What's Cropping Up?

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LIGHTNING REGISTERED FOR USE ON CLEARFIELD CORN

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Lightning herbicide is now registered for use on Clearfield corn hybrids in NY State. This "new" herbicide is a mixture of two active ingredients, imazethapyr (Pursuit) and imazapyr (Arsenal). Pursuit has previously been registered for use on alfalfa, Clearfield corn, and soybeans in the state, while Arsenal has been registered for use in non-cropland situations. Both active ingredients belong to the imidazolinone herbicide family. Lightning is for use on Clearfield or IT (imidazolinone tolerant) corn hybrids only. Although these hybrids are considered "herbicide resistant", they are *not* genetically engineered. Instead, these hybrids were developed through selection of imidazolinone tolerant cells and then regeneration of whole plants for use in traditional plant breeding programs.

Mode of Action

Imidazolinone herbicides inhibit acetolactate synthase (ALS), a key enzyme in the biosynthesis of amino acids which are building blocks for plant growth and development. Plant growth is inhibited shortly after application of these herbicides but injury symptoms may not appear for 1 to 2 weeks. Sensitive plants may be stunted with interveinal yellowing (chlorosis) or purpling.

Two other herbicide families, the sulfonylureas and the sulfonamides, affect the same enzyme (ALS) in plants. The sulfonylurea family includes many familiar herbiicdes. Among these are Accent, Beacon, and Permit as well as premixes such as Basis Gold, Steadfast ATZ, NorthStar, and Yukon. Python is the most familiar member of the sulfonamide herbicide family. Table 1 shows some of the herbicides and herbicide premixes that include ALS inhibiting active ingredients.

Lightning Application

Lightning should be applied early postemergence (EPO) to small, emerged weeds. Foliar absorption usually occurs within 24 hours. In addition, the active ingredients have residual activity in the soil and are also absorbed by roots. Lightning is readily translocated both up and down in plants. Lightning is formulated as a 70% dispersable granule that is used at 1.28 oz/A. Applications should be made when most annual weeds are 1 to 3 inches tall and require the addition of a nonionic surfactant (NIS) *or* an organo-silicone surfactant at the rate of 1 qt/100 gal *and* a liquid fertilizer solution. Recommended nitrogen based fertilizers include 28% N, 32% N, or 10-34-0 at the rate of 1 to 2 qt/A (use the higher rate when weeds are under moisture or temperature stress).

Field Experiments

Field experiments with Lightning and Clearfield corn have

Table 1. A partial summary of ALS inhibiting herbicides and of ALS premixes that include at least one ALS inhibiting herbicide.

ALS Herbicides	ALS Premixes
Accent	Basis
Beacon	Basis Gold
Classic	Canopy
FirstRate	Canopy XL
Harmony GT	Exceed
Matrix	Extreme
Option	Harmony Extra
Peak	Hornet WDG
Permit	Lightning
Pursuit	Steadfast
Python WDG	Steadfast ATZ
Raptor	Yukon

Weed Management

been conducted for several years at Aurora and Valatie, NY. In each case, EPO Lightnting treatments have been compared with other total postemergence weed control programs and with standard preemergence (PRE) treatments.

At Aurora, 'Garst 8766 IT' corn was planted on May 11, 2002 and May 9, 2003 in a field with excellent green foxtail pressure and with moderate to good pressure from annual broadleaf weeds including common ragweed, common lambsquarters, and wild mustard. PRE treatments were applied May 22, 2002 and May 15, 2003 and received adequate rainfall for activation. EPO treatments were applied when annual weeds, except for wild mustard, were 2 to 2.5 inches tall in 2002 and less than 1 inch tall in 2003. Control of common lambsquarters and wild mustard was good to excellent with all treatments shown in Table 2. Common ragweed control was most variable of those weeds evaluated. PRE application of 3 pt/A of G-Max Lite (a premix similar to Bicep Lite II Magnum) controlled only 50 and 63% of the ragweed in 2002 and 2003 respectively. Ragweed control was also unacceptable (70 and 61% in 2002 and 2003) with the EPO application of 1.28 oz/A of Lightning alone. The addition of either 1 pt/A of AAtrex or 4 oz/A of Clarity improved ragweed control to about 88% on average. The other EPO treatments, Basis Gold plus Clarity in 2002 and Steadfast ATZ plus Clarity in 2003 provided 100 and 95% ragweed control respectively.

