88788	XF	4,425	3.4 	38.2 	
LG Seeds	LGS3434XF	3.4	PI 88788	XF	3,825	1.1 	38.0 	
LATHAM	L 3384 XF	3.3	PI 88788	XF	7,125	7.1 	37.4 	
LG Seeds	LGS3688E3	3.6	PI 88788	E3	6,850	5.7 	37.2 	
Dyna-Gro	S33XF62	3.3	PI 88788	XF	9,700	2.7 	37.1 	
NuTech	36N04E	3.6	PI 88788	E3	3,650	1.9 	36.6 	
Merschman	Truman 2338E	3.8	PI 88788	E3	4,925	2.2 	36.5 	
NK	NK35-E3	3.5	PI 88788	E3	4,575	2.8 	36.3 	
FS HiSOY	HS 38E20	3.8	PI 88788	E3	10,825	7.0 	36.0 	
Kruger	K3593XF	3.5	PI 88788	XF	4,750	2.6 	35.6 	
Stine	36FD92	3.6	PI 88788	XF	2,900	1.3 	35.0 	
Cornelius	CB37XF70	3.7	PI 88788	XF	5,075	4.1 	32.7 	
Dyna-Gro	S37XF33	3.7	PI 88788	XF	16,150	8.0 	31.4 	
AgriGold	G3692XF	3.6	PI 88788	XF	7,350	4.3 	31.1 	
Xitavo	XO 3803E	3.8	PI 88788	E3	7,250	4.8 	30.2 	
	Mean	3.4	-	-	5,458	3.4	41.8	
	LSD <sup>4</sup> (P = 0.10)	-	-	-	7,122	-	7.1	
<i>Iowa State University</i>	<i>IA3054RA12</i>	3.0	<i>None</i>	<i>None</i>	5,425	2.0	38.5	
<i>Nu Pride Genetics</i>	<i>8347 GT</i>	3.4	<i>None</i>	<i>GT</i>	9,275	5.0	32.3	
	Mean	3.2	-	-	7,350	3.5	35.4	

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

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

<sup>1</sup> E3 = Enlist E3®, GT = glyphosate-tolerant, STS = sulfonylurea-tolerant soybean, XF = XtendFlex®.

May not reflect all herbicide tolerances. Consult product literature or seed dealer for more complete information.

<sup>2</sup> Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 1,829 eggs per 100 cc soil; HG type 1.2- (40.3% on PI 88788, 12.1% on Peking).

<sup>3</sup> 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.

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

Table 8. Oskaloosa (SC Iowa).

