What's Cropping Up?

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PREPARING TO COMBAT ASIAN SOYBEAN RUST IN NEW YORK

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Soybean Rust Arrives in North America

New York soybean and vegetable legume growers are getting geared up to deal with Asian soybean rust, an invasive and damaging plant pathogen that arrived in North America in 2004 (Figure 1). Caused by the wind-borne fungus *Phakopsora pachyrhizi*, Asian soybean rust has in recent years spread beyond Asia into Africa (since 1998) and South American (since 2001). In August 2004, it was found north of the equator in Colombia, greatly increasing the chances that spores of the fungus would be moved north by air currents into the continental U.S. Indeed, Asian soybean rust was confirmed in infected soybean plants in November 2004 in nine southern U.S. states (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Missouri, South Carolina, and Tennessee). It is believed that rust spores were transported directly to the U.S. from South America by hurricanes in September 2004.

Annual Cycles and Rust Biology

In frost-free areas of the southern U.S., the Caribbean islands, and Mexico, the rust fungus is expected to overwinter on living host plants (more than 90 species of legumes including dry and snap beans, English pea, clovers, and the widely-distributed, weedy vine, kudzu). In mild winters, it may survive even further north. Spores may be blown northward from these overwintering sites each growing season and initiate annual epidemics in U.S. soybean fields, weather conditions permitting. The fungus has a repeating spore cycle such that every 10-15 days a new generation of spores is produced on infected plants, and these spores can be spread both locally and long distances. Asian soybean rust has the potential to dramatically reduce the yield and profitability of soybean and other beans, including those grown in New York. I expect to see damaging epidemics in New York in some years, but not every year. This is similar to what we see in New York with other wind-borne pathogens such as wheat leaf rust and common rust of corn.

When rust spores land on soybean plants at any stage of development, infection is favored by leaf wetness, mild temperatures (64-82 F), and high relative humidity (75-80%). Symptoms appear 5-10 days after the spores germinate and infect the plants. All current commercial soybean cultivars in the U.S. are susceptible to Asian soybean rust. Our adapted cultivars of snap beans, dry beans, and peas are also expected to be susceptible. When rust attacks soybean during pod filling or earlier stages, yield losses can be as high as 80%. Rust causes premature defoliation and decreases the number of pods and seeds per plant, and the weight of seeds. Seeds from infected plants also show decreased germination and vigor.

Disease Management

The long-term solution to endemic soybean rust will be the planting of cultivars with partial resistance or tolerance to rust. Both the USDA and commercial seed companies are expediting programs to identify sources of resistance and to breed that resistance into adapted, high yielding soybean cultivars. But most experts agree that it could take 5-10 years for resistant cultivars to become available to farmers.

Protection of soybeans and other legumes from rust in the several years ahead will involve timely applications of foliar fungicides based on early detection of rust and on forecasts of potential rust epidemics in our region. Currently three fungicides, azoxystrobin (Quadris), pyraclostrobin (Headline), and chlorothalonil (Bravo, Echo), are registered nationally for soybean rust control. These fungicides will protect against soybean rust only if they are applied in advance of rust infection. A quarantine exemption (**http://pmep.cce.cornell.edu/profiles/index.html/**) has been issued by the EPA to New York State for the emergency use of three additional fungicides, myclobutanil (Laredo), propiconazole (Tilt, PropiMax, and Bumper), and tebuconazole (Folicur). The latter three fungicides are triazoles that have some curative activity to control rust after spores have germinated and infected soybean leaves. Emer-

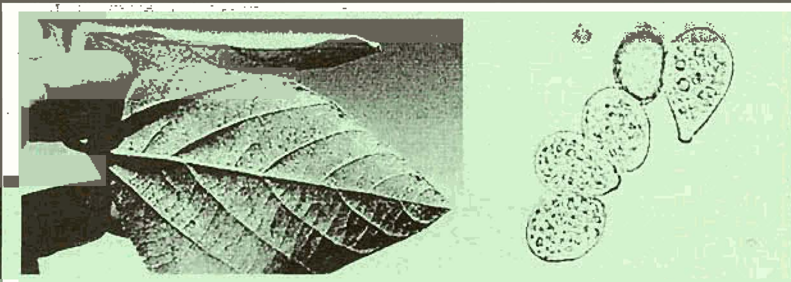

Figure 1. Asian soybean rust on soybean leaf (left) and spores of the causal fungus (Phakopsora pachyrhizi (right). Photos courtesy of Dr. Kitty Cardwell (USDA-CSREES) and Dr. Reid Frederick (USDA-ARS), respectively.