Table 2. Common ragweed and green foxtail control ratings and grain corn yields comparing EPO Lightning treatments with standard PRE and EPO weed control programs at Aurora in 2002 and 2003.

Herbicides	Rate Amt/A	When Appl.	Ragweed (%) '02	Ragweed (%) '03	Foxtail (%) '02	Foxtail (%) '03	Yield (Bu/A) '02	Yield (Bu/A) '03
G-Max Lite	3 pt	PRE	50	63	85	80	43	156
+ Prowl H20	2.6 pt	PRE	60	75	100	94	38	147
Lightning*	1.28 oz	EPO	70	61	100	93	43	150
+ AAtrex	1 pt	EPO	95	81	99	90	52	159
+ Clarity	4 oz	EPO	87	88	99	91	51	156
Steadfast ATZ**	14 oz	EPO	-	88	-	91	-	160
+ Clarity	4 oz	EPO	-	95	-	90	-	170
Basis Gold**	14 oz	EPO	100	-	95	-	47	-
Clarity	4 oz	EPO						
Untreated	-	-	0	0	0	0	9	36
LSD (0.05)			10	10	8	7	15	20

* Applied with 0.25% (v/v) NIS and 2.5% (v/v) 28% UAN.
** Applied with 1% (v/v) COC or MSO and 2% (v/v) 28% UAN.

Green foxtail control with the PRE G-Max Lite treatment alone was 85 and 80% in 2002 and 2003 respectively, while the combination of G-Max Lite with Prowl H2O provided excellent foxtail control (Table 2). Foxtail control was 90% or greater with all of the EPO treatments. There were no significant differences in grain corn yields among these treatments within years. The herbicide treatments averaged 46 Bu/A in 2002 due to drought stress and 157 Bu/A in 2003 compared with 9 and 36 Bu/A from the untreated checks in 2002 and 2003 respectively.

At Valatie, 'Garst 8766 IT' corn was planted on May 21, 2002 and May 19, 2003 in a field with a mixture of giant foxtail, common ragweed, common lambsquarters, and wild radish. PRE treatments were applied May 22, 2002 and May 20, 2003 and had adequate rainfall for activation. EPO treatments were applied when annual weeds, except for wild radish, were 1.5 to 3 inches tall both years. Control of common lambsquarters and wild radish was good to excellent with all treatments shown in Table 3. PRE application of 2 pt/A of G-Max Lite plus 2 pt/A of Prowl H2O controlled 80 and 58% of the ragweed in 2002 and 2003 respectfully. Reduced ragweed control in 2003 was likely due to the nearly 5 inches of rain that fell during the 3 weeks after application diluting the atrazine in G-Max Lite below the level needed for good ragweed control. Ragweed control with Lightning alone was 93% in 2002 but only 61% in 2003. The addition of 1 pt/A of AAtrex to Lightning increased ragweed control to 98% in 2003 while the addition of 4 oz/A of Clarity had little effect on ragweed control in 2003. Once again, the other EPO treatments, Steadfast ATZ or Basis Gold plus Clarity provided excellent ragweed control.

Table 3. Common ragweed and giant foxtail control ratings and grain corn yields comparing EPO Lightning treatments with standard PRE and EPO weed control programs at Valatie in 2002 and 2003.