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology <sup>1</sup>	SCN # (eggs/100cc) <sup>2</sup>	SCN Numbers Decreased		Yield (bu/acre)
						SCN RF <sup>3</sup>		
Hoegemeyer Hybrids	2763 E	2.7	Peking	E3	900	1.0		70.5
NuTech	34N02E	3.4	Peking	E3	2,125	1.3		68.8
Xitavo	XO 3224E	3.2	Peking	E3	2,900	1.5		67.8
NuTech	31N07E	3.1	PI 88788	E3	8,300	6.1		67.7
NK	NK35-E3	3.5	PI 88788	E3	7,700	5.3		67.4
Xitavo	XO 3803E	3.8	PI 88788	E3	10,150	8.3		67.3
LATHAM	L 3123 E3	3.1	PI 88788	E3	5,075	4.2		67.1
Dyna-Gro	S31EN14	3.1	PI 88788	E3	7,025	6.5		66.9
Beck	3300E3	3.3	Peking	E3	1,900	1.4		66.8
Merschman	Eisenhower 2439E	3.9	PI 88788	E3/STS	11,100	5.4		66.5
Stine	30FD20	3.0	PI 88788	XF	5,775	5.0		66.4
FS HiSOY	HS 37E10	3.7	PI 88788	E3	5,725	2.9		66.1
Xitavo	XO 3483E	3.4	PI 88788	E3	3,100	1.9		65.9
NuTech	33N04E	3.3	PI 88788	E3	5,850	3.3		65.9
Stine	37EG23	3.7	PI 88788	E3	8,050	9.2		65.5
AgriGold	G3577E3	3.5	PI 88788	E3	5,100	3.5		65.4
Stine	33EG02	3.3	Peking	E3	1,950	1.3		65.3
Asgrow	AG27XF3	2.7	PI 88788	XF	8,925	9.9		65.2
AgriGold	G3552XF	3.5	PI 88788	XF	7,450	7.6		65.2
P3	2331E	3.1	PI 88788	E3	6,550	4.4		65.1
AgriGold	G3692XF	3.6	PI 88788	XF	7,200	4.2		65.0
Dyna-Gro	S35XF44	3.5	PI 88788	XF	7,575	6.9		64.9
P3	2337E	3.7	PI 88788	E3	12,375	6.2		64.8
Beck	3650E3	3.6	PI 88788	E3	11,350	6.0		64.5
FS HiSOY	HS 38E20	3.8	PI 88788	E3	10,175	5.3		64.4
Stine	36FD92	3.6	PI 88788	XF	4,225	2.4		64.4
Connect	CT3023E	3.0	PI 88788	E3	7,000	3.7		64.2
FS HiSOY	HS 35E10	3.5	PI 88788	E3	3,825	3.0		64.0
Champion	324E Blend	3.2	Peking/PI 88788	E3	5,500	5.0		64.0
NuTech	36N04E	3.6	PI 88788	E3	5,325	3.0		63.9
LG Seeds	LGS3434XF	3.4	PI 88788	XF	4,400	2.2		63.9
LG Seeds	LGS3688E3	3.6	PI 88788	E3	7,225	9.6		63.9
Asgrow	AG33XF3	3.3	PI 88788	XF	9,250	7.6		63.6
NK	NK37-C1E3	3.7	PI 88788	E3	5,375	2.9		63.6
Kruger	K3814XF	3.8	PI 88788	XF	4,025	4.0		63.4
Xitavo	XO 3752E	3.7	PI 88788	E3	9,125	5.4		63.3
Beck	3850E3	3.8	PI 88788	E3	6,400	3.7		63.3
Merschman	Kennedy 1936E	3.6	PI 88788	E3	11,500	8.2		63.2
Pioneer	P37A18E	3.7	PI 88788	E3	12,650	15.3		63.2
Asgrow	AG39XF3	3.9	PI 88788	XF	3,900	3.0		63.1
Merschman	Monroe 2337E	3.7	PI 88788	E3	6,075	6.6		63.1
Champion	3234EN	3.2	Peking	E3	2,325	3.6		63.1
LG Seeds	LGS3216E3	3.2	PI 88788	E3	6,250	4.3		63.0
AgriGold	G3279E3	3.2	PI 88788	E3	8,650	4.0		62.9
Stine	35EG29	3.5	PI 88788	E3	7,125	3.9		62.9
Xitavo	XO 2963E	2.9	Peking	E3	2,450	2.4		62.6
FS HiSOY	HS 33E20	3.3	PI 88788	E3	8,075	7.3		62.5
Pioneer	P29A19E	2.9	PI 88788	E3	5,775	5.6		62.4
LATHAM	L 3479 E3	3.4	PI 88788	E3	6,425	4.1		62.2
Kruger	K3593XF	3.5	PI 88788	XF	13,925	6.7		61.8
Dyna-Gro	S37XF33	3.7	PI 88788	XF	9,525	8.7		61.7

Table 8. Oskaloosa (SC Iowa) continued.

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology <sup>1</sup>	SCN # (eggs/100cc) <sup>2</sup>	SCN Numbers Decreased	
						SCN RF <sup>3</sup>	Yield (bu/acre)
LATHAM	L 3384 XF	3.3	PI 88788	XF	9,775	9.1	61.4
Hoegemeyer Hybrids	3413 E	3.4	Peking	E3	1,725	1.4	61.0
Stine	33FD32	3.3	PI 88788	XF	11,525	5.9	61.0
NK	NK36-H9E3S	3.6	PI 88788	E3	7,050	7.2	61.0
Channel	2823RFX	2.8	PI 88788	XF	9,350	6.8	61.0
LG Seeds	LGS3253XF	3.2	PI 88788	XF	10,500	6.5	60.8
Asgrow	AG30XF4	3.0	PI 88788	XF	15,000	11.1	60.7
NK	NK30-B2E3	3.0	PI 88788	E3	7,825	4.1	60.6
Dyna-Gro	S33XF62	3.3	PI 88788	XF	10,475	4.0	60.5
Beck	3555XF	3.5	PI 88788	XF	11,000	10.0	59.6
Stine	27EE32	2.7	Peking	E3	5,100	6.2	59.5
Cornelius	CB37XF70	3.7	PI 88788	XF	14,050	10.4	59.2
Merschman	Truman 2338E	3.8	PI 88788	E3	9,825	7.3	59.2
Channel	3124RFX	3.1	PI 88788	XF	11,850	16.3	58.3
Beck	3337XF	3.3	PI 88788	XF	7,850	4.8	58.2
Channel	3223RFX	3.2	PI 88788	XF	5,200	3.3	57.4
NK	NK30-U4XF	3.0	PI 88788	XF	8,375	5.2	57.3
Asgrow	AG35XF4	3.5	PI 88788	XF	6,475	6.5	56.3
Connect	CT2923E	2.9	PI 88788	E3	4,775	4.1	52.7
	Mean	3.4	-	-	7,263	5.5	63.2
	LSD <sup>4</sup> (P = 0.10)	-	-	-	5,366	-	5.1
<i>Iowa State University</i>	<i>IA3054RA12</i>	3.0	<i>None</i>	<i>None</i>	12,825	9.2	46.2
<i>Nu Pride Genetics</i>	<i>8347 GT</i>	3.4	<i>None</i>	<i>GT</i>	8,200	5.8	42.0
	Mean	3.2	-	-	10,513	7.5	44.1