Disease Management

gency use labels for additional fungicide products are still pending EPA review. To optimize disease control and prevent selection for rust isolates that are resistant to certain classes of fungicide, fungicides with differing modes of action should be applied in combination or in alternating sequence. An emergency exemption label has been granted for the use of the strobilurin & triazole combination product called Stratego (trifloxystrobin plus propiconazole). A label is pending for a second combination product called Quilt (azoxystrobin plus propiconazole). Tank mixes of any labeled strobilurin and any labeled triazole are also permitted unless specifically prohibited on the product labels. A single fungicide spray by ground rig is expected to add approximately $15 per acre to soybean production cost. Sometimes, a second spray may be warranted. Guidelines for the application of soybean rust fungicides in New York in 2005 are provided in Table 1.

Early Detection and Forecasts of Rust Arrival

Early detection of soybean rust is the key to successful management of this disease with fungicides. New York growers and crop advisors are urged to cooperate with Cornell Cooperative Extension educators in planting sentinel soybean plots (plots planted 2 to 3 weeks earlier than other soybeans in the area) and monitoring these plants weekly for the first symptoms and signs of soybean rust. Soybean rust symptoms first appear as small yellow or tan areas on the leaves that turn brown to reddish brown. Tiny bumps develop within the rust lesions, especially on lower leaf surfaces, and these are the spore-producing structures that eventually release masses of tan-colored spores (Figure 1). Before sporulation, rust lesions may be confused with Septoria brown spot, bacterial pustule, and other diseases. A soybean rust identification card (Figure 2) developed by a network of cooperating institutions has excellent photos of soybean rust as well as photos and descriptions of similar diseases. If you wish to receive a soybean rust identification card, please contact your Cornell Cooperative Extension Field Crops Educator. If you observe symptoms you think may be soybean rust in New York, contact your Cornell Cooperative Extension fields crops educator or the Plant Disease Diagnostic Clinic at Cornell University [(http://PlantClinic.cornell.edu); phone: 607- 255-7850] as soon as possible.

Rust Information and Communications

A New York soybean rust advisory committee with broad representation of growers, educators, agribusiness, and federal and state government officials, has been communicating since early January to formulate a coordinated response to Asian soybean rust in 2005. We have also been in close contact with our counterparts in Pennsylvania and other nearby states. We are now constructing a New York Soybean Rust Website (http://www.ppath.cornell.edu/soybeanrustny/default.htm) with information on soybean rust of special relevance to New York producers. This will be the best place to check during the 2005 growing season for updated information on rust forecasts and rust sightings in New York, new fungicide registrations, etc.

Excellent information on Asian soybean rust also may be found at these websites:

USDA-APHIS Soybean Rust Alert (http://www.aphis.usda.gov/ppq/ep/soybean_rust/)

APSnet Feature Article (http://www.apsnet.org/online/feature/rust/)

United Soybean Board Rust Guide (http://www.unitedsoybean.org/f_producers.htm)

USDA-CSREES North Central Pest Management Center Soy Rust Alert (http://www.ncpmc.org/soybeanrust/index.html)

USDA National Agricultural Library Soybean Rust Reference Guide (http://www.nal.usda.gov/ref/soyrust.html)

Figure 2. Soybean Rust ID Card.

Table 1.

