What's Cropping Up?

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Total Postemergence Weed Control in Corn - Revisited

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Considerable research with total postemergence weed control in field corn has been conducted across NY State in recent years. Most of these experiments compared a standard preemergence (PRE) herbicide program with a conventional postemergence (POST) porgram of Basis Gold plus Clarity and, depending on the hybrid chosen, either a Liberty or Roundup control program. Four of these experiments, two at Aurora and two in Livingston County, in 2000 and 2001 were part of a multi-state effort throughout the Northeast. This regional study was conducted over a broad range of conditions at 34 locations from Virginia to Maine over the 2 years. A summary of the states, cooperators, and the number of experiments in each state is shown in Table 1.

Table 1. University cooperators for the "Total Postemergence Weed Control in Corn" project conducted throughout the Northeast in 2000 and 2001.

State	Cooperator	Sites
Pennsylvania	William S. Curran	9
Delaware	Mark J. VanGessel	5
New Jersey	Bradley A. Majek	5
New York	Russell R. Hahn	4
Virginia	E. Scott Hagood	2
Virginia	Henry P. Wilson	2
Maine	John M. Jemison	2
Maryland	Ronald L. Ritter	2
Massachusetts	Prasanta C. Bhowmik	2
Connecticut	Frank J. Himmelstein	1

Treatments

Roundup Ready® corn was used for these experiments and treatments were selected to provide data on the importance of application timing for total POST weed control programs in corn and on the role residual herbicides play in Roundup Ready® weed control programs. In most states, Harness Extra was used as the residual herbicide. Since this premix of acetochlor and atrazine is not registered for use in NY State, Bullet (a premix of alachlor and atrazine) was used in the NY experiments. The rate structure of the Harness Extra and Bullet treatments was the same across the region. Table 2 shows the herbicide treatments, rates and timings used in the NY experiments. Considerable effort was made to insure that POST timings were applied uniformly across the region. Details for the POST applications are shown in Table 3.

Data collected included weed density and height by species, which were recorded prior to each POST application. Visual weed control ratings and additional weed emergence was recorded 2 and 4 weeks after treatment. Finally, in late summer or fall, weed biomass and corn yields were determined.

Results

Common lambsquarters was the most commonly reported weed, occurring at 29 of the 34 locations across the region. Other frequently reported weeds were pigweed species (redroot, smooth, etc.), giant foxtail, common ragweed, and yellow nutsedge reported at 17, 14, 14, and 10 locations respectively. Weed dry matter (27 locations reporting) from the untreated checks (Trt. No. 1) averaged about 560 grams

Weed Management

Table 2. Weed control treatments used in NY State experiments of the regional "Total Postemergence Weed Control in Corn" Project.			
	Herbicide	**Rate**	**Timing**
1	Untreated		
2	Bullet	4 qt	PRE
3	Bullet fb Roundup	2.7 qt fb 1 qt	PRE/MPOST
4	Roundup	1 qt	EPOST
5	Bullet + Roundup	2.7 qt + 1 qt	EPOST
6	Basis Gold + Clarity	14 oz + 0.25 pt	EPOST
7	Roundup	1 qt	MPOST
8	Bullet + Roundup	2.7 qt + 1 qt	MPOST
9	Basis Gold + Clarity	14 oz + 0.25 pt	MPOST
10	Roundup	1 qt	LPOST
11	Roundup fb Roundup	1 qt fb 1 qt	EPOST/LPOST
12	Weed-Free		

per square meter (Figure 1). All of the herbicide treatments had significantly less weeds than the untreated check. The treatment with the next highest weed dry matter after the untreated check was EPOST Roundup only (Trt. No. 4) with just over 100 grams per square meter followed by PRE Bullet (Trt. No. 2) with about 80 grams per square meter. Treatments that did not have significantly more weeds than the weed free check (Trt. No. 12) included EPOST Bullet + Roundup (Trt. No. 5), EPOST Basis Gold + Clarity (Trt. No. 6), MPOST Bullet + Roundup (Trt. No. 8), LPOST Roundup (Trt. No. 10), and EPOST/LPOST Roundup followed by Roundup (Trt. No. 11).