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

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

<sup>1</sup> E3 = Enlist E3<sup>®</sup>, GT = glyphosate-tolerant, STS = sulfonylurea-tolerant soybean, XF = XtendFlex<sup>®</sup>.

May not reflect all herbicide tolerances. Consult product literature or seed dealer for more complete information.

<sup>2</sup> Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 1,420 eggs per 100 cc soil; HG type 1.2- (40.0% on PI 88788, 18.6% on Peking).

<sup>3</sup> 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.

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

Table 9. Fruitland (SE Iowa).

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology <sup>1</sup>	SCN # (eggs/100cc) <sup>2</sup>	SCN Numbers Decreased		Yield (bu/acre)
						SCN RF <sup>3</sup>		
Hoegemeyer Hybrids	3413 E	3.4	Peking	E3	350	0.3		80.3
Champion	3234EN	3.2	Peking	E3	425	0.4		79.2
Xitavo	XO 2963E	2.9	Peking	E3	1,050	1.0		79.1
Hoegemeyer Hybrids	2763 E	2.7	Peking	E3	425	0.4		76.9
Stine	27EE32	2.7	Peking	E3	1,075	1.1		75.8
NuTech	34N02E	3.4	Peking	E3	300	0.2		75.7
Xitavo	XO 3224E	3.2	Peking	E3	200	0.2		75.4
Beck	3300E3	3.3	Peking	E3	500	0.3		74.8
Stine	33EG02	3.3	Peking	E3	775	0.6		73.3
NK	NK30-B2E3	3.0	PI 88788	E3	11,475	6.1		63.9
Champion	324E Blend	3.2	Peking/PI 88788	E3	7,775	5.7		62.4
AgriGold	G3279E3	3.2	PI 88788	E3	15,225	9.7		62.3
FS HiSOY	HS 33E20	3.3	PI 88788	E3	12,625	14.0		60.7
Kruger	K3814XF	3.8	PI 88788	XF	14,075	9.9		60.6
LG Seeds	LGS3434XF	3.4	PI 88788	XF	7,600	12.2		60.4
Asgrow	AG39XF3	3.9	PI 88788	XF	17,150	14.9		60.0
NK	NK35-E3	3.5	PI 88788	E3	22,175	35.5		59.5
Xitavo	XO 3483E	3.4	PI 88788	E3	10,750	10.8		59.0
LATHAM	L 3479 E3	3.4	PI 88788	E3	13,925	9.8		58.6
FS HiSOY	HS 35E10	3.5	PI 88788	E3	19,750	10.1		57.1
P3	2331E	3.1	PI 88788	E3	12,600	9.7		57.0
Dyna-Gro	S31EN14	3.1	PI 88788	E3	12,150	24.3		56.7
Pioneer	P29A19E	2.9	PI 88788	E3	19,625	17.4		56.1
LG Seeds	LGS3216E3	3.2	PI 88788	E3	14,675	8.9		56.0
Pioneer	P37A18E	3.7	PI 88788	E3	36,825	36.8		55.0
Merschman	Monroe 2337E	3.7	PI 88788	E3	13,550	13.6		54.8
Xitavo	XO 3803E	3.8	PI 88788	E3	14,050	11.5		54.7
AgriGold	G3692XF	3.6	PI 88788	XF	24,700	32.9		54.2
LATHAM	L 3123 E3	3.1	PI 88788	E3	24,350	18.0		53.8
Kruger	K3593XF	3.5	PI 88788	XF	23,300	21.7		53.8
NK	NK30-U4XF	3.0	PI 88788	XF	24,300	23.7		53.7
Cornelius	CB37XF70	3.7	PI 88788	XF	21,050	16.8		53.4
NK	NK37-C1E3	3.7	PI 88788	E3	11,900	6.1		53.4
FS HiSOY	HS 38E20	3.8	PI 88788	E3	25,325	23.6		53.2
Connect	CT3023E	3.0	PI 88788	E3	14,325	8.8		53.1
Stine	35EG29	3.5	PI 88788	E3	22,525	30.0		52.9
Asgrow	AG27XF3	2.7	PI 88788	XF	24,700	17.0		52.2
Beck	3850E3	3.8	PI 88788	E3	23,150	13.4		52.0
NuTech	36N04E	3.6	PI 88788	E3	21,700	17.7		51.9
Beck	3650E3	3.6	PI 88788	E3	19,600	9.1		51.9
Dyna-Gro	S37XF33	3.7	PI 88788	XF	21,050	19.1		51.0
Beck	3555XF	3.5	PI 88788	XF	21,300	20.8		50.8
Merschman	Kennedy 1936E	3.6	PI 88788	E3	22,175	24.6		50.7
Merschman	Truman 2338E	3.8	PI 88788	E3	26,350	22.9		50.3
FS HiSOY	HS 37E10	3.7	PI 88788	E3	26,475	23.5		50.1
Asgrow	AG33XF3	3.3	PI 88788	XF	13,225	18.2		49.9
Dyna-Gro	S33XF62	3.3	PI 88788	XF	19,225	21.4		49.9
Stine	30FD20	3.0	PI 88788	XF	14,550	9.4		49.7
Stine	37EG23	3.7	PI 88788	E3	27,575	22.5		49.5
NuTech	31N07E	3.1	PI 88788	E3	17,625	17.6		49.2
LG Seeds	LGS3688E3	3.6	PI 88788	E3	27,100	26.4		49.2