2005 Soybean Rust Fungicide Use Guidelines for New York

Fungicide strategy for 1st application	Crop and disease status: Crop stage[1]	Crop and disease status: Disease level[2]	Fungicide application[3]: 1st Application	Fungicide application[3]: 2nd Application
Preventative	Vegetative	None ➡	SPRAYING NOT RECOMMENDED	
(pre-infection)	R1 to R6	None; risk low ➡	SPRAYING NOT RECOMMENDED	
		None, but Risk High ➡	Chlorothalonil[4] ➡	Triazole[6] OR Premix / Tank Mix[7]
			OR Strobilurin[5] ➡	Triazole[6] OR Premix / Tank Mix[7]
			OR Triazole[6] ➡	Premix / Tank Mix[7]
			OR Premix / Tank Mix[7] ➡	Triazole[6] OR Premix / Tank Mix[7]
	R7 or later	Irrelevant ➡	NO BENEFIT TO SPRAYING	
Curative[1,6]	Early-vegetative	Increasing ➡	BENEFIT TO SPRAYING UNCERTAIN	
(early post-infection)	Late-vegetative to R6	10% or < Inc. in lower canopy ➡	Triazole[6] ➡	Premix / Tank Mix[7]
			Premix / Tank Mix[7] ➡	Premix / Tank Mix[7]
	R7 or later	Irrelevant ➡	NO BENEFIT TO SPRAYING	

1. Vegetative = collective stages before flowering; R1 = beginning flowering; R6 = full seed; R7 = beginning maturity. The vast majority of reports from Africa and Brazil indicate that soybean rust does not need to be controlled when detected in the vegetative crop stages as long as a curative spray program is initiated as soon as crop flowering begins. Spraying before crop flowering, however, may be prudent if disease is increasing and the crop is approaching R1. This is especially true for late-planted crops and/or very late-maturing varieties that may develop a large canopy before flowering.
2. Incidence is number of leaves out of 100. Risk is determined according to national, regional, and local reports of rust activity and disease forecasts.
3. One, two or three applications may be needed, depending upon when the disease comes in and at what crop stage the first application is made. Spray coverage and penetration into the canopy are essential to success. Before making applications late in the season, be sure to consult the product label for days to harvest restrictions. Labels also indicate specific intervals between sprays for different disease situations. These spray intervals must be followed or rust control may be lost. *Consecutive, solo applications of a Strobilurin or a Triazole should never be made due to resistance concerns.*
4. Chlorothalonil is a protective fungicide that should only be used in a totally preventative program.
5. Strobilurins (e.g., Quadris, Headline) are protective products and have NO curative activity; do not make solo applications of a strobilurin if any rust is present.
6. Triazoles (e.g., Bumper, Folicur, Laredo, PropiMax, Tilt) have *limited curative ability* and may not perform well if more than 10% disease exists in the lower plant canopy; yield loss is very likely once rust can be found in the mid crop canopy. Numerous factors play into the decision as to the latest one should apply a fungicide. Factors such as crop stage and yield potential, crop insurance, and many other factors should be considered. Fungicide labels specifiy upper limits of their products and manufacturers may not support products when applied later than is indicated on the product label. Check with your chemical salesman for more details.
7. A Premix (e.g., Quilt, Stratego) is a manufactured combination product of a Strobilurin + Triazole. Use label-approved tank mixes of a Strobilurin + Triazole the same as you would a premix.

Adapted by G.C. Bergstrom for use in New York (Original developed by D. Hershman, A. Dorrance, and M. Draper, January 28, 2005).

Crop Management

Weed Interference and Timing of Roundup Affect Corn Silage Yield and Quality

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Dairy producers in New York typically plant corn from late April until late May and harvest perennial forages from late May until late June. Wet spring conditions, however, can delay corn planting until June and warm spring conditions can accelerate the first harvest of perennial forages to mid-May. Consequently, corn planting and the first harvest of perennial forages overlap in some years. Many dairy producers, especially those with large operations, hire custom applicators to apply herbicides for weed control because of their heavy field workload in May and June. The introduction of Roundup Ready corn, which typically only receives a postemergence Roundup application for weed control, may allow dairy producers to apply Roundup themselves after completion of the first harvest of perennial forages.

We planted 'DKC42-70RR', a 92-day hybrid, and 'DKC53-33RR', a 103-day hybrid, on 11 May 2002 and 5 May 2003 at the Aurora Research Farm in Cayuga Co. Weed control treatments included an untreated control and a weed-free treatment that received a preemergence application of 1.5 qt/acre of Bicep Lite II Magnum, followed by hand-weeding or a Roundup application. Three Roundup treatments were applied as 26 oz/acre of Roundup UltraMax at early, mid, and late postemergence timings (EPOST, MPOST, and LPOST, respectively).

