2024 Evaluation of Iowa Soybean Varieties Resistant to Soybean Cyst Nematode

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This report is available at

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Evaluation of Soybean Varieties Resistant to Soybean Cyst Nematode in Iowa in 2024

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Summary

- Nine experiments were conducted in 2024, three across northern, three across central, and three across southern Iowa. The south central location near Oskaloosa was lost due to hail.
- The same varieties were studied in all three experiments across northern, central, or southern Iowa, but varieties varied from north to central to south.
- There were 69 SCN-resistant soybean varieties and one susceptible check variety in each experiment. Overall, the resistant varieties were of 27 different brands.
- The number of varieties included in the experiments with Peking SCN resistance nearly doubled from 2023 to 2024. Forty-one varieties in the northern experiments, 32 in the central experiments, and 24 in the southern experiments had Peking SCN resistance. One entry in each district was a blend of varieties with resistance from both PI 88788 and Peking resistance. The remaining varieties had resistance from PI 88788.
- Initial SCN numbers in the study areas ranged from 780 eggs per 100 cm^3 of soil near Mason City (north central) to 5,208 eggs per 100 cm^3 of soil near Glenwood (southwest).
- The SCN populations in all fields in which experiments were conducted had greater than 10% reproduction on PI 88788 (HG Type 2). The SCN populations in all of the field locations had less than 10% reproduction on Peking.
- Average yield of SCN-resistant varieties ranged from 50 bushels per acre near Mason City (north central) to 76 bushels per acre near Vinton (east central).
- The largest overall season-long change in SCN population densities was in the experiment conducted near Fruitland (southeast). Average soil egg counts increased from 1,290 eggs per 100 cm^3 of soil at planting to 6,991 at harvest on SCN-resistant varieties.
- Results show a range of yield performance and SCN control of SCN-resistant varieties.
- If at all possible, farmers should 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 will help farmers select SCN-resistant varieties that provide high yields and allow 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.

Materials and Methods

SCN-resistant soybeans were studied in northern, central, and southern Iowa based upon maturity group. The northern trials were located near Pocahontas (northwest Iowa), Mason City (north central Iowa) and Oelwein (northeast Iowa). The central trials were located near Moorhead (west central Iowa), Ames (central Iowa), and Vinton (east central Iowa). The southern trials were located near Glenwood (southwest Iowa), Oskaloosa (south central Iowa), and Fruitland (southeast Iowa). The Oskaloosa location was lost due to hail.

Location-specific details.

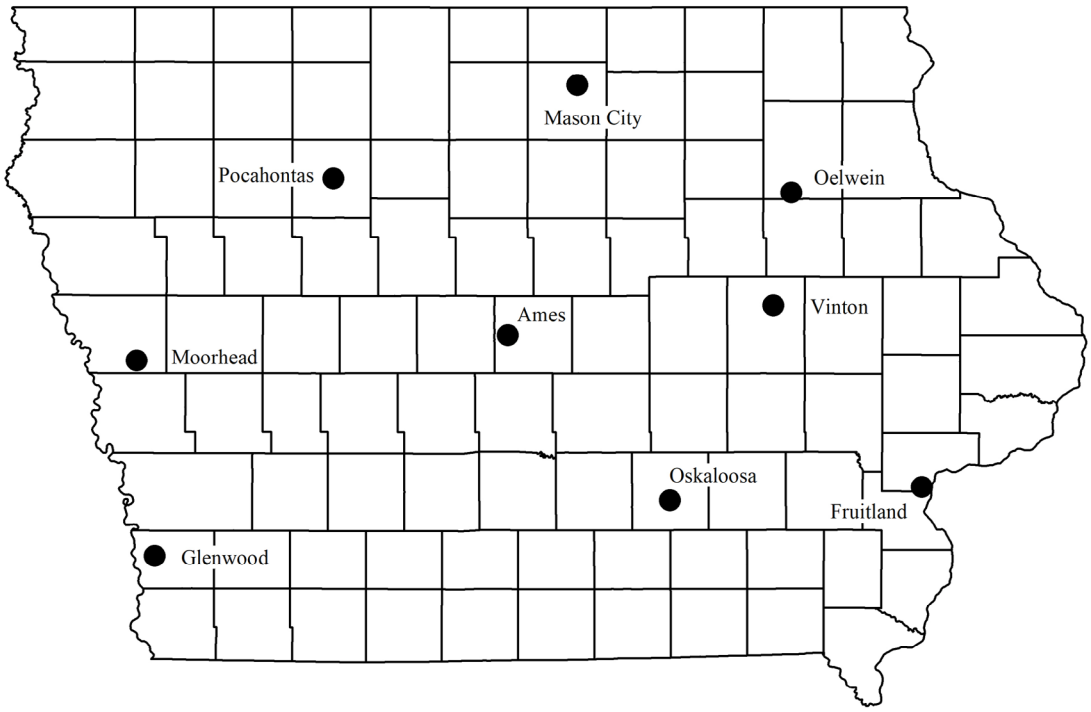
Location	Initial SCN Population (eggs / 100 cc soil)	HG Type[1]	Planting Date	Harvest Date
Pocahontas (NW)	1,946	2-	May 20th	October 1st
Mason City (NC)	780	2-	May 13th	September 26th
Oelwein (NE)	1,800	2-	May 15th	September 30th
Moorhead (WC)	1,941	2-	May 17th	September 27th
Ames (C)	782	2-	May 30th	October 10th
Vinton (EC)	898	2-	May 14th	October 4th
Glenwood (SW)	5,208	2-	May 10th	October 8th
Fruitland (SE)	1,290	2-	April 30th	October 9th

[1] In the SCN HG type test results, "1" indicates >10% reproduction on Peking (PI 548402), and "2" indicates >10% reproduction on PI 88788. "-" indicates an incomplete HG type test with SCN populations tested only on Peking, PI 88788, PI 90763, and PI 437654. HG type tests were done by the SCN Diagnostics lab at the University of Missouri.

An SCN-susceptible variety also was grown in each experiment for comparison purposes. All plots were four 17-foot long rows spaced 30 inches apart and were planted at eight 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 as Table 9 at the end of the report. The herbicides Authority® Supreme and Spartan® were applied pre-plant to all locations, except for the Fruitland location where Authority® Supreme and Pendimethalin herbicides were applied. Interline® herbicide was applied with the pre-plant herbicides at Moorhead and Glenwood. Interline® herbicide was also applied pre-emergence at the Moorhead and Vinton locations. All locations were sprayed post-emergence with the herbicides Flexstar®, FirstRate®, Warrant®, and Select Max® during the growing season. Fruitland was sprayed post-emergence a second time with Phoenix® and Select Max® herbicides. The Moorhead location was planted using "no-till" methods and the Oelwein and Fruitland locations were planted into terminated rye grass that was planted after fall tillage. At all other locations, the seed bed was conventionally tilled prior to planting.

At growth stage R6 all locations were scouted for foliar symptoms of sudden death syndrome (SDS). None of the locations had sufficient symptoms to warrant rating the plots. All plots were end trimmed to a length of 14 feet during 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 plot seed weights subsequently were converted to bushels per acre. Resistant varieties and the susceptible check variety are presented separately and are listed in the report in decreasing order of yield.

At the beginning of the growing season, every plot was 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 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 an RF value of 5.0, the SCN population density for those plots was five times greater at harvest than it was at planting. 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.

Acknowledgments

Gratitude is expressed to our farmer-cooperators for the use of land for these experiments.

