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



Photo by João Paulo Santos Carvalho

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# **Evaluation of Soybean Varieties Resistant to Soybean Cyst Nematode in Iowa in 2018**

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#### Introduction

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

#### **Materials and Methods**

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

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

#### Location-specific details.

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

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

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

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



#### **Data Presentation**

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

#### **Summary**

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

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

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

#### Acknowledgments

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

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# Table 1. Newell (NW Iowa).

n     n	_	ţ	ive rity	ance	cide ology <sup>1</sup>		د 100cc) <sup>2</sup>	2F <sup>3</sup>	re)
Inc.JondLing<	Brand	Varie	Relati Matu	Resist	Herbi Techn	IDC	SCN # (eggs/	SCNI	Yield (bu/ac
PencerPionePionePickingRIZ3.13.250.07.5NuTech72.42.2PekingRIZ2.01.600.17.3NuTech1.295RX2.2PekingRIZ2.52.552.77.3AgrowAG21X2.2PekingRIZ2.55.552.77.3LATHAM1.239RX2.2PekingRIZ2.55.552.77.46.8Chargion24L1TN2.4P18878RIZ2.55.552.16.86.8Sine24HeQ2.4P18878RIZ2.55.70.16.66.8Sine0.416272.9PekingRIZ2.55.500.16.66.0Dinyland SocDSR-1950R2Y1.9P18878RIZ2.55.700.26.86.8Miler HybrinkP19721.9P18878RIZ2.65.700.46.86.8SineQH211.9P18878RIZ2.65.751.06.86.8Golden HarvestGH195X1.9P18878RIZ3.15.150.16.86.8Jora-GOS24XT022.6P18878RIZ3.15.851.06.66.8SineQH322.9P18878RIZ2.55.252.26.66.6SineQH322.9P18878RIZ2.55.252.26.55.	Beck's XL Brand	253R4	2.5	Peking	GT	2.5	1,300	0.2	77.1
Pione     PiAXX     21     Peking     RIZ     20     0.050     0.051     72.8       LATHAM     1229R2X     22     Peking     RIZ     2.6     5.355     2.7     7.1     7.1       LATHAM     1229R2X     2.2     Peking     RIZ     2.6     5.355     2.7     7.0     7.0       LATHAM     1229R2X     2.2     Peking     RIZ     2.0     4.0     9.8     8.8       Sine     244H2     2.4     Peking     RIZ     2.0     1.0     4.1     6.8     6.8       Argorw     AG2X9     2.3     Peking     RIZ     2.2     5.00     2.4     6.00     6.8     6.0       DaryIndxScct     DSX7V1.     2.4     PSX8     RIZ     2.5     0.00     2.6     6.6     6.6       Golden Harvest     GH195X2     1.9     PSX8     RIZ     2.5     3.5     1.5     6.6     6.6       Golden Harvest     GH195X2     1.9     PSX8     RIZ     3	Pioneer	P19A14X	1.9	Peking	RR2X	3.1	3,325	0.9	73.5
NuTech   72.4   2.2   Peking   GT   1.5   2.475   0.8   72.3     Aggow   AG21X9   2.1   P18378   R22.2   2.5   5.55   2.7   7.1     Aggow   AG21X9   2.1   P18378   R22.2   2.5   5.55   2.7   7.1   7.5     Campion   241/17   2.4   P18378   R12.1   1.8   8.75   2.4   68.8     Sine   244/162   2.4   P18378   R12.1   2.5   5.00   2.4   68.8     Sine   Q44/162   2.4   P18378   R12.2   2.5   5.00   2.4   68.6     Dariyland Seed   DSR-190/R2Y   1.9   P18378   R12.2   2.5   5.00   2.4   69.0     Dariyland Seed   DSR-190/R2Y   1.9   P18378   R12.2   2.5   5.00   2.4   68.8     Golden Harvest   GH195X   1.9   P18378   R12.2   2.6   5.05   1.7   68.1     Sine   Q182   2.1   P18378   R12.2   2.9   5.05   2.2	Pioneer	P21A28X	2.1	Peking	RR2X	2.0	1,050	0.3	72.8
LATHAM   L298/E2X   22   P1 8578   REX   2.5   5.25   2.7   7.4     Aggrow   AG212V   22   P1 8578   REX   2.0   4.00   1.9   6.8     LATHAM   L223PL2X   2.2   Pking   REX   3.1   3.25   1.2   6.98     Sine   24R162   2.4   P1 8578   RLY   2.0   2.0   4.1   6.98     Aggrow   AG212V   2.1   P1 8578   RLY   2.0   2.0   4.1   6.98     Aggrow   AG21XV   2.3   Pking   RLY   2.5   5.75   0.0   6.0     DarlyInd Scd   179.   P1 88788   RLY   2.5   5.00   2.6   6.0   6.0     Odden Harvest   GH195X   1.8   P1 88788   RLY   2.5   1.2   6.6   6.6     Golden Harvest   GH195X   1.8   P1 88788   RLY   2.0   5.15   0.8   6.6   6.0     P1 8677   204178   P1 88788   RLY   2.5   9.2   2.2   6.5   6.0 </td <td>NuTech</td> <td>7224</td> <td>2.2</td> <td>Peking</td> <td>GT</td> <td>1.5</td> <td>2,475</td> <td>0.8</td> <td>72.3</td>	NuTech	7224	2.2	Peking	GT	1.5	2,475	0.8	72.3
Agrow   Acd 21X9   21   P Hesing R R2X   2.0   4.00   1.9   7.5     Champion   24L17N   2.4   P H8378   RL   1.8   8.75   2.4   69.8     Same   24R162   2.4   P 18878   RL   1.8   8.75   2.4   69.8     Same   AdC12X9   2.4   P 18878   RLX   2.5   5.00   2.6   69.0     Same   AC23X9   2.9   P R8788   RLX   2.5   5.00   2.6   69.0     Dairyland Seed   DSR-1950R2Y   1.9   P 188788   RLX   2.4   5.375   0.7   68.6     Willer Hytriks   2479CL   2.1   P 188788   RLX   2.6   8.30   1.7   68.6     Stine   19R52   1.9   P 188788   RLX   2.6   8.30   1.7   68.1     Golden Harvest   GH181X   1.9   P 188788   RLX   2.5   9.25   2.2   67.5     Sine   S204/SX   2.0   P 188788   RLX   2.5   9.2   2.5   7.5   5.	LATHAM	L2295R2X	2.2	PI 88788	RR2X	2.5	5,525	2.7	71.4
LA,THAM   L229402X   22   Peking   REX   3.1   3.25   1.2   0.8   0.8     Sine   24R162   2.4   P1 8578   REX   2.0   12.025   4.1   0.9   0.9     Argorw   AG23X9   2.3   Peking   REX   2.5   5.00   2.8   0.9   0.9     Parise Brand   P18-208   REX   2.5   5.00   2.8   0.9   0.9     Darlyland Seed   REX-195.02   2.9   P1 88788   REX   2.5   5.00   2.6   0.9   0.9     Parise Brand   P19-2172.1   2.4   P1 88788   REX   2.6   8.30   0.9   0.0	Asgrow	AG21X9	2.1	PI 88788	RR2X	2.0	4,600	1.9	70.5
Champion   24.17N   2.4   P1 85788   LL   1.8   8.775   2.4   0.9.8     Sine   240112   2.4   P1 85788   R2X   2.575   0.7   0.9.6   0.9.6     Argow   AG23X9   2.3   Peking   R2X   2.575   0.7   0.9.6   0.9.6     Darlyland Sec   DSR-1950R2Y   1.9   P1 85788   R2X   2.3   5000   2.6   0.9.0   0.6   0.9.0     Prairis Brand   DSR-1950R2Y   1.9   P1 85788   R2Y   2.4   5.375   2.0   0.8   68.6     Sine   040e1191X   1.9   P1 85788   R2Y   2.4   5.350   1.9   68.5     Golden Harvest   GH1915X   1.9   P1 85788   R2Y   2.0   5.155   0.8   68.0     Dynu-Gro   S24X7108   2.0   P1 85788   R2Y   2.9   7.825   2.2   67.5   5     Sine   2004.   2.0   P1 85788   R2Y   2.9   7.825   2.2   67.5   5     Sine   2004.   7.75 <td>LATHAM</td> <td>L2239R2X</td> <td>2.2</td> <td>Peking</td> <td>RR2X</td> <td>3.1</td> <td>3,225</td> <td>1.2</td> <td>69.8</td>	LATHAM	L2239R2X	2.2	Peking	RR2X	3.1	3,225	1.2	69.8
Sine   24   P18778   R2Y   2.0   1.2.025   4.1   9.6     Aggrow   AG23X9   2.3   P8kmg   R2X   2.5   2.57   0.7   6.9.2     Churger Seeds   K.X2×052   2.0   P187788   R2X   2.5   5.900   2.8   6.9.0     Dariyland Seed   D8R-1950/R2Y   1.9   P188788   R2Y   3.5   6.900   2.6   6.8.8     Miller Hybrids   2479CLL   2.4   P188788   R2Y   3.5   5.75   2.0   6.8.5     Golden Harvest   GH1852X   1.8   P188788   R2Y   3.0   5.125   0.8   6.8.0     Pister   20R23   2.0   P188788   R2Y   3.0   5.125   0.8   6.8.0     Pister   20R23   2.0   P188788   R2Y   2.7   7.825   2.2   6.7.5   6.7.5     Nife   218132   2.1   P188788   R2Y   2.8   7.755   1.8   6.7.4     Paris Brand   P1-177R2   1.9   P188788   R2Y   2.8   7.755 <td< td=""><td>Champion</td><td>24L17N</td><td>2.4</td><td>PI 88788</td><td>LL</td><td>1.8</td><td>8,775</td><td>2.4</td><td>69.8</td></td<>	Champion	24L17N	2.4	PI 88788	LL	1.8	8,775	2.4	69.8