Weed densities were counted, by species, within a 0.23 m^2 quadrant and the height of each weed species was recorded in the untreated control at the 4th leaf stage (V4) in 2002 and at the V5 stage in 2003 (Table 1). All treatments were harvested by hand on 27 August 2002 and 3 September 2003. Eight plants were randomly selected at harvest to estimate DM content and forage quality characteristics. We then used the spreadsheet, Milk2000, to determine milk/ton, a forage quality index. Milk/ton was calculated from neutral detergent fiber (NDF), NDF digestibility, crude protein (CP), ash, and starch measurements. Milk yields were then calculated as the product of silage yield and milk/ton.

Weed control treatments, which did not affect DM content at harvest in 2002 because the dry conditions delayed silking in all treatments until a 27 July rain, affected DM content at harvest in 2003 (Table 2). The untreated control averaged 29.1 compared with 34.5% DM content at harvest in the weed-free and EPOST treatments in part because weed pressure delayed silking by 4 days. The MPOST and LPOST treatments averaged 30.5% DM content at harvest in part because a delay in Roundup application until the V5-V7 stage allowed early-season weed pressure to delay corn silking by 3 days. Weed pressure beyond the V4 stage can delay corn development, which could translate into a 5 to 7-day delay in corn silage harvest in the fall.

The untreated control vs. the weed-free treatment averaged 70 to 75% lower corn silage yields (Table 2). The EPOST and weed-free treatment yielded similarly in both years, but the MPOST treatment yielded 20 to 25% less and the LPOST treatment yielded 50% less. Roundup had to be

Table 1. Date and height of corn, height of the major weed species at the time of early (EPOST), mid- (MPOST), and late (LPOST) postemergence applications of Roundup, and density of the major weed species in the untreated control treatment in mid-June in 2002 and 2003.

Roundup Application	Date °C	Corn	Common Lambsquarters	Green Foxtail	Common Ragweed	Yellow Nutsedge	Wild Mustard
		----------	----------	height (in)	----------	----------	----------
			2002				
EPOST	18 June (V4)[†]	7	3 (59)[‡]	3 (50)	3 (130)	3 (130)	4 (6)
MPOST	28June (V6)	20	8	6	6	6	9
LPOST	5 July (V8)	24	10	14	10-16	10	12
			2003				
EPOST	2 June (V3)	4	1	1	-	-	2
MPOST	17 June (V5)	13	3 (645)[‡]	4 (432)	3 (48)	-	14 (134)
LPOST	30 June (V7)	15	6	6	8	-	24

[†]Vn indicates the leaf stage at the time of Roundup application.
[‡]Numbers in parentheses are the number of weeds m^{-2} of the major weed species in the untreated control.

applied by the V3-V4 stage, regardless of hybrid maturity, to avoid significant silage yield losses under competitive growing conditions.

The untreated control averaged the least milk/ton in 2002 because moderate weed densities and dry July and August conditions resulted in limited grain development and very low starch and very high NDF concentrations (Table 2). In 2003, which had wet July conditions, high weed densities did not affect grain development and most silage quality characteristics. Apparently, high weed pressure only affects corn silage quality in years with dry conditions around the silking period by limiting grain development. The weed-free and EPOST treatments had similar milk/ton values in both years, which indicate that a Roundup application by the V3-V4 stage, followed by limited weed pressure, results in similar corn silage quality as that of weed-free corn.

The untreated control vs. the weed-free treatment had 70 to 80% lower calculated milk yields because of low silage yields and quality in 2002 and low yields in 2003 (Table 2). The EPOST and weed-free treatments had similar calculated milk yields in both years of the study. The MPOST treatment also had similar calculated milk yields vs. the weed-free treatment in 2002 because it had higher silage quality (higher NDFd and starch), which offset the 20% lower silage yields. In 2003, however, the MPOST treatment had similar silage quality and 30% lower calculated milk yields.