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. Pocahontas (NW Iowa)

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology[1]	SCN# (eggs/100cc)[2]	SCN Numbers Decreased SCN RF[3]	Yield (bushels/acre)
Hoegemeyer Hybrids	2185 E	2.1	Peking	E3	625	0.2	71.4
Hoegemeyer Hybrids	1865 E	1.8	Peking	E3	200	0.2	69.0
Merschman	Chippewa 2522E	2.2	Peking	E3	575	0.4	68.6
Latham Seeds	L 2391 E3	2.3	Peking	E3	375	0.2	68.1
ProHarvest	PH 25E35	2.5	Peking	E3	525	0.2	67.7
Mustang Seeds	25E134	2.5	Peking	E3	350	0.2	66.2
Hoegemeyer Hybrids	2395 E	2.3	Peking	E3	650	0.4	66.1
NuTech	21N08E	2.1	Peking	E3	575	0.3	66.0
Loyal Brand	L2560E	2.5	PI 88788	E3	3,675	1.5	65.8
NuTech	24N05E	2.4	Peking	E3	725	0.2	65.7
NuTech	22N04E	2.2	Peking	E3	250	0.4	65.7
NK	NK16-Z6E3	1.6	Peking	E3	825	0.9	65.4
Latham Seeds	L 2031 E3	2.0	Peking	E3	1,475	0.6	65.4
AgriGold	G2601E3	2.6	Peking	E3	600	0.3	65.2
STINE	14EE21	1.4	Peking	E3	650	0.5	65.2
Beck	1860E3	1.8	Peking	E3	925	0.5	65.0
Mustang Seeds	20E723	2.0	Peking	E3	2,725	1.0	64.9
Beck	2550E3	2.5	Peking	E3	625	0.3	64.6
Hoegemeyer Hybrids	2123 E	2.1	Peking	E3	1,325	0.4	64.3
NK	NK19-T8E3S	1.9	Peking	E3	575	0.3	64.3
Titan Pro	TP 20E22	2.0	Peking	E3	625	0.4	64.1
Golden Harvest	GH1973E3S	1.9	Peking	E3/STS	1,975	0.8	63.9
Dyna-Gro	S20EN84	2.0	Peking	E3	1,325	0.6	63.9
LG Seeds	LGS2348E3	2.3	PI 88788	E3	3,900	2.3	63.9
Champion	1994EN	1.9	Peking	E3	500	0.3	63.7
Titan Pro	TP 18E22	1.8	Peking	E3	375	0.3	63.5
Pioneer	P19A37E	1.9	PI 88788	E3	3,550	2.8	62.4
ASGROW	AG20XF4	2.0	PI 88788	XF	2,425	1.6	62.2
Pioneer	P22A67E	2.2	PI 88788	E3	4,225	2.4	62.0
LG Seeds	LGS1832E3	1.8	Peking	E3	625	0.4	61.9
NuTech	17N02E	1.7	Peking	E3	425	0.3	61.8
Connect	CT1825E	1.8	Peking	E3	2,425	1.3	61.0
NK	NK21-C2E3	2.1	PI 88788	E3	3,525	3.3	60.5
FS HiSOY	HS 18E30	1.8	Peking	E3	1,225	0.8	60.5
Golden Harvest	GH1614E3	1.6	Peking	E3	450	0.3	60.0
Latham Seeds	L 1881 E3	1.8	Peking	E3	600	0.4	59.9
Loyal Brand	L1860E	1.8	Peking	E3	1,350	0.6	59.7
Beck	2009XF	2.0	PI 88788	XF	3,200	1.8	59.5
STINE	19EG92	1.9	Peking	E3	1,325	1.2	59.4
STINE	17EE32	1.7	PI 88788	E3	1,900	1.5	59.3
Zinesto	Z1502E	1.5	PI 88788	E3	5,250	1.4	59.0
Hefty	H20E3	2.0	Peking	E3	1,150	0.3	59.0
Hefty	H18E3	1.8	Peking	E3	400	0.3	58.4

Table 1. Pocahontas (NW Iowa) continued

SCN Numbers Decreased

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology[1]	SCN# (eggs/100cc)[2]	SCN RF[3]	Yield (bushels/acre)
FS HiSOY	HS 12F30	1.2	PI 88788	XF	1,475	0.8	58.3
Beck	2260E3	2.2	Peking	E3	675	0.4	58.2
LG Seeds	LGS2001E3	2.0	Peking	E3	2,325	0.8	58.2
AgriGold	G2003E3	2.0	Peking	E3	1,850	1.1	58.2
ASGROW	AG16XF5	2.6	PI 88788	XF	3,900	1.8	58.1
AgriGold	G1493E3	1.4	Peking	E3	350	0.2	58.1
STINE	12EG32	1.2	Peking	E3	925	0.3	58.1
Xitavo	XO 2305E	2.3	PI 88788	E3	3,575	1.9	57.8
Xitavo	XO 1545E	1.5	Peking	E3	4,325	4.9	57.8
Merschman	Neptune 2317E	1.7	PI 88788	E3	2,950	0.9	57.0
Cornelius	CB22XF52	2.2	PI 88788	XF	6,600	2.9	56.8
P3 Genetics	2322E	2.3	PI 88788	E3	6,325	1.7	56.6
Merschman	Cheyenne 2220E	2.0	PI 88788	E3	3,250	2.1	56.1
FS HiSOY	HS 18F40	1.8	PI 88788	XF	2,700	1.2	56.1
Dyna-Gro	S19XF45	1.9	PI 88788	XF	4,575	2.0	55.6
ASGROW	AG24XF4	2.4	PI 88788	XF	1,850	2.4	55.6
Champion	224E Blend	2.2	Peking/PI 88788	E3	1,200	1.5	55.5
Xitavo	XO 2444E	2.4	PI 88788	E3	3,850	1.3	54.7
Channel	2123RXF	2.1	PI 88788	XF	4,500	1.3	54.7
Cornelius	CB18XF88	1.8	PI 88788	XF	5,675	3.2	54.6
Channel	2024RXF	2.0	PI 88788	XF	2,975	2.0	54.6
Golden Harvest	GH1875E3	1.8	PI 88788	E3	4,950	2.3	54.3
P3 Genetics	2421E	2.1	PI 88788	E3	2,675	1.3	53.7
Dyna-Gro	S18EN35	1.8	Peking	E3	2,000	0.9	53.6
NK	NK18-R4E3	1.8	PI 88788	E3	3,900	1.8	53.5
ASGROW	AG22XF5	2.2	PI 88788	XF	4,350	2.7	51.7
	Mean	2.0	-	-	2,097	1.1	60.8
	LSD[4] (P = 0.10)	-	-	-	2,427	-	5.9
Iowa State University	*IA2104RA12*	*2.3*	*None*	*None*	*11,675*	*3.2*	*45.0*

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.

[1] 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.

[2] Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 1,946 eggs per 100 cc soil; HG type 2- (85.2% on PI 88788, 9.9% 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 2. Mason City (NC Iowa)

SCN Numbers Decreased

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology[1]	SCN# (eggs/100cc)[2]	SCN RF[3]	Yield (bushels/acre)
Hoegemeyer Hybrids	1865 E	1.8	Peking	E3	225	0.4	56.6
NuTech	21N08E	2.1	Peking	E3	400	0.6	56.3
Beck	2009XF	2.0	PI 88788	XF	2,800	2.8	56.1
Champion	224E Blend	2.2	Peking/PI 88788	E3	425	0.5	55.4
Zinesto	Z1502E	1.5	PI 88788	E3	1,950	4.3	55.1
Mustang Seeds	20E723	2.0	Peking	E3	350	0.6	55.0
Hoegemeyer Hybrids	2395 E	2.3	Peking	E3	300	1.2	54.6
Titan Pro	TP 18E22	1.8	Peking	E3	400	0.5	54.4
Latham Seeds	L 1881 E3	1.8	Peking	E3	225	0.4	54.3
Dyna-Gro	S19XF45	1.9	PI 88788	XF	2,650	6.2	54.1
Cornelius	CB22XF52	2.2	PI 88788	XF	3,925	6.3	53.8
Titan Pro	TP 20E22	2.0	Peking	E3	850	1.0	53.8
Hoegemeyer Hybrids	2185 E	2.1	Peking	E3	725	1.3	53.4
NuTech	22N04E	2.2	Peking	E3	200	0.2	53.4
Pioneer	P22A67E	2.2	PI 88788	E3	2,925	2.6	53.3
STINE	17EE32	1.7	PI 88788	E3	2,750	3.4	53.0
Channel	2024RXF	2.0	PI 88788	XF	2,475	3.1	52.3
Beck	1860E3	1.8	Peking	E3	400	0.6	52.3
LG Seeds	LGS2348E3	2.3	PI 88788	E3	1,350	2.7	52.0
Loyal Brand	L2560E	2.5	PI 88788	E3	575	0.8	51.9
FS HiSOY	HS 18F40	1.8	PI 88788	XF	1,675	6.1	51.9
LG Seeds	LGS1832E3	1.8	Peking	E3	475	0.5	51.8
Dyna-Gro	S20EN84	2.0	Peking	E3	550	0.5	51.7
Beck	2260E3	2.2	Peking	E3	450	1.1	51.4
Merschman	Neptune 2317E	1.7	PI 88788	E3	2,250	3.0	51.3
AgriGold	G1493E3	1.4	Peking	E3	1,100	1.0	51.2
Latham Seeds	L 2031 E3	2.0	Peking	E3	325	0.6	51.2
Hefty	H18E3	1.8	Peking	E3	500	0.6	51.2
Golden Harvest	GH1973E3S	1.9	Peking	E3/STS	675	1.0	51.0
NuTech	17N02E	1.7	Peking	E3	175	0.2	50.9
Champion	1994EN	1.9	Peking	E3	675	0.7	50.9
NK	NK19-T8E3S	1.9	Peking	E3	350	0.4	50.8
Xitavo	XO 1545E	1.5	Peking	E3	2,750	3.3	50.6
ASGROW	AG20XF4	2.0	PI 88788	XF	5,600	8.0	50.5
P3 Genetics	2421E	2.1	PI 88788	E3	2,100	2.2	50.4
Golden Harvest	GH1875E3	1.8	PI 88788	E3	2,775	3.8	50.4
ASGROW	AG16XF5	2.6	PI 88788	XF	1,625	3.6	50.4
Hoegemeyer Hybrids	2123 E	2.1	Peking	E3	1,275	1.4	50.3
ASGROW	AG22XF5	2.2	PI 88788	XF	3,800	6.9	50.3
Cornelius	CB18XF88	1.8	PI 88788	XF	2,825	3.9	49.4
Latham Seeds	L 2391 E3	2.3	Peking	E3	275	0.4	49.2
Merschman	Cheyenne 2220E	2.0	PI 88788	E3	3,925	4.2	49.0
STINE	14EE21	1.4	Peking	E3	1,275	1.1	49.0

