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**2013 NEW YORK STATE SOYBEAN
VARIETY YIELD TESTS**

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NY SOYBEAN VARIETY YIELD TESTS IN 2013

Introduction

The annual testing of soybean varieties was conducted at four locations in New York in 2013. Roundup Ready varieties in Maturity Groups I and II were planted at the Aurora Research Farm in Cayuga Co., Neenan Brothers Farm at Lima in Livingston Co., Ron Robbins Farm at Sackets Harbor in Jefferson Co., and the Miner Institute at Chazy in Clinton Co. All seed companies that are known to be distributing soybean seed in New York were invited to enter their selections in the tests for a modest fee.

We planted Group I and Group II entries in separate tests at Aurora on 14 May, Group I and Group II in separate tests at Sackets Harbor on 16 May, and Group I and Group II in separate tests at Lima on 20 May. At Chazy, Group I and II varieties were planted in the same test on 6 June, a delayed planting date because of extremely wet conditions at that site in late May and early June (Table 1). Each individual plot at all sites consisted of ten 20-ft. rows spaced 7 inches apart. Each entry was planted with small plot drill (6 foot wide Almaco) at seeding rates of 200,000 seeds/acre with four replications at each site. A randomized complete block experimental design was used for all tests. We used 22 fluid oz./acre of Roundup Powermax about 5 weeks after planting for weed control at all sites. Aphid numbers were low throughout the year at all sites but some white mold incidence was observed at Aurora and Lima in August. All varieties at all sites were monitored for phenological development beginning in early to mid-September.

Group I soybeans attained the R8.0 stage (maturity) at Aurora between 15 and 24 September and Group II varieties between 23 and 30 September. Group I and II varieties were about a 5 days later in attaining maturity at Lima and Sackets Harbor when compared to Aurora. At Chazy, Group I varieties attained the R8.0 stage about 1 October and Group II varieties about 10 October.

Yields were determined by harvesting an 18-foot section of the eight center rows (4.67 feet) of each plot at all sites with a small plot combine (Almaco). Plant height and lodging scores (1.0-5.0 rating with 1.0=no lodging and 5.0=complete lodging) were taken at harvest. Most Group I varieties were harvested on 26 September and most Group II varieties were harvested on 2 October at Aurora. All Group I and II varieties were harvested at Sackets Harbor on 10 October and at Lima on 11 October. The Group I/II test at Chazy was harvested on 24 October. All yields were adjusted to 13% moisture. We used the ANOVA test to determine significance for yield, seed moisture, lodging score, and height. All means were separated by Fisher's protected LSD (0.05) when significance occurred.

RESULTS AND DISCUSSION

Growing Conditions

May was a warm month in New York with close to average precipitation at Aurora and Lima, moderately dry at Sackets Harbor, and exceedingly wet at Chazy (Table 1). Consequently, timely planting dates occurred at Aurora, Lima, and Sackets Harbor with a delayed planting date at Chazy. June was exceedingly wet at all sites, resulting in some uneven vegetative growth at some of the sites with reduced growth in the low areas of the studies. Weather conditions turned exceedingly warm from 22 June until 20 July at all sites but adequate precipitation prevented any stress. From the 21 July through September, weather conditions were cool at all sites but aphid populations remained low despite the cool conditions. Precipitation was above normal at Aurora and Lima, however, during this period so the cool and wet conditions resulted in some incipient white mold symptoms on some of the varieties at both sites. The Sackets Harbor site received a light frost (31^o) on the morning of September 17 and again on September 24, which was before most Group II varieties attained the R7.0 (physiological maturity) stage. The top leaves, the physiologically most active leaves, were frosted but lower leaves in the canopy were protected from the frost on both nights.