	Rate	When	Ragweed (%)		Foxtail (%)		Yield (Bu/A)	
Herbicides	Amt/A	Appl.	'02	'03	'02	'03	'02	'03
G-Max Lite	2 pt	PRE	80	58	91	100	37	130
+ Prowl H20	2 pt	PRE						
Lightning*	1.28 oz	EPO	93	61	93	80	44	143
+ AAtrex	1 pt	EPO	97	98	91	86	40	147
+ Clarity	4 oz	EPO	95	65	90	85	32	146
Steadfast ATZ**	14 oz	EPO	-	93	-	-	-	
Basis Gold**	14 oz	EPO	100	-	91	85	44	147
Clarity	2 oz	EPO						
Untreated	-	-	0	0	0	0	3	50
LSD (0.05)			3	10	19	10	13	18

* Applied with 0.25% (v/v) NIS and 2.5% (v/v) 28% UAN.
** Applied with 0.25% (v/v) COC or MSO and 2% (v/v) 28% UAN.

Giant foxtail control was 90% or greater with all PRE and EPO treatments in 2002 (Table 3). In 2003 the PRE treatment controlled 100% of the foxtail while control with the EPO treatments averaged only 84%. There were no significant differences in grain corn yields among these treatments within years. The herbicide treatments averaged 39 Bu/A in 2002 due to drought stress and 143 Bu/A in 2003 compared with 3 and 50 Bu/A from the untreated checks in 2002 and 2003 respectively. These results demonstrate some weakness on common ragweed when Lightning is applied alone and that Lightning in combination with 1 pt/A of AAtrex provides more consistent ragweed control than the combination with Clarity assuming the ragweed is not triazine resistant. If the ragweed happens to be triazine-resistant then the combination with Clarity would be the better choice. In addition, the Lightning plus AAtrex combination performed as well or better than the standard PRE and EPO programs.

Precautions

Field corn growers considering using Lightning in their corn weed control program are reminded that Lightning is only for use with Clearfield or IT corn hybrids. It would cause unacceptable injury to regular hybrids. It is also important to follow the rotational guidelines on the Lightning label. Wheat and rye can be planted 4 months after application and regular corn hybrids, soybeans, alfalfa, barley, edible beans and peas can be grown the following season. The rotational restriction for oats, sorghum, and sweet corn is 18 months and the rotational restriction for other crops ranges from 26 to 40 months. Finally, a herbicide resistance management plan should be used with Lightning and all the other ALS inhibiting herbicides shown in Table 1. The development of ALS resistant weed populations seems to occur with a relatively short use history. As a result, there are more ALS resistant weed species in the world than for any other mode of action including traizine-resistant weeds. So far no ALS resistant weeds have been identified in NY State.

Pest Management

EPA Required Insect Refuges: Necessary Evil or Needless EPA Meddling?

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Agricultural production for the past 60 years has continued to grow in leaps and bounds due primarily to the incorporation of new broad based technological advances which have been incorporated into machinery, plant genetics, plant nutrition and the improved control of yield robbing pests such as weeds, diseases and insects. The incorporation of pesticides into the production practices of most farmers has played no small role in the increase of agricultural production. As a result of the widespread and frequent use of pesticides to control weeds, diseases and insects, the inevitable has happened. Strains of weeds species, plant disease species and insect species targeted by pesticides have developed resistance to the groups of pesticides applied for their control. To date, more than 170 weed species have been identified to be resistant to herbicides and more than 500 insect species have been identified resistant to insecticides.

The speed that an organism (bacteria, fungi, insect, weed) will develop resistance to a toxin (pesticide) is dependent on the intensity that the organism is exposed to the toxin, the number of generations of the organism per growing season, mode of action of the toxin and the availability of breeding sites where the organism is not exposed to the toxin. Modes of action, which target a very narrow physiological process like a single enzyme, are often easier for organisms to develop mechanisms to overcome the toxin. These principles apply to toxins either applied externally or genetically incorporated internally in the plant. For example, a fungal plant pathogen which has numerous generations per growing season, numerous applications of fungicides applied to prevent disease and the fungus is restricted to a single host which is treated with the fungicide will develop resistance quickly to the fungicide. In these severe cases, resistance will often appear within a couple of years. Examples include Late Blight of Potatoes and Wheat Rust.