Grain corn yields (Figure 2) were obtained at 33 of the 34 locations with an average yield of 92 Bu/A from the untreated checks (Trt. No. 1). The weed free checks (Trt. No. 12) produced an average yield of 152 Bu/A. Only three of the herbicide treatments yielded significantly less than the weed free check. Those were the PRE Bullet (Trt. No. 2) with 140 Bu/A and the EPOST (Trt. No. 4) and LPOST (Trt. No. 10) Roundup only treatments with yields of about 145 Bu/A.

The results showed that weed species and weed density were more important than location. The results also suggest that MPOST applications provided the most consistent weed control. In addition, the corn yield results seem to make a case for including a residual herbicide in Roundup Ready weed control programs, especially with the EPOST applications where there was a significant yield penalty with Roundup applied alone. At the MPOST timing, there was no difference in yield between the Roundup only (Trt. No. 7) and the Roundup plus residual treatment (Trt. No. 8). Although these results point out the value of residual herbicides in Roundup Ready corn weed control programs, they do not reveal much about the rate of residual herbicide needed. The rate of the residual premix in the Roundup combinations was 2/3 of the full PRE rate. Results from other NY experiments show that 1/2 of the PRE rate is adequate in these combinations.

Table 3. Application timing, corn stage of development and weed size for herbicide treatments in regional project.		
Timing	**Corn Stage**	**Weed Size**
EPOST	V2	1 to 3 inches
MPOST	V3 to V4	2 to 6 inches
LPOST	V6	> 6 inches

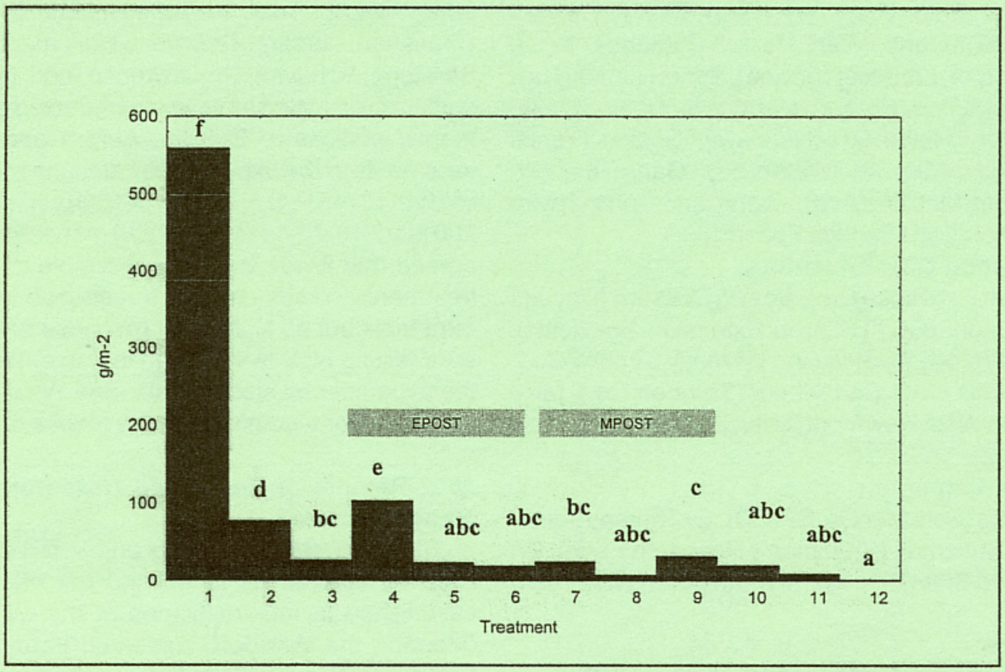

Figure 1: Average weed dry matter by treatment for 27 of the 34 sites of the Northeast regional "Total Postemergence Weed Control in Corn" project in 2000 and 2001.