Group I soybeans at Aurora averaged 74 bushels/acre (Table 2), the highest yield among tests at all sites, probably because tile drainage, installed at 33 foot intervals, allowed for excellent and uniform growth under well-drained conditions. Group I soybeans averaged 66 bushels/acre at Lima (Table 3). The

Group II soybeans at Aurora averaged 70 bushels/acre or 4 bushels less compared to the Group I test, which was unexpected, because Group II varieties typically yield more when stress free conditions prevail throughout the growing season. Group II compared to the Group I varieties at Lima did average 5 bushels/acre more (71 bushels/acre, Table 4). The Group I test at Sackets Harbor averaged 56 bushels/acre compared to 54 bushels/acre in the Group I test (Tables 6 and 7); whereas the Group I varieties averaged 64 bushels/acre and Group II varieties 68 bushels/acre at Chazy (Table 8). The early light frosts on September 17 and 24 probably reduced the yield of the late Group II varieties at Sackets Harbor.

Plant Height, Lodging and Harvest Moisture

Soybean height averaged about 95 cm in both the Group I and II tests at Aurora and above 90 cm in the Group II test at Lima (Tables 2, 3, and 5). Three heavy precipitation events in mid to late August, when soybeans were still in the R5.0-R5.5 stage (seed development and seed-fill stage, hence maximum leaf area and maximum plant heights) resulted in some lodging in the Group I and II tests at Aurora and Group II test at Lima (Tables 2 and 3). Plant height averaged close to 90 cm in the Group I and II test at Sackets Harbor (Table 6 and 7), but no significant precipitation events occurred before harvest so lodging was only minimal at this site. The delayed planting date resulted in shorter plants at Chazy and lodging did not occur (Table 8)

Average harvest moistures for all tests at all sites approximated 13-14% at the time of harvest. The tests at the Aurora site were harvested about a week later than normal because of the cool conditions from 21 July through September. At Aurora, the Group I varieties (**RPMD1212** and **5N180R2**) were too wet to thresh on 26 September and were harvested on 2 October. Also, Group II varieties (**2903R2**, **RPMD2812**, and **HS2812**) were too wet to harvest on 2 October, and were harvested on 15 October at Aurora. Consequently, those varieties should not be compared with the other varieties for moisture levels at Aurora. Varieties in the test are described as exceptional if they yielded 5% above the mean of the test. The other varieties mentioned in the text yielded above the mean of the test.

Aurora and Lima Group I Varieties - Yield

When averaged across the Aurora and Lima sites, three varieties yielded exceptionally well. **S17-B3** from Syngenta, which had the highest yield at Aurora, had the overall highest average yield in the Group I test in central/western New York (Tables 2 and 3). **HS 19A11**, from GROWMARK FS, which had the second highest yield at both sites, and **5N180R2** from Mycogen, which had the highest yield at Lima, also yielded exceptionally well.

Other high-yielding Group I varieties include **HS 15A11** from GROWMARK FS, **SG1311** from Seedway, **RPMDB1212** from Doeblers, **HS 15A11** from GROWMARK FS, and **S14-J7** from Syngenta. **S17-B3**, **HS 19A11**,

HS 15A11, and **RPMDB1212** had above-average yields at both sites, which indicates excellent yield stability across different drainage conditions.

Aurora and Lima Group II Varieties-Yield

Unlike the Group I tests, the top varieties yielded very good but there were no exceptional-yielding varieties. When averaged across the Aurora and Lima sites, the highest yielding varieties were **RPMDB2812** from Doebler's, which had the highest yield at Aurora, and **S24RY3** from Dyna-Gro, which had the highest yield at Lima (Tables 4 and 5). Other outstanding varieties include **S22-Y2** and **S22-S1** from Syngenta, **5N210R2** from Mycogen, **H26-12R2** from Hubner, **2903R2** from Channel, **5N234R2** from Mycogen, **S25RY44** from Dyna-Gro, **SG2111** from Seedway, **HS 24A12** from GROWMARK FS, **2306R2** from Channel, and **S24-K2** from Syngenta.