Table 2. Mason City (NC Iowa) continued

SCN Numbers Decreased

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology[1]	SCN# (eggs/100cc)[2]	SCN RF[3]	Yield (bushels/acre)
STINE	12EG32	1.2	Peking	E3	325	0.8	48.9
Pioneer	P19A37E	1.9	PI 88788	E3	2,425	2.6	48.9
Golden Harvest	GH1614E3	1.6	Peking	E3	725	0.6	48.6
FS HiSOY	HS 18E30	1.8	Peking	E3	3,825	5.9	48.6
STINE	19EG92	1.9	Peking	E3	1,700	1.7	48.5
ProHarvest	PH 25E35	2.5	Peking	E3	675	0.8	48.4
NK	NK18-R4E3	1.8	PI 88788	E3	4,325	5.8	48.3
Dyna-Gro	S18EN35	1.8	Peking	E3	1,850	2.8	48.3
NuTech	24N05E	2.4	Peking	E3	425	0.5	48.3
Beck	2550E3	2.5	Peking	E3	200	0.3	47.8
Hefty	H20E3	2.0	Peking	E3	700	0.7	47.4
AgriGold	G2601E3	2.6	Peking	E3	425	0.6	47.1
AgriGold	G2003E3	2.0	Peking	E3	1,775	2.7	47.1
NK	NK16-Z6E3	1.6	Peking	E3	625	0.9	47.1
NK	NK21-C2E3	2.1	PI 88788	E3	3,075	3.4	46.9
Xitavo	XO 2444E	2.4	PI 88788	E3	3,900	4.7	46.9
FS HiSOY	HS 12F30	1.2	PI 88788	XF	2,375	1.7	46.8
Channel	2123RXF	2.1	PI 88788	XF	4,325	3.8	46.6
Connect	CT1825E	1.8	Peking	E3	2,100	2.6	46.6
LG Seeds	LGS2001E3	2.0	Peking	E3	1,800	1.9	46.5
Merschman	Chippewa 2522E	2.2	Peking	E3	900	0.8	46.0
Mustang Seeds	25E134	2.5	Peking	E3	325	0.3	45.6
Xitavo	XO 2305E	2.3	PI 88788	E3	2,600	3.0	45.5
Loyal Brand	L1860E	1.8	Peking	E3	2,825	2.9	45.5
ASGROW	AG24XF4	2.4	PI 88788	XF	3,800	5.1	44.0
P3 Genetics	2322E	2.3	PI 88788	E3	3,050	3.1	43.7
	Mean	2.0	-	-	1,658	2.2	50.3
	LSD[4] (P = 0.10)	-	-	-	1,858	-	4.9
Iowa State University	*IA2104RA12*	*2.3*	*None*	*None*	*9,775*	*20.6*	*37.8*

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.

[1] 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.

[2] Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 780 eggs per 100 cc soil; HG type 2- (58.9% on PI 88788, 8.0% 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 3. Oelwein (NE Iowa)

SCN Numbers Decreased

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology[1]	SCN# (eggs/100cc)[2]	SCN RF[3]	Yield (bushels/acre)
Titan Pro	TP 20E22	2.0	Peking	E3	825	0.4	70.5
Golden Harvest	GH1973E3S	1.9	Peking	E3/STS	700	0.3	70.4
Hoegemeyer Hybrids	2395 E	2.3	Peking	E3	475	0.3	70.4
NK	NK19-T8E3S	1.9	Peking	E3	675	0.3	70.4
NuTech	21N08E	2.1	Peking	E3	400	0.4	69.8
LG Seeds	LGS1832E3	1.8	Peking	E3	425	0.2	69.6
Hoegemeyer Hybrids	2123 E	2.1	Peking	E3	1,200	0.8	69.5
Latham Seeds	L 2031 E3	2.0	Peking	E3	775	0.4	69.3
Loyal Brand	L2560E	2.5	PI 88788	E3	4,575	1.6	69.1
Hefty	H20E3	2.0	Peking	E3	1,125	1.3	69.0
NK	NK16-Z6E3	1.6	Peking	E3	1,050	0.7	68.7
Mustang Seeds	20E723	2.0	Peking	E3	775	0.3	68.6
NK	NK21-C2E3	2.1	PI 88788	E3	1,450	1.0	68.4
Dyna-Gro	S20EN84	2.0	Peking	E3	750	0.8	68.3
STINE	17EE32	1.7	PI 88788	E3	3,175	1.9	68.3
ASGROW	AG22XF5	2.2	PI 88788	XF	2,600	1.3	68.3
Hoegemeyer Hybrids	2185 E	2.1	Peking	E3	500	0.3	68.3
Pioneer	P22A67E	2.2	PI 88788	E3	2,025	1.6	68.2
AgriGold	G1493E3	1.4	Peking	E3	1,150	0.3	68.1
Beck	2550E3	2.5	Peking	E3	525	0.5	67.6
Latham Seeds	L 1881 E3	1.8	Peking	E3	675	0.5	67.5
Titan Pro	TP 18E22	1.8	Peking	E3	700	0.3	67.4
Champion	224E Blend	2.2	Peking/PI 88788	E3	1,550	1.4	67.1
Beck	2009XF	2.0	PI 88788	XF	4,650	1.6	67.0
Connect	CT1825E	1.8	Peking	E3	1,850	1.0	67.0
Loyal Brand	L1860E	1.8	Peking	E3	1,375	1.4	66.9
Champion	1994EN	1.9	Peking	E3	450	0.3	66.7
Golden Harvest	GH1614E3	1.6	Peking	E3	1,300	0.7	66.5
Merschman	Cheyenne 2220E	2.0	PI 88788	E3	4,000	2.2	66.4
Beck	1860E3	1.8	Peking	E3	850	0.6	66.3
Hoegemeyer Hybrids	1865 E	1.8	Peking	E3	275	0.2	66.3
NuTech	22N04E	2.2	Peking	E3	850	0.5	66.3
Merschman	Neptune 2317E	1.7	PI 88788	E3	4,950	2.7	66.3
LG Seeds	LGS2348E3	2.3	PI 88788	E3	4,750	3.2	66.2
STINE	19EG92	1.9	Peking	E3	3,150	2.0	65.8
Dyna-Gro	S18EN35	1.8	Peking	E3	2,050	0.9	65.7
LG Seeds	LGS2001E3	2.0	Peking	E3	2,525	1.1	65.5
Latham Seeds	L 2391 E3	2.3	Peking	E3	625	0.6	65.4
Beck	2260E3	2.2	Peking	E3	975	0.5	65.1
Cornelius	CB22XF52	2.2	PI 88788	XF	4,975	4.4	65.0
NK	NK18-R4E3	1.8	PI 88788	E3	4,450	5.2	64.9
Dyna-Gro	S19XF45	1.9	PI 88788	XF	3,475	1.1	64.6
Channel	2024RXF	2.0	PI 88788	XF	4,600	3.5	64.6