Agrow   Acg3xy   2.3   Peking   RZX   2.5   2.75   0.7   0.7   0.92     Kruger Seeds   K2X-2052   2.0   PI 86788   RZX   2.3   5.000   2.8   0.00     Darlyland Seed   DSR-1950R2Y   1.0   PI 88788   RZY   3.2   5.000   2.6   6.00     Prairie Brand   DSR-1950R2Y   1.0   PI 88788   RZY   3.4   5.050   2.0   6.8.6     Sine   OHR72   1.9   PI 88788   RZY   3.0   5.975   1.9   6.8.5     Golden Harvest   GH191X   1.9   PI 88788   RZY   2.0   7.12   6.8.5     Dyma-Gro   SUX108   2.4   PI 88788   RZY   2.9   7.25   2.3   6.8.0     Dyma-Gro   SUX108   2.0   PI 88788   RZY   2.9   7.825   2.2   6.7.5     NuTech   3205L   2.0   PI 88788   RZY   2.9   7.825   2.2   6.7.5     Sine   Sup1.9   PI 88788   RZY   2.5   5.25   2.4	Stine	24RH62	2.4	PI 88788	RR2Y	2.0	12,025	4.1	69.6
Kruger Secks   K2X-2052   2.0   PI 88788   RR2Y   2.3   5.900   2.6   69.0     Dairyland Secd   DSR-1950R2Y   1.9   PI 88788   RR2Y   2.6   6.90   69.0     Prairie Drand   PB-2197R2   2.1   PI 88788   RR2Y   3.5   6.900   2.6   68.6     Sine   19872   1.9   PI 88788   RR2Y   3.6   5.975   1.9   68.5     Golden Harvest   GH1852X   1.8   PI 88788   RR2Y   3.0   5.125   0.8   68.0     Piser   20023   2.0   PI 88788   RR2Y   3.0   5.850   1.9   67.5     Sine   21812   2.1   P1 88788   RR2Y   2.9   4.725   2.3   67.5   66.0     NuTech   2005X   2.0   P1 88788   RR2Y   2.8   7.75   1.4   67.0   67.0     Paritie Brand   P5-194772   1.7   P1 88788   RR2Y   2.8   7.75   1.4   67.0   67.0     Paritie Brand   P5-19772   1.7   P1 88788	Asgrow	AG23X9	2.3	Peking	RR2X	2.5	2,575	0.7	69.2
Darryland Socd   DSR: 1920/R2Y   1.9   P1 88788   RR2Y   2.4   5.5   6.00   2.6   60.0     Prairie Brand   PB2197R2   2.1   P1 88788   RR2Y   2.4   5.75   2.0   68.8     Sine   194F32   1.9   P1 88788   RR2Y   3.9   5.75   1.9   68.5     Solden Harvest   GH185X   1.8   P1 88788   RR2Y   2.0   5.850   1.7   68.1     Golden Harvest   GH1915X   1.9   P1 88788   RR2Y   2.9   4.725   2.3   68.0     Dyna-Gro   S24X108   2.4   P1 88788   RR2Y   2.9   4.725   2.3   67.5     Sinc   21812   2.1   P1 88788   RR2Y   2.9   7.825   2.2   67.5     NK   S20-15X   2.0   P1 88788   RR2Y   2.9   7.825   2.6   67.0     Sinc   2051.   2.0   P1 88788   RR2Y   2.8   4.600   1.0   67.0     Sinc   2051.   2.5   P1 88788   RR2Y   2.8 <t< td=""><td>Kruger Seeds</td><td>K2X-2052</td><td>2.0</td><td>PI 88788</td><td>RR2X</td><td>2.3</td><td>5,900</td><td>2.8</td><td>69.0</td></t<>	Kruger Seeds	K2X-2052	2.0	PI 88788	RR2X	2.3	5,900	2.8	69.0
Praine     PB-2197R2     2.1     PI 88788     RLD     1.6     13,050     4.9     68.8       Miller Hybrids     2479CLL     2.4     PI 88788     LL     1.6     13,050     4.9     68.6       Sine     198772     19     PI 88788     RR2Y     2.6     8,350     1.7     68.6       Golden Harvest     GH1952X     1.8     PI 88788     RR2Y     2.9     4,725     2.3     68.0       Orden Harvest     GH1952X     2.0     PI 88788     RR2Y     2.9     4,725     2.3     65.0       Opma-Gro     S24X108     2.4     PI 88788     RR2Y     2.9     4,725     2.3     67.5       Nt     S20-5X     2.0     PI 88788     RR2Y     2.9     4,725     3.2     67.5       NuTech     3205L     2.0     PI 88788     RR2Y     2.8     7,75     1.4     67.4       Prairie Brand     PB-1787R2     1.7     PI 88788     RR2Y     2.8     7,75     1.4     66.2 <t< td=""><td>Dairyland Seed</td><td>DSR-1950/R2Y</td><td>1.9</td><td>PI 88788</td><td>RR2Y</td><td>3.5</td><td>6,900</td><td>2.6</td><td>69.0</td></t<>	Dairyland Seed	DSR-1950/R2Y	1.9	PI 88788	RR2Y	3.5	6,900	2.6	69.0
Miller Hybrids   244   PI 88788   RL2   1.6   1.3.050   4.9   68.6     Sine   190R32   1.9   PI 88788   RR2Y   3.9   5.9.75   1.9   68.1     Golden Harvest   GH1852X   1.8   PI 88788   RR2X   2.6   8.350   1.7   68.1     Fisher   208.3   0   PI 88788   RR2X   2.6   8.350   1.9   68.0     Dyna-Gro   S24XT08   2.4   PI 88788   RR2X   3.1   5.850   1.9   67.5     Sine   21832   2.1   PI 88788   RR2X   2.8   7.75   1.8   67.5     NK   S20-51X   2.0   PI 88788   RR2Y   2.8   7.75   1.4   67.0     Prairie Brand   PB-1947R2   1.9   PI 88788   RR2Y   2.8   7.75   1.4   67.0     Beck's   2599X2   2.5   P 88788   RR2X   1.5   5.25   6.22   66.1     Jacobsen   669NR2   1.9   PI 88788   RR2X   1.7   6.00   2.4   65.5 <td>Prairie Brand</td> <td>PB-2197R2</td> <td>2.1</td> <td>PI 88788</td> <td>RR2Y</td> <td>2.4</td> <td>5,375</td> <td>2.0</td> <td>68.8</td>	Prairie Brand	PB-2197R2	2.1	PI 88788	RR2Y	2.4	5,375	2.0	68.8
Sine   19R52   1.9   PI 88788   RR2Y   3.9   5.75   1.9   68.5     Golden Harvest   GH1915X   1.8   PI 88788   RR2X   2.6   8.350   1.7   68.1     Pfiser   20R23   2.0   PI 88788   RR2X   3.0   5.125   0.8   68.0     Dyna-Gro   S24XT08   2.0   PI 88788   RR2X   3.0   5.125   0.6   68.0     Sine   21R132   2.1   PI 88788   RR2X   2.9   7.825   2.2   67.5     NK   S20-J5X   2.0   PI 88788   RR2Y   2.9   7.825   2.2   67.5     NuTech   3205L   2.0   PI 88788   RR2Y   2.9   8.475   2.6   67.0     Prairie Brand   PB-1947R2   1.9   PI 88788   RR2Y   2.8   4.600   1.0   67.0     Jacobsen   669NR2   1.9   PI 88788   RR2Y   2.8   4.600   1.0   66.1     Jacobsen   761NR2X   2.1   PI 88788   RR2X   1.9   5.050   1.4 <td>Miller Hybrids</td> <td>2479CLL</td> <td>2.4</td> <td>PI 88788</td> <td>LL</td> <td>1.6</td> <td>13,050</td> <td>4.9</td> <td>68.6</td>	Miller Hybrids	2479CLL	2.4	PI 88788	LL	1.6	13,050	4.9	68.6
Golden Harvest   GH1852X   1.8   PI 88788   RRXX   2.6   8,350   1.7   68.1     Golden Harvest   GH1915X   1.9   PI 88788   RRXX   3.0   5,125   0.8   68.1     Dyna-Gro   S24XT08   2.4   PI 88788   RRXY   2.4   2.725   2.2   67.5     Sime   21R32   2.0   PI 88788   RRXY   2.5   9,825   3.2   67.5     NuTech   3205L   2.0   PI 88788   RRXY   2.5   9,825   3.2   67.5     Prairie Brand   PB-1947R2   1.9   PI 88788   RRXY   2.8   4,7175   1.8   67.0     Prairie Brand   PB-1947R2   1.7   PI 88788   RRXY   2.8   4,600   1.0   6.6   6.0     Beck St   2559X2   2.5   PI 88788   RRXY   3.5   8,850   3.7   66.2   6.6     Jacobsen   669NR2   1.9   PI 88788   RRX   2.5   6.22   6.6   6.1     Jacobsen   701RX2   2.1   P1 88788   RRX <td>Stine</td> <td>19RF32</td> <td>1.9</td> <td>PI 88788</td> <td>RR2Y</td> <td>3.9</td> <td>5,975</td> <td>1.9</td> <td>68.5</td>	Stine	19RF32	1.9	PI 88788	RR2Y	3.9	5,975	1.9	68.5
Golden Harvest   GH1915X   1.9   PI8 8788   RR2Y   2.9   4,725   2.3   68.0     Prister   20R23   2.0   PI 88788   RR2Y   2.9   4,725   2.3   68.0     Sine   21R132   2.1   PI 88788   RR2Y   2.9   7,825   2.2   67.5     NK   S20-5X   2.0   PI 88788   RR2Y   2.9   7,825   3.2   67.5     NuTech   3205L   2.0   PI 88788   RR2Y   2.9   8,475   2.6   67.0     Prairie Brand   PB-1947R2   1.9   PI 88788   RR2Y   2.8   4,775   1.4   67.0     Prairie Brand   PB-1947R2   1.7   PI 88788   RR2Y   2.8   4,600   1.0   67.0     Jacobsen   669N22   2.5   PI 88788   RR2X   2.5   6,25   2.6   66.1     Jacobsen   61NR2X   2.1   PI 88788   RR2X   1.7   6.00   1.4   6.6     Dyna-Gro   52X177   2.1   PI 88788   RR2X   1.7   6.00 <td< td=""><td>Golden Harvest</td><td>GH1852X</td><td>1.8</td><td>PI 88788</td><td>RR2X</td><td>2.6</td><td>8,350</td><td>1.7</td><td>68.1</td></td<>	Golden Harvest	GH1852X	1.8	PI 88788	RR2X	2.6	8,350	1.7	68.1