Table 9. Fruitland (SE Iowa) continued.

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology <sup>1</sup>	SCN # (eggs/100cc) <sup>2</sup>	SCN Numbers Decreased	
						SCN RF <sup>3</sup>	Yield (bu/acre)
LG Seeds	LGS3253XF	3.2	PI 88788	XF	22,250	34.2	49.1
NuTech	33N04E	3.3	PI 88788	E3	23,925	21.8	49.1
Stine	36FD92	3.6	PI 88788	XF	15,525	10.2	49.1
Xitavo	XO 3752E	3.7	PI 88788	E3	23,425	20.8	48.8
AgriGold	G3552XF	3.5	PI 88788	XF	13,425	13.1	48.6
Beck	3337XF	3.3	PI 88788	XF	23,050	19.2	48.5
Merschman	Eisenhower 2439E	3.9	PI 88788	E3/STS	18,450	22.4	48.3
P3	2337E	3.7	PI 88788	E3	20,850	27.8	48.3
AgriGold	G3577E3	3.5	PI 88788	E3	17,900	13.5	48.1
Channel	2823RXF	2.8	PI 88788	XF	28,575	22.4	47.0
Channel	3124RXF	3.1	PI 88788	XF	18,075	20.7	46.5
Channel	3223RXF	3.2	PI 88788	XF	16,425	14.9	46.1
Asgrow	AG35XF4	3.5	PI 88788	XF	20,900	15.5	46.0
LATHAM	L 3384 XF	3.3	PI 88788	XF	21,625	27.9	45.8
Asgrow	AG30XF4	3.0	PI 88788	XF	23,000	18.0	45.3
Dyna-Gro	S35XF44	3.5	PI 88788	XF	12,525	8.4	45.2
NK	NK36-H9E3S	3.6	PI 88788	E3	27,375	26.7	44.2
Stine	33FD32	3.3	PI 88788	XF	25,725	15.8	40.8
Connect	CT2923E	2.9	PI 88788	E3	24,950	27.0	40.8
	Mean	3.4	-	-	17,095	15.9	55.3
	LSD <sup>4</sup> (P = 0.10)	-	-	-	9,017	-	7.8
<i>Iowa State University</i>	<i>IA3054RA12</i>	3.0	<i>None</i>	<i>None</i>	16,375	17.2	51.3
<i>Nu Pride Genetics</i>	<i>8347 GT</i>	3.4	<i>None</i>	<i>GT</i>	27,450	22.4	29.4
	Mean	3.2	-	-	21,913	19.8	40.4

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

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

<sup>1</sup> E3 = Enlist E3<sup>®</sup>, GT = glyphosate-tolerant, STS = sulfonylurea-tolerant soybean, XF = XtendFlex<sup>®</sup>.