Table 3. Oelwein (NE Iowa) continued

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology[1]	SCN# (eggs/100cc)[2]	SCN Numbers Decreased: SCN RF[3]	Yield (bushels/acre)
Golden Harvest	GH1875E3	1.8	PI 88788	E3	2,575	2.5	64.4
Merschman	Chippewa 2522E	2.2	Peking	E3	550	0.4	64.2
ASGROW	AG24XF4	2.4	PI 88788	XF	4,250	1.9	64.2
AgriGold	G2601E3	2.6	Peking	E3	675	0.3	64.2
Hefty	H18E3	1.8	Peking	E3	675	0.4	64.1
ProHarvest	PH 25E35	2.5	Peking	E3	375	0.1	63.7
Xitavo	XO 1545E	1.5	Peking	E3	1,225	1.2	63.6
AgriGold	G2003E3	2.0	Peking	E3	1,325	0.9	63.5
Channel	2123RXF	2.1	PI 88788	XF	3,650	1.8	63.4
FS HiSOY	HS 12F30	1.2	PI 88788	XF	2,100	1.5	63.3
Cornelius	CB18XF88	1.8	PI 88788	XF	3,475	3.3	63.2
Zinesto	Z1502E	1.5	PI 88788	E3	5,250	5.5	63.2
P3 Genetics	2421E	2.1	PI 88788	E3	2,325	1.3	63.0
NuTech	17N02E	1.7	Peking	E3	325	0.2	62.8
P3 Genetics	2322E	2.3	PI 88788	E3	6,200	1.8	62.7
Xitavo	XO 2444E	2.4	PI 88788	E3	3,725	2.9	62.6
STINE	14EE21	1.4	Peking	E3	1,300	0.8	62.4
Pioneer	P19A37E	1.9	PI 88788	E3	4,100	4.2	62.0
FS HiSOY	HS 18E30	1.8	Peking	E3	3,550	0.9	61.8
ASGROW	AG16XF5	2.6	PI 88788	XF	2,200	0.8	61.7
STINE	12EG32	1.2	Peking	E3	575	0.4	60.4
NuTech	24N05E	2.4	Peking	E3	375	0.6	59.8
Mustang Seeds	25E134	2.5	Peking	E3	575	0.3	59.8
ASGROW	AG20XF4	2.0	PI 88788	XF	2,625	1.8	59.5
FS HiSOY	HS 18F40	1.8	PI 88788	XF	4,900	2.1	57.4
Xitavo	XO 2305E	2.3	PI 88788	E3	3,350	1.7	56.5
	Mean	2.0	-	-	2,064	1.3	65.5
	LSD[4] (P = 0.10)	-	-	-	1,811	-	4.8
Iowa State University	*IA2104RA12*	*2.3*	*None*	*None*	*8,250*	*3.5*	*49.2*

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.

[1] 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.

[2] Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 1,800 eggs per 100 cc soil; HG type 2- (40.7% on PI 88788, 9.7% 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 4. Moorhead (WC Iowa)

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology[1]	SCN# (eggs/100cc)[2]	SCN Numbers Decreased SCN RF[3]	Yield (bushels/acre)
NuTech	26N08E	2.6	PI 88788	E3	1,875	0.8	79.5
Dyna-Gro	S25EN74	2.5	Peking	E3	475	0.2	78.6
Champion	2695EN	2.6	Peking	E3	275	0.1	77.5
Pioneer	P25A16E	2.5	Peking	E3	200	0.1	77.1
Hoegemeyer Hybrids	2395 E	2.3	Peking	E3	350	0.1	76.9
Latham Seeds	L 2391 E3	2.3	Peking	E3	200	0.1	76.9
ASGROW	AG25XF5	2.5	PI 88788	XF	775	0.8	76.9
Cornelius	CB25XF99	2.5	PI 88788	XF	2,275	1.1	76.7
Hoegemeyer Hybrids	2484 E	2.4	Peking	E3	175	0.1	76.7
Hefty	H20E3	2.0	Peking	E3	200	0.1	76.3
Hoegemeyer Hybrids	2763 E	2.7	Peking	E3	300	0.1	76.2
Golden Harvest	GH2544XF	2.5	PI 88788	XF	775	0.5	75.9
AgriGold	G2950XF	2.9	PI 88788	XF	1,100	0.6	75.8
Titan Pro	TP 25E22	2.5	Peking	E3	250	0.2	75.7
STINE	27EG22	2.7	Peking	E3	375	0.2	75.7
Golden Harvest	GH3035E3	3.0	PI 88788	E3	2,450	1.0	75.7
LG Seeds	LGS2505E3	2.5	Peking	E3	200	0.1	75.6
Hoegemeyer Hybrids	2905 E	2.9	Peking	E3	400	0.3	75.6
Latham Seeds	L 2871 E3	2.8	Peking	E3	550	0.2	75.5
NuTech	25N05E	2.5	Peking	E3	125	0.1	75.4
Apex	AE2930	2.9	Peking	E3	550	0.3	75.3
ASGROW	AG26XF4	2.6	PI 88788	XF	825	0.5	75.2
Mustang Seeds	25E134	2.5	Peking	E3	175	0.1	75.2
Dyna-Gro	S28XF85	2.8	PI 88788	XF	2,725	1.6	75.2
AgriGold	G2893E3	2.8	PI 88788	E3	2,225	0.9	75.1
NuTech	29N05E	2.9	Peking	E3	225	0.1	74.9
Xitavo	XO 3014E	3.0	PI 88788	E3	1,325	0.7	74.9
NuTech	27N03E	2.7	Peking	E3	150	0.1	74.9
FS HiSOY	HS 24F40	2.4	PI 88788	XF	1,600	1.0	74.5
FS HiSOY	HS 25E30	2.5	Peking	E3	225	0.2	74.5
NK	NK27-W8XF	2.7	PI 88788	XF	2,700	1.0	74.3
P3 Genetics	2527E	2.5	Peking	E3	450	0.3	74.3
ProHarvest	PH 25E35	2.5	Peking	E3	250	0.1	74.2
Apex	AE3340	3.3	Peking	E3	250	0.1	74.1
Latham Seeds	L 2551 E3	2.5	Peking	E3	325	0.3	73.8
Pioneer	P28A39E	2.8	PI 88788	E3	1,675	1.3	73.8
Champion	295E Blend	2.9	Peking/PI 88788	E3	875	0.5	73.5
FS HiSOY	HS 29E40	2.9	Peking	E3	875	0.3	73.5
Dyna-Gro	S29ES45	2.9	PI 88788	E3/STS	1,150	0.8	73.4
Mustang Seeds	22E435	2.2	Peking	E3	275	0.2	73.2
NK	NK30-A9E3	3.0	PI 88788	E3	1,450	0.7	73.2
AgriGold	G2601E3	2.6	Peking	E3	175	0.1	73.2
NK	NK29-Q3XF	2.9	PI 88788	XF	1,375	0.9	73.0

Table 4. Moorhead (WC Iowa) continued

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology[1]	SCN# (eggs/100cc)[2]	SCN Numbers Decreased: SCN RF[2]	Yield (bushels/acre)
STINE	25EG02	2.5	PI 88788	E3	625	0.4	72.9
Channel	2524RXF	2.5	PI 88788	XF	1,750	0.8	72.8
ASGROW	AG29XF4	2.9	PI 88788	XF	525	0.3	72.7
Golden Harvest	GH2925XF	2.9	PI 88788	XF	1,825	0.8	72.5
Merschman	Cherokee 2429E	2.9	PI 88788	E3	1,900	0.8	72.4
STINE	28EG32	2.8	PI 88788	E3	550	0.3	72.4
Merschman	Osage 2526E	2.6	Peking	E3	475	0.2	72.2
LG Seeds	LGS2881E3	2.8	PI 88788	E3	1,925	1.2	72.2
P3 Genetics	2424E	2.4	PI 88788	E3	2,050	0.7	72.1
Xitavo	XO 3105E	3.1	PI 88788	E3	1,225	0.9	71.9
NK	NK27-J5E3	2.7	PI 88788	E3	750	0.5	71.6
Beck	2660E3	2.6	Peking	E3	325	0.2	71.5
Zinesto	Z2705E	2.7	Peking	E3	250	0.1	71.1
Mustang Seeds	23E824	2.3	PI 88788	E3	950	0.4	70.8
Xitavo	XO 3224E	3.2	Peking	E3	425	0.2	70.4
Beck	2550E3	2.5	Peking	E3	325	0.2	70.3
Beck	3300E3	3.3	Peking	E3	325	0.2	70.1
Connect	CT2424E	2.4	PI 88788	E3	3,000	1.7	70.0
STINE	31EF02	3.1	PI 88788	E3	1,100	1.0	70.0
ASGROW	AG31XF5	3.1	PI 88788	XF	1,700	1.0	69.9
Connect	CT2124E	2.1	PI 88788	E3	2,225	2.2	68.9
Cornelius	CB29XF44	2.9	PI 88788	XF	1,200	0.5	68.6
Merschman	Lincoln 2431E	3.1	PI 88788	E3	1,500	0.6	68.4
Channel	2424RXF	2.4	PI 88788	XF	675	0.3	66.3
Zinesto	Z2105E	2.1	PI 88788	E3	1,000	0.5	65.6
Xitavo	XO 2985E	2.9	PI 88788	E3	950	0.4	63.4
	Mean	2.7	-	-	938	0.5	73.5
	LSD[4] (P = 0.10)	-	-	-	811	-	3.2
Iowa State University	*IA2104RA12*	*3.0*	*None*	*None*	*12,125*	*5.7*	*65.8*

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.