Pfister   20R23   2.0   PI 88788   RR2Y   2.9   4,725   2.3   68.0     Dyna-Gro   S24X108   2.4   PI 88788   RR2X   3.1   5,850   1.9   67.9     Sine   21R132   2.1   PI 88788   RR2X   2.5   9,825   3.2   67.5     NK   S20-J5X   2.0   PI 88788   RL2   2.5   9,825   3.2   67.5     NuTech   3205L   2.0   PI 88788   RL2   2.8   4,600   1.0   67.0     Prairie Brand   PB-1947R2   1.7   PI 88788   RR2Y   2.8   4,600   1.0   67.0     Beck's   2559X2   2.5   PI 88788   RR2X   3.5   8,850   3.7   66.2     Jacobsen   669NR2   1.9   PI 88788   RR2X   1.5   5,625   2.6   66.1     Jacobsen   71NR2X   2.1   PI 88788   RR2X   1.7   6,000   2.4   65.9     Champion   22X09N   2.2   Pek/P188*   RR2X   1.7   6,000   1.4	Golden Harvest	GH1915X	1.9	PI 88788	RR2X	3.0	5.125	0.8	68.0
Dyna-Gro   S24XT08   2.4   PI 8788   RR2X   3.1   5,850   1.9   67.9     Stine   21R132   2.1   PI 87788   RR2Y   2.9   7,825   2.2   67.5     NK   S20-55X   2.0   PI 88778   RR2Y   2.9   7,825   2.2   67.5     NuTech   3205L   2.0   PI 88778   RL1   3.4   7,175   1.8   67.4     Prairie Brand   PB-1947R2   1.9   PI 88778   RR2Y   2.8   7,775   1.8   67.0     Prairie Brand   PB-1947R2   1.7   PI 88778   RR2X   2.8   7,75   1.4   67.0     Jacobsen   G60R2   1.9   PI 88778   RR2X   3.5   8,750   0.1   66.2     Jacobsen   G10R2X   2.1   PI 88778   RR2X   1.9   5,050   1.4   66.0     Opan-Gro   S12T77   2.1   PI 88788   RR2X   1.7   6,00   2.4   6.5     Pomoer   213A2X   2.3   PR478   RR2X   1.9   9,00   0.4	Pfister	20R23	2.0	PI 88788	RR2Y	2.9	4.725	2.3	68.0
Sine   21R132   2.1   P1 88788   RR2Y   2.9   7,825   2.2   67.5     NK   S20-JSX   2.0   P1 88788   RR2X   2.5   9,825   3.2   67.5     NuTech   3205L   2.0   P1 88788   RR2X   2.5   9,825   3.2   67.5     Prairie Brand   PB-1947R2   1.9   P1 88788   RR2Y   2.9   8,475   2.6   67.0     Prairie Brand   PB-1787R2   1.7   P1 88788   RR2Y   2.8   7,775   1.4   67.0     Beck's   2559X2   2.5   P1 88788   RR2X   2.8   4,600   1.0   67.0     Jacobsen   669NR2   1.9   P1 88788   RR2X   1.5   5,625   2.0   66.1     Jacobsen   761NR2X   2.1   P1 88788   RR2X   1.9   5,00   1.4   66.0   66.1     Jacobsen   761NR2X   2.1   P1 88788   RR2X   1.9   5,00   1.4   65.0   66.1     Dyna-Gro   S21X177   2.1   P1 88788   RR2X	Dvna-Gro	S24XT08	2.4	PI 88788	RR2X	3.1	5.850	1.9	67.9
NK   S20-J5X   2.0   P188788   RR2X   2.5   9.825   3.2   67.5     NuTech   3205L   2.0   P188788   RL2X   2.4   7.175   1.8   67.4     Prairie Brand   PB-1947R2   1.9   P188788   RR2Y   2.8   7.775   1.4   67.0     Beck   2559X2   2.5   P188788   RR2Y   2.8   4.600   1.0   67.0     Jacobsen   669NR2   1.9   P188788   RR2X   3.5   8.850   3.7   66.2     Jacobsen   669NR2   1.9   P188788   RR2X   3.5   8.850   3.7   66.2     Jacobsen   761NR2X   2.1   P188788   RR2X   1.5   6.62   66.0     Dyna-Gro   51X777   2.1   P188788   RR2X   1.7   6.00   2.4   65.7     Dyna-Gro   51X777   2.1   P188788   RR2X   1.7   6.00   2.4   65.5     Pioneer   P23A32X   2.3   Pk8788   RR2X   2.7   4.600   1.2   65.4	Stine	21RI32	2.1	PI 88788	RR2Y	2.9	7.825	2.2	67.5
NuTech   3205L   2.0   P1 88788   LL   3.4   7,175   1.8   67,4     Prairie Brand   PB-1947R2   1.9   P1 88788   RR2Y   2.9   8,475   2.6   67,0     Prairie Brand   PB-1787R2   1.7   P1 88788   RR2Y   2.9   8,475   2.6   67,0     Beck's   2559V2   2.5   P1 88788   RR2Y   2.8   4,400   1.0   67,0     Beck's   2559V2   2.5   P1 88788   RR2X   2.8   6,600   67.0     Jacobsen   660NR2   1.9   P1 88788   RR2X   2.5   6,52   2.0   66.1     Jacobsen   761NR2X   2.1   P1 88788   RR2X   1.7   6,000   1.4   66.0     Oyan-Gro   S21XT77   2.1   P1 88788   RR2X   1.7   6,000   1.4   65.5     Champion   21209N   2.2   Peking   GT   1.9   2,700   0.7   65.5     Pioneer   P23A32X   2.3   Pis788   RR2X   2.3   7,375   3.4   6	NK	S20-J5X	2.0	PI 88788	RR2X	2.5	9.825	3.2	67.5
Prairie Brand   PB-1947R2   1.9   PI 88788   R2Y   2.9   8,475   2.6   67.0     Prairie Brand   PB-1787R2   1.7   PI 88788   RR2Y   2.8   7,75   1.4   67.0     Beck's   2559X2   2.5   PI 88788   RR2X   2.8   4,600   1.0   67.0     Merschman   Osage 1824LL   2.4   PI 88788   RR2X   3.5   6,625   2.0   66.3     Jacobsen   669NR2   1.9   PI 88788   RR2X   2.5   6,25   2.6   66.1     Jacobsen   761NR2X   2.1   PI 88788   RR2X   1.7   5,050   1.4   66.0     Opan-Gro   S21X177   2.1   PI 88788   RR2X   2.7   4,600   1.2   65.5     Champion   22X09N   2.2   Pek/PI88.*   RR2X   2.7   4,600   1.2   65.4     Pioneer   P33A3X   2.3   Peking   R12   2.7   4,550   2.0   65.3     Federal Hybrids   2162CRX   2.1   PI 88788   RR2X   2.3 <t< td=""><td>NuTech</td><td>32051</td><td>2.0</td><td>PI 88788</td><td>LL</td><td>3.4</td><td>7,175</td><td>1.8</td><td>67.4</td></t<>	NuTech	32051	2.0	PI 88788	LL	3.4	7,175	1.8	67.4
Prairie Brand   PB-1787R2   1.7   PI 88788   R12Y   2.8   7.75   1.4   67.0     Becks   2559X2   2.5   PI 88788   R12Y   2.8   4.600   1.0   67.0     Merschman   Osage 1824LL   2.4   PI 88788   R12X   2.8   4.600   1.0   67.0     Jacobsen   669NR2   1.9   PI 88788   R12X   2.5   6.25   2.6   66.1     Jours   71000   S12X17   2.1   PI 88788   R12X   1.9   5.050   1.4   66.0     Oyna-Gro   S21X177   2.1   PI 88788   R12X   1.7   6.000   2.4   65.5     Champion   22X09N   2.2   Pek/rg 8878   R12X   1.7   6.000   2.4   65.7     Beck's XL Brand   213R4   2.1   Peking   GT   1.9   9.100   3.8   65.4     FlifsOY   23X70   2.3   Pikarg 8788   R2X   2.3   7.350   2.4   65.2     Hilder Hybrids   2162CRX   2.1   P1 88788   R2X   2.3	Prairie Brand	PB-1947R2	19	PI 88788	RR2Y	2.9	8 475	2.6	67.0
Beck's   2559X2   2.5   PI 88788   RR2X   2.8   4.600   1.0   67.0     Merschman   Osage 1824LL   2.4   PI 88788   RR2X   3.5   8.850   3.7   66.3     Jacobsen   669NR2   1.9   PI 88788   RR2X   3.5   8.850   3.7   66.1     Jacobsen   761NR2X   2.1   PI 88788   RR2X   1.9   5.050   1.4   66.0     Dyna-Gro   S21XT77   2.1   PI 88788   RR2X   1.7   6.000   2.4   65.7     Champion   22X0Pk   2.2   Pek/PI88.*   RR2X   1.9   9.100   3.8   65.4     Pioneer   P23A32X   2.3   PI 88788   RR2X   2.7   4.500   2.0   65.3     Willer Hybrids   2162CRX   2.1   PI 88788   RR2X   2.3   7.800   2.4   65.2     LATHAM   L2249L   2.1   PI 88788   RR2X   3.7   3.4   65.0     Pederal Hybrids   F2380N   2.3   PI 88788   RR2X   3.4   3.00   64.0	Prairie Brand	PB-1787R2	1.7	PI 88788	RR2Y	2.8	7.775	1.4	67.0
Marschman   Osage 1824LL   2.4   P1 88788   LL   1.5   5,625   2.0   66.3     Jacobsen   669NR2   1.9   P1 88788   R2X   3.5   8,850   3.7   66.2     FOUR STAR SEED   3X241   2.4   P1 88788   R2X   2.5   6,25   2.6   66.1     Jacobsen   761NR2X   2.1   P1 88788   R2X   1.7   6,000   2.4   66.1     Dyna-Gro   S21XT77   2.1   P1 88788   R2X   1.7   6,000   2.4   65.7     Beck's XL Brand   213R4   2.1   Peking   R1   9.700   0.7   65.5     Pioneer   P23A32X   2.3   Piking   R2X   2.7   4,500   2.0   65.3     FS HiSOY   23X70   2.3   Peking   R1   2.3   7,800   2.4   65.2     IATHAM   L249L   2.2   Pi 88788   R2X   2.3   7,800   2.4   65.2     Piorie   P13878   R2X   2.3   7,800   2.4   64.8   65.4	Beck's	2559X2	2.5	PI 88788	RR2X	2.8	4.600	1.0	67.0