Dairy producers in New York must apply Roundup by the V3-V4 stage under competitive growing conditions to maximize silage yield and quality, which may overlap with the first harvest of perennial forages. Dairy producers should hire custom applications if they are unable to apply Roundup by the V3-V4 stage under competitive growing conditions.

Table 2. Silage moisture at harvest, silage yields, milk per ton values, and calculated milk yields of two corn hybrids in weed-free and untreated control treatments and at early (EPOST), mid- (MPOST), and late (LPOST) applications of Roundup at Aurora, NY in 2002 and 2003.

Treatment	Silage Moisture	Silage Yield	Milk Per Ton	Calculated Milk Yield
	%	tons/acre (65%)	lbs/ton	lbs/acre
		2002		
Weed-Free	66.8	11.4	3637	14568
EPOST	67.3	10.6	3739	13891
MPOST	68.9	9.0	3903	12378
LPOST	69.2	5.9	3852	7880
Untreated	69.6	2.6	3258	3022
LSD 0.05	NS	1.6	158	2418
		2003		
Weed-Free	65.4	23.6	3792	31188
EPOST	65.3	22.7	3742	29775
MPOST	69.5	17.1	3659	21882
LPOST	69.3	12.0	3666	15470
Untreated	70.9	6.8	3661	8708
LSD 0.05	1.8	1.4	NS	1820

Weed Management

Weed Interference and Timing of Roundup Affect Yield Components of Corn

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Research throughout the Northeast has documented the effect of Roundup application timing on weed control and grain yield of Roundup Ready corn. Additional research was conducted from 2002 through 2004 to determine the effect of time of weed removal with Roundup on corn silage yield and quality, as reported in the previous article and on how the time of weed removal affected grain yield and yield components of two hybrids with different relative maturities. Yield components that determine grain corn yield per acre are

- Plants/acre
- Number of ears/plant
- Rows of kernels/ear
- Number of kernels/row
- Kernel weight

According to the bulletin *How a Corn Plant Develops* by Ritchie et. al. (2), the number of ear shoots (potential ears) is determined just before tassel formation at the 5th leaf stage (V5). Miniature ears begin forming shortly after tassel initiation according to Aldrich et. al. (1). The number of rows of kernels per ear is fully established by the V12 stage but the number of kernels per row is not completed until about one week from silking (~V17). Clearly, grain yield potential is determined prior to silking but the realization of this potential relies on favorable growing conditions during and following silking.

Methods

DeKalb brand DKC42-70RR, a 92-day hybrid, and DKC53-33RR, a 103-day hybrid, were planted May 11, 5, and 11 in 2002, 2003, and 2004 respectively at the Musgrave Research Farm near Aurora. Weed control treatments included a weed-free check that received a preemergence (PRE) application of 1.5 qt/A of Bicep Lite II Magnum, early (EPOST), mid- (MPOST), and late (LPOST) postemergence applications of 26 oz/A of Roundup UltraMax at approximately the V4, V5, and V6 stages of corn development, and an Untreated check. Handweeding *or* subsequent Roundup UltraMax applications were applied as needed to keep PRE, EPOST, and MPOST treatments weed free once the initial herbicide treatment had been applied. Common ragweed, common lambsquarters, and foxtails were 1 to 4, 3 to 8, and 4 to 14 inches tall at the EPOST, MPOST, and LPOST timings respectively, while wild mustard was 2 to 4, 9 to 14, and 12 to 24 inches tall at these timings. In addition to measuring silage and grain yields, the number of ears per plant, rows of kernels per ear, kernels per row, and kernel weight were recorded for each treatment.