[1] 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.

[2] Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 1,941 eggs per 100 cc soil; HG type 2- (15.6% on PI 88788, 0.2% 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.

Table 5. Ames (C Iowa)

SCN Numbers Decreased

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology[1]	SCN# (eggs/100cc)[2]	SCN RF[3]	Yield (bushels/acre)
Latham Seeds	L 2391 E3	2.3	Peking	E3	200	0.3	70.3
STINE	31EF02	3.1	PI 88788	E3	1,825	1.7	69.0
ProHarvest	PH 25E35	2.5	Peking	E3	700	0.9	68.6
NK	NK27-W8XF	2.7	PI 88788	XF	2,350	3.4	68.5
ASGROW	AG29XF4	2.9	PI 88788	XF	325	0.8	68.5
Apex	AE2930	2.9	Peking	E3	1,450	1.8	68.4
ASGROW	AG26XF4	2.6	PI 88788	XF	1,900	3.6	68.4
Champion	295E Blend	2.9	Peking/PI 88788	E3	1,150	1.3	68.1
Zinesto	Z2705E	2.7	Peking	E3	800	2.3	67.8
Beck	3300E3	3.3	Peking	E3	325	0.3	67.4
Latham Seeds	L 2551 E3	2.5	Peking	E3	375	0.5	67.3
Merschman	Lincoln 2431E	3.1	PI 88788	E3	2,200	1.9	67.2
FS HiSOY	HS 25E30	2.5	Peking	E3	350	0.5	67.2
Apex	AE3340	3.3	Peking	E3	450	0.6	67.0
STINE	27EG22	2.7	Peking	E3	950	1.6	67.0
AgriGold	G2601E3	2.6	Peking	E3	475	0.5	66.8
NuTech	26N08E	2.6	PI 88788	E3	2,650	4.1	66.8
Champion	2695EN	2.6	Peking	E3	375	0.3	66.6
Pioneer	P25A16E	2.5	Peking	E3	350	0.5	66.5
Dyna-Gro	S28XF85	2.8	PI 88788	XF	3,625	7.6	66.5
Titan Pro	TP 25E22	2.5	Peking	E3	275	0.8	66.4
P3 Genetics	2527E	2.5	Peking	E3	200	0.3	66.4
Dyna-Gro	S29ES45	2.9	PI 88788	E3/STS	1,900	2.5	66.4
STINE	25EG02	2.5	PI 88788	E3	1,425	1.7	66.3
Hoegemeyer Hybrids	2763 E	2.7	Peking	E3	550	0.9	66.2
FS HiSOY	HS 29E40	2.9	Peking	E3	2,050	2.8	66.2
Xitavo	XO 3014E	3.0	PI 88788	E3	1,800	1.4	66.0
NuTech	29N05E	2.9	Peking	E3	475	0.6	65.8
Merschman	Cherokee 2429E	2.9	PI 88788	E3	1,975	3.4	65.8
LG Seeds	LGS2881E3	2.8	PI 88788	E3	2,125	3.7	65.6
Hoegemeyer Hybrids	2484 E	2.4	Peking	E3	550	0.7	65.6
AgriGold	G2893E3	2.8	PI 88788	E3	2,550	6.8	65.5
LG Seeds	LGS2505E3	2.5	Peking	E3	450	0.8	65.4
Connect	CT2424E	2.4	PI 88788	E3	1,750	1.6	65.3
Hoegemeyer Hybrids	2905 E	2.9	Peking	E3	600	0.5	65.1
NuTech	25N05E	2.5	Peking	E3	250	0.5	65.1
Mustang Seeds	23E824	2.3	PI 88788	E3	1,750	1.1	65.0
Mustang Seeds	25E134	2.5	Peking	E3	375	0.5	64.8
Hoegemeyer Hybrids	2395 E	2.3	Peking	E3	500	0.8	64.8
Latham Seeds	L 2871 E3	2.8	Peking	E3	525	1.3	64.5
NuTech	27N03E	2.7	Peking	E3	625	1.3	64.4
Golden Harvest	GH2544XF	2.5	PI 88788	XF	2,425	3.5	64.3
ASGROW	AG31XF5	3.1	PI 88788	XF	1,525	1.5	64.0

Table 5. Ames (C Iowa) continued

SCN Numbers Decreased

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology[1]	SCN# (eggs/100cc)[2]	SCN RF[3]	Yield (bushels/acre)
Beck	2660E3	2.6	Peking	E3	1,125	1.0	64.0
Golden Harvest	GH2925XF	2.9	PI 88788	XF	2,900	3.4	63.9
Pioneer	P28A39E	2.8	PI 88788	E3	1,750	1.8	63.8
STINE	28EG32	2.8	PI 88788	E3	2,100	1.8	63.6
Channel	2424RXF	2.4	PI 88788	XF	1,475	1.6	63.2
AgriGold	G2950XF	2.9	PI 88788	XF	2,025	1.5	63.2
Merschman	Osage 2526E	2.6	Peking	E3	850	0.7	63.1
Dyna-Gro	S25EN74	2.5	Peking	E3	425	0.5	62.8
Xitavo	XO 3224E	3.2	Peking	E3	450	1.3	62.8
P3 Genetics	2424E	2.4	PI 88788	E3	1,525	2.0	62.7
Hefty	H20E3	2.0	Peking	E3	600	0.6	62.6
NK	NK29-Q3XF	2.9	PI 88788	XF	2,800	4.0	62.5
Mustang Seeds	22E435	2.2	Peking	E3	550	0.5	62.0
Golden Harvest	GH3035E3	3.0	PI 88788	E3	3,700	5.3	61.6
NK	NK30-A9E3	3.0	PI 88788	E3	3,825	4.0	61.5
Xitavo	XO 3105E	3.1	PI 88788	E3	2,075	3.3	61.5
Channel	2524RXF	2.5	PI 88788	XF	1,975	3.8	61.5
FS HiSOY	HS 24F40	2.4	PI 88788	XF	2,700	3.4	61.2
ASGROW	AG25XF5	2.5	PI 88788	XF	3,575	4.0	61.2
Beck	2550E3	2.5	Peking	E3	475	0.6	61.0
Cornelius	CB25XF99	2.5	PI 88788	XF	1,975	3.0	60.6
Xitavo	XO 2985E	2.9	PI 88788	E3	1,800	2.4	59.2
NK	NK27-J5E3	2.7	PI 88788	E3	2,725	3.8	59.2
Cornelius	CB29XF44	2.9	PI 88788	XF	2,900	5.3	58.4
Zinesto	Z2105E	2.1	PI 88788	E3	1,625	2.0	56.8
Connect	CT2124E	2.1	PI 88788	E3	1,675	1.8	55.2
	Mean	2.7	-	-	1,436	2.0	64.6
	LSD[4] (P = 0.10)	-	-	-	1,242	-	3.9
Iowa State University	*IA2104RA12*	*3.0*	*None*	*None*	*2,950*	*6.6*	*53.5*

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.

[1] 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.