RPMDB2812, **S24Y3**, **S22-Y2**, **S22-S1**, and **5N210R2** had above-average yields at both sites, again, indicating yield stability for these varieties across different drainage conditions. **2903R2**, **2306R2** from Channel, **S25RY44**, **H26-12R2**, and **HS 28A12** from GROWMARK FS yielded very well at Aurora. **HS 24A12**, **RPMDB2612** from Doebler's, **S24-K2**, **H20-12R2** from Hubner, **5N234R2**, **SG2013** from Seedway, and **HS 20A12** from GROWMARK FS had above-average yields at Lima.

Sackets Harbor and Chazy Group I Varieties-Yield

S17-B3 from Syngenta, which had the highest yield at Sackets Harbor, yielded exceptionally well in Northern NY (Tables 6 and 8). Consequently, this variety showed superb yield stability by yielding exceptionally well in central/western NY as well as in Northern NY. Also, **5N180R2** from Mycogen, which had the highest yield among Group I varieties at Chazy, had the 2nd highest average yield among Group I varieties in Northern NY. Other above-average varieties that yielded well at both sites in Northern NY include **RPMDB1212** from Doebler's and **S19RY84** from Dyna-Gro.

SG1311 from Seedway, **HS 15A11** from GROWMARK FS, **1805R2** from Channel, and **RPMDB1713** from Doebler's, yielded above-average at Sackets Harbor. With the exception of **RPMDB1713**, none of these varieties were entered at Chazy. **H15-12R2** from Hubner, which was not entered at Sackets Harbor, had the second highest numerical yield behind **5N180R2** among Group I varieties at Chazy.

Sackets Harbor and Chazy Group II Varieties-Yield

When averaged across sites, **31RY20** from Dyna-Gro, which had the highest yield at Chazy, and **S22-Y2**, **S24-K2**, and **S22-S1** from Syngenta, had the highest yield in the Group II test. **SG2013** from Seedway, **HS 20A12** from

GROWMARK FS, and **2105R2** from Channel, which were not entered at Chazy, had the top three yields in the Group II test at Sackets Harbor. Likewise, **H20-12R2** from Hubner, which was not entered at Sackets Harbor, had the second highest numerical yield at Chazy.

CONCLUSION

Soybean has expanded greatly in acreage in New York over the last 10 years. If the current price ratio of soybeans to corn remains the same (above a 3:1 ratio), we expect soybean acreage in New York to once again increase in 2014. We appreciate your support in 2013!

Table 1. Monthly precipitation and growing degree days (GDD) at Aurora, Lima (Avon weather data), Sackets Harbor (Watertown weather data) and Chazy (Plattsburg weather data) testing sites during the 2013 growing season.

Month	Precipitation				GDD (86-50 F)			
	Aurora	Lima*	Sackets**	Chazy***	Aurora	Lima*	Sackets**	Chazy***
May	3.61	3.15	1.64	5.23	383	404	357	339
June	6.38	6.82	6.04	7.89	478	480	448	425
July	3.23	4.16	3.06	3.48	674	675	674	651
August	5.97	4.44	2.10	3.36	526	560	547	537
Sept.	3.96	2.24	2.81	2.91	353	377	229!	337
Seasonal	23.15	20.81	15.65	19.87	2414	2496	2255	2289

* Lima data is from an Avon weather station

** Sackets Harbor data is from the Watertown Airport weather station.

*** Chazy data is from the Plattsburg Airport weather station.

! GDD until 9/17 when the first fall frost occurred at Sackets Harbor site.

Table 2. Yield, seed moisture, height, and lodging score of Group I Roundup Ready soybean varieties harvested at Aurora, NY on 26 September, 2013.