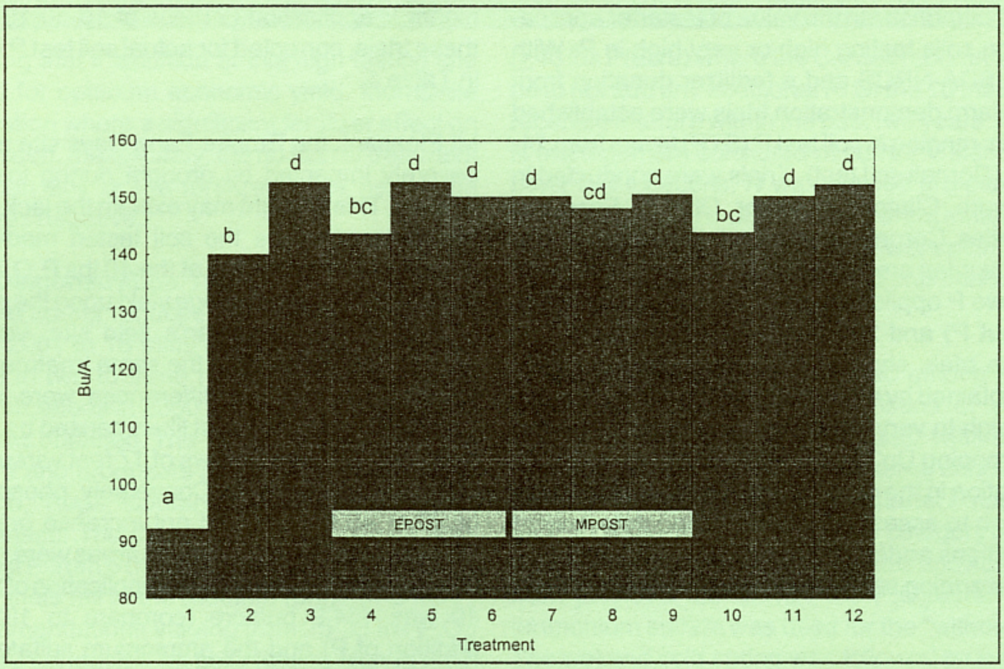

Figure 2: Average grain corn yields by treatment for 33 of the 34 sites of the Northeast regional "Total Postemergence Weed Control in Corn" project in 2000 and 2001.

Nutrient Management

Phosphorus Starter Project - Results of the 2002 Growing Season

Quirine Ketterings, Tim Byron & Greg Godwin; Dept. of Crop & Soil Sciences; and Karl Czymmek, PRO-DAIRY

2002 Participating Producers:
Hendee Homestead Farm (Hornell), Gary Tiernan (Waddington), Tim and Mark Heiden (Madrid), Kevin McCollum (Canton), Bill Kilcer (Genoa), Steve Nemec (New Hope), Mike McMahon (Homer), Maurice Stoughton (Newark Valley), Gary Gaige (Mecklenburg), Dudley French (Chemung), Rob Williams (Waterville), Gary Teel (W. Barneveld), Tom Moskin (Ava), Glenn and Larry Taylor (Cassville), Ralph Lott (Seneca Falls).

2002 Participating CCE Educators:
Pete Barney (St. Lawrence Co.), Shawn Bossard (Cayuga Co.), Janice Degni (CCTTS Area Extension Specialist), Mike Dennis (formerly Oneida Co., currently Seneca Co.), Jeff Miller (Oneida Co.), Carl Albers (Steuben Co.), Mike Stanyard (North West New York Dairy, Livestock and Field Crops Team).

Other 2002 Participants:
Elaine Dalrymple (Schuyler Co. SWCD), Ev Thomas (Miner Institute), Ron Stutzman (Stutzman's Research Farm), Dr. Greg Roth (Penn State), Dr. Adam Khan (Morrisville Technical College).