[2] Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 782 eggs per 100 cc soil; HG type 2- (90.6% on PI 88788, 8.6% 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. Vinton (EC Iowa)

SCN Numbers Decreased

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology[1]	SCN# (eggs/100cc)[2]	SCN RF[3]	Yield (bushels/acre)
AgriGold	G2601E3	2.6	Peking	E3	525	0.6	82.0
ProHarvest	PH 25E35	2.5	Peking	E3	750	0.6	81.6
Dyna-Gro	S29ES45	2.9	PI 88788	E3/STS	2,025	2.8	80.8
Champion	2695EN	2.6	Peking	E3	325	0.5	80.7
LG Seeds	LGS2505E3	2.5	Peking	E3	900	1.5	80.1
Latham Seeds	L 2551 E3	2.5	Peking	E3	300	0.5	80.0
Dyna-Gro	S25EN74	2.5	Peking	E3	625	0.5	79.7
FS HiSOY	HS 25E30	2.5	Peking	E3	600	0.5	79.5
Xitavo	XO 3014E	3.0	PI 88788	E3	2,525	3.2	79.2
ASGROW	AG26XF4	2.6	PI 88788	XF	1,325	1.5	78.7
AgriGold	G2950XF	2.9	PI 88788	XF	2,350	6.7	78.6
Titan Pro	TP 25E22	2.5	Peking	E3	600	0.7	78.4
Hoegemeyer Hybrids	2905 E	2.9	Peking	E3	525	0.9	78.4
Hoegemeyer Hybrids	2763 E	2.7	Peking	E3	475	0.8	78.4
Latham Seeds	L 2391 E3	2.3	Peking	E3	725	0.6	78.3
STINE	31EF02	3.1	PI 88788	E3	2,550	3.6	78.0
Pioneer	P25A16E	2.5	Peking	E3	750	1.4	77.7
Merschman	Cherokee 2429E	2.9	PI 88788	E3	1,575	1.4	77.7
Beck	2550E3	2.5	Peking	E3	775	0.7	77.7
Dyna-Gro	S28XF85	2.8	PI 88788	XF	6,075	6.8	77.6
Hoegemeyer Hybrids	2395 E	2.3	Peking	E3	375	0.4	77.3
NuTech	25N05E	2.5	Peking	E3	400	0.6	77.3
NuTech	26N08E	2.6	PI 88788	E3	4,350	3.2	77.2
Mustang Seeds	25E134	2.5	Peking	E3	800	0.5	77.1
P3 Genetics	2527E	2.5	Peking	E3	1,025	0.9	77.1
Channel	2524RXF	2.5	PI 88788	XF	1,900	2.8	77.0
Cornelius	CB25XF99	2.5	PI 88788	XF	3,675	4.0	77.0
Mustang Seeds	23E824	2.3	PI 88788	E3	1,600	2.5	76.8
Apex	AE2930	2.9	Peking	E3	650	1.5	76.8
NK	NK27-W8XF	2.7	PI 88788	XF	1,950	2.4	76.8
NuTech	27N03E	2.7	Peking	E3	650	1.3	76.6
Champion	295E Blend	2.9	Peking/PI 88788	E3	2,050	2.3	76.5
Golden Harvest	GH2544XF	2.5	PI 88788	XF	2,850	2.1	76.5
NK	NK29-Q3XF	2.9	PI 88788	XF	5,175	4.6	76.4
STINE	25EG02	2.5	PI 88788	E3	2,375	3.8	76.2
AgriGold	G2893E3	2.8	PI 88788	E3	3,825	4.3	76.2
Pioneer	P28A39E	2.8	PI 88788	E3	2,075	4.4	76.2
P3 Genetics	2424E	2.4	PI 88788	E3	4,350	6.7	76.1
Merschman	Osage 2526E	2.6	Peking	E3	1,050	1.1	76.0
Apex	AE3340	3.3	Peking	E3	200	0.4	75.9
NuTech	29N05E	2.9	Peking	E3	500	0.4	75.8
Golden Harvest	GH2925XF	2.9	PI 88788	XF	2,175	1.4	75.4
Beck	3300E3	3.3	Peking	E3	1,025	0.7	75.3

Table 6. Vinton (EC Iowa) continued

SCN Numbers Decreased

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology[1]	SCN# (eggs/100cc)[2]	SCN RF[3]	Yield (bushels/acre)
Xitavo	XO 3224E	3.2	Peking	E3	725	1.1	75.0
Zinesto	Z2705E	2.7	Peking	E3	750	0.5	74.5
ASGROW	AG29XF4	2.9	PI 88788	XF	150	0.3	74.4
Hefty	H20E3	2.0	Peking	E3	700	1.1	74.2
Merschman	Lincoln 2431E	3.1	PI 88788	E3	2,300	3.7	74.1
STINE	28EG32	2.8	PI 88788	E3	2,050	2.9	74.1
FS HiSOY	HS 29E40	2.9	Peking	E3	2,525	3.5	73.9
NK	NK27-J5E3	2.7	PI 88788	E3	1,825	3.7	73.8
LG Seeds	LGS2881E3	2.8	PI 88788	E3	4,750	5.6	73.5
NK	NK30-A9E3	3.0	PI 88788	E3	3,100	6.2	73.5
Beck	2660E3	2.6	Peking	E3	625	0.5	73.4
Hoegemeyer Hybrids	2484 E	2.4	Peking	E3	1,050	0.7	73.3
Latham Seeds	L 2871 E3	2.8	Peking	E3	500	0.2	73.2
Xitavo	XO 3105E	3.1	PI 88788	E3	1,200	1.4	73.0
Connect	CT2424E	2.4	PI 88788	E3	6,050	6.2	72.9
FS HiSOY	HS 24F40	2.4	PI 88788	XF	4,600	4.3	72.7
Golden Harvest	GH3035E3	3.0	PI 88788	E3	4,350	8.3	72.5
STINE	27EG22	2.7	Peking	E3	750	1.3	72.1
Cornelius	CB29XF44	2.9	PI 88788	XF	1,975	1.5	72.1
Mustang Seeds	22E435	2.2	Peking	E3	800	1.8	71.8
Channel	2424RXF	2.4	PI 88788	XF	2,375	2.2	71.5
Zinesto	Z2105E	2.1	PI 88788	E3	1,575	3.5	70.3
ASGROW	AG31XF5	3.1	PI 88788	XF	4,925	4.9	69.8
Connect	CT2124E	2.1	PI 88788	E3	1,425	2.9	69.1
Xitavo	XO 2985E	2.9	PI 88788	E3	2,825	3.8	67.2
ASGROW	AG25XF5	2.5	PI 88788	XF	1,825	1.1	65.4
	Mean	2.7	-	-	1,841	2.3	75.7
	LSD[4] (P = 0.10)	-	-	-	2,262	-	3.8
Iowa State University	*IA2104RA12*	*3.0*	*None*	*None*	*5,850*	*6.7*	*64.3*

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.

[1] 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.

[2] Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 898 eggs per 100 cc soil; HG type 2- (73.9% on PI 88788, 5.0% 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 7. Glenwood (SW Iowa)