COMPANY/BRAND	VARIETY	YIELD	MOISTURE	HEIGHT	LODGING
		bu/acre	%	cm	1-5 scale
Syngenta	S17-B3	86.6	15.2	95	2.03
Growmark FS	HS 19A11	79.6	15.7	93.5	1.75
Syngenta	S14-J7	76.7	13.2	90.25	1.48
Doebler's	RPMDB1212*	74.0	12.7	103.5	1.95
Seedway	SG1911	73.5	13.2	92.5	1.63
Growmark FS	HS 15A11	73.3	13.4	97	1.95
Channel	1805R2	72.6	14.7	94.75	1.83
Growmark FS	HS 13A11	72.6	13.6	94.75	1.98
Doebler's	RPMDB1713	71.9	14.0	100.5	2.10
Seedway	SG1311	71.5	13.0	90.75	1.80
Growmark FS	HS 17A12	70.4	13.5	91.75	1.45
Mycogen	5N180R2*	67.1	15.0	98	2.75
Dyna-Gro	S19RY84	68.8	15.0	90.75	1.65
Syngenta	S10-P9	67.2	13.0	91	1.32
AVG.		73	13.95	94.5	1.76
LSD 0.05		8.0	1.31	8.9	0.21

*Harvested on
10/2 instead
of 9/26

Table 3. Yield, seed moisture, height, and lodging score of Group I Roundup Ready soybean varieties harvested at Lima, NY on 11 October, 2013.

COMPANY/BRAND	VARIETY	YIELD	MOISTURE	HEIGHT	LODGING
		bu/acre	%	cm	1-5 scale
Mycogen	5N180R2	79.8	14.7	91.25	1.00
Growmark FS	HS 17A12	73.8	14.7	76.5	1.00
Growmark FS	HS 19A11	73.3	14.7	77.5	1.00
Growmark FS	HS 15A11	71.3	14.2	88.75	1.08
Seedway	SG1311	70.0	14.4	81.5	1.08
Syngenta	S17-B3	69.0	15.0	87.25	1.00
Doebler's	RPMDB1212	66.6	14.2	88.75	1.05
Seedway	SG1055	66.1	14.9	80.5	1.00
Growmark FS	HS 13A11	63.8	14.9	82.5	1.08
Dyna-Gro	S19RY84	63.2	14.4	79.25	1.08
Syngenta	S14-J7	62.6	14.9	77.25	1.08
Seedway	SG1911	60.4	14.7	78.25	1.00
Hubner	H15-12R2	59.5	14.8	80.5	1.00
Doebler's	RPMDB1713	57.7	15.7	81.25	1.00
Syngenta	S10-P9	50.7	14.7	72	1.00
AVG.		66	14.72	81.5	1.03
LSD 0.05		7.5	0.59	7.8	NS

Table 4. Yield, seed moisture, height, and lodging score of Group II Roundup Ready soybean varieties harvested at Aurora, NY on 2 October, 2013.

COMPANY/BRAND	VARIETY	YIELD	MOISTURE	HEIGHT	LODGING
		bu/acre	%	cm	1-5 scale
Doebler's	RPMDDB2812	78.6	14.2	94.75	1.43
Channel	2903R2	76.3	14.7	105	1.83
Channel	2306R2	74.2	13.1	96	1.50
Dyna-Gro	S25RY44	74.1	14.0	90.75	1.50
Hubner	H26-12R2	73.8	16.0	102	1.63
Syngenta	S22-Y2	72.5	12.2	95	1.68
Growmark FS	HS 28A12	72.3	15.7	96.25	2.25
Doebler's	RPMDDB2612	71.5	13.7	97	1.35
Syngenta	S22-S1	70.7	12.8	96.25	1.70
Mycogen	5N210RR2	69.9	13.0	96	2.00
Syngenta	S20-T6	69.8	12.1	93	1.40
Channel	2105R2	69.4	13.2	99	1.70
Mycogen	5N234R2	69.2	12.7	87.25	1.35
Dyna-Gro	31RY20	69.1	12.4	95	1.50
Growmark FS	HS 21A14	69.1	12.9	96	1.43
Seedway	SG2013	69.0	12.6	91.75	1.63
Growmark FS	HS 24A12	68.0	13.9	95.75	1.50
Dyna-Gro	S24RY73	67.8	13.3	91.75	1.38
Syngenta	S24-K2	66.7	13.0	90.5	1.50
Seedway	SG2413	66.5	13.6	96	1.25
Channel	2505R2	65.4	13.7	106.25	1.65
Growmark FS	HS 20A12	64.5	12.2	88.75	1.38
Channel	2207R2	64.4	12.9	91	1.45
Seedway	SG2115	64.3	12.6	92.25	1.43
Hubner	H22-14R2	63.9	12.7	99.75	1.60
Dyna-Gro	S22RY64	62.1	12.7	96.5	1.48
AVG.		70	13.3	95.4	1.56
LSD 0.05		7.8	0.85	9.3	0.19

