What's Cropping Up?

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Recommended Planting Rates for Grain Corn on Silt Loam Soils

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Many new corn hybrid releases have stacked traits or have been treated with seed-applied insecticides so seed costs have increased significantly in recent years. Consequently, planting at the correct rate to obtain the optimum harvest population has increased in importance. Planting at too high a rate without a yield benefit reduces profit because of the high seed costs. Planting at too low a rate while incurring a yield loss reduces profit because the lost revenue offsets the reduced input costs for seed. Now more than ever corn producers must plant at the correct rate to maximize profit from the expensive input costs.

We initiated a 3-year plant population study on grain corn at the Aurora Research Farm in Cayuga Co. on a well-drained silt loam soil in 2003 to evaluate the response of 21st century hybrids to harvest populations. We planted a Pioneer and a DeKalb hybrid on 7 May 2003, 6 May 2004, and 29 April 2005. Plots measured 100 by 10 feet and each population for each hybrid was replicated four times for each hybrid. We harvested the center two rows of each plot with an Almaco plot combine when grain moistures averaged about 25%.

Although we did not achieve our targeted harvest populations in all years of the study, the results are very clear. About 26,000 – 27,000 plants/acre at harvest was the optimum harvest population for both hybrids in years of the study (Table 1). The 2003 growing season was conducive for lodging, which limited the yield of DKC53-34, once harvest populations exceeded 24,700 plants/acre. The 2004 growing season was stress-free with lodging problems, but yields topped out at harvest populations of 25,125 plants/acre for DKC53-34 and 27,700 plants/acre for 37F16. The 2005 growing season had significant heat and drought stress but once again DKC53-34 and 37F16 had optimum yields at harvest populations of 26,631 and 25,870 plants/acre, respectively. When averaged across the very different growing seasons, DKC53-34 had optimum yields at harvest populations of 26,785 plants/acre and 37F16 had optimum yields at 26,858 plants/acre. This clearly indicates that harvest populations of about 27,000 plants/acre was optimum on well-drained silt loam soils across very different climatic conditions.

Table 1. Harvest populations and grain yield of a DeKalb and a Pioneer hybrid in 2003, 2004, and 2005 and pooled across years at the Aurora Research Farm in Cayuga Co., NY.

DKC53-34				37F16			
2003	2004	2005	Avg.	2003	2004	2005	Avg.
plants/acre							
24700	20310	20870	21960	18420	27700	20000	22040
28600	25125	26631	26785	21580	33125	25870	26858
33160	28000	31305	30822	25090	34875	29565	29260
37020	30440	34457	33972	27370	39000	37066	34479
bu/acre							
187	178	148	171	165	186	143	165
188	197	152	179	171	189	150	170
187	189	142	173	180	180	134	165
175	188	142	168	186	180	138	168

Moderately well-drained to well-drained silt loam soils represent more than half the grain corn acreage in NY so we believe harvest populations of about 27,000 plants/acre optimum for many grain corn producers in New York. When planting corn from April 25th to May 7th, we assume only an 85% emergence rate and recommend a planting rate for grain corn of about 32,000 plants/acre. When planting corn from May 8th to May 22nd, we assume a 90% emergence rate and recommend a planting rate of about 30,000 plants/acre. When planting corn after May 22nd, we assume a 95% emergence rate and recommend a planting rate of about 28,500 plants/acre.

Weed Management

Total Postemergence Field Corn Weed Control - A Good Choice Before Rotating to Perennial Forages

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Herbicide labels provide rotational restrictions or intervals for subsequent crops. Most preemergence (PRE) field corn weed control programs in NY State are based on an acetamide herbicide (Micro-Tech, Outlook, Dual II Magnum/Cinch) tank mixed or pre-mixed with atrazine. Other herbicides such as Prowl/Pendimax, Python, and Callisto are often added to these PRE programs to broaden the weed control spectrum. Careful examination of herbicide labels that include atrazine makes it clear that these products are not legal options the year before rotating to small-seeded legumes or legume-grass mixtures. Atrazine containing product labels give a rotational interval of 18 months or say "do not plant small-seeded legumes or grasses the year following application, or injury may occur".

Alternatives

Until Bladex was phased out of the market, this short-residual triazine herbicide was commonly substituted for atrazine the year before rotating to perennial forages, small grains, or other triazine-sensitive crops. Since then, recommendations have been less clear and it seems appropriate to provide new guidelines for corn weed control programs the year before rotating. The list of PRE and/or early postemergence (EPO) corn herbicides that allow rotation to small-seeded legumes and grasses the year after application is short. Those that are mainly used PRE include all of the acetamides along with Python WDG (Table 1). Short: residual herbicides that are applied either PRE or EPO include 2,4-D, Banvel/Clarity, Basis (≤ 0.33 oz/A), Callisto, Hornet WDG, and Prowl/Pendimax. Finally, Table 1 shows there are quite a number of short-residual corn herbicides that are only used postemergence (POST).