On the other end of the spectrum are Perennial Weeds and insects with a broad host range such as Potato Leafhopper. In the case of perennial weeds, the long generation time of years and the reduced reproduction by seeds (sexual reproduction) reduce the probability of the development of herbicide resistance. With some weed species, farmers may still be trying to control the same plant, which plagued their grandfathers. A similar situation exists with an insect like Potato Leafhopper. Potato leafhopper has 3 generations per year, 200 different host plants on which it develops during the growing season, and only a few are agricultural crops, which are treated with pesticides. Populations for different host plants commonly interbreed diluting any possible insecticide resistance development. Therefore, it is unlikely that potato leafhopper will ever develop resistance to insecticides or plant incorporated genetic resistance. Between the two extremes lie many of the examples of pest organisms and developed resistance.

What Are Refuges And What Is Their Purpose?

The deployment of refuges around the agricultural landscape is an attempt to prevent or delay the development of a resistant insect population by taking high-risk situations and attempting to lower the risk of resistance development by reducing the exposure of the insect population to the toxin. For example, if the high-risk situation of BT-corn borer could be reduced to the low risk situation illustrated by the potato leafhopper example, the BT-corn borer technology would be available for the use by agricultural producers for many years. However, in the case of most insect agricultural pests, the "perfect" situation to prevent resistance development is not economically viable, so the refuge requirements are a compromise between the "ideal refuge" to prevent resistance development and the economic restraints of modern agriculture.

The concept of refuges works in the following way. The number of insects capable of surviving the toxin within the treated field is initially very small. In contrast, the number insects surviving in the untreated refuge is quite large. The large number of insects produced by the refuge genetically floods the few insects capable of surviving the toxin treated field by inter-mating with them. Genes for resistance within the insects surviving the toxin are diluted within the insect population thereby reducing the probability of resistance development. In order for refuges to work at their maximum effectiveness, the production of adult insects within the refuges need to be matched with the production of adult insects within the treated field. In addition, the treated field and the refuge need to be in close proximity to promote the intermixing of the two insect populations during the mating process.

What Type of Resistant Corn Requires A Refuge?

There are two relatively new resistant corn types, which require the planting of a refuge. The first type of resistant corn, which has been on the market for several years, is BT-corn borer. One example of this type of resistant corn is YieldGard™ corn borer. A BT toxin effective on corn borer has been incorporated into the genetic makeup of the corn plant so every cell in the plant contains the toxin. A second different but similar resistant corn type which has been recently released in the US is BT-Rootworm. NY-DEC is expected to make a decision on releasing this new corn for NY by March 1, 2004. This resistant corn type contains a BT toxin, which is effective on corn rootworm (but not on corn borer). An example of this type of resistant corn is YieldGard™ rootworm.

What Is The Potential For BT-Resistance Development In Corn Borer?

BT resistant colonies of corn borer have been selected for in the laboratory without too much effort, indicating the potential for corn borer to develop resistance in the field is very high. Therefore, widespread deployment of BT-corn borer corn without refuges will promote the development of BT-resistance.

In NY, there are two different strains of corn borer and the potential for resistance development is different for each strain. The E-strain has a wide host range and the larvae can be found developing in diverse plants such as wheat, potatoes, roadside weeds with large hollow stems as well as corn. In contrast, the Z-strain develops exclusively on corn. Both strains have a mixed population of 1-generation per year and 2-generations per year. Entomologists working on corn believe that BT-resistance will be first detected in the 2-generation Z-strain corn borer. Additionally, resistance is most likely to develop in the portion of the Corn Belt with the largest acreage planted to BT-corn borer corn where farmers ignore the refuge requirements. Consequently, EPA is very concerned about the lack of refuges planted by farmers and EPA is applying significant pressure on the seed companies to insure that refuges are planted according to the refuge requirements. Seed companies are threatened with the loss of registration of their products if sufficient refuge compliance is lacking.

