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**2004 NEW YORK STATE SOYBEAN  
VARIETY YIELD TESTS**

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## **SOYBEAN VARIETY YIELD TESTS IN 2004**

### **Introduction**

The annual testing of soybean varieties was conducted at four locations in New York in 2004. Roundup Ready varieties in maturity group I were tested at two locations in Northern New York, the Miner Institute at Chazy in Clinton Co. and on Ron Robbin's farm in Sackets Harbor in Jefferson Co. Roundup Ready varieties in Maturity Groups I and II were planted at two locations in central/western New York, the Aurora Research Farm in Cayuga Co. and on the Henry Everman Farm near Dansville in Livingston Co. All seed companies that are known to be distributing soybeans in New York were invited to enter their selections in the tests for a fee.

We planted Group I and Group II entries in separate tests at Aurora, Groveland Station, and Sackets Harbor. Each individual plot at all sites consisted of ten 20-ft. rows paced 7 inches apart. Each entry was planted at a seeding rate of 225,000 seeds/acre with four replications at Aurora, six replications at Dansville and four replications in Northern New York. A randomized complete block experimental design was used for all tests. We used 22 fluid oz/acre of Roundup WeatherMax about 5 weeks after planting for weed control at all sites. All varieties at Aurora and Dansville were monitored for aphids on a weekly basis from late July through late August. Ratings (0=0, 1=1-10, 2=11-100, 3=100+) were taken on individual plants for a 45 second count. All varieties at all sites were monitored for phenological development beginning in early September. Either the date of the attainment of full maturity (R8.0) or the stage of development at the time of the first frost is provided in the tables.

Yields were determined by harvesting an 18-foot section of the seven center rows of each plot at all sites with a Hege small plot combine. Plant height and lodging

scores (1.0 - 5.0 rating with 1.0= no lodging and 5.0=complete lodging) were taken at harvest. All sites were harvested in early November except for the Aurora site, which was harvested in early October. All soybeans were cleaned with a small clipper seed cleaner and tested for moisture. All yields were adjusted to 13% moisture. We used the ANOVA test to determine significance for yield, height, and lodging. All means were separated by Fisher's protected LSD (0.05) when significance occurred.

### **Aurora and Dansville**

The 2004 growing season from May through September was slightly warmer than normal with above-average growing degree days (GDD) at Aurora (2509 GDD) and Dansville (2460 GDD). May and September were exceptionally warm, whereas June, July, and August were cool at both sites (Table 1). Both sites were exceptionally wet in May. Nevertheless, the Aurora site, which has a tile-drain every 33 feet, was planted on 20 May. The Dansville site, however, was not planted until 10 June. The late planting date and cool summer conditions resulted in lack of full maturity of some of the Group II varieties before the first fall frost on 5 October at Dansville. Inconsequential aphid numbers were counted at the Aurora and Dansville sites so the aphid ratings will not be reported in this study.

Group I varieties averaged 62 bu/acre and Group II varieties averaged 66 bu/acre at Aurora, the highest yields at this site since 1998 (Tables 2 and 3). Group I varieties averaged 51 bu/acre and Group II varieties averaged 61 bu/acre at Dansville, despite the attainment of full maturity of all Group I varieties but only some of the Group II varieties (Tables 4 and 5). In mid-August, a mysterious yellowing of the new foliage was observed on many varieties at Dansville, especially Group I varieties. Although

sampled leaves tested negative for 14 known viruses and negative for major pathogens, the prominent yellowing of the new foliage probably contributed to the much lower yields for the Group I varieties at Dansville.

The variety 199, a late Group I variety from FS Seeds, yielded exceptionally well at both sites in 2004 (Tables 2 and 4). The variety 199 is short-statured and showed minimum lodging at both sites. Other varieties that yielded well at both sites include SG1919 from Seedway and AG1903 from Asgrow, both late-maturing Group I varieties. The variety 122, an early Group I variety from FS Seeds, yielded exceptionally well at Dansville and below-average at Aurora. The variety S19-R5 yielded above-average at Aurora and about average at Dansville. Based on their performance in 2004, we recommend all five Group I varieties for central/western NY in 2005.