2002 Sponsors:
NE SARE (project funding), Carovail (fertilizer) and Pioneer Hi-Bred International Inc. (seed).

Background and Summary of 2000 and 2001 Results

The NY starter phosphorus (P) project was initiated in 2000 to evaluate and demonstrate the value of P starter applications for corn on soils testing high or very high in P. With support from USDA-NRCS and a fertilizer donation from Agway, ten on-farm demonstration trials were established that year on soils ranging in soil test P (STP) levels from 14-118 lbs P/acre (Cornell soil test). Trials were conducted in Cayuga, Delaware, Clinton, Herkimer, Otsego, Schuyler, and Tioga counties. Cornell recommendations for P_2O_5 use on each of these sites amounted to 20 lbs/acre or less. At each location two P application rates were tested: 200 lbs 10-0-10 (without P) and 200 lbs 10-10-10 (with P). The results of these trials showed that on average no yield increase was obtained by adding starter P in a 2" by 2" band to soil testing high to very high in P, even in a cool spring (see What's Cropping Up? 2001, Volume 11, no 3). There was some variation in the data but the number of trials was not large enough to assess whether planting date, recent manure applications and/or soil type (slowly warming clay versus quickly warming sandy soils) could have made any difference.

In 2001, we expanded the number of treatments per farm to four (no starter, no P in the starter, 10-25 lbs of P_2O_5 in the starter and >25 lbs P_2O_5) and increased the number of on-farm trials to 27. Trials were conducted in Cayuga, Chemung, Chenango, Cortland, Delaware, Herkimer, Oneida, Otsego, Saratoga, Schuyler, St. Lawrence, and Tioga counties. In addition, replicated trials were conducted at Cornell experimental stations in Batavia, Aurora and Willsboro. The treatments at the experimental stations were: 200 lbs/acre of 10-0-10 (no P_2O_5), 200 lbs of 10-10-10 (20 lbs P_2O_5), and 200 lbs of 10-20-10 (40 lbs P_2O_5). At field days, participants agreed that it was visually impossible to differentiate the treatments. Yields showed a response to N+K in the on-farm trials but no significant response to P application on soils testing high or very high in P in either the on-farm or the experimental station trials. See What's Cropping Up? 12(2): 4-5 for a summary of the results of the 2001.

2002 Results of Replicated Research Trials (experimental stations)

In 2002, NE SARE funding and a fertilizer donation by Carovail allowed us to expand our efforts. Trials were established in four replicates at the Mt Pleasant Farm (Mardin), the Willsboro Research Farm (Cosad), Ralph Lott's Farm (Empire Farm Days, Schoharie), the Musgrave Farm at Aurora (Kendaia), Morrisville Technical College (Palmyra), and Stutzman's Research Farm (Scio). The latter was a joint project with Penn State and included two additional treatments; an ammonium sulfate starter and a higher P application (213 lbs of 10-30-10). The results of these trials, corrected for actual soil test P level, are shown in Table 1.

Mt Pleasant, the Empire Farm Days site and Aurora were severely impacted by drought during the 2002 growing season. This drought may explain the lack of a response at Mt Pleasant where the soil tested medium in P and a response was expected at the 40 lbs P_2O_5 rate. Despite an apparent increase in *silage* yield upon the addition of 40 lbs of P_2O_5 at the Stutzman's field site, variability in yield between replicates with the same treatment was too large to conclude that the differences were due to fertilizer treatment. This was most likely caused by a comparatively small harvest area (2 rows of 17 feet versus 3-4 rows of 40 feet for the other sites). Conversely, phosphorus additions of 20 or 40 lbs/acre did not increase *grain* yields at the Stutzman's site where harvest areas were much larger. The average grain yields after the application of 213 lbs of 10-30-10 was 164.9 bu/acre (compare to 162.0 without the addition of P) and the ammonium sulfate application resulted in 173.8 bu/acre. These results were not statistically different from yields obtained with any of the other fertilizer

Table 1: Results of the 2002 starter P research trials conducted in New York*.