Upon close inspection of the herbicides in Table 1, it becomes evident that total POST corn weed control programs provide the simplest way of providing broad-spectrum corn weed control with no concern about herbicide injury to legume/grass seedings the year following application. While total POST corn weed control programs could be designed for conventional, Roundup Ready (RR), Liberty Link (LL), or Clearfield corn hybrids, programs for the two most widely used hybrids, conventional and RR, will be presented here.

Conventional Hybrids

Among the herbicides in Table 1 that are used on conventional hybrids, Steadfast, a 2:1 mixture of Accent and Matrix, provides the best POST activity on both annual and perennial grasses with the exception of large crabgrass. Other weaknesses of Steadfast include some annual broadleaf weeds like common ragweed, common lambsquarters, velvetleaf, and yellow nutsedge. Steadfast is almost always tank-mixed with 4 fl oz/A of Banvel/Clarity. This addition, takes care of the annual broadleaf weeds and results in the base program shown in Table 2. If crabgrass is troublesome, the addition of a reduced rate (1/2 to 1/3 labeled rate) of Prowl H_2O or Prowl/Pendimax would provide residual control of crabgrass as well as lambsquarters and velvetleaf. The Stinger component in Hornet WDG could provide additional activity against common ragweed. Finally, Steadfast can be tank mixed with Yukon, a premix of Permit and dicamba (the active ingredient in Banvel/Clarity) if yellow nutsedge is a problem. If Yukon is used with Steadfast, the Banvel/Clarity can be dropped from the base program. Growers should be

Table 1. Field corn herbicides that allow planting small-seeded legumes and grasses the year following application.

PRE/EPO	POST
*Micro-Tech	*Accent
Outlook	Basagran
Dual II Magnum/Cinch	Beacon/North Star
Python WDG	Buctril
2,4-D	Liberty (Liberty Link corn)
Banvel/Clarity	Lightning (Clearfield corn)
Basis (≤ 0.33 oz/A)	Permit/Yukon
Callisto	Resource
Hornet WDG	Roundup,etc. (Roundup Ready corn)
Prowl/Pendimax	Sencor DF
	Steadfast

*Restricted-use pesticide

Table 2. Total POST Steadfast program(s) for conventional field corn hybrids the year before small-seeded legumes and grasses.	
Herbicides	Rate Amt/Acre
Base Program	
Steadfast	0.75 oz
Banvel/Clarity	4 fl oz
Crop Oil	1%*
28% UAN	2.5%*
Crabgrass	
Prowl H_20	2 pt
Ragweed	
Hornet WDG	2 oz
Yellow Nutsedge	
Yukon**	4 oz

*Crop oil concentrate and 28% urea ammonium nitrate should be added to spray mixture at 1% and 2.5% by volume.
**If Yukon is used, Banvel/Clarity can be dropped from the base program.

reminded that Steadfast should only be used with field corn hybrids with a relative maturity (RM) rating of 77 days or more.

Roundup Ready Hybrids

Growers who choose to grow Roundup Ready corn will obviously use Roundup or one of several other glyphosate products (Glyphomax, Touchdown, etc.) as the base program (Table 3). Roundup is largely non-selective with activity against most broadleaf and grass weeds. The weakness of a Roundup only program is that there is no residual activity and weeds may germinate after application. Potential tank mix partners with short residual, include those that were recommended for use with Steadfast. Although Roundup does not need Banvel/Clarity to enhance ragweed control, it may provide added activity against lambsquarters and velvetleaf. In addition, 4 oz/A of Banvel/Clarity with 22 oz/A of Roundup will greatly improve control of broadleaf perennials such as hedge bindweed. Once again, addition of a reduced rate of (1/2 to 1/3 labeled rate) of Prowl H_20 or Prowl/Pendimax could provide residual activity for annual grasses, including crabgrass, lambsquarters, and velvetleaf. Hornet WDG could be used to provide additional activity against ragweed as in the conventional program. For added activity against yellow nutsedge, 0.33 oz/A of Permit would be recommended. While some glyphosate products are "fully loaded" with surfactants, other glyphosate products may require additional surfactants for best performance. Always follow label instructions concerning the use of additional adjuvants.