SCN Numbers Decreased

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology[1]	SCN# (eggs/100cc)[2]	SCN RF[3]	Yield (bushels/acre)
Hoegemeyer Hybrids	2905 E	2.9	Peking	E3	950	0.1	80.8
ASGROW	AG29XF4	2.9	PI 88788	XF	1,650	0.3	80.4
FS HiSOY	HS 30E40	3.0	PI 88788	E3	2,775	0.9	79.7
Latham Seeds	L 2871 E3	2.8	Peking	E3	2,425	0.4	78.9
Dyna-Gro	S38EN75	3.8	PI 88788	E3	5,000	1.0	78.5
NK	NK30-U4XF	3.0	PI 88788	XF	6,575	1.5	78.5
Zinesto	Z2705E	2.7	Peking	E3	2,225	0.4	78.4
Apex	AE2930	2.9	Peking	E3	2,900	0.7	78.3
NuTech	35N05E	3.5	Peking	E3	1,300	0.3	78.3
Apex	AE 2750	2.7	Peking	E3	2,325	0.4	78.2
LG Seeds	LGS3216E3	3.2	PI 88788	E3	3,850	0.7	78.2
NK	NK34-D4XF	3.4	PI 88788	XF	5,300	1.2	76.9
Dyna-Gro	S31XF05	3.1	PI 88788	XF	9,100	1.6	76.7
NuTech	34N02E	3.4	Peking	E3	1,200	0.2	76.7
NuTech	32N04E	3.2	PI 88788	E3	5,875	1.5	76.6
AgriGold	G3279E3	3.2	PI 88788	E3	9,475	1.5	76.3
FS HiSOY	HS 34E40	3.4	Peking	E3	2,275	0.6	76.3
FS HiSOY	HS 29E40	2.9	Peking	E3	3,150	0.7	76.2
Xitavo	XO 3555E	3.5	PI 88788	E3	9,800	2.2	76.2
Hoegemeyer Hybrids	3413 E	3.4	Peking	E3	1,375	0.2	76.1
Pioneer	P30A75E	3.0	PI 88788	E3	8,650	1.4	75.6
ASGROW	AG35XF5	3.5	PI 88788	XF	6,850	1.6	75.4
Pioneer	P37A18E	3.7	PI 88788	E3	8,000	1.5	75.2
AgriGold	G3552XF	3.5	PI 88788	XF	7,850	1.9	75.2
Channel	3124RXF	3.1	PI 88788	XF	6,625	1.1	75.2
Channel	2824RXF	2.8	PI 88788	XF	7,500	1.7	75.1
Merschman	Jefferson 2533E	3.3	Peking	E3	1,850	0.5	75.0
Hoegemeyer Hybrids	3185 E	3.1	PI 88788	E3	12,775	2.8	74.9
Latham Seeds	L 3061 E3	3.0	Peking	E3	7,875	1.1	74.9
Latham Seeds	L 3411 E3	3.4	Peking	E3	2,175	0.3	74.9
Beck	3300E3	3.3	Peking	E3	1,700	0.3	74.8
AgriGold	G3557E3	3.5	PI 88788	E3	5,750	0.9	74.6
Channel	2724RXF	2.7	PI 88788	XF	6,375	0.9	74.6
Golden Harvest	GH3355E3S	3.3	Peking	E3/STS	1,925	0.3	74.5
Champion	3234EN	3.2	Peking	E3	2,850	0.7	74.4
Channel	3025RXF	3.0	PI 88788	XF	2,350	0.5	74.4
Apex	AE3340	3.3	Peking	E3	1,050	0.3	74.3
Golden Harvest	GH3373E3S	3.3	PI 88788	E3/STS	4,950	1.2	74.1
Dyna-Gro	S31EN14	3.1	PI 88788	E3	6,800	1.9	73.9
NK	NK33-Y7E3S	3.3	Peking	E3	2,250	0.4	73.8
STINE	38EG32	3.8	PI 88788	E3	10,025	1.5	73.8
Apex	AE2950	2.9	Peking	E3	5,575	1.0	73.8
Xitavo	XO 3375E	3.3	PI 88788	E3	4,325	0.7	73.4

Table 7. Glenwood (SW Iowa) continued

SCN Numbers Decreased

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology[1]	SCN# (eggs/100cc)[2]	SCN RF[3]	Yield (bushels/acre)
Champion	324E Blend	3.2	Peking/PI 88788	E3	2,600	0.7	73.3
STINE	33EG02	3.3	Peking	E3	2,325	0.4	73.1
P3 Genetics	2337E	3.7	PI 88788	E3	5,925	1.8	73.1
Beck	3760E3	3.7	PI 88788	E3	7,475	1.3	72.9
LG Seeds	LGS2881E3	2.8	PI 88788	E3	5,375	0.8	72.8
Merschman	Monroe 2537E	3.7	PI 88788	E3	7,075	1.1	72.8
Xitavo	XO 3224E	3.2	Peking	E3	2,350	0.4	72.7
Dyna-Gro	S37XF15	3.7	PI 88788	XF	7,175	1.6	72.5
P3 Genetics	2434E	3.4	Peking	E3	2,225	0.4	72.3
Merschman	Lincoln 2431E	3.1	PI 88788	E3	9,250	2.3	71.8
Beck	3881XF	3.8	PI 88788	XF	14,525	2.9	71.5
NuTech	39N08E	3.9	Peking	E3	1,350	0.3	71.4
ASGROW	AG31XF5	3.1	PI 88788	XF	4,450	0.9	70.4
Latham Seeds	L 3158 XF	3.1	PI 88788	XF	5,975	1.4	70.4
Beck	3460E3	3.4	Peking	E3	2,725	0.5	69.9
STINE	37EG23	3.7	PI 88788	E3	7,225	1.9	69.9
NK	NK30-A9E3	3.0	PI 88788	E3	5,375	0.8	69.8
FS HiSOY	HS 3040	3.0	PI 88788	XF	9,925	2.2	69.7
STINE	35EG92	3.5	PI 88788	E3	6,300	1.2	69.5
ASGROW	AG37XF5	3.7	PI 88788	XF	7,325	1.7	69.2
Golden Harvest	GH3035E3	3.0	PI 88788	E3	5,775	1.3	69.1
Zinesto	Z2700E	2.7	PI 88788	E3	6,325	0.9	68.7
Hefty	H27XF4	2.7	PI 88788	XF	7,725	1.1	68.6
Merschman	Kennedy 1936E	3.6	PI 88788	E3	5,375	1.0	68.0
Connect	CT2824E	2.8	PI 88788	E3	8,725	1.8	68.0
Xitavo	XO 3655E	3.6	PI 88788	E3	6,900	1.2	66.0
	Mean	3.2	-	-	5,266	1.1	74.1
	LSD[4] (P = 0.10)	-	-	-	4,591	-	3.9
Iowa State University	*IA2104RA12*	*3.0*	*None*	*None*	*8,000*	*1.3*	*67.2*

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.

[1] 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.

[2] Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 5,208 eggs per 100 cc soil; HG type 2- (64.8% on PI 88788, 2.1% 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]	SCN# (eggs/100cc)[2]	SCN Numbers Decreased SCN RF[3]	Yield (bushels/acre)
STINE	33EG02	3.3	Peking	E3	575	0.5	87.7
Apex	AE3340	3.3	Peking	E3	300	0.4	87.0
Champion	3234EN	3.2	Peking	E3	275	0.2	87.0
Hoegemeyer Hybrids	3413 E	3.4	Peking	E3	350	0.6	85.6
Beck	3300E3	3.3	Peking	E3	275	0.3	85.2
Merschman	Jefferson 2533E	3.3	Peking	E3	575	0.5	84.9
Latham Seeds	L 3411 E3	3.4	Peking	E3	400	0.3	84.8
NuTech	34N02E	3.4	Peking	E3	250	0.3	84.7
FS HiSOY	HS 34E40	3.4	Peking	E3	2,475	2.9	84.7
P3 Genetics	2434E	3.4	Peking	E3	250	0.1	84.6
Apex	AE2930	2.9	Peking	E3	475	0.5	84.3
Golden Harvest	GH3355E3S	3.3	Peking	E3/STS	400	0.3	83.6
Champion	324E Blend	3.2	Peking/PI 88788	E3	3,900	2.1	81.3
Latham Seeds	L 2871 E3	2.8	Peking	E3	300	0.2	80.9
NK	NK33-Y7E3S	3.3	Peking	E3	550	0.2	80.2
STINE	35EG92	3.5	PI 88788	E3	4,900	3.6	79.6
Xitavo	XO 3224E	3.2	Peking	E3	325	0.4	79.1
Beck	3460E3	3.4	Peking	E3	475	0.4	79.0
FS HiSOY	HS 30E40	3.0	PI 88788	E3	5,250	5.5	78.9
NuTech	39N08E	3.9	Peking	E3	275	0.2	78.6
Hoegemeyer Hybrids	2905 E	2.9	Peking	E3	350	0.4	78.1
Apex	AE 2750	2.7	Peking	E3	375	0.3	77.6
Xitavo	XO 3375E	3.3	PI 88788	E3	7,800	7.8	76.7
STINE	37EG23	3.7	PI 88788	E3	10,050	7.2	76.7
Zinesto	Z2705E	2.7	Peking	E3	150	0.2	76.5
NuTech	35N05E	3.5	Peking	E3	275	0.2	75.5
LG Seeds	LGS3216E3	3.2	PI 88788	E3	4,400	3.5	74.7
Latham Seeds	L 3158 XF	3.1	PI 88788	XF	4,875	3.6	74.2
ASGROW	AG29XF4	2.9	PI 88788	XF	475	0.2	74.0
AgriGold	G3279E3	3.2	PI 88788	E3	4,975	3.4	73.9
Xitavo	XO 3555E	3.5	PI 88788	E3	9,700	8.6	73.9
STINE	38EG32	3.8	PI 88788	E3	10,375	12.6	73.7
Dyna-Gro	S31EN14	3.1	PI 88788	E3	8,325	6.9	73.7
Merschman	Kennedy 1936E	3.6	PI 88788	E3	14,575	13.6	73.6
FS HiSOY	HS 29E40	2.9	Peking	E3	9,800	5.0	73.3
Connect	CT2824E	2.8	PI 88788	E3	5,350	6.7	73.1
Pioneer	P37A18E	3.7	PI 88788	E3	15,250	19.7	72.9
Merschman	Monroe 2537E	3.7	PI 88788	E3	9,100	16.5	72.9
LG Seeds	LGS2881E3	2.8	PI 88788	E3	9,825	7.9	72.8
Channel	3025RXF	3.0	PI 88788	XF	6,975	7.2	72.4
Latham Seeds	L 3061 E3	3.0	Peking	E3	5,375	3.9	72.3
Merschman	Lincoln 2431E	3.1	PI 88788	E3	10,075	9.8	70.8
Dyna-Gro	S38EN75	3.8	PI 88788	E3	13,425	10.3	70.8