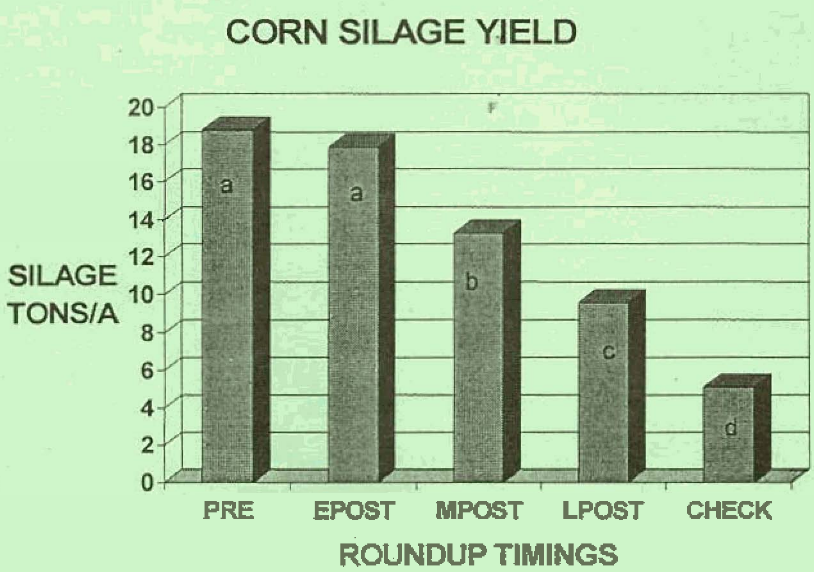

Figure 1. Corn silage yields for PRE weed free check, EPOST, MPOST, and LPOST Roundup UltraMax timings, and Untreated check averaged over two Roundup Ready hybrids and 3 years at Aurora, NY.

Silage and Grain Yields

There were no differences in silage or grain yields, or in the grain yield components between the 92- and 103-day hybrids when results were averaged over the 3 years and weed control treatments. There were however differences in these parameters among the weed control treatments and results discussed are a summary for both hybrids over the 3 years. Silage and grain yields were similar for the PRE weed free check and for the EPOST Roundup UltraMax timing, however there were differences among the silage and grain yields among the three POST Roundup UltraMax timings. Silage yield for the PRE weed free check averaged 18.8 T/A while silage yields for the EPOST, MPOST, and LPOST time of weed removal averaged 17.9, 13.3, and 9.6 T/A respectively (Figure 1). The Untreated check yielded only 5.1 T/A of silage. Grain yield for the PRE weed free check was 136 BU/A while grain yields for the EPOST, MPOST, and LPOST Roundup UltraMax timings were 135, 105, and 78 Bu/A respectively (Figure 2). The Untreated weedy check yielded only 33 Bu/A of grain.

Yield Component Results

Inspection of the grain yield component data revealed there were no differences in ear number per plant among the PRE weed free check and POST Roundup treatments. Each of these treatments averaged one ear per plant while there was only 0.67 ear per plant in the Untreated check plots. There were no significant differences in the number of rows of kernels per ear among the PRE weed free check, EPOST, and MPOST treatments with an average of 15.2 rows per ear (Table 1). The number of rows of kernels was reduced to 13.7 when weed interference was removed at the LPOST timing. The number of rows of kernels per ear was further reduced to 9.2 in the Untreated check. The kernels per row for the PRE weed free check averaged 30.2 per row. This was not significantly greater than the kernels per row from the EPOST Roundup UltraMax treatment (29) but was greater than the 25.4 kernels per row from the MPOST Roundup UltraMax treatment (Table 1). There was another significant drop to 21.9 kernels per row with the LPOST Roundup timing. The Untreated check averaged only 11.2 kernels per row. Finally, there were no differences in seed weight among the PRE weed free check and the POST Roundup treatments. Seed weight for these treatments averaged 19 grams per 100 seeds while the seeds from the Untreated check averaged about 12 grams per 100 seeds.