The Group II varieties S21-H3 from Syngenta (NK), 237 from FS Seeds, AG2107 from Asgrow, Renwick from Hyland, DKB28-52 from DeKalb and 92B38 from Pioneer were in the highest ranking at both sites (Tables 3 and 5). All six varieties showed excellent yield stability and are highly recommended for the 2005 growing season. Other recommended varieties include 200 from FS Seeds, which yielded exceptionally well at Aurora and below-average at Dansville, SG2405 from Seedway, which yielded above-average to average at both sites for the second year in a row, DKB22-52 from DeKalb, which yielded above-average at Dansville and about average at Aurora, and H-2659 from Golden Harvest, which yielded above-average at Dansville and about average at Aurora.

### **Chazy and Sackets Harbor**

The 2004 growing season was also warmer than normal with above-average GDD at Chazy (2366 GDD) and Sackets Harbor (2399 GDD), located about 5 miles from the Watertown weather station (Table 1). As with Aurora and Dansville, May and September were exceptionally warm, whereas June, July, and August were somewhat cool. Both sites were wet in the second half of May and were not planted until the first week of June. Consequently, most varieties at Chazy and Sackets Harbor did not attain full maturity before a killing frost on 5 October (Table 6, 7, and 8).

The Group I varieties averaged 56 bu/acre at Chazy in 2004, about 15 to 20 bu/acre less than in 2002 and 2003, probably because of the June planting date (Table 6). The Group I varieties yielded 29 bu/acre and Group II varieties yielded 28 bu/acre at Sackets Harbor in 2004 because of lack of full maturity, especially for the Group II varieties (Tables 7 and 8).

The varieties DKB15-51 from DeKalb, Razor from Hyland, S19-R5 from Syngenta (NK) and 122 from FS Seeds yielded above-average at both sites. Other Group I varieties that yielded above-average, but whose yields were probably reduced more because of the late planting date/cool growing season, included SG1919 from Seedway, AG1903 from Asgrow, and 199 from FS Seeds. We recommend all these varieties for Northern NY with a timely-planting date but just the earlier Group I varieties, Richochet, 122, and DKB15=51, if the planting date is delayed until June.

### **Conclusion**

Soybean acreage increased to about 175,000 in New York, the highest on record. Soybean yields averaged 36 bu/acre in 2004, despite June planting dates by many farmers and a cool growing season. Our May-planted site (Aurora) yielded the best, whereas our June-planted site (Dansville) yielded lower in central/western NY.

Nevertheless, many of the varieties that yielded well at Aurora also yielded well at Dansville. At Chazy, the yields averaged 56 bu/acre, despite the June planting date. We invite all seed companies to enter their varieties at a modest fee in our New York soybean variety testing program. Soybean acreage continues to increase in New York and we wish to provide the ever-increasing number of NY soybean growers the best information on variety selection.

Table 1. Monthly precipitation and growing degree days (GDD) at Aurora, Dansville, Chazy, and Sackets Harbor during the 2004 growing season.

Month	Precipitation				GDD (86-50 F)			
	Aurora	Dansville	Chazy*	Watertown	Aurora	Dansville	Chazy	Watertown
May	6.82	6.99	3.81	4.61	408	424	314	353
June	1.75	3.50	3.07	3.68	449	439	444	433
July	5.47	4.11	3.33	4.52	609	590	638	617
August	5.55	3.80	8.48	4.66	563	542	570	553
Sept.	4.13	5.37	3.11	3.00	470	465	400	443
Seasonal	23.72	23.77	21.80	20.47	2509	2460	2366	2399

\* Missing 3 days in May and July.

Table 2. Yield, height, lodging, and date of full maturity of medium (Group I) maturing Roundup Ready soybean varieties at Aurora, NY in 2004.