Timing Critical

Timing is always critical with total POST programs in field corn. Steadfast programs with conventional corn

Table 3. Total POST program(s) for Roundup Ready field corn hybrids the year before small-seeded legumes and grasses.	
Herbicides	Rate Amt/Acre
Base Program	
Roundup Original Max	22 fl oz
Additional Broadleaf Activity	
Banvel/Clarity	4 fl oz
Crabgrass	
Prowl H_20	2 pt
Ragweed	
Hornet WDG	2 oz
Yellow Nutsedge	
Permit	0.33 oz

hybrids, should be applied when annual weeds are 1 to 2 inches tall. Although glyphosate products used with Roundup Ready corn hybrids are effective against large weeds, glyphosate applications should be made when annual weeds are 2 to 4 inches tall to avoid yield reductions.

Nutrient Management

Nitrogen, Phosphorus, and Potassium Removal by Brown Midrib Sorghum Sudangrass

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Introduction

In the past five years, Northeastern USA dairy producers have shown a growing interest in brown mid-rib sorghum sudangrass as an environmentally sound alternative to corn that, grown in a 2-cut system with planting taking place after June 1, allows for the application of manure in times that the manure nutrients are less conducive to leaching and runoff. These past years, research focused on determining best management practices including seeding rate, stand height management in a 2-cut system, nitrogen and potassium management.

For the long-term sustainability of the dairy industry, manure application rates should not exceed crop removal for more years than needed to bring low fertility soils to optimum fertility. Thus, it is important to know N, P and K removal rates by this crop. Our objectives were to determine N, P, and K removal with harvest using 6 N rate studies conducted in three major agricultural areas in New York State (Northern NY, Eastern NY and Central NY).

Materials and Methods

Table 1 shows brief descriptions of the sites used for this study. The trial in Columbia County had received manure (about 5,600 gallons per acre plowed down within 5 hours resulting in an application of 120 lbs/acre available N assuming 65% availability of inorganic N and an organic N release of 35%) and had 5 N treatments (0, 50, 100, 150, and 200 lbs N/acre per cut using urea) as well as a control that had not received any manure or fertilizer since 2002. All other trials had 6 treatments (0, 50, 100, 150, 200, 250 lbs N/acre per cut as ammonium sulfate).

Cutting height was 3-3.5 inches and harvest was initiated when the plots that received 150 lbs N/acre per cut had reached 35-45 inches. At each site, two harvests were done with the exception of the site in Jefferson Country where only one cut was feasible due to late planting. We determined yield and took subsamples to determine moisture content and nutrient concentrations. All samples were analyzed for total N, P, and K. Optimum N rates ranged from less than 50 lbs N/acre per cut in the manured field in Columbia County and in the field with a recent sod history in Essex County, 120-140 lbs N/acre per cut for the three sites in Jefferson, St Lawrence and Cayuga County, to 170 lbs N/acre per cut at a site with no manure or sod history in Tompkins County (see What's Cropping Up? 15(4): 4-7). In this followup article, we focus on N, P, and K concentration in the forage and total nutrient removal with harvest.

Table 1: Soil fertility of the six New York State sites used for N rate studies for BMR sorghum sudangrass in 2004.

	Soil Fertility at Onset of the Trials (n=24)					
	Jefferson	St Lawrence	Columbia†	Essex	Cayuga	Tompkins
	Soil Series					
	Rhinebeck silt loam	Hailesboro silt loam	Knickerbocker fine sandy loam	Cosad loamy fine sand	Lima silt loam	Bath/Valois gravelly silt loam
	Cropping History					
	Continuous corn	Sorghum sudangrass	3rd year after sod kill	1st year after grass/alfalfa sod kill	Following wheat ('03) and barley ('02)	Following corn ('03) and barley ('02)
	Soil Fertility (Morgan extraction)					
pH (1:1)	6.1	6.4	5.8	6.5	7.8	6.7
OM (%)	4.3	4.1	4.6	3.4	4.0	7.6
P (lbs P/acre)	14 (H)	10 (H)	15 (H)	28 (H)	12 (H)	16 (H)
K (lbs K/acre)	116 (H)	106 (M)	66 (L)	48 (L)	94 (M)	206 (H)
Ca (lbs Ca/acre)	2416	2654	1804	2500	5600	4712
Mg (lbs Mg/acre)	406 (VH)	446 (VH)	298 (VH)	182 (H)	518 (VH)	580 (VH)
Nitrate (ppm)	5.6	10.5	-	7.9	5.7	0.6
Salts (mmho)	0