Table 8. Fruitland (SE Iowa) continued

SCN Numbers Decreased

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology[1]	SCN# (eggs/100cc)[2]	SCN RF[3]	Yield (bushels/acre)
Apex	AE2950	2.9	Peking	E3	2,600	4.7	70.1
Dyna-Gro	S37XF15	3.7	PI 88788	XF	10,750	5.9	69.8
Pioneer	P30A75E	3.0	PI 88788	E3	10,500	8.9	69.7
Beck	3760E3	3.7	PI 88788	E3	18,550	12.4	69.6
Golden Harvest	GH3373E3S	3.3	PI 88788	E3/STS	10,075	7.6	68.8
Hefty	H27XF4	2.7	PI 88788	XF	11,075	9.6	68.1
AgriGold	G3557E3	3.5	PI 88788	E3	9,875	7.2	67.6
NK	NK34-D4XF	3.4	PI 88788	XF	16,000	12.3	67.6
Beck	3881XF	3.8	PI 88788	XF	10,825	8.5	67.2
Zinesto	Z2700E	2.7	PI 88788	E3	6,325	4.6	67.0
Channel	2824RXF	2.8	PI 88788	XF	9,025	5.2	67.0
Golden Harvest	GH3035E3	3.0	PI 88788	E3	11,425	11.4	66.7
Xitavo	XO 3655E	3.6	PI 88788	E3	16,725	7.0	66.5
NK	NK30-U4XF	3.0	PI 88788	XF	12,350	9.7	66.1
NK	NK30-A9E3	3.0	PI 88788	E3	9,825	7.1	66.1
P3 Genetics	2337E	3.7	PI 88788	E3	5,825	3.5	65.5
Hoegemeyer Hybrids	3185 E	3.1	PI 88788	E3	17,200	7.3	64.8
ASGROW	AG35XF5	3.5	PI 88788	XF	15,150	11.9	64.7
NuTech	32N04E	3.2	PI 88788	E3	8,675	4.8	63.0
ASGROW	AG37XF5	3.7	PI 88788	XF	6,000	7.7	62.7
Dyna-Gro	S31XF05	3.1	PI 88788	XF	14,525	14.5	62.5
AgriGold	G3552XF	3.5	PI 88788	XF	12,075	9.9	60.8
Channel	2724RXF	2.7	PI 88788	XF	11,450	11.5	60.2
ASGROW	AG31XF5	3.1	PI 88788	XF	12,600	6.5	57.0
Channel	3124RXF	3.1	PI 88788	XF	14,925	19.9	56.8
FS HiSOY	HS 3040	3.0	PI 88788	XF	13,550	9.9	56.6
	Mean	3.2	-	-	6,991	5.9	73.2
	LSD[4] (P = 0.10)	-	-	-	5,864	-	4.2
Iowa State University	*IA2104RA12*	*3.0*	*None*	*None*	*8,350*	*4.6*	*49.3*

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.

[1] 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.

[2] Final SCN egg population density (eggs per 100 cc soil); there were no significant differences among initial SCN population densities; initial SCN population 1,290 eggs per 100 cc soil; HG type 2- (70.8% on PI 88788, 0.3% 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 2024.

Brand	Seed Treatment
AgriGold	AgriShield® Max, Saltro®
Apex	Protect Ultra, Saltro®
ASGROW	Acceleron® Standard, ILeVO®
Beck	Escalate®, Nemasect®
Champion	CruiserMaxx® APX, Saltro®
Channel	Acceleron® Standard, ILeVO®
Connect	Acceleron® Standard, ILeVO®
Cornelius	Profit Guard Plus™, Saltro®
Dyna-Gro	Equity VAYO™, Saltro®
FS HiSOY	Acceleron®, Saltro®
Golden Harvest	CruiserMaxx® APX, Saltro®
Hoegemeyer Hybrids	LumiGEN®, ILeVO®
Hefty	Hefty Complete
Latham Seeds	SoyShield Plus™, Saltro®

Brand	Seed Treatment
LG Seeds	AgriShield® Max, Saltro®
Loyal Brand	L-Coat Total
Merschman	Starting Line Plus™, Saltro®, Trunemco™
Mustang Seeds	Mustang Shield Max, Saltro®
NK	CruiserMaxx® APX, Saltro®
NuTech	LumiGEN®, ILeVO®
P3 Genetics	Profit Guard Plus™, Saltro®
Pioneer	LumiGEN®, ILeVO®
ProHarvest	Protect Ultra, Saltro®
STINE	STRYVE™, Saltro®, Trunemco™
Titan Pro	CruiserMaxx® APX, TriUp™
Xitavo	Obvius® Plus, Poncho® Votivo®, Relenya®, ILeVO®
Zinesto	Hefty Complete

Table 10. Contact information for companies represented in 2024 variety trials.

AgriGold
1122 E 169th Street, Westfield, IN 46074
800-262-7333
agrigold.com

BASF (Xitavo)
26 Davis Drive, Research Triangle Park, NC 27709
xitavosoybeanseed.com

Bayer Crop Science (ASGROW, Channel, Connect)
800 N. Lindbergh Boulevard, St. Louis, MO 63167
asgrow.com, channel.com, connectsoybeans.com

Beck's Hybrids
6767 E. 276th Street, Atlanta, IN 46031
800-937-2325
beckshybrids.com

Champion Seed
3069 330th Street, Ellsworth, IA 50075
888-417-2004
plantchampion.com

Cornelius Seed (P3 Genetics)
14760 317th Avenue, Bellevue, IA 52031
563-672-3463
corneliusseed.com

Corteva Agriscience (Pioneer)
7300 N.W. 62nd Avenue, P.O. Box 1004, Johnston, IA 50131
515-535-3200
pioneer.com

GROWMARK, Inc. (FS HiSOY)
1701 Towanda Avenue, Bloomington, IL 61702
815-866-1447
fsseed.com

Hefty Seed Company (Zinesto)
47504 252nd Street, Baltic, SD 57003
605-529-5412
heftyseed.com

Hoegemeyer Hybrids
2905 East Morningside Road, Fremont, NE 68025
800-245-4631
therightseed.com

Latham Hi-Tech Seeds
131 180th Street, Alexander, IA 50420
641-900-6278
lathamseeds.com

Legacy Seeds (Loyal Brand)
290 Depot Street, Scandinavia, WI 54977
866-791-6390
legacyseeds.com

LG Seeds
1122 E. 169th Street, Westfield, IN 46074
800-544-6310
lgseeds.com

Merschman Seeds
103 Avenue D, West Point, IA 52656
800-848-7333
merschmanseeds.com

Mustang Seeds
1021 10th Street SW, Madison, SD 57042
605-256-6529
mustangseeds.com

NuTech Seed
101 Knollwood Drive, Ste A, Champaign, IL 61820
888-647-3478
nutechseed.com

Nutrien Ag Solutions (Dyna-Gro)
3005 Rocky Mountain Avenue, Loveland, CO 80538
970-685-3300
nutrienagsolutions.com

ProHarvest Seeds (Apex)
2737 N. 700 East Road, Ashkum, IL 60911
866-807-7015
proharvestseeds.com

Stine Seed Company
22555 Laredo Trail, Adel, IA 50003
515-677-2605
stineseed.com

Syngenta Seeds (Golden Harvest)
2001 Butterfield Road, Ste 1600, Downers Grove, IL 60515
712-242-6289
goldenharvestseeds.com

Syngenta Seeds (NK)
11055 Wayzata Boulevard, Minnetonka, MN 55305-1526
612-656-8600
syngentaseeds.com

Titan Pro SCI
1301 S. 24th Street, Clear Lake, IA 50428, 614-357-7283
titanprosci.com