

Dep. of Crop and Soil Sciences
Extension Series No. E06-1
January, 2006

**2005 NEW YORK STATE SOYBEAN
VARIETY YIELD TESTS**

William J. Cox, Phil Atkins, and Mike Davis – Dep. of Crop and Soil Sciences

NYS College of Agriculture and Life Sciences
Cornell University
Ithaca, NY 14853

SOYBEAN VARIETY YIELD TESTS IN 2005

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. Because of excessively wet conditions, we were unable to harvest with our Hege Combine when we went to Sackets Harbor in late October and then again in mid-November. Unfortunately, we did not put up the fence again after trying to harvest in mid-November so when we returned in late November once the soil had frozen, the trial had sustained considerable deer damage. We were unable to use any of the data from the Sackets Harbor trial. 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 on May 17th and in separate tests at Dansville on May 13th. Each individual plot at all sites consisted of ten 20-ft. rows spaced 7 inches apart. Each entry was planted at a seeding rate of 225,000 seeds/acre with six replications at Aurora, six replications at Dansville and four replications at Chazy. 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 were monitored for aphids on a weekly basis from early to late July. 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 late August or early

September. The date of the attainment of full maturity (R8.0) of each variety 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. Group 1 varieties were harvested in late September and Group 2 varieties in early October at the Aurora site. Group 1 and Group 2 varieties were harvested in late October at the Dansville site. The Group 1 varieties were harvested in mid-November at the Chazy site. 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. We also present the aphid counts for each variety at Aurora. All means were separated by Fisher's protected LSD (0.05) when significance occurred.

Aurora and Dansville

The 2005 growing season from May through September was much warmer than normal with 300 to 400 growing degree days (GDD) above-average at Aurora and Dansville (Table 1). May was a very cool month but June through September was the warmest 4-month period on record at both sites (Table 1). Both sites were exceptionally dry in May, wet in June, and dry in July. Although August rainfall was above-normal at both sites, more than 3.5 inches occurred on the last day of August when the remnants of Hurricane Katrina moved through New York.

All Group 1 varieties at Aurora were at the R 6.0-7.0 growth stage by August 29th so these varieties benefited little from that rainfall event. Group II varieties were at the R 5.5-6.0 growth stage so these varieties probably benefited somewhat from the late August precipitation event. Group I varieties were at the R 5.5-6.0 growth stage and Group II varieties were at the R 5.0-5.5 growth stage on August 30th at Dansville.

Consequently, the varieties at Dansville, especially the later Group II varieties, benefited from the 3.5 inches of precipitation on the last day of August.

Group I varieties averaged 45 bu/acre and Group II varieties averaged 46 bu/acre at Aurora (Tables 2 and 3). Generally, the later Group I varieties(1.9 relative maturity rating) did best in the Group I study and the later Group II varieties(2.5 maturity rating or later) did best in the Group II study at Aurora. Aphid populations in mid-July did not correlate closely with yield in either study at Aurora.

Group I varieties averaged 53 bu/acre and Group II varieties averaged 61 bu/acre at Dansville. The 3.5 in. precipitation event probably contributed to the 8-bushel yield advantage for the Group II compared with the Group 1 varieties. As at Aurora, the later Group I and later Group II varieties generally did the best in each study probably in part because they benefited more from the late August precipitation.

When averaged across sites, AG1903 from Asgrow, S19-V2, an NK Brand, SG1919 from Seedway, 199R from FS Seeds, TS1440R from T.A. Seeds, Rochester from Hyland, and S19-R5, an NK Brand, yielded above-average in the Group I tests. The varieties AG1903, S19-V2, SG1919, 199R, and Rochester yielded above-average at both sites, which indicates excellent yield stability for these varieties. At Aurora, Respond from Hyland, S17-R3 ,an NK Brand, Razor from Hyland, and TS1990R from T.A. Seeds yielded above-average. At Dansville, TS1440R yielded much-above normal.

When average across sites, DKB26-53 from DeKalb, TS2560R from T.A. Seeds, 92M91 from Pioneer, SG2205 from Seedway, C2439RR from Chemgro, and 217RR from FS Seeds yielded above-average in the Group II tests. The varieties DKB2-53, TS2560R, 92M91, and 217RR yielded above-average at both sites, which again indicates excellent yield stability for these varieties. At Aurora, Renwick from Hyland and 92B38 from Pioneer yielded above-average. At Dansville, SG2205 from Seedway, C2439RR from Chemgro, and S24-K4 , an NK Brand, yielded above average.