Location	Soil test P Morgan (lbs/acre)**	No starter	200 lbs 10-0-10	200 lbs 10-10-10	200 lbs 10-20-10	Fertilizer Effect?
		---------Silage Harvest (tons/acre 35% dry matter)------				
Mt Pleasant	5 (40)	12.8	11.9	13.3	12.3	No
Empire Farm Days	9 (20)	8.5	8.3	8.6	8.7	No
Aurora	10 (20)	10.0	9.1	10.2	9.3	No
Willsboro	17 (20)	15.9	16.5	16.4	16.4	No
Stutzman's	21 (10)	20.8	22.9	21.8	26.0	No
Morrisville	101 (0)	19.5 A	15.7 B	17.0 B	16.4 B	Yes (-)
Average	27 (10)	**14.8**	**13.9**	**14.7**	**14.4**	No
		-----------Grain Harvest (bu/acre 15% moisture)---------				
Mt Pleasant	5 (40)	81.3	79.1	96.9	93.5	No
Empire Farm Days	9 (20)	65.4	63.0	64.9	60.2	No
Aurora	10 (20)	59.2	51.0	51.0	51.8	No
Willsboro	17 (20)	113.8	129.2	129.9	140.1	No
Stutzman's	21 (10)	157.7	162.0	169.4	163.6	No
Morrisville	101 (0)	168.7	174.9	176.8	173.5	No
Average	27 (10)	**108.0**	**109.7**	**114.2**	**114.6**	No

* trials were planted between May 11 and June 4, 2002.
** in between parentheses is the optimum economic P_2O_5 recommendation according to Cornell University.

blends, confirming that P addition at this high testing site was not needed for optimum economic yield. Morrisville was the only location where a significant fertilizer effect on silage yield was seen. Inexplicably, the no starter treatment yielded more than any of the fertilized plots hence the fertilizer effect was negative.

2002 On-farm Demonstration Trials

The wet and cold spring reduced the number of on-farm trials from 27 in 2001 to 16 trials in 2002. However, trials were conducted in two to three replicates per treatment versus single replications in 2000 and 2001. Thus, a more robust dataset was obtained. The 16 trials were conducted by 9 cooperators and producers in St. Lawrence, Essex, Steuben, Cayuga, Tioga, Cortland, Chemung, Schuyler, and Oneida counties. The trials were conducted on soils ranging in soil test P from 6 (medium) to 68 lbs P/acre (very high). Soils in 3 trials fell in the medium range (4-8 lbs P/acre) with recommendations varying from 25-35 lbs P_2O_5/acre; 9 trials were conducted on soils testing high in P (9-39 lbs P/acre) with recommendations of 10-20 lbs P_2O_5/acre; and soils in 4 on-farm trials were in the very high range ($\geq$40 lbs P/acre) where the Cornell recommendation would be to not add any additional P. Of the 16 trials, 10 fields had received manure within the past two years. At 11 locations, N management consisted of starter + sidedress N. At the other five locations, N was applied pre-plant or as starter only. Soils varied in pH, texture, parent material, position on the landscape, etc. Only six trials were planted prior to May 23rd. Four trials did not get planted until June including a trial that was planted on June 30th.

The number of treatments varied among the trials. Most typically they included comparisons of yields obtained without starter fertilizer (10 trials), with starter fertilizer containing no P (16 trials), with starter containing 10-25 lbs of P_2O_5/acre (16 trials), and with starter P application of >25 lbs P_2O_5/acre (8 trials). The latter category consisted of the producer's fertilizer blends and rates and actual rates varied from just over 25 to 104 lbs P_2O_5/acre. At two farms, ammonium sulfate was used for the "without P" treatment. The wet and cold spring was followed by a severe drought in some parts of NY in 2002, causing large yield differences among counties and farms. Silage yields varied from less than 10 tons/acre to more than 25 tons/acre. The drought did reduce yields but did not change the effects of P starter application. Two trials were harvested for grain corn only, while silage harvests were recorded for all other trials. For trials where no silage was harvested, grain yields were converted to a silage equivalent by assuming that 1 ton of silage equals 5.9 bu/acre of grain. Treatment means for silage yield are given in Table 2.