BT-Corn Borer Refuge requirements

- The refuge must equal 20% of the acreage of the BT-corn borer corn acreage.
- Plant the refuge within 1/2 mile of the BT-corn borer corn field (1/4 mile or closer is preferred.)
- Plant a refuge on every farm where BT-corn borer corn is planted.
- Plant the refuge at the same time as the BT-corn borer Corn
- Manage the refuge and the BT-corn borer cornfields in a similar manner.
- Mixing 20% non-BT seed with the BT-corn borer corn seed is not an acceptable refuge design.
- Growers cannot utilize neighbor's cornfield as their refuge.
- Refuges can be configured as a separate field, block within a field, perimeter around the field or strips throughout the field.

What Is The Potential For BT-Resistance Development In Corn Rootworm?

Western corn rootworm has demonstrated its ability to develop resistance to an insecticide in 5 years when large segments of the populations were exposed to the same insecticide over large area. A similar response is expected with the widespread deployment of rootworm resistant corn with a single mode of action like the newly released BT-rootworm. To date, efforts in the laboratory to isolate a BT resistant strain of rootworms has been ineffective. However, resistance is expected to develop in areas where BT-rootworm is widely deployed and the establishment of refuges is neglected. The importance of refuges for this insect to prevent resistance development cannot be over emphasized.

BT-Rootworm Refuge Requirement

In the event that NY-DEC approves the application to allow the planting of BT-Rootworm in NYS, the following refuge requirements need to be satisfied.

- The refuge must equal 20% of the acreage of the BT-corn rootworm corn acreage.
- The refuge must be planted in a field with a very similar cropping history as the BT-rootworm field (i.e. both fields 3 year continuous corn).
- Plant the refuge within or immediately adjacent to the BT-rootworm field.
- Adjacent field refuges must be managed by the same grower as the BT-rootworm field.
- Plant the refuge at the same time as the BT-rootworm field.
- The refuge field can be treated for corn rootworm larvae and other soil pests with soil-applied, seed-applied, or foliar-applied insecticides.
- Plant a refuge on every farm where BT-rootworm corn is planted.
- Mixing non-BT seed with BT-rootworm seed for use as a refuge is not permitted.

Crop Management

Recommended Corn Silage Hybrids

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Cornell initiated a corn silage hybrid testing program in 2000 to evaluate 95-115 day hybrids at two locations in central/western NY and 75-100 day hybrids at two locations in Northern NY. We arrange the hybrids in the field into 5-day maturity groups (i.e. 95-100, 101-105, 106-110, 111-115 day hybrids), and harvest one or two maturity groups at a particular site when the hybrids are in the 65-70 % moisture range. We also take a 5-plant sample from each plot at harvest for wet chemistry analyses for neutral detergent fiber (NDF), NDF digestibility (NDFd), in vitro true digestibility (IVTD), crude protein (CP), ash, and starch.

MILK2000, a spreadsheet from the University of Wisconsin, calculates milk/ton, a silage quality index, derived from the NDF, NDFd, CP, ash, and starch concentrations. MILK2000 also calculates milk yield per acre by combining silage yield and milk/ton values. We recommend hybrids that have comparative milk yields of 100 or greater (the average milk yield of the hybrids is adjusted to 100 and hybrids with above-average milk yields have values above 100). We have listed the comparative milk yields as well as comparative silage yields and milk/ton values for hybrids that have performed above-average in our trials (Tables 1 and 2). Hybrids should be compared only within maturity groups. Hybrids that have been tested for more than 1 year should be given more weight because they have performed above-average in more tests.