Chazy and Sackets Harbor

The 2004 growing season was also warmer than normal at Chazy with above-average GDD (2425) from May through September (Table 1). As with Aurora and Dansville, May was cool and June through September was exceedingly warm. Unlike Aurora and Dansville, however, June through September was not dry and the soybeans were never under any water or heat stress. Consequently, the Group I varieties at this site averaged 62 bu/acre.

The varieties S17-R3, S19-V2, Razor, 199RR, and Ricochet from Hyland yielded above-average at Chazy. The varieties S19-V2 and 199RR are late-Group I varieties and may not mature at this site in cool growing seasons. Ricochet is an early Group 1 variety, which should consistently mature at this site in most growing seasons.

Conclusion

Soybean acreage increased to about 200,000 in New York, the highest on record. Soybean yields in New York averaged 39 bu/acre in 2005, despite the exceedingly warm and somewhat dry growing conditions. 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 2005 growing season.

Month	Precipitation				GDD (86-50 F)			
	Aurora	Dansville	Chazy*	Watertown	Aurora	Dansville	Chazy*	Watertown
May	1.00	1.22	1.84	4.61	233	238	213	353
June	4.33	5.80	5.54	3.68	654	593	580	433
July	2.05	2.58	4.83	4.52	742	689	672	617
August	5.91	4.29	4.11	4.66	716	673	693	553
Sept.	3.50	3.29	2.81	3.00	505	463	453	443
Seasonal	16.79	17.18	19.13	20.47	2850	2656	2611	2399

* June data is from Plattsburg

Table 2. Yield, height, lodging, date of full maturity, and aphid numbers in mid-July of medium (Group I) maturing Roundup Ready soybean varieties at Aurora, NY in 2005.

VARIETY	BRAND	YIELD	HEIGHT	LODGING	MATURITY	APHIDS
		<u>bu/acre</u>	<u>in</u>	<u>score</u>	<u>date</u>	<u>no.</u>
AG1903	Asgrow	53	28	1.1	9/12	31
Respond	Hyland	50	27	1.0	9/10	175
SG1919	Seedway	49	26	1.0	9/09	157
S19-R5	NK	49	28	1.2	9/10	35
199R	FS Seeds	48	25	1.1	9/13	92
Rochester	Hyland	47	27	1.3	9/09	156
S17-R3	NK	47	27	1.1	9/09	80
S19-V2	NK	46	25	1.0	9/08	110
Razor	Hyland	46	28	1.1	9/09	98
TS1990R	T.A. Seeds	46	26	1.2	9/09	81
AG0803	Asgrow	41	30	1.3	9/03	33
SG1405	Seedway	41	26	1.2	9/02	151
122aR	FS Seeds	39	27	1.2	9/02	115
TS1440R	T.A. Seeds	38	27	1.1	9/02	84
AG1502	Asgrow	38	24	1.1	9/03	21
Ricochet	Hyland	<u>37</u>	<u>25</u>	<u>1.1</u>	9/02	<u>141</u>
Avg.		45	27	1.1		98
LSD 0.05		5	2	0.2		

Table 3. Yield, height, lodging, date of full maturity, and aphid numbers in mid-July of late (Group II) maturing Roundup Ready soybean varieties at Aurora, NY in 2005.

VARIETY	BRAND	YIELD	HEIGHT	LODGING	MATURITY	APHIDS
		<u>bu/acre</u>	<u>in</u>	<u>score</u>	<u>date</u>	<u>no.</u>
TS2560R	T.A. Seeds	51	27	1.1	9/18	159
Renwick	Hyland	50	31	1.3	9/14	139
DB26-53	DeKalb	50	28	1.2	9/18	29
92M91	Pioneer	49	29	1.1	9/18	155
92B38	Pioneer	49	29	1.1	9/14	232
217RR	FS Seeds	47	27	1.0	9/12	151
X12101	Chemgro	46	27	1.1	9/12	97
S24-K4	NK	45	30	1.2	9/12	45
C2439R	Chemgro	45	25	1.0	9/12	188
Rodney	Hyland	45	26	1.1	9/11	146
AG2705	Asgrow	44	30	1.2	9/18	246
SG2205	Seedway	44	25	1.0	9/14	201
X42622	Chemgro	43	28	1.0	9/12	205
2237RR	Chemgro	42	26	1.0	9/12	216
XP25211RR	FS Seeds	42	26	1.1	9/12	120
AG2107	Asgrow	<u>41</u>	<u>27</u>	<u>1.1</u>	9/12	<u>65</u>
Avg.		46	27	1.1		150
LSD 0.05		4	2	0.15		

Table 4. Yield, height, lodging, and date of full maturity of medium (Group I) maturing Roundup Ready soybean varieties at Dansville, NY in 2005.