The A's for the different treatments in the "significant?" column mean that yields were unaffected by the starter application or composition. Two sites of the ten that had a "no starter comparison" showed clear responses to starter N+K addition. These sites were in Oneida Co. and in St. Lawrence County. The trial in Oneida Co. was planted on May 23rd. The trial in St Lawrence Co. was planted on the 28th of May. Fields planted after May 23rd that were recently manured and drought stressed generally showed a less than 1 ton/acre fertilizer effect with the exception of a site in St Lawrence and one in Steuben Co. At the one site where ammonium sulfate application was compared to a no-starter and a 10-0-10 application, results showed that sulfur was not a limiting nutrient. The addition of zinc to the starter on a farm in Schuyler Co. did not affect yields either. When considering the cost of fertilizer alone, the economic advantage per acre for reducing P_2O_5 may not be substantial. The cost of 200 lbs of 10-0-10 was $16.50 versus $18.00 for 200 lbs of 10-10-10 and $21.00 for 200 lbs of 10-20-10. With the increased attention directed toward non-point sources of P, it makes little sense to use more starter P than is necessary to support optimum yields, especially on fields where significant amounts of manure nutrients are regularly applied.

Table 2: Corn silage yields as affected by use of starter fertilizer. These results are averages of 16 on-farm demonstration trials conducted in 2002 in 9 NY Counties.

Treatment	Corn silage yield (tons/acre 35% dry matter)	Significant? (α=0.05)
No starter	15.7	A
No P in starter	16.2	A
10-25 lbs P_2O_5 in starter	16.5	A
>25 lbs P_2O_5 in starter	16.0	A

Conclusions

On average, corn grain and silage yields showed no response to additions of P in starter fertilizer applied to soils falling mostly in the high and very high STP categories. We do recommend the application of N in the starter band, regardless of STP level, especially when planting occurs early in the season on fields without a recent manure history. On sites testing high in P, no yield penalty is expected when P starter levels are *reduced* below 25 lbs P_2O_5/acre. When manure is applied to high testing sites or on sites that test very high in phosphorus, P can be *eliminated* from the starter without a yield penalty. Forage analyses are being conducted and the effects of P addition on forage quality and milk yield will be reported in a future issue of What's Cropping Up?

The NY Starter P Project in 2003

The starter P project will be continued in 2003. We are looking for farmer participation for the on-farm trials. Participation includes the establishment of at least two 4-row and 100 feet long strips of each of the following 4 treatments: 1) no starter; 2) 200 lbs of 10-0-10 (i.e. no P in the starter); 3) 200 lbs 10-10-10; and 4) the producers' own blend and application rate. We will provide the 10-0-10 and 10-10-10 and participating farmers will receive a small financial reimbursement. For more information contact Quirine Ketterings (qmk2@cornell.edu or 607 255 3061) or Karl Czymmek (kjc12@cornell.edu or 607 255 4890) or your local Cornell Cooperative Extension office.

Acknowledgment

We thank Jenifer Wightman, Alex Wright and Hettie Krol for their help in harvesting, processing of the samples and data entry and Françoise Vermeylen for her statistical advice.

Recommended Roundup Ready Soybean Varieties for Northern New York

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Crop Management

We evaluated Group 0 and Group I Roundup Ready soybean varieties at Sackets Harbor (Jefferson Co.) and Chazy (Clinton Co.) in Northern New York. The Sackets Harbor area received only 1.56" of precipitation in July and 1.00" in August, so yields averaged only 30 bu/acre in the Group 0 and 20 bu/acre in the Group I test. July and August were also quite dry at Chazy, but yields averaged 55 bu/acre in the Group 0 and 67 bu/acre in the Group I test because of the deep soils at the experimental site. Group I varieties, which have higher yield potential compared with Group 0 varieties, yielded 12 bu/acre more in non-stressful conditions at Chazy but 10 bu/acre less in stressful conditions during the pod-filling stage in August at Sackets Harbor. Growers on droughty sites may wish to consider growing earlier soybean varieties to avoid typical dry August soil conditions.

The Group 0 varieties, X216 (Agway), T0151 (Hyland), and DKB09-53 (DeKalb) yielded among the highest at the low-yielding and high-yielding sites (Table 1). Varieties that yield well in low-yielding and high-yielding sites have excellent yield stability. All three varieties would be excellent choices for the unpredictable weather conditions in Northern New York.

The Group I varieties, S1918-4 (Stine), AG1401 (Asgrow), and X211 (Agway) yielded among the highest at the low-yielding and high-yielding sites (Table 1). Again, all three varieties would be excellent choices for Northern New York. S1613-4 (Stine) also yielded very well at Chazy, but yielded less than the other varieties at Sackets Harbor.