Central/Western NY

HL S041 and HL S047, hybrids from Hyland Seed Co., performed well in the 95-100 day Relative Maturity (RM) group because both hybrids had excellent quality (Table 1). Also, DKC47-10 (RR/YGCB) from DeKalb and 477SL (Doebler's) performed well in the 95-100 day RM group. In the last two years, the 95-100 and 101-105 day hybrids have had the same average silage yields.

36N71 (Pioneer), DKC51-43 (DeKalb), and N51-Z7 (NK) are excellent 101-105 day silage hybrids. 36N71 had above-average yield and quality for the last 2 years, whereas DKC51-43 had excellent quality and N51-Z7 had excellent silage yields in 2003. 5481FQ (Mycogen) and HL S058 (Hyland) also had excellent silage yields in 2003 and 36N70 (Pioneer) and DKC53-34 (RR/YGCB) had above-average quality for the past two years. 8590IT (Garst) had the highest silage yields in the 101-105 day RM in 2003.

H-8562 (Golden Harvest) had the highest silage yield amongst all hybrids tested in 2003. H-8562 also had above-average quality. 34M94 (Pioneer) and 34B23

Table 1. Recommended corn silage hybrids in New York based on tests in Cayuga Co. and Livingston Co.

Brand	Hybrid	Comparative Silage Yield	Comparative Milk/Ton	Comparative Milk Yield	Years in test
		---%	---	---	
		95-100 day Relative Maturity			
Hyland	HL S041	99	104	104	2
Hyland	HL S047	98	105	103	1
DeKalb	DKC47-10 (RR/YGCB)	101	100	101	1
Doebler's	477SL	100	99	100	2
		101-105 day Relative Maturity			
Pioneer	36N71	104	102	108	2
DeKalb	KDC51-43	100	105	107	1
NK	N51-Z7	104	100	106	1
Mycogen	5481FQ	104	99	104	1
Hyland	HL S058	103	99	103	1
Pioneer	36N70	100	102	103	2
DeKalb	DKC53-34 (RR/YGCB)	102	101	101	2
Garst	8590IT	105	95	100	1
		106-110 day Relative Maturity			
Golden Harvest	H-8562	108	102	110	1
Pioneer	34M94	105	104	107	3
Pioneer	34D71	105	102	106	1
Pioneer	34B23	104	103	104	4
Hytest	TNT-106RR	106	97	103	1
Hyland	HL S067	104	99	102	3
Hyland	HL S072	102	99	100	1
DeKalb	DKC57-84 (YGCB)	98	102	100	1
		111-115 day Relative Maturity			
Garst	8222IT	100	102	102	1
Hytest	HT7711BT	104	98	102	1
Doebler's	S707Q	102	98	100	1
Doebler's	667SL	101	99	100	2

(Pioneer) had above-average yield and quality for the last 3 to 4 years and 34D71 (Pioneer) had above average yield and quality in 2003 in the 106-110 day RM. TNT-106RR (Hytest), HL S067 (Hyland), and HL S072 (Hyland) had above-average silage yields and DKC57-84 (DeKalb) had above-average silage quality in 2003. Overall, the 106-110 day hybrids had 12% higher average silage yields compared with the 101-105 day hybrids in 2003.

8222 IT (Garst), which had above-average quality, and HT7711 BT (Hytest), which had above-average silage yields, had the highest milk yields of the 111-115 day RM in 2003. S707Q (Doebler's) and 667SL (Doebler's) also had above-average silage yields in 2003. Overall, the 106-110 and 111-115 day hybrids had the same average silage yields in 2003.

Northern NY

HL S012 and HL S014, hybrids from Hyland Seed Co., had above-average milk yields for the last two years in the 77-85 RM because of above-average silage yields (Table 2). 4240 (Chemgro) also had above-average milk yields in 2003 because of above-average quality. The 77-85 day hybrids had similar average silage yields to the other hybrid maturity groups in 2003 but 13% lower than the average silage yields of the 91-95 day hybrids in 2002.