Table 5. Yield, seed moisture, height, and lodging score of Group II Roundup Ready soybean varieties harvested at Lima, NY on 11 October, 2013.

COMPANY/BRAND	VARIETY	YIELD	MOISTURE	HEIGHT	LODGING
		bu/acre	%	cm	1-5 scale
Dyna-Gro	S24RY73	76.7	14.2	92.75	1.33
Mycogen	5N210RR2	76.1	13.6	93.5	1.13
Growmark FS	HS 24A12	75.7	14.7	94.75	1.0
Syngenta	S22-S1	74.9	13.1	92	1.18
Doebler's	RPMDB2612	74.5	14.0	91.75	1.08
Syngenta	S24-K2	74.5	16.0	93	1.58
Syngenta	S22-Y2	74.4	12.2	94.75	1.20
Hubner	H20-12R2	74.3	15.7	87.5	1.0
Mycogen	5N234R2	74.3	13.7	87	1.25
Seedway	SG2013	73.8	12.8	89.75	1.13
Growmark FS	HS 20A12	72.9	13.0	86.25	1.00
Doebler's	RPMDB2812	71.2	12.1	93	1.25
Hubner	H26-12R2	70.4	13.2	94.5	1.73
Growmark FS	HS 28A12	69.6	12.7	96.25	1.80
Dyna-Gro	S25RY44	69.4	12.4	91	1.55
Syngenta	S20-T6	68.3	12.6	88.25	1.15
Seedway	SG2115	67.6	12.9	91.75	1.50
Channel	2306R2	67.6	12.6	95	1.20
Channel	2903R2	67.2	13.9	97	1.65
Seedway	SG2413	67.2	13.3	90.25	1.10
Channel	2505R2	67.1	13.0	99.25	1.70
Dyna-Gro	S22RY64	65.9	13.7	82.25	1.0
Growmark FS	HS 21A14	64.3	12.2	91.25	1.00
Hubner	H22-14R2	60.4	12.9	89.5	1.45
AVG.		71	13.86	91.8	1.29
LSD 0.05		7.8	0.75	4.1	0.25

Table 6. Yield, seed moisture, height, and lodging score of Group I Roundup Ready soybean varieties harvested at Sackets harbor, NY on 10 October, 2013.

COMPANY/BRAND	VARIETY	YIELD	MOISTURE	HEIGHT	LODGING
		bu/acre	%	cm	1-5 scale
Syngenta	S17-B3	63.8	13.4	93.5	1.05
Seedway	SG1311	59.9	13.0	89.25	1.10
Dyna-Gro	S19RY84	59.0	13.1	96	1.20
Growmark FS	HS 15A11	59.0	12.8	93.5	1.30
Channel	1805R2	58.2	13.1	84	1.05
Doebler's	RPMDDB1713	56.2	14.2	94.5	1.08
Growmark FS	HS 13A11	56.0	12.9	87.75	1.15
Growmark FS	HS 17A12	55.8	13.4	92.25	1.08
Syngenta	S10-P9	55.4	13.6	76	1.00
Seedway	SG1911	53.8	14.1	87.5	1.05
Mycogen	5N180R2	53.6	13.3	82.25	1.05
Doebler's	RPMDDB1212	53.6	12.7	97.25	1.00
Syngenta	S14-J7	51.7	13.6	81.5	1.00
Growmark FS	HS 19A11	51.2	13.4	83.5	1.00
Seedway	SG1055	50.7	13.6	78.75	1.00
AVG.		56	13.36	87.55	1.07
LSD 0.05		6.1	0.49	8.1	0.18

Table 7. Yield, seed moisture, height, and lodging score of Group II Roundup Ready soybean varieties harvested at Sackets Harbor, NY on 10 October, 2013.