Interestingly, PR9936 (Semences), a Group 0 non-Roundup Ready variety, yielded 71 bu/acre at Chazy, about 15-20 bu/acre more than the Roundup Ready Group 0 varieties (data not shown). PR9936 showed exceptional early-season growth, which was reflected in a 20-inch height advantage at harvest. PR9936 apparently is very well-adapted to growing conditions in Northern New York.

Table 1. Yields of recommended Roundup Ready soybean varieties (Group 0 and Group I) at Sackets Harbor and Chazy in Northern New York in 2002.

VARIETY	SACKETS HARBOR	CHAZY	AVG.
	----bu/acre----		
		Group 0	
X216	31	57	44
T0151	33	55	44
DKB09-53	30	52	41
		Group I	
S1918-4	20	71	46
AG1401	24	65	45
X211	23	65	44
S1613-4	15	67	41

Crop Management

Does it Pay to Invest in a Yield Monitor?

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Farmers in New York have been reluctant to purchase yield monitors, although they improve the quality, type and amount of data available for decision-making. We previously reported the results of a variable hybrid selection study from 1999 to 2001 in Onondaga and Seneca Counties that used the split-planter technique to compare Pioneer 37M81, a new hybrid at that time, and Pioneer 3752, an established hybrid (Vol.12, No.6, p. 4-6), and found that relative hybrid performance varied greatly between farms. Farm-specific information on hybrid performance therefore appeared to be valuable. We used the results from that study to evaluate a farmer's decision to purchase a yield monitor solely for the use on a corn crop. We specify that through the use of a yield monitor, the farmer was able to tell the difference in yield between two hybrids for their soil conditions. We assumed that the two farmers purchased a yield monitor in 1998, evaluated the two hybrids in split-planter studies in 1999, and planted a varying amount of acreage in 2000 and 2001 to the selected hybrid based on the outcome of the 1999 yield results. This is a normal scenario as hybrids are typically sold for a limited number of years, and first-year results need to predict future yield potential.

We estimated the cost of the yield monitor at $5000, which was the average price from local vendors in 1998. Interest on operating capital was 8%, and the yield monitor was depreciated over 5 years to a salvage value of 40% of new cost. The difference in seed cost between 37M81, the new hybrid, and 3752 was $10/bag or $4/acre. Annual fixed costs for owning a yield monitor are $1605 per year (Table 1). We calculated projected returns for farm sizes of 50, 100, 200, 400 and 800 acres. We used the marketing year weighted average price for corn in New York for 2000 to 2001, which was $2.25/bu.

Table 1. Fixed annual costs for owning a yield monitor	
Cost	$
Deprec	600
Interest	280
Insurance	125
Service/Yr	500
Repairs	100
TOTAL	**1605**

We used the break-even point analysis to determine the relative economics of a yield monitor purchase. The break-even point is where profits are not enhanced or diminished in comparison to profits with or without the use of a yield monitor. The break-even yield is calculated as the number of bushels per acre required to cover the fixed and additional operating costs of the yield monitor. The break-even point however is dynamic and impacted by the managers' decisions. For example, increasing the acreage cropped can decrease the break-even yield. Thus, large farms can spread the cost of investing in a yield monitor over a large number of acres.

The hybrid 37M81 yielded 8 bu/acre more than 3752 on the Onondaga farm in 1999 (Table 2). Based on these results, we assumed that the Onondaga farmer would replace 3752 with the new hybrid, 37M81. Results from 2000 and 2001 indicate that the selection of 37M81 was the correct choice because 37M81 yielded 18 bu/acre more in 2000 and 13 bu/acre in 2001. Relative returns, however, would be dependent on the number of acres the Onondaga farmer would plant to 37M81 (Table 3). If the Onondaga farmer planted as little as 60 acres to the new hybrid in 2000 and 2001, the additional revenue from the higher yields would offset the annual costs of a yield monitor and the additional seed costs for the new hybrid.