VARIETY	COMPANY	YIELD	HEIGHT	LODGING	MATURITY
		<u>bu/acre</u>	<u>cm</u>	<u>score</u>	<u>date</u>
199	FS Seeds	71	76	1.1	9/26
SG1919	Seedway	68	84	2.0	9/26
AG1903	Asgrow	65	83	1.7	9/24
S19-R5	Syngenta (NK)	64	85	1.9	9/20
Richochet	Hyland	60	81	1.6	9/17
Razor	Hyland	60	80	1.6	9/16
TS1500RR	T.A. Seeds	59	71	2.1	9/22
122	FS Seeds	58	82	1.5	9/18
DKB15-51	DeKalb	57	72	1.4	9/22
AG1603	Asgrow	<u>57</u>	<u>79</u>	<u>2.1</u>	9/22
Avg.		62	79	1.7	
LSD 0.05		4	3	0.7	

Table 3. Yield, height, lodging, and date of full maturity of late (Group II) maturing Roundup Ready soybean varieties at Aurora, NY in 2004.

VARIETY	COMPANY	YIELD	HEIGHT	LODGING	MATURITY
		<u>bu/acre</u>	<u>cm</u>	<u>score</u>	<u>date</u>
200	FS Seeds	72	85	1.6	9/28
AG2107	Asgrow	70	78	1.3	9/26
237	FS Seeds	70	92	2.0	10/01
Renwick	Hyland	69	88	2.4	9/27
S21-H3	Syngenta (NK)	69	100	3.6	9/27
SG2405	Seedway	69	85	1.8	9/29
92B38	Pioneer	68	86	1.5	9/26
DKB28-52	DeKalb	67	97	1.9	9/30
Rodney	Hyland	67	87	1.5	9/28
SG2709	Seedway	66	104	2.5	10/03
H-2659	Golden Harvest	65	100	1.5	9/29
DKB22-52	DeKalb	65	71	1.0	9/28
SG2205	Seedway	64	73	1.0	9/25
2237RR	Chemgro	64	84	1.8	9/30
AG2403	Asgrow	64	69	1.0	9/27
AG2703	Asgrow	64	95	1.9	10/02
T2100RR	Hyland	64	83	1.9	9/30
S24-K4	Syngenta (NK)	64	94	2.5	9/29
Exp2.74	Seedway	62	85	2.4	10/01
2111RR	Chemgro	<u>56</u>	<u>100</u>	<u>2.3</u>	9/28
Avg.		66	88	1.9	
LSD 0.05		6	8	0.5	

Table 4. Yield, height, lodging, and date of full maturity of medium (Group I) maturing Roundup Ready soybean varieties at Dansville, NY in 2004.

VARIETY	COMPANY	YIELD	HEIGHT	LODGING	MATURITY
		<u>bu/acre</u>	<u>cm</u>	<u>score</u>	<u>date</u>
199	FS Seeds	61	64	1.2	10/01
122	FS Seeds	59	68	1.5	10/01
AG1903	Asgrow	58	69	1.9	9/30
SG1919	Seedway	55	72	1.6	10/01
S19-R5	Syngenta (NK)	50	72	1.3	10/01
DKB15-51	DeKalb	49	62	1.0	9/30
TS1500RR	T.A. Seeds	48	63	1.7	9/30
Razor	Hyland	47	74	1.3	9/27
Richochet	Hyland	45	65	1.2	9/28
AG1603	Asgrow	<u>39</u>	<u>61</u>	<u>1.2</u>	10/02
Avg.		51	67	1.4	
LSD 0.05		7	5	0.3	

Table 5. Yield, height, lodging, and date of full maturity of late (Group II) maturing Roundup Ready soybean varieties at Dansville, NY in 2004.