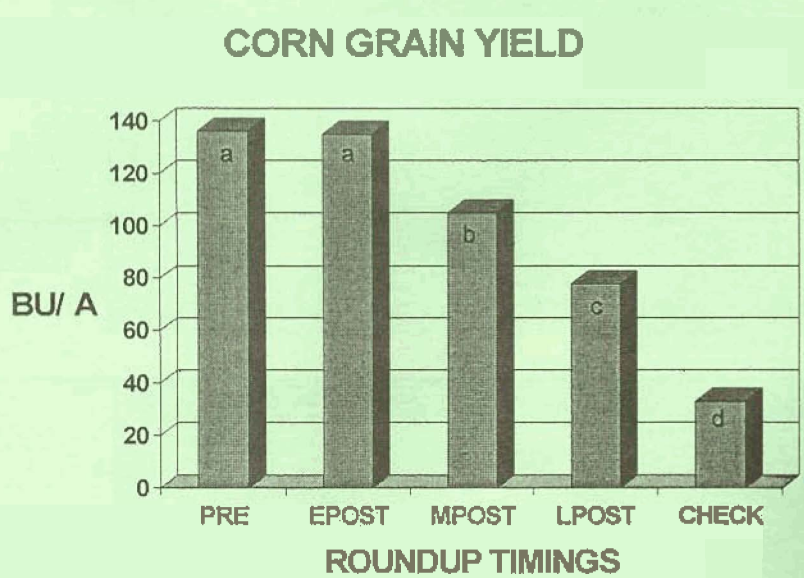

Figure 2. Corn grain yields for PRE weed free check, EPOST, MPOST, and LPOST Roundup UltraMax timings, and Untreated check averaged over two Roundup Ready hybrids and 3 years at Aurora, NY.

There was no decrease in the number of rows of ker-

Table 1. Rows of kernels per ear and kernels per row for PRE weed free, EPOST, MPOST, and LPOST Roundup UltraMax timings, and Untreated check averaged over two Roundup Ready corn hybrids and 3 years at Aurora, NY.		
Treatment Timing	Rows/Ear	Kernels/Row
PRE-Weed Free	15.4 a	30.2 a
EPOST Roundup	15.3 a	29.0 a
MPOST Roundup	14.9 a	25.4 b
LPOST Roundup	13.7 b	21.9 c
Untreated Check	9.2 c	11.2 d
LSD (0.05)	0.7	2.3

nels per ear through the MPOST Roundup timing (V5-6 stage of corn development) compared with the PRE weed free check. There was however a decrease in the number of kernels per row between the EPOST and MPOST timings. Since there was a significant drop in grain yield between the EPOST (V3-4) and the MPOST (V5-6) applications, these results suggest this yield reduction was more closely related to a reduction in the number of kernels per row than to a reduction in the number of rows per ear. These results also reinforce recommendations that total POST weed control programs using Roundup Ready corn hybrids should be applied by the V3 to V4 stage of corn development when weeds are 2 to 4 inches tall to maximize silage or grain corn yields.

1. Aldrich, S.R., W.O. Scott, and R.G. Hoeft. 1986. Modern Corn Production, Third Edition, A&L Publications, Inc. Champaign, IL.

2. Ritchie, S.W., J.J. Hanway, and G.O. Benson. 1997. How a corn plant develops. Special Report No. 48, Iowa State University of Science and Technology Cooperative Extension Service, Ames, IA.

Recommended Roundup Ready Soybean Varieties in New York

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Crop Management

New York farmers planted 175,000 acres in 2004, a new state record, and averaged 39 bu/acre in yield. Even with soybean prices hovering in the $5.00/bu range, soybean producers can realize a profit if their yields exceed about 35 bu/acre. Varieties have shown yield differences of 10 bu/acre or more in our variety trials so variety selection is a management practice that strongly determines whether growers realize a profit. The varieties in Table 1 and Table 2 are our recommended varieties for central/western and Northern NY, based on our tests in those regions. We only recommend varieties that have average relative yields of 100% or greater (100% relative yield equals the mean yield of the test). When looking at the relative yields in Tables 1 and 2, only compare the relative yields of varieties within the same maturity group.

Central/Western NY

FS199, a late Group I variety from FS Seeds, yielded exceptionally well in New York tests in 2004 (Table 1). SG1919, a late Group I variety from Seedway, yielded well in 2003 and 2004, and AG1903, a late Group I variety from Asgrow, yielded well in 2004. FS122, an early Group I variety from FS Seeds, also yielded very well in 2004.

S21-H3, an early Group II variety from Northrup King, and FS237, an early to mid-Group II variety from FS seeds, yielded very well in New York tests in 2004 (Table 1). AG2107 and Renwick, early Group II varieties from Asgrow and Hyland, respectively, also yielded well in 2004. DKB28-52, a late Group II variety from DeKalb, and S24-K4, a mid-Group II variety from Northrup King, have consistently yielded well in New York tests.