COMPANY/BRAND	VARIETY	YIELD	MOISTURE	HEIGHT	LODGING
		bu/acre	%	cm	1-5 scale
Seedway	SG2013	61.9	12.4	91.25	1.00
Growmark FS	HS 20A12	60.8	12.5	89.5	1.05
Channel	2105R2	59.2	13.0	100	1.05
Syngenta	S24-K2	57.8	13.5	88.25	1.00
Hubner	H22-14R2	54.9	12.9	95	1.08
Dyna-Gro	31RY20	54.4	12.9	87.75	1.00
Dyna-Gro	S22RY64	54.4	12.6	89.75	1.00
Syngenta	S22-S1	54.3	12.4	83	1.08
Growmark FS	HS 24A12	54.2	13.2	93	1.00
Doebler's	RPMDDB2812	53.9	14.1	92.3	1.00
Mycogen	5N210RR2	53.7	13.2	86.8	1.00
Syngenta	S22-Y2	53.6	12.8	82.75	1.08
Dyna-Gro	S20RY94	53.5	13.3	85.75	1.00
Seedway	SG2115	53.4	12.7	90.5	1.00
Hubner	H26-12R2	53.1	14.4	101.25	1.05
Mycogen	5N234R2	52.7	13.4	86.5	1.00
Syngenta	S20-T6	49.6	12.6	81	1.08
Growmark FS	HS 21A14	49.3	12.8	88.5	1.05
Growmark FS	HS 28A12	48.7	14.0	95.25	1.30
Channel	2207R2	48.1	13.3	85.75	1.00
Doebler's	RPMDDB2612	45.5	13.0	89.3	1.08
AVG.		54	13.1	89.7	1.05
LSD 0.05		6.0	0.5	8.0	0.20

Table 8. Yield, seed moisture, height, and lodging score of Group I and II Roundup Ready soybean varieties harvested at Chazy, NY on 24 October, 2013.

COMPANY/BRAND	VARIETY	YIELD	MOISTURE	HEIGHT	LODGING
		bu/acre	%	cm	1-5 scale
Dyna-Gro	31RY20	77.7	12.4	78.75	1.0
Hubner	H20-12R2	75.4	12.5	74.75	1.0
Syngenta	S22-Y2	75.0	13.0	74.3	1.0
Mycogen	5N180R2	70.5	13.5	69.25	1.0
Hubner	H15-12R2	69.8	12.9	78	1.0
Syngenta	S22-S1	68.9	12.9	73.3	1.0
Doebler's	RPMDB1212	67.8	12.6	84.25	1.0
Syngenta	S24-K2	67.8	12.4	73.3	1.0
Syngenta	S17-B3	66.9	13.2	69.5	1.0
Hubner	H22-14R2	66.8	14.1	79	1.0
Syngenta	S20-T6	65.6	13.2	74.25	1.0
Doebler's	RPMDB2812	65.4	12.8	81	1.0
Doebler's	RPMDB2612	64.9	13.3	84	1.0
Mycogen	5N234R2	64.5	12.7	78	1.0
Dyna-Gro	S19RY84	61.7	14.4	71.5	1.0
Syngenta	S10-P9	60.7	13.4	54.5	1.0
Doebler's	RPMDB1713	57.6	12.6	77.5	1.0
Hubner	H26-12R2	57.2	12.8	90.75	1.0
Syngenta	S14-J7	56.8	14.0	64.5	1.0
AVG.		66	13.8	75.3	1.0
LSD 0.05		7.3	1.0	6.1	NS