The hybrid 3752 yielded 7 bu/acre higher than 37M81 on the Seneca farm in 1999 (Table 2). Based on these results, we assumed that the Seneca farmer would not replace 3752 with 37M81. Although 37M81 yielded 5 bu/acre more than 3752 in 2000, yields did not differ between the two hybrids when averaged across 2000 and 2001. The selection of 3752 was the correct choice because the additional seed cost of 37M81 made the latter less profitable. Nevertheless, the relative return for the purchase of the yield monitor on the Seneca farm would be negative, regardless of the number of acres planted to 3752, because the savings in seed cost did not offset the annual fixed costs of a yield monitor.

Conclusions

Split-planter studies that compared a new and established hybrid on two

Table 2. Corn grain yield of two hybrids at two farms in New York during the 1999, 2000 and 2001 growing seasons.

	Onondaga Farm			Seneca Farm		
	Field 1	Field 2	Avg.	Field 1	Field 2	Avg.
	bu/acre					
			1999			
37M81	145	154	150	94	102	98
3752	138	145	142	102	107	105
			2000			
37M81	118	122	120	126	114	120
3752	102	102	102	118	111	115
			2001			
37M81	134	162	148	135	113	124
3752	113	156	135	138	118	128

fields on each of two farms provided accurate information to select the correct hybrid in 2000 and 2001. The increased revenue by selecting the correct hybrid offset the total annual fixed costs of a yield monitor on one farm but not on the other farm. On the average, assuming that the two farms represent NY farms in general, farmers may expect a positive return on yield monitor purchases when more than 125 acres of corn are harvested. Farmers can also use the yield monitor for variety selection for other crops, such as soybean and wheat. It is also recommended to conduct other split-planter studies such as starter vs. no starter fertilizer or soil applied insectide vs. no soil-applied insectide. We believe that farmers can conduct numerous studies on their farm that may result in informed, and thereby profitable decisions on all their acreage, so we recommend the purchase of yield monitors on medium to large-sized farms.

Table 3. Returns per acre for investing in a yield monitor for varying corn acreage in 2000 and 2001 at the Onondaga and Seneca Farms.

		2000			2001			2000 + 2001		
Acres	Break-even gain†	Field 1	Field 2	Average	Field 1	Field 2	Average	Field 1	Field 2	Average
	bu/acre	$/acre								
					Onondaga Farm 37M81					
50	17	-0.03	9.44	4.71	6.89	-23.35	-8.23	3.43	-6.95	-1.76
100	9	16.97	26.44	21.70	23.89	-6.35	8.77	20.43	10.04	15.24
200	6	25.47	34.94	30.20	32.39	2.15	17.27	28.93	18.54	23.73
400	4	29.72	39.19	34.45	36.64	6.40	21.52	33.18	22.79	27.99
800	3	31.84	41.32	36.58	38.77	8.52	23.65	35.31	24.92	30.11
					Seneca Farm 3752					
50	15	-52.73	-40.34	-46.54	-26.86	-25.04	-25.95	-39.80	-32.69	-36.24
100	7	-35.73	-23.34	-29.54	-9.86	-8.04	-8.95	-22.80	-15.69	-19.24
200	4	-27.23	-14.85	-21.04	-1.36	0.46	-0.45	-14.30	-7.19	-10.75
400	2	-22.99	-10.60	-16.79	2.89	4.71	3.80	-10.05	-2.95	-6.50
800	1	-20.86	-8.47	-14.67	5.01	6.83	5.92	-7.93	-0.82	-4.37

†Indicates the yield difference between hybrids that is required to pay for the investment in a yield monitor.

Calendar of Events

February 5	Western NY Soybean & Small Grain Congress, Batavia
February 6	Finger Lakes Soybean & Small Grain Congress, Waterloo
February 10-13	Weed Science Society of America Annual Meeting, Jacksonville, FL
February 13	Crop Production 2003 Meeting, Auburn
February 19	North Country Corn Congress, Miner Institute, Chazy
March 5	Precision Agriculture Roundtable Meeting, Geneva Ramada Inn Lakefront
June 5	Small Grains Management Field Day, Musgrave Research Farm, Aurora, 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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