N3030BT (NK) has had above-average milk yields in the 86-90 day RM for the last 4 years because of above-average silage yields and quality. DKC39-45 (DeKalb) and 4430 (Chemgro) had above-average milk yields in 2003 mostly because of above-average quality. HT7220BT also had above-average milk yield in 2003 because of above-average silage yields.

38T27 (Pioneer) and 38A24 (Pioneer) had above-average milk yields in the 91-95 RM for the last two years because of above-average silage yields and quality. HL S034 also had above-average milk yields for the last two years because of above-average silage yields. HT7344BT (Hytest) performed very well in 2003 because of above-average quality and DKC40-57 (YGCB) performed well in 2003 because of above-average silage yields.

N33-H6 (NK), 8888 (Garst), and TA 4010F (T.A. Seeds) had above-average milk yields in the 96-100 day RM in 2003. N33-H6 had above-average silage yield and quality, 8888 had above-average silage yields, and TA 4010F had above-average quality. Overall, the 96-100 day hybrids have yielded only 2.5% higher than the 91-95 day hybrids over the last two years.

Table 2. Recommended corn silage hybrids in New York based on tests in Clinton Co. and St. Lawrence Co.

Brand	Hybrid	Comparative Silage Yield	Comparative Milk/Ton	Comparative Milk Yield	Years in test
		%			
		77-85 day Relative Maturity			
Hyland	HL S012	107	100	107	2
Chemgro	4240	100	103	104	1
Hyland	HL S014	102	100	101	2
		86-90 day Relative Maturity			
NK	N3030BT	105	102	104	4
DeKalb	DKC39-45	101	103	104	1
Hytest	HT7220BT	103	100	103	1
Chemgro	4430	101	102	103	1
		91-95 day Relative Maturity			
Pioneer	38T27	106	102	106	2
Hyland	HL S034	106	100	105	2
Pioneer	38A24	102	103	105	2
Hytest	HT 7344BT	100	105	105	1
DeKalb	DKC40-57 (YGCB)	104	99	103	1
		96-100 day Relative Maturity			
NK	NX3360 (N33-H6-)	102	101	103	1
Garst	8888	103	99	102	1
TA Seeds	TA	100	101	101	1

Conclusion

Hybrid selection is one of the most important management practices that affect corn silage yield and quality. Dairy producers should make informed decisions, based on actual silage yield and quality data, before selecting hybrids for the coming year. The Cornell silage hybrid testing program provides silage yield and quality data from studies in New York.

Calendar of Events

January 5-8, 2004	Northeastern Weed Science Society Meeting, Cambridge, MA
January 15, 2003	Field Crop Industry Day, Holiday Inn, Waterloo, NY
January 21, 2004	Western New York Corn Congress, Holiday Inn, Batavia, NY
January 22, 2004	Finger Lakes Corn Congress,Holiday Inn, Waterloo, NY
January 29, 2004	Corn Production Conference, Holiday Inn, Oneonta, NY
February 3, 2004	Western New York Soybean/Wheat Congress, Batavia Party House, Batavia, NY
February 4, 2004	Finger Lakes Soybean/Wheat Congress, Holiday Inn, Waterloo, NY
Feb 9-12, 2004	Weed Science Society of America, Kansas City, MO
Feb 10, 2004	Pest Management 2004, Delphi Falls, NY
Feb 12, 2004	Crop Production 2004, CCE Education Center, Auburn, NY
Feb 24-25, 2004	NYSABA Annual Meeting, Holiday Inn, Auburn, NY
Mar 4, 2004	North Country Corn Congress, Miner Institute, Chazy, NY
Mar 4, 2004	Quality Forage Forum, Fire Hall, North Java, NY
Mar 5, 2004	Quality Forage Forum, Randolph, NY
July 11-14, 2004	Northeastern ASA/SSSA Branch Meeting, Bordentown, NJ
Oct. 31-Nov 4, 2004	ASA-CSSA-SSSA Annual Meeting, Seattle, WA

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