May not reflect all herbicide tolerances. Consult product literature or seed dealer for more complete information.

<sup>2</sup> Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 1,174 eggs per 100 cc soil; HG type 2- (47.6% on PI 88788, 0.2% on Peking).

<sup>3</sup> 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.

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

Table 10. Seed treatments used on varieties evaluated in 2023.

Brand	Seed Treatment	Brand	Seed Treatment
AgriGold	AgriShield® Max, Saltro®	Kruger	Acceleron® Standard, ILeVO®
Asgrow	Acceleron® Standard, ILeVO®	LATHAM	SoyShield Plus™, Saltro®
Beck	Escalate®, Nemasect®	LG Seeds	AgriShield® Max, Saltro®
Champion	CruiserMaxx® APX, Saltro®	Loyal Brand	L-Coat Total, Saltro®
Channel Seed	Acceleron®, ILeVO®	Merschman	Starting Line Plus™, Saltro®, Trunemco™
Connect	Acceleron® Standard, ILeVO®	NK	CruiserMaxx® APX, Saltro®
Cornelius	Profit Guard Plus™, Saltro®	NuTech	LumiGEN®, ILeVO®
Dyna-Gro	Equity® VIP, Vayantis®, Saltro®	P3	Profit Guard Plus™, Saltro®
FS HiSOY	Acceleron®, Saltro®	Pioneer	LumiGEN®, ILeVO®
Golden Harvest	CruiserMaxx® APX, Saltro®	Stine	Stine XP®-F&I, BIOst®
Hoegemeyer Hybrids	LumiGEN®, ILeVO®	Xitavo	Obvius® Plus, Poncho® Votivo®, Relenya®, ILeVO®
Jacobsen	CruiserMaxx® Vibrance®		

Table 11. Contact information for companies represented in 2023 variety trials.

AgriGold  
phone: 800-262-7333  
website: www.agrigold.com

Bayer Crop Sciences (Asgrow)  
website: www.asgrow.com

Bayer Crop Sciences (Channel)  
website: www.channel.com

Beck's Hybrids  
phone: 800-937-2325  
website: www.beckshybrids.com

Champion Seed  
phone: 888-417-2004  
website: www.plantchampion.com

Cornelius Seed  
phone: 563-672-3463  
website: www.corneliusseed.com

Corteva (Pioneer)  
phone: 515-535-3200  
website: www.pioneer.com

Golden Harvest  
phone: 712-242-6289  
website: www.goldenharvestseeds.com

Growmark Inc. (FS HiSOY)  
phone: 309-557-6399  
website: www.fsseed.com

Hoegemeyer Hybrids  
phone: 402-720-9385  
website: www.therightseed.com

Jacobsen Seed  
phone: 712-665-2841  
website: www.jacobsenseed.com

Kruger Seeds  
phone: 800-772-2721  
website: www.krugerseed.com

Latham Hi-Tech Seeds  
phone: 800-798-3258  
website: www.lathamseeds.com

Legacy Seeds (Loyal Brand)  
phone: 866-791-6390  
website: www.legacyseeds.com

LG Seeds  
phone: 800-544-6310  
website: www.lgseeds.com

Merschman Seeds  
phone: 800-848-7333  
website: www.merschmanseeds.com

MS Technologies, BASF Corporation (Xitavo)  
phone: 800-362-2510  
website: www.xitavosoybeanseed.com

MS Technologies, Bayer Crop Science (Connect)  
phone: 800-362-2510  
website: www.connectsoybeans.com

MS Technologies, Cornelius Seed (P3)  
phone: 563-672-3463  
website: www.corneliusseed.com

NK  
phone: 612-656-8600  
website: www.syngentaseeds.com

NuTech Seed  
phone: 888-647-3478  
website: www.nutechseed.com

Nutrien Ag Solutions (Dyna-Gro)  
phone: 712-664-2444  
website: www.dynagroseed.com

Stine Seed Company  
phone: 515-677-2605  
website: www.stinseed.com