Individual   Droge totality   1/2   P1 88788   R2X   3.7   66.2     FOUR STAR SEED   3X241   2.4   P1 88788   R2X   2.5   6.225   2.6   66.1     Jacobsen   761NR2X   2.1   P1 88788   R2X   1.9   5.050   1.4   66.0     Dyna-Gro   S21X077   2.1   P1 88788   R2X   1.7   6.000   2.4   65.7     Beck's XL Brand   213R4   2.1   Peking   GT   1.9   2,700   0.7   65.5     Pioneer   P23A32X   2.3   P1 88788   R2X   2.7   4,600   2.4   65.4     FS HiSOY   23X70   2.3   P1 88788   R2X   2.3   7,800   2.4   65.4     LATHAM   L2249L   2.2   P1 88788   R2X   2.3   7,800   2.4   65.0     Federal Hybrids   F2380N   2.3   P1 88788   R2X   2.3   7,800   2.4   64.1     Federal Hybrids   F2280N   2.0   P1 88788   R2X   2.4   500   2.2   64.1<	Merschman	Osage 1824LL	2.4	PI 88788	LL	1.5	5 625	2.0	66.3
FOUR STAR SEED   3X241   2.4   PI 88788   RRX   2.5   6,225   2.6   66.1     Jacobsen   761NR2X   2.1   PI 88788   RRX   1.9   5,050   1.4   66.0     Dyna-Gro   S21X177   2.1   PI 88788   RRX   1.7   6,000   2.4   65.9     Champion   22X09N   2.2   Pek/PI88.*   RRX   2.7   4,600   1.2   65.7     Becks XL Brand   213R4   2.1   Peking   GT   1.9   2,700   0.7   65.5     Pioneer   P23A32X   2.3   PI 88788   RR2X   1.9   9,100   3.8   65.4     FS HiSOY   23X70   2.3   Peking   RR2X   2.3   7,800   2.4   65.2     LATHAM   L2249L   2.2   PI 88788   RL2   2.3   7,800   2.4   64.8     NK   S21-W8X   2.1   PI 88788   RR2X   2.8   4,300   1.0   64.2     Stine   20RD20   2.0   PI 88788   RR2Y   2.4   5,000   2.8	Jacobsen	669NR2	19	PI 88788	RR2X	3.5	8 850	3.7	66.2
Jacobsen   761NR2X   2.1   P1 88788   RR2X   1.9   5,050   1.4   66.0     Dyna-Gro   S21XT77   2.1   P1 88788   RR2X   1.7   6,000   2.4   65.9     Champion   22X09N   2.2   Pek./P188.*   RR2X   2.7   4,600   1.2   65.7     Beck's XL Brand   213R4   2.1   Peking   GT   1.9   9,100   3.8   65.4     Pioneer   P23A32X   2.3   P1 88788   RR2X   2.7   4,550   2.0   65.3     FS HiSOY   23X70   2.3   Peking   RR2X   2.7   4,550   2.0   65.4     Miller Hybrids   2162CRX   2.1   P1 88788   RR2X   3.1   1,475   0.4   64.8     NK   S12W8X   2.1   P1 88788   RR2X   3.1   1,475   0.4   64.2     Federal Hybrids   F2090N   2.0   P1 88788   RR2X   1.8   4,950   2.2   64.1     Stine   20RD20   2.0   P1 88788   RR2Y   1.4   5,750	FOUR STAR SEED	3X241	2.4	PI 88788	RR2X	2.5	6.225	2.6	66.1
Dyna-Gro   S21XT77   2.1   P188788   RR2X   1.7   6,000   2.4   65.9     Champion   22X09N   2.2   Pek./P188.*   RR2X   2.7   4,600   1.2   65.7     Beck's XL Brand   213R4   2.1   Peking   GT   1.9   2,700   0.7   65.5     Pioneer   P23A32X   2.3   P188788   RR2X   1.9   9,100   3.8   65.4     FS HiSOY   23X70   2.3   Peking   RR2X   2.7   4,550   2.0   65.3     LATHAM   L2249L   2.2   P188788   RR2X   2.3   7,800   2.4   64.2     LATHAM   L2249L   2.2   P188788   RR2X   3.1   1,475   0.4   64.8     NK   S21-W8X   2.1   P188788   RR2X   1.8   4,950   2.2   64.1     Prairie Brand   P5-2228R2   2.2   P188788   RR2Y   1.3   8,175   3.0   64.0     Miler Hybrids   2472CRX   2.4   P188788   RR2Y   1.3   8,175   3.	Jacobsen	761NR2X	2.1	PI 88788	RR2X	19	5,050	14	66.0
Dynamic and the stress of t	Dyna-Gro	S21XT77	2.1	PI 88788	RR2X	17	6 000	2.4	65.9
Back's XL Brand   213R4   2.1   Peking   GT   1.9   2,000   0.7   65.5     Pioneer   P23A32X   2.3   PI 88788   RR2X   1.9   9,100   3.8   65.4     FS HiSOY   23X70   2.3   Peking   RR2X   2.7   4,550   2.0   65.3     Miller Hybrids   2162CRX   2.1   PI 88788   RR2X   2.3   7,800   2.4   65.2     LATHAM   L2249L   2.2   PI 88788   RR2X   3.1   1,475   0.4   64.8     Federal Hybrids   F2380N   2.3   PI 88788   RR2X   3.1   1,475   0.4   64.2     Federal Hybrids   F2090N   2.0   PI 88788   RR2X   1.8   4,900   1.0   64.2     Prairie Brand   PB-2228R2   2.2   PI 88788   RR2Y   1.3   8,175   3.0   64.0     Merschman   Comanche 1626LL   2.6   PI 88788   RR2Y   2.3   10,125   5.5   63.6     Dairyland Seed   DSR-2110/R2Y   2.3   Pi 88788   RR2Y	Champion	22X09N	2.2	Pek /PI88 *	RR2X	2.7	4 600	12	65.7
Decking   Dirik   <	Beck's XL Brand	213R4	2.1	Peking	GT	19	2 700	0.7	65.5
FS HiSOY   23X70   2.3   Peking   RR2X   2.7   4,550   2.0   65.3     Miller Hybrids   2162CRX   2.1   PI 88788   RR2X   2.3   7,800   2.4   65.2     LATHAM   L2249L   2.2   PI 88788   RR2X   2.3   7,375   3.4   65.0     Federal Hybrids   F2380N   2.3   PI 88788   RR2X   2.8   4,300   1.0   64.8     NK   S21-W8X   2.1   PI 88788   RR2X   2.8   4,300   1.0   64.2     Federal Hybrids   F2090N   2.0   PI 88788   RR2Y   2.4   5,000   2.8   64.0     Prairie Brand   PB-2228R2   2.2   PI 88788   RR2Y   2.4   5,000   2.8   64.0     Merschman   Comanche 1626LL   2.6   PI 88788   RR2Y   2.4   5,000   2.8   63.7     Miller Hybrids   2472CRX   2.4   PI 88788   R2Y   2.4   5,000   2.8   63.7     Jairyland Seed   DSR-2330/R2Y   2.3   Pi 8788   RR2Y   <	Pioneer	P23A32X	2.3	PI 88788	RR2X	1.9	9,100	3.8	65.4
Miller Hybrids   2162/CRX   2.1   P1 88788   RR2X   2.3   7,800   2.4   65.2     LATHAM   L2249L   2.2   P1 88788   RL2   2.3   7,375   3.4   65.0     Federal Hybrids   F2380N   2.3   P1 88788   RR2X   3.1   1,475   0.4   64.8     NK   S21-W8X   2.1   P1 88788   RR2X   2.8   4,300   1.0   64.2     Federal Hybrids   F2090N   2.0   P1 88788   RR2Y   2.4   5,000   2.8   64.0     Prairie Brand   PB-2228R2   2.2   P1 88788   RR2Y   1.3   8,175   3.0   64.0     Merschman   Comanche 1626LL   2.6   P1 88788   RR2Y   2.4   5,000   2.8   63.7     Miller Hybrids   2472CRX   2.4   P1 88788   R2Y   2.4   5,000   2.2   63.7     Miller Hybrids   2472CRX   2.4   P1 88788   R2Y   2.4   3,475   1.2   63.6     Dairyland Seed   DSR-2330/R2Y   2.3   P1 88788   R2Y <td>FSHiSOY</td> <td>23X70</td> <td>2.3</td> <td>Peking</td> <td>RR2X</td> <td>2.7</td> <td>4.550</td> <td>2.0</td> <td>65.3</td>	FSHiSOY	23X70	2.3	Peking	RR2X	2.7	4.550	2.0	65.3
LATHAM   L2249L   2.2   PI 88788   LL   2.3   7,375   3.4   65.0     Federal Hybrids   F2380N   2.3   PI 88788   R2X   3.1   1,475   0.4   64.8     NK   S21-W8X   2.1   PI 88788   R2X   2.8   4,300   1.0   64.2     Federal Hybrids   F2090N   2.0   PI 88788   R2X   1.8   4,950   2.2   64.1     Prairie Brand   PB-2228R2   2.2   PI 88788   R2Y   2.4   5,000   2.8   64.0     Stine   20RD20   2.0   PI 88788   R2Y   1.3   8,175   3.0   64.0     Merschman   Comanche 1626LL   2.6   PI 88788   R2X   3.5   7,250   2.2   63.7     Miller Hybrids   2472CRX   2.4   PI 88788   R2Y   2.3   10,125   5.5   63.6     Dairyland Seed   DSR-2330/R2Y   2.3   PI 88788   R2Y   2.3   10,125   5.5   63.6     Dairyland Seed   DSR-2110/R2Y   2.1   PI 88788   R2Y <td< td=""><td>Miller Hybrids</td><td>2162CRX</td><td>2.1</td><td>PI 88788</td><td>RR2X</td><td>2.3</td><td>7.800</td><td>2.4</td><td>65.2</td></td<>	Miller Hybrids	2162CRX	2.1	PI 88788	RR2X	2.3	7.800	2.4	65.2
Federal Hybrids   F230N   2.3   PI 88788   RR2X   3.1   1,475   0.4   64.8     NK   S21-W 8X   2.1   PI 88788   RR2X   3.1   1,475   0.4   64.2     Federal Hybrids   F2090N   2.0   PI 88788   RR2X   1.8   4,950   2.2   64.1     Prairie Brand   PB-2228R2   2.2   PI 88788   RR2Y   2.4   5,000   2.8   64.0     Stine   20RD20   2.0   PI 88788   RR2Y   1.3   8,175   3.0   64.0     Merschman   Comanche 1626LL   2.6   PI 88788   RR2X   3.5   7,250   2.2   63.7     Miller Hybrids   2472CRX   2.4   PI 88788   RR2X   3.4   3,475   1.2   63.6     Dairyland Seed   DSR-2330/R2Y   2.3   Peking   RR2X   3.0   11,650   3.0   63.5     Dairyland Seed   DSR-2110/R2Y   2.1   PI 88788   RR2X   2.0   5,675   2.4   63.3     Jacobsen   678NR2X   1.8   PI 88788   RR2X <td>LATHAM</td> <td>L2249L</td> <td>2.2</td> <td>PI 88788</td> <td>LL</td> <td>2.3</td> <td>7.375</td> <td>3.4</td> <td>65.0</td>	LATHAM	L2249L	2.2	PI 88788	LL	2.3	7.375	3.4	65.0
NK   S21-W8X   2.1   PI 88788   R2X   2.8   4,300   1.0   64.2     Federal Hybrids   F2090N   2.0   PI 88788   R2X   1.8   4,950   2.2   64.1     Prairie Brand   PB-2228R2   2.2   PI 88788   R2Y   2.4   5,000   2.8   64.0     Stine   20RD20   2.0   PI 88788   R2Y   1.3   8,175   3.0   64.0     Merschman   Comanche 1626LL   2.6   PI 88788   R2Y   1.3   8,175   3.0   64.0     Miller Hybrids   2472CRX   2.4   PI 88788   R2Y   3.5   7,250   2.2   63.7     Dairyland Seed   DSR-2330/R2Y   2.3   Peking   R2X   2.4   3,475   1.2   63.6     Dairyland Seed   DSR-2110/R2Y   2.1   PI 88788   R2Y   2.3   10,125   5.5   63.6     Dairyland Seed   DSR-2110/R2Y   2.1   PI 88788   R2Y   2.0   5,675   2.4   63.3     Jacobsen   678NR2X   1.8   PI 88788   R2Y	Federal Hybrids	F2380N	2.3	PI 88788	RR2X	3.1	1.475	0.4	64.8
Find	NK	S21-W8X	2.1	PI 88788	RR2X	2.8	4 300	1.0	64.2
Prairie Brand   PB-2228R2   2.2   PI 88788   RR2Y   2.4   5,000   2.8   64.0     Stine   20RD20   2.0   PI 88788   RR2Y   1.3   8,175   3.0   64.0     Merschman   Comanche 1626LL   2.6   PI 88788   RR2Y   1.3   8,175   3.0   63.7     Miller Hybrids   2472CRX   2.4   PI 88788   RR2X   3.5   7,250   2.2   63.7     Beck's   2339X2   2.3   Peking   RR2X   2.4   3,475   1.2   63.6     Dairyland Seed   DSR-2330/R2Y   2.3   PI 88788   RR2Y   2.3   10,125   5.5   63.6     Dairyland Seed   DSR-2110/R2Y   2.1   PI 88788   RR2Y   2.0   5,675   2.4   63.3     Jacobsen   678NR2X   1.8   PI 88788   RR2X   2.1   5,175   1.5   63.1     Hoegemeyer HPT   LL1900 N   1.9   PI 88788   RL2X   2.8   7,350   2.6   62.9     Pioneer   P23A15X   2.3   PI 88788   RR2X	Federal Hybrids	F2090N	2.0	PI 88788	RR2X	1.8	4 950	2.2	64.1
Stine   20RD20   2.0   PI 88788   RR2Y   1.3   8,175   3.0   64.0     Merschman   Comanche 1626LL   2.6   PI 88788   LL   1.8   6,625   2.9   63.7     Miller Hybrids   2472CRX   2.4   PI 88788   RR2X   3.5   7,250   2.2   63.7     Beck's   2339X2   2.3   Peking   RR2X   2.4   3,475   1.2   63.6     Dairyland Seed   DSR-2330/R2Y   2.3   PI 88788   RR2X   3.0   11,650   3.0   63.5     Dairyland Seed   DSR-2110/R2Y   2.1   PI 88788   RR2X   2.0   5,675   2.4   63.3     Jacobsen   678NR2X   1.8   PI 88788   RR2X   2.1   5,175   1.5   63.1     Hoegemeyer HPT   LL1900 N   1.9   PI 88788   RR2X   2.8   7,350   2.6   62.9     Pioneer   P23A15X   2.3   PI 88788   RR2X   2.8   7,350   2.6   62.9     Federal Hybrids   F1880N   1.8   PI 88788   RR2X	Prairie Brand	PB-2228R2	2.2	PI 88788	RR2Y	2.4	5.000	2.8	64.0
Merschman   Comanche 1626LL   2.6   PI 88788   LL   1.8   6,625   2.9   63.7     Miller Hybrids   2472CRX   2.4   PI 88788   RR2X   3.5   7,250   2.2   63.7     Beck's   2339X2   2.3   Peking   RR2X   2.4   3,475   1.2   63.6     Dairyland Seed   DSR-2330/R2Y   2.3   PI 88788   RR2Y   2.3   10,125   5.5   63.6     Dairyland Seed   DSR-2110/R2Y   2.5   PI 88788   RR2Y   2.0   5,675   2.4   63.5     Dairyland Seed   DSR-2110/R2Y   2.1   PI 88788   RR2Y   2.0   5,675   2.4   63.3     Jacobsen   678NR2X   1.8   PI 88788   RR2X   2.1   5,175   1.5   63.1     Hoegemeyer HPT   LL1900 N   1.9   PI 88788   RL2   2.8   7,350   2.6   62.9     Pioneer   P23A15X   2.3   PI 88788   RR2X   2.4   4775   1.0   62.8	Stine	20RD20	2.0	PI 88788	RR2Y	13	8 175	3.0	64.0
Miller Hybrids   2472CRX   2.4   PI 88788   RR2X   3.5   7,250   2.2   63.7     Beck's   2339X2   2.3   Peking   RR2X   2.4   3,475   1.2   63.6     Dairyland Seed   DSR-2330/R2Y   2.3   PI 88788   RR2Y   2.3   10,125   5.5   63.6     Dairyland Seed   DSR-2110/R2Y   2.1   PI 88788   RR2Y   2.0   5,675   2.4   63.5     Dairyland Seed   DSR-2110/R2Y   2.1   PI 88788   RR2Y   2.0   5,675   2.4   63.3     Jacobsen   678NR2X   1.8   PI 88788   RR2X   2.1   5,175   1.5   63.1     Hoegemeyer HPT   LL1900 N   1.9   PI 88788   RL2   2.8   7,350   2.6   62.9     Pioneer   P23A15X   2.3   PI 88788   RR2X   2.4   4755   1.0   62.9     Federal Hybrids   F1880N   1.8   PI 88788   RR2X   2.1   4755   1.0   62.8	Merschman	Comanche 1626LL	2.0	PI 88788	LL	1.5	6 6 2 5	2.9	63.7
Back's   2339X2   2.3   Peking   RR2X   2.4   3,475   1.2   63.6     Dairyland Seed   DSR-2330/R2Y   2.3   PI 88788   RR2Y   2.3   10,125   5.5   63.6     FS HiSOY   25X70   2.5   PI 88788   RR2Y   2.0   5,675   2.4   63.5     Dairyland Seed   DSR-2110/R2Y   2.1   PI 88788   RR2Y   2.0   5,675   2.4   63.3     Jacobsen   678NR2X   1.8   PI 88788   RR2X   2.1   5,175   1.5   63.1     Hoegemeyer HPT   LL1900 N   1.9   PI 88788   RR2X   2.8   7,350   2.6   62.9     Pioneer   P23A15X   2.3   PI 88788   RR2X   2.4   4775   1.0   62.8	Miller Hybrids	2472CRX	2.0	PI 88788	RR2X	3.5	7,250	2.2	63.7
Doiryland Seed   DSR-2330/R2Y   2.3   PI 88788   RR2Y   2.3   10,125   5.5   63.6     FS HiSOY   25X70   2.5   PI 88788   RR2X   3.0   11,650   3.0   63.5     Dairyland Seed   DSR-2110/R2Y   2.1   PI 88788   RR2Y   2.0   5,675   2.4   63.3     Jacobsen   678NR2X   1.8   PI 88788   RR2X   2.1   5,175   1.5   63.1     Hoegemeyer HPT   LL1900 N   1.9   PI 88788   RL2   2.8   7,350   2.6   62.9     Pioneer   P23A15X   2.3   PI 88788   RR2X   2.4   4775   1.0   62.8	Beck's	2339X2	2.1	Peking	RR2X	24	3 475	12	63.6
FS HiSOY   25X70   2.5   PI 88788   RR2X   3.0   11,650   3.0   63.5     Dairyland Seed   DSR-2110/R2Y   2.1   PI 88788   RR2Y   2.0   5,675   2.4   63.3     Jacobsen   678NR2X   1.8   PI 88788   RR2X   2.1   5,175   1.5   63.1     Hoegemeyer HPT   LL1900 N   1.9   PI 88788   RL2   2.8   7,350   2.6   62.9     Pioneer   P23A15X   2.3   PI 88788   RR2X   2.1   4775   1.0   62.8	Dairyland Seed	DSR-2330/R2V	2.5	PI 88788	RR2V	2.4	10 125	5.5	63.6
Dairyland Seed   DSR-2110/R2Y   2.1   PI 88788   RR2Y   2.0   5,675   2.4   63.3     Jacobsen   678NR2X   1.8   PI 88788   RR2X   2.1   5,175   1.5   63.1     Hoegemeyer HPT   LL1900 N   1.9   PI 88788   LL   2.5   8,400   2.5   62.9     Pioneer   P23A15X   2.3   PI 88788   RR2X   2.1   4775   1.0   62.9     Federal Hybrids   F1880N   1.8   PI 88788   RR2X   2.1   4775   1.0   62.8	FS HiSOY	25X70	2.5	PI 88788	RR2X	3.0	11 650	3.0	63.5
Jacobsen   678NR2X   1.8   PI 88788   RR2X   2.1   5,175   1.5   63.1     Hoegemeyer HPT   LL1900 N   1.9   PI 88788   LL   2.5   8,400   2.5   62.9     Pioneer   P23A15X   2.3   PI 88788   RR2X   2.8   7,350   2.6   62.9     Federal Hybrids   F1880N   1.8   PI 88788   RR2X   2.1   4775   1.0   62.8	Dairyland Seed	DSR-2110/R2V	2.5	PI 88788	RR2V	2.0	5 675	2.4	63.3
Hoegemeyer HPT   LL1900 N   1.9   PI 88788   LL   2.5   8,400   2.5   62.9     Pioneer   P23A15X   2.3   PI 88788   RR2X   2.8   7,350   2.6   62.9     Federal Hybrids   F1880N   1.8   PI 88788   RR2X   2.1   4.775   1.0   62.8	Jacobsen	678NR2X	1.1	PI 88788	RR2X	2.0	5 175	1.5	63.1
Pioneer P23A15X 2.3 PI 88788 RR2X 2.8 7,350 2.6 62.9   Federal Hybrids F1880N 1.8 PI 88788 RR2X 2.1 4 775 1.0 62.8	Hoegemeyer HPT	LL1900 N	1.0	PI 88788	LI	2.1	8 400	2.5	62.9
Federal Hybrids F1880N 1.8 PI 88788 RR2X 2.1 4 775 1.0 62.8	Pioneer	P23A15X	23	PI 88788	RR2X	2.5	7 3 50	2.0	62.9
	Federal Hybrids	F1880N	1.8	PI 88788	RR2X	2.0	4,775	1.0	62.8

#### Table 1. Newell (NW Iowa) continued.

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

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

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

<sup>1</sup> GT = glyphosate tolerant, RR2Y = Roundup Ready 2 Yield<sup>®</sup>, RR2X = Roundup Ready 2 Xtend<sup>®</sup>, LL = LibertyLink<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 3,353 eggs per 100 cc soil; HG type 2- (43% on PI 88788, 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.

\* Both Peking and PI 88788 sources of resistance

# Table 2. Manly (NC Iowa).

			e			(00)		
σ	aty	tive urity	tanc	icide		# /100	RF <sup>3</sup>	
3ran	Vario	Relat Matu	Resis	Herb Fech	DC	SCN	CON	Vield bu/a
LATHAM	L2295R2X	2.2	PI 88788	RR2X	2.5	1.800	4.5	69.0
Stine	20BB02	2.0	PI 88788	GT	2.9	1.425	11.4	68.9
Prairie Brand	PB-1947R2	1.9	PI 88788	RR2Y	2.9	2.350	4.7	67.8
Prairie Brand	PB-2228R2	2.2	PI 88788	RR2Y	2.4	1.350	1.9	67.8
Pfister	20R23	2.0	PI 88788	RR2Y	2.9	1.700	8.5	67.7
Golden Harvest	GH1915X	1.9	PI 88788	RR2X	3.0	975	1.8	67.4
Jacobsen	761NR2X	2.1	PI 88788	RR2X	1.9	2.025	7.4	67.0
Pioneer	P19A14X	1.9	Peking	RR2X	3.1	550	1.1	66.8
Stine	19RF32	1.9	PI 88788	RR2Y	3.9	2,125	4.5	66.7
Golden Harvest	GH1852X	1.8	PI 88788	RR2X	2.6	1,025	1.9	66.5
NK	S20-J5X	2.0	PI 88788	RR2X	2.5	1,450	4.8	66.3
Kruger Seeds	K2X-2052	2.0	PI 88788	RR2X	2.3	1,425	3.0	66.3
Dyna-Gro	S21XT77	2.1	PI 88788	RR2X	1.7	1,400	2.3	66.2
Jacobsen	669NR2	1.9	PI 88788	RR2X	3.5	1,350	3.0	66.2
Asgrow	AG21X9	2.1	PI 88788	RR2X	2.0	1,625	4.3	66.2
Miller Hybrids	2479CLL	2.4	PI 88788	LL	1.6	1,750	4.4	66.0
Federal Hybrids	F1880N	1.8	PI 88788	RR2X	2.1	1,800	9.0	65.9
NK	S21-W8X	2.1	PI 88788	RR2X	2.8	1,675	4.5	65.8
Federal Hybrids	F2090N	2.0	PI 88788	RR2X	1.8	1,875	5.0	65.7
Pioneer	P21A28X	2.1	Peking	RR2X	2.0	100	0.3	65.6
Beck's XL Brand	253R4	2.5	Peking	GT	2.5	475	1.5	65.5
Pioneer	P23A15X	2.3	PI 88788	RR2X	2.8	3,150	8.4	65.4
FOUR STAR SEED	3X241	2.4	PI 88788	RR2X	2.5	1,825	4.6	65.4
Prairie Brand	PB-2197R2	2.1	PI 88788	RR2Y	2.4	1,125	3.5	65.3
Champion	24L17N	2.4	PI 88788	LL	1.8	1,950	4.6	65.2
NuTech	3174L	1.7	PI 88788	LL	1.8	1,500	6.0	65.1
NuTech	7239X	2.3	PI 88788	RR2X	2.2	450	1.0	65.1
Jacobsen	678NR2X	1.8	PI 88788	RR2X	2.1	1,350	2.3	65.1
LATHAM	L2187GT	2.1	PI 88788	GT	2.9	2,175	2.6	65.0
Dyna-Gro	S24XT08	2.4	PI 88788	RR2X	3.1	1,025	1.3	65.0
Pioneer	P23A32X	2.3	PI 88788	RR2X	1.9	3,475	4.2	65.0
NuTech	3236L	2.3	PI 88788	LL	2.9	2,700	9.0	64.9
Dairyland Seed	DSR-2330/R2Y	2.3	PI 88788	RR2Y	2.3	1,500	6.7	64.9
Miller Hybrids	2472CRX	2.4	PI 88788	RR2X	3.5	2,050	4.6	64.8
Stine	21RI32	2.1	PI 88788	RR2Y	2.9	2,775	3.6	64.7
Beck's	2339X2	2.3	Peking	RR2X	2.4	1,075	3.3	64.7
LG Seeds	LGS2007RX	2.0	PI 88788	RR2X	2.7	2,725	8.4	64.7
Stine	20RD20	2.0	PI 88788	RR2Y	1.3	1,300	3.5	64.6
Beck's	1889X2	1.8	PI 88788	RR2X	2.1	950	2.1	64.6
Stine	24RH62	2.4	PI 88788	RR2Y	2.0	1,950	5.2	64.5
Legacy Seeds	LS-2339N	2.3	PI 88788	RR2X	3.2	1,525	5.1	64.3
Dairyland Seed	DSR-1950/R2Y	1.9	PI 88788	RR2Y	3.5	1,650	3.1	64.1
Dairyland Seed	DSR-2110/R2Y	2.1	PI 88788	RR2Y	2.0	2,125	5.0	63.9
NuTech	3205L	2.0	PI 88788	LL	3.4	1,825	5.2	63.7
FS HiSOY	24X80	2.4	PI 88788	RR2X	3.2	1,950	3.5	63.7
Prairie Brand	PB-1787R2	1.7	PI 88788	RR2Y	2.8	1,825	2.8	63.5
Miller Hybrids	2162CRX	2.1	PI 88788	RR2X	2.3	1,775	4.7	63.5
NuTech	7224	2.2	Peking	GT	1.5	250	0.8	63.3
Legacy Seeds	LS-2139N	2.1	PI 88788	RR2X	2.5	1,100	1.3	62.7
Hoegemeyer HPT	LL1900 N	1.9	PI 88788	LL	2.5	1,925	6.4	62.4
Champion	22X09N	2.2	Pek./PI88.*	RR2X	2.7	625	1.4	62.3

#### Table 2. Manly (NC Iowa) continued.

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

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

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

<sup>1</sup> GT = glyphosate tolerant, RR2Y = Roundup Ready 2 Yield<sup>®</sup>, RR2X = Roundup Ready 2 Xtend<sup>®</sup>, LL = LibertyLink<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 470 eggs per 100 cc soil; HG type 2- (44% on PI 88788, 0% 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.

\* Both Peking and PI 88788 sources of resistance

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

Brand	Variety	Relative Maturity	Resistance	Herbicide Fechnology <sup>1</sup>	DC	SDS Index <sup>2</sup>	SCN # (eggs/100cc) <sup>3</sup>	SCN RF <sup>4</sup>	Vield bu/acre)
LATHAM	L2295R2X	2.2	PI 88788	RR2X	2.5	2.2	975	11	68.2
Pioneer	P21A28X	2.1	Peking	RR2X	2.0	33	300	0.2	66.3
Miller Hybrids	2472CRX	2.4	PI 88788	RR2X	3.5	4 5	1 075	14	66.1
Kruger Seeds	K2X-2052	2.0	PI 88788	RR2X	2.3	0.0	300	0.7	65.2
FS HISOY	25X70	2.5	PI 88788	RR2X	3.0	39	500	1.0	65.1
Beck's XL Brand	253R4	2.5	Peking	GT	2.5	0.0	50	0.1	64.6
Jacobsen	761NR2X	2.3	PI 88788	RR2X	1.9	8.9	1 425	2.4	64 2
Miller Hybrids	2479CLL	2.1	PI 88788	LL	1.5	2.8	2 050	41	64.1
Merschman	Osage 1824LL	2.1	PI 88788	LL	1.5	2.0	1,500	1.6	63.7
FOUR STAR SEED	3X241	2.4	PI 88788	RR2X	2.5	8.9	575	0.7	63.3
Miller Hybrids	2162CRX	2.1	PI 88788	RR2X	23	0.0	675	0.9	63.1
Pioneer	P23A32X	2.1	PI 88788	RR2X	1.9	11	250	0.5	63.0
NK	S20-J5X	2.0	PI 88788	RR2X	2.5	3.9	1 000	2.2	62.6
Prairie Brand	PB-2228R2	2.0	PI 88788	RR2Y	2.0	17	1,000	2.5	62.3
Stine	21RI32	2.2	PI 88788	RR2Y	2.1	7.2	750	0.9	62.0
Dyna-Gro	S21XT77	2.1	PI 88788	RR2X	17	11	375	1.2	62.0
Merschman	Comanche 1626LL	2.6	PI 88788	LL	1.8	11	1,000	11	61.6
Asgrow	AG21X9	2.0	PI 88788	RR2X	2.0	0.0	675	1.8	61.5
Reck's	2559X2	2.1	PI 88788	RR2X	2.0	1.1	925	2.1	61.4
Dyna-Gro	S21XT49	2.5	PI 88788	RR2X	2.0	35.6	725	1.8	61.2
Asgrow	AG23X9	2.1	Peking	RR2X	2.2	11	250	0.3	61.2
I G Seeds	L GS1635RX	1.6	PI 88788	RR2X	33	33	925	1.6	61.1
NK	S21-W8X	2.1	PI 88788	RR2X	2.8	2.2	800	1.0	61.0
Prairie Brand	PB-1787R2	17	PI 88788	RR2Y	2.0	13.3	700	1.0	60.9
Federal Hybrids	F2090N	2.0	PI 88788	RR2X	1.8	7.2	500	2.2	60.8
Champion	24I 17N	2.0	PI 88788	II II	1.0	4.1	1 300	1.3	60.4
LATHAM	1 22491	2.4	PI 88788		23	9.5	575	0.6	60.3
Pioneer	P23A15X	2.2	PI 88788	RR2X	2.5	0.0	1 1 50	1.8	59.9
NuTech	7239X	2.5	PI 88788	RR2X	2.0	4.5	625	1.6	59.6
I G Seeds	LGS2007RX	2.5	PI 88788	RR2X	2.2	33	350	0.7	59.6
NuTech	32051	2.0	PI 88788	LL	3.4	44	675	1.2	59.5
Pfister	24R201	2.0	PI 88788	RR2V	2.5	4.4	825	1.2	59.4
Prairie Brand	PB-2197R2	2.4	PI 88788	RR2V	2.5	8.9	1 300	3.1	59.3
Golden Harvest	GH1915X	1.9	PI 88788	RR2X	3.0	0.0	275	0.3	59.1
Stine	20RD20	2.0	PI 88788	RR2V	13	63	875	1.9	59.0
Dyna-Gro	S24XT08	2.0	PI 88788	RR2X	3.1	12.2	700	0.7	59.0
Stine	24RH62	2.4	PI 88788	RR2Y	2.0	5.6	1 525	2.3	58.8
Golden Harvest	GH1852X	1.8	PI 88788	RR2X	2.6	4 5	925	13	58.8
Champion	22X09N	2.2	Pek /PI88 *	RR2X	2.0	4.4	475	0.7	58.7
Pioneer	P19A14X	19	Peking	RR2X	3.1	17	250	0.3	58.7
NuTech	7224	2.2	Peking	GT	1.5	2.9	300	0.5	58.5
FOUR STAR SEED	3X190	1.9	PI 88788	RR2X	3.8	8.9	1 200	13	58.2
Dairyland Seed	DSR-2330/R2Y	2.3	PI 88788	RR2Y	2.3	10.0	1,200	2.2	57.9
Legacy Seeds	LS-2139N	2.0	PI 88788	RR2X	2.5	67	375	0.4	57.8
Dairyland Seed	DSR-2110/R2Y	2.1	PI 88788	RR2Y	2.0	11.1	500	0.6	57.7
FS HISOY	22X80	2.1	Peking	RR2X	3.0	67	450	0.0	57.7
Pfister	20R23	2.2	PI 88788	RR2V	29	117	750	15	57.4
LATHAM	L2239R2X	2.0	Peking	RR2X	31	72	200	0.3	56.8
Kruger Seeds	K2X-1862	1.2	PI 88788	RR2X	2.0	22	450	0.5	56.5
Legacy Seeds	LS-2339N	23	PI 88788	RR2X	3.2	10.0	725	2.4	56.2
Hoegemeyer HPT	LL1900 N	1.9	PI 88788	LL	2.5	4.8	350	0.8	56.2

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

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

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

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

<sup>1</sup> GT = glyphosate tolerant, RR2Y = Roundup Ready 2 Yield<sup>®</sup>, RR2X = Roundup Ready 2 Xtend<sup>®</sup>, LL = LibertyLink<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 710 eggs per 100 cc soil; HG type 2- (26% on PI 88788, 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.

\* Both Peking and PI 88788 sources of resistance

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

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

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

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

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

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

<sup>1</sup> GT = glyphosate tolerant, RR2Y = Roundup Ready 2 Yield<sup>®</sup>, RR2X = Roundup Ready 2 Xtend<sup>®</sup>, LL = LibertyLink<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 1,206 eggs per 100 cc soil; HG type 1.2- (53% on PI 88788, 10% 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 5. Ames (C Iowa).

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_	ty	ive rity	tanc	icide nolog		<sup>#</sup>	$RF^3$	(ire)
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Asgrow	AG29X9	2.9	PI 88/88	RR2X	3.5	800	8.0	//./
Stine	30BB20	3.0	PI 88/88	GI	1.9	425	2.8	76.8
Dairyland Seed	DSR-3555/R2Y	3.5	PI 88/88	RR2Y	3.2	1,050	2.6	/6.1
LATHAM	L288/R2X	2.8	PI 88/88	KK2X	3.8	1,050	10.5	75.7
	L2982G1	2.9	PI 88/88	GI	3.3	2,525	12.6	75.2
Federal Hybrids	F2590N	2.5	PI 88/88	KK2X	3.0	1,675	9.6	74.1
Federal Hybrids	F2880N	2.8	PI 88/88	KK2X	3.1	/00	7.0	73.5
Miller Hybrids	2659CLL	2.6	PI 88/88	LL	2.6	3,225	21.5	/3.3
FOUR STAR SEED	3X290	2.9	PI 88/88	RR2X	2.4	425	2.8	72.8
Kruger Seeds	K2X-2863	2.8	PI 88/88	RR2X	3.8	1,125	7.5	72.6
Beck's	2899X2	2.8	PI 88/88	RR2X	3.8	1,275	8.5	72.3
Beck's	2559X2	2.5	PI 88/88	RR2X	2.8	3,075	11.2	72.2
FSHISOY	32X80	3.2	PI 88/88	KK2X	3.5	625	3.6	72.2
LG Seeds	LGS2444RX	2.4	PI 88/88	RR2X	3.0	325	2.6	72.1
Pioneer	P25A/0R	2.5	Peking	GI	2.5	225	0.71	72.1
Dairyland Seed	DSR-3250/R2Y	3.2	PI 88788	RR2Y	3.1	375	3.8	72.0
Merschman	McKinley 1931LL	3.1	PI 88788	LL	3.5	725	4.1	71.6
Beck's XL Brand	253R4	2.5	Peking	GT	2.5	550	3.7	71.4
FS HISOY	29X80	2.9	PI 88788	RR2X	2.4	825	4.7	71.4
Hoegemeyer HPT	2590 NR	2.5	Peking	GT	2.7	250	2.5	71.0
LG Seeds	LGS2759RX	2.7	PI 88788	RR2X	3.8	2,650	26.5	70.9
FOUR STAR SEED	3X271	2.7	PI 88788	RR2X	4.2	2,625	11.7	70.4
Miller Hybrids	2672CRX	2.6	PI 88788	RR2X	2.8	3,175	14.1	70.3
Hoegemeyer HPT	LL2599 N	2.5	PI 88788	LL	1.8	2,075	20.8	70.1
FSHISOY	30X80	3.0	PI 88788	RR2X	2.9	800	6.4	70.1
Stine	29RI32	2.9	PI 88788	RR2Y	3.4	525	1.6	69.9
Champion	28X78N	2.8	PI 88788	RR2X	3.8	875	5.0	69.8
Pioneer	P29A25X	2.9	PI 88788	RR2X	1.5	225	0.5	69.7
Miller Hybrids	3072CRX	3.0	PI 88788	RR2X	3.4	75	0.8	69.5
Dyna-Gro	S28X158	2.8	PI 88788	RR2X	3.4	1,950	5.6	69.3
Hoegemeyer HPT	2811 NR	2.8	PI 88788	GT	1.8	725	5.8	68.9
LATHAM	L3197R2X	3.1	PI 88788	RR2X	3.3	1,900	12.7	68.8
LG Seeds	C2888RX	2.8	PI 88788	RR2X	3.6	1,675	6.7	68.7
Dyna-Gro	S25X199	2.5	PI 88788	RR2X	3.5	1,325	7.6	68.6
Kruger Seeds	K2X-3353	3.3	PI 88788	RR2X	3.7	3,850	30.8	67.9
Prairie Brand	PB-2628L	2.6	PI 88788	LL	1.5	1,075	6.1	67.7
Pfister	32R201	3.2	PI 88788	RR2Y	3.2	5,825	23.3	67.7
Federal Hybrids	F3090N	3.0	PI 88788	RR2X	2.4	2,350	6.7	67.7
FS HiSOY	28X70	2.8	PI 88788	RR2X	2.8	1,425	11.4	67.7
Prairie Brand	PB-2228R2	2.2	PI 88788	RR2Y	2.4	350	3.5	67.6
NK	S27-M8X	2.7	PI 88788	RR2X	2.9	2,325	18.6	67.5
Pioneer	P27A17X	2.7	Peking	RR2X	2.5	175	0.5	67.4
Asgrow	AG27X9	2.7	Peking	RR2X	3.0	575	1.0	67.3
LATHAM	L2582L	2.5	PI 88788	LL	1.3	1,450	11.6	67.1
Golden Harvest	GH2981X	2.9	PI 88788	RR2X	2.4	1,550	8.9	67.1
Hoegemeyer HPT	2994 NR	2.9	PI 88788	GT	3.0	550	4.4	67.0
Stine	27RI02	2.7	PI 88788	RR2Y	2.3	1,100	2.2	66.9
Stine	25BB32	2.5	PI 88788	GT	3.3	1,300	3.7	66.5
Beck's	296L4	2.9	PI 88788	LL	3.5	200	0.8	66.2
Merschman	Sioux 1628LL	2.8	PI 88788	LL	2.9	2,200	12.6	65.8
Dyna-Gro	S31XT59	3.1	PI 88788	RR2X	1.9	775	5.2	65.8

#### Table 5. Ames (C Iowa) continued.

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

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

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

<sup>1</sup> GT = glyphosate tolerant, RR2Y = Roundup Ready 2 Yield<sup>®</sup>, RR2X = Roundup Ready 2 Xtend<sup>®</sup>, LL = LibertyLink<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 218 eggs per 100 cc soil; HG type 2- (36% on PI 88788, 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 6. Urbana (EC Iowa). NOTE: This site had significant SDS - disease ratings are listed in the table.

Brand	Variety	Relative Maturity	Resistance	Herbicide Technology <sup>1</sup>	ШС	SDS Index <sup>2</sup>	SCN # (eggs/100cc) <sup>3</sup>	SCN RF <sup>4</sup>	Yield (bu/acre)
Stine	27RI02	2.7	PI 88788	RR2Y	2.3	1.4	1,575	2.3	79.3
Beck's XL Brand	253R4	2.5	Peking	GT	2.5	1.7	150	0.3	77.4
Stine	25BB32	2.5	PI 88788	GT	3.3	0.3	1,525	2.8	76.5
LATHAM	L2582L	2.5	PI 88788	LL	1.3	1.7	875	2.2	75.6
Jacobsen	774NR2X	2.4	PI 88788	RR2X	3.0	5.3	575	2.3	73.0
Asgrow	AG29X9	2.9	PI 88788	RR2X	3.5	1.7	825	4.7	71.6
Miller Hybrids	2659CLL	2.6	PI 88788	LL	2.6	1.9	1,250	1.6	70.9
LATHAM	L2982GT	2.9	PI 88788	GT	3.3	2.2	550	1.5	69.9
Hoegemeyer HPT	2994 NR	2.9	PI 88788	GT	3.0	5.6	275	0.6	69.9
NuTech	3252L	2.5	PI 88788	LL	1.5	3.9	325	0.6	69.9
FS HiSOY	28X70	2.8	PI 88788	RR2X	2.8	0.8	600	2.4	69.9
LG Seeds	C2888RX	2.8	PI 88788	RR2X	3.6	2.2	700	3.1	69.7
Prairie Brand	PB-2486R2	2.4	PI 88788	RR2Y	2.6	3.0	1,350	4.2	69.5
Stine	24RH62	2.4	PI 88788	RR2Y	2.0	4.7	800	3.6	69.4
LATHAM	L2887R2X	2.8	PI 88788	RR2X	3.8	0.0	775	1.5	68.8
Prairie Brand	PB-2628L	2.6	PI 88788	LL	1.5	1.4	550	2.0	68.6
Stine	29RI32	2.9	PI 88788	RR2Y	3.4	1.7	800	3.2	68.4
Dvna-Gro	S28XT58	2.8	PI 88788	RR2X	3.4	2.8	600	1.1	67.8
Jacobsen	878NR2X	2.8	PI 88788	RR2X	2.5	0.8	350	0.9	67.5
Champion	28X78N	2.8	PI 88788	RR2X	3.8	0.6	700	2.3	67.0
Federal Hybrids	F2880N	2.8	PI 88788	RR2X	3.1	1.7	1.550	3.3	66.7
Beck's	2899X2	2.8	PI 88788	RR2X	3.8	1.7	1.200	1.7	65.9
NuTech	7287X	2.8	PI 88788	RR2X	3.8	11	1 275	2.6	65.4
Pioneer	P24A99X	2.4	PI 88788	RR2X	2.0	0.8	975	1.7	65.3
Jacobsen	764NR2	2.4	PI 88788	RR2Y	1.6	4.4	1.100	2.9	65.0
Merschman	McKinley 1931LL	3.1	PI 88788	LL	3 5	33	350	1.2	64.8
Golden Harvest	GH2041X	2.0	PI 88788	RR2X	2.3	81	550	2.4	64 7
LG Seeds	LGS2759RX	2.7	PI 88788	RR2X	3.8	83	1 1 50	2.1	64.6
Hoegemeyer HPT	LL2599 N	2.5	PI 88788	LL	1.8	4 5	1,000	3 3	64.3
FOUR STAR SEED	3X271	2.7	PI 88788	RR2X	4.2	2.2	925	0.9	64.0
Champion	26X09N	2.6	PI 88788	RR2X	3.0	5.0	1.400	4.3	63.7
Pfister	24R201	2.4	PI 88788	RR2Y	2.5	59	600	2.2	63.6
NK	S27-M8X	2.7	PI 88788	RR2X	2.9	5.6	725	13	63.1
Hoegemeyer HPT	2811 NR	2.8	PI 88788	GT	1.8	14.7	1.175	1.7	63.0
Dvna-Gro	S31XT59	3.1	PI 88788	RR2X	1.9	1.9	375	1.1	62.9
Kruger Seeds	K2X-3353	3.3	PI 88788	RR2X	3.7	3.3	1.025	2.3	62.7
Pioneer	P25A27X	2.5	PI 88788	RR2X	2.5	1.4	1.150	1.8	62.1
Hoegemeyer HPT	2590 NR	2.5	Peking	GT	2.7	11.1	0	0.0	62.0
NuTech	7239X	2.3	PI 88788	RR2X	2.2	3.4	425	1.4	61.7
FSHiSOY	30X80	3.0	PI 88788	RR2X	2.9	5.8	500	1.2	61.3
Beck's	2339X2	2.3	Peking	RR2X	2.4	2.5	250	0.8	60.6
Asgrow	AG27X9	2.7	Peking	RR2X	3.0	5.0	75	0.1	60.6
Stine	30BB20	3.0	PI 88788	GT	1.9	12.0	650	1.4	60.4
Merschman	Sioux 1628LL	2.8	PI 88788	LL	2.9	61	250	0.6	59.9
Federal Hybrids	F2590N	2.5	PI 88788	RR2X	3.0	6.1	450	0.9	59.6
LATHAM	L3197R2X	3.1	PI 88788	RR2X	33	5.5	1 950	2.8	58.9
Kruger Seeds	K2X-2863	2.8	PI 88788	RR2X	3.8	4 5	675	11	58.7
Miller Hybrids	2672CRX	2.0	PI 88788	RR2X	2.8	16.1	600	15	58.1
Miller Hybrids	3072CRX	3.0	PI 88788	RR2X	3.4	17	875	2.1	58.0
Pioneer	P25A70R	2.5	Peking	GT	2.5	7 2	125	0.7	57.7
Beck's	2559X2	2.5	PI 88788	RR2X	2.8	8.9	1,125	2.1	57.6

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

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

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

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

<sup>1</sup> GT = glyphosate tolerant, RR2Y = Roundup Ready 2 Yield<sup>®</sup>, RR2X = Roundup Ready 2 Xtend<sup>®</sup>, LL = LibertyLink<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 448 eggs per 100 cc soil; HG type 2- (35% on PI 88788, 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 7. Leighton (SC Iowa).

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

#### Table 7. Leighton (SC Iowa) continued.

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

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

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

<sup>1</sup> GT = glyphosate tolerant, RR2Y = Roundup Ready 2 Yield<sup>®</sup>, RR2X = Roundup Ready 2 Xtend<sup>®</sup>, LL = LibertyLink<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 625 eggs per 100 cc soil; HG type 2- (15% on PI 88788, 0% 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. Fruitland (SE Iowa).

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

#### Table 8. Fruitland (SE Iowa) continued.

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

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

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

<sup>1</sup> GT = glyphosate tolerant, RR2Y = Roundup Ready 2 Yield<sup>®</sup>, RR2X = Roundup Ready 2 Xtend<sup>®</sup>, LL = LibertyLink<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 372 eggs per 100 cc soil; HG type 2- (11% on PI 88788, 0% 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. Seed treatments used on varieties evaluated in 2018.

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

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

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

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

Beck's Hybrids phone: 515-318-8272 website: www.beckshybrids.com

Champion Seed phone: 515-460-2134 website: www.championseedofiowa.com

Dairyland Seed phone: 217-972-9839 website: www.dairylandseed.com

Federal Hybrids phone: 712-830-9742 website: www.federalhybrids.com

FOUR STAR SEED COMPANY phone: 712-644-1400 website: www.4starseed.com

Golden Harvest phone: 712-344-2527 website: www.goldenharvestseeds.com

GROWMARK, Inc. (FS HiSOY) phone: 309-557-6399 website: www.fsseeds.com

Hoegemeyer Hybrids phone: 402-654-3399 website: www.therightseed.com Jacobsen Seed phone: 319-430-9433 website: www.jacobsenseed.com

Kruger Seed phone: 515-238-4572 website: www.krugerseed.com

Latham Hi-Tech Seeds phone: 877-465-2842 website: www.lathamseeds.com

Legacy Seeds, Inc. phone: 715-467-2556 website: www.legacyseeds.com

LG Seeds phone: 515-370-3377 website: www.lgseeds.com

Merschman Seeds phone: 319-837-6111 website: www.merschmanseeds.com

MFA Incorporated (MorSoy) phone: 573-876-5363 website: www.mfaseed.com

Miller Hybrids phone: 319-656-2532 website: www.millerhybrids.com Monsanto (Asgrow) phone: 319-350-0744 website: www.aganytime.com

NuTech Seed, LLC phone: 402-661-4700 website: www.yieldleader.com

Nutrien Ag Solutions (Dyna-Gro) phone: 402-340-9153 website: www.nutrienagsolutions.com

Pfister Seeds phone: 515-681-9092 website: www.pfisterseeds.com

Pioneer Hi-Bred phone: 515-418-0078 website: www.pioneer.com

Prairie Brand Seeds, LLC phone: 515-733-2101 website: www.prairiebrand.com

Stine Seed Company phone: 800-362-2510 website: www.stineseed.com

Syngenta Seeds (NK) phone: 402-705-0289 website: www.syngenta-us.com/soybeans/nk

# SCN reproduction puts rabbits to shame.

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

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

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