VARIETY	BRAND	YIELD	HEIGHT	LODGING	MATURITY
		<u>bu/acre</u>	<u>in</u>	<u>score</u>	<u>date</u>
S19-V2	NK	68	30	1.2	9/14
AG1903	Asgrow	66	33	1.1	9/14
TS1440R	T.A. Seeds	65	32	1.4	9/12
SG1919	Seedway	63	35	1.1	9/14
199R	FS Seeds	55	29	1.0	9/15
Rochester	Hyland	54	36	1.2	9/10
AG1502	Asgrow	52	30	1.1	9/12
S19-R5	NK	52	32	1.0	9/14
Ricochet	Hyland	49	30	1.1	9/11
S17-R3	NK	<u>49</u>	<u>29</u>	<u>1.2</u>	9/11
Razor	Hyland	48	34	1.1	9/10
Respond	Hyland	47	30	1.2	9/10
TS1990R	T.A. Seeds	46	26	1.1	9/10
AG0803	Asgrow	44	32	1.0	9/06
122aR	FS Seeds	43	33	1.2	9/09
SG1405	Seedway	40	31	1.2	9/09
Avg.		53	31	1.1	
LSD 0.05		6	3	0.2	

Table 5. Yield, height, lodging, and date of full maturity of late (Group II) maturing Roundup Ready soybean varieties at Dansville, NY in 2005.

VARIETY	BRAND	YIELD	HEIGHT	LODGING	MATURITY
		<u>bu/acre</u>	<u>in</u>	<u>score</u>	<u>date</u>
DKB26-53	DeKalb	72	41	1.1	9/19
92M91	Pioneer	68	37	1.1	9/18
TS2560R	T.A. Seeds	67	32	1.0	9/20
SG2205	Seedway	65	33	1.1	9/15
C2439RR	Chemgro	64	32	1.1	9/16
217RR	FS Seeds	62	33	1.1	9/16
S24-K4	NK	62	36	1.3	9/17
Rodney	Hyland	61	36	1.1	9/14
AG2107	Asgrow	59	33	1.3	9/17
X42622	Chemgro	59	39	1.1	9/18
2237R	Chemgro	58	35	1.2	9/16
XP2521RR	FS Seeds	56	34	1.2	9/15
X12101	Chemgro	56	32	1.0	9/18
AG2705	Asgrow	56	37	1.2	9/19
Renwick	Hyland	56	41	1.3	9/16
92B38	Pioneer	50	37	1.3	9/15
Avg.		61	35	1.2	
LSD 0.05		8	3	0.2	

Table 6. Yield, height, lodging, and date of full maturity of late (Group I) maturing Roundup Ready soybean varieties at Chazy, NY in 2005.

VARIETY	BRAND	YIELD	HEIGHT	LODGING	MATURITY
		<u>bu/acre</u>	<u>in</u>	<u>score</u>	<u>date</u>
S17-R3	NK	74	41	1.3	9/23
S19-V2	NK	71	41	1.3	9/25
Razor	Hyland	68	43	1.3	9/23
199RR	FS Seeds	64	37	1.3	10/1
Ricochet	Hyland	62	38	1.0	9/18
S19-R5	NK	62	42	1.0	9/25
Respond	Hyland	61	41	1.5	9/30
Rochester	Hyland	61	44	2.6	9/26
SG1919	Seedway	61	41	1.8	9/30
AG1502	Asgrow	<u>60</u>	<u>41</u>	<u>2.0</u>	9/25
SG1405	Seedway	<u>58</u>	<u>42</u>	<u>1.8</u>	9/22
122aRR	FS Seeds	58	41	1.5	9/22
AG0803	Asgrow	57	43	1.0	9/19
TS1990R	T.A. Seeds	57	41	1.8	9/30
Avg.		62	79	1.0	
LSD 0.05		7	8	NS	