Northern NY

Razor and Richochet, two late Group 0 varieties from Hyland Seed, yielded well in Northern New York tests in 2004 (Table 2). Razor also yielded well in Northern NY in 2003. DKB15-51, a mid-Group I variety from DeKalb, and FS122 yielded very well in Northern New York in 2004 (Table 2). Late Group I varieties that also yielded well in 2004 include AG1903 from Asgrow, S19-R5 from Northrup King, and SG1919 from Seedway.

Conclusion

Variety selection strongly influences yield and subsequent profit. Commercial varieties do not have soybean rust or soybean aphid resistance yet so Maturity Group and yield are the most important factors in variety selection. Correct soybean variety selection can result in profit differences of $20 to $40/acre so growers should consider all sources of information when selecting varieties.

Table 1. Relative yields of recommended soybean varieties for Central/Western New York, based on tests in Cayuga and Livingston Co.

VARIETY	COMPANY	RELATIVE YIELD (%)	YEARS IN TEST
		GROUP I VARIETIES	
FS199	FS Seeds	117	1
SG1919	Seedway	109	2
AG1903	Asgrow	109	1
FS122	FS Seeds	105	1
S19-R5	NK	102	1
		GROUP II VARIETIES	
S21-H3	NK	108	1
FS237	FS Seeds	107	1
AG2107	Asgrow	104	1
Renwick	Hyland	104	1
DKB28-52	DeKalb	103	2
S24-K4	NK	103	4
FS200	FS Seeds	102	1
DKB22-52	DeKalb	102	2
SG2405	Seedway	101	2

Table 2. Relative yields of recommended soybean varieties for Northern New York, based on tests in Clinton and Jefferson Co.

VARIETY	COMPANY	RELATIVE YIELD (%)	YEARS IN TEST
		GROUP 0 VARIETIES	
Razor	Hyland	102	2
Richochet	Hyland	102	1
		GROUP I VARIETIES	
DKB15-51	DeKalb	105	1
FS122	FS Seeds	105	1
AG1903	Asgrow	104	1
S19-R5	NK	104	1
SG1919	Seedway	104	1

Calendar of Events

Feb . 7-10, 2005	Weed Science Society of America, Honolulu, HI
Feb. 9, 2005	Western NY Soybean/Small Grains Congress, Batavia Party House, Leroy
Feb. 10, 2005	Finger Lakes Soybean/Small Grains Congress, Holiday Inn, Waterloo
Feb. 22-23, 2005	NYSABA Annual Meeting, Holiday Inn, Auburn
Mar. 1, 2005	Northern NY Crop Congress, Elks' Lodge, Carthage
Mar. 2, 2005	Northern NY Crop Congress, St. Lawrence County
Mar. 3, 2005	North Country Corn Congress, Miner Institute, Chazy
Mar. 3, 2005	Quality Forage Forum, North Java Fire Hall, North Java
Mar. 4, 2005	Quality Forage Forum, Randolph Fire Hall, Randolph
Mar. 8, 2005	Field Crop Industry Day, Holiday Inn, Waterloo, NY
Jun. 2, 2005	Small Grains Management Field Day, Musgrave Farm, Aurora, NY
Jul. 6, 2005	Weed Science Field Day, Valatie, NY
Jul. 13, 2005	Weed Science Field Day, Aurora, NY
Jul. 30-Aug. 3, 2005	American Phytopathological Society Annual Meeting, Austin, TX
Oct. 5-7, 2005	Northeastern Division of American Phytopathological Society, Geneva, NY

What's Cropping Up? is a bimonthly newsletter distributed by the Crop and Soil Sciences Department at Cornell University. The purpose of the newsletter is to provide timely information on field crop production and environmental issues as it relates to New York agriculture. Articles are regularly contributed by the following Departments at Cornell University: Crop and Soil Sciences, Plant Breeding, Plant Pathology, and Entomology. **To get on the mailing list, send your name and address to Pam Kline, 234 Emerson Hall, Cornell University, Ithaca, NY 14853.**

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