VARIETY	COMPANY	YIELD	HEIGHT	LODGING	MATURITY
		<u>bu/acre</u>	<u>cm</u>	<u>Score</u>	<u>date</u>
S21-H3	Syngenta (NK)	68	84	1.8	10/03
237	FS Seeds	67	81	1.3	10/04
H-2659	Golden Harvest	66	88	1.6	7.5
DKB22-52	DeKalb	64	71	1.3	10/01
SG2205	Seedway	63	68	1.3	10/01
Renwick	Hyland	63	85	2.0	10/01
DKB28-52	DeKalb	63	87	1.8	7.7
92B38	Pioneer	62	83	1.4	10/01
AG2107	Asgrow	62	75	1.7	10/01
AG2703	Asgrow	62	85	1.4	7.4
SG2709	Seedway	61	79	1.9	7.5
T2100RR	Hyland	61	72	1.3	10/02
S24-K4	Syngenta (NK)	59	79	1.6	10/02
SG2405	Seedway	59	77	1.6	10/02
2237RR	Chemgro	59	80	1.5	10/03
Exp2.74	Seedway	58	76	1.9	7.7
2111RR	Chemgro	57	87	1.8	10/02
200	FS Seeds	57	78	1.6	10/01
Rodney	Hyland	56	75	1.1	9/30
AG2403	Asgrow	<u>54</u>	<u>62</u>	<u>1.4</u>	9/30
Avg.		61	79	1.6	
LSD 0.05		7	5	0.3	

Table 6. Yield, height, lodging, and date of full maturity of late (Group I) maturing Roundup Ready soybean varieties at Chazy, NY in 2004.

VARIETY	COMPANY	YIELD	HEIGHT	LODGING	MATURITY
		<u>bu/acre</u>	<u>cm</u>	<u>Score</u>	<u>date</u>
DKB15-51	DeKalb	59	76	1.0	10/04
Razor	Hyland	59	85	1.0	10/04
122	FS Seeds	59	81	1.0	7.5
S19-R5	Syngenta (NK)	59	78	1.0	7.2
SG1919	Seedway	57	82	1.0	7.2
AG1903	Asgrow	55	80	1.0	7.3
199	FS Seeds	54	74	1.0	7.1
Richochet	Hyland	54	75	1.0	7.7
TS1500	T.A. Seeds	53	74	1.0	7.6
AG1603	Asgrow	<u>51</u>	<u>86</u>	<u>1.0</u>	7.1
Avg.		56	79	1.0	
LSD 0.05		7	8	NS	

Table 7. Yield, height, lodging, and date of full maturity of medium (Group I) maturing Roundup Ready soybean varieties at Sackets Harbor, NY in 2004.

VARIETY	COMPANY	YIELD	HEIGHT	LODGING	MATURITY
		<u>bu/acre</u>	<u>cm</u>	<u>Score</u>	<u>date</u>
AG1903	Asgrow	33	72	1.5	7.2
Richochet	Hyland	32	58	1.1	7.5
SG1919	Seedway	31	62	1.6	7.1
S19-R5	Syngenta (NK)	29	64	1.1	7.3
199	FS Seeds	29	62	1.6	7.1
Razor	Hyland	28	68	1.5	7.5
DKB15-51	DeKalb	28	56	1.1	7.3
AG1603	Asgrow	27	59	1.3	7.4
122	FS Seeds	26	60	1.4	7.3
TS1500RR	T.A. Seeds	<u>22</u>	<u>59</u>	<u>1.1</u>	7.3
Avg.		29	62	1.4	
LSD 0.05		4	5	0.4	

Table 8. Yield, height, lodging, and date of full maturity of late (Group II) maturing Roundup Ready soybean varieties at Sackets Harbor, NY in 2004.

VARIETY	COMPANY	YIELD	HEIGHT	LODGING	MATURITY
		<u>bu/acre</u>	<u>cm</u>	<u>Score</u>	<u>date</u>
237	FS Seeds	31	76	1.6	6.8
200	FS Seeds	29	68	2.0	6.8
T2100RR	Hyland	28	68	1.6	6.9
Rodney	Hyland	26	66	1.8	6.9
Renwick	Hyland	<u>26</u>	<u>70</u>	<u>2.1</u>	6.8
Avg.		28	69	1.8	
LSD 0.05		NS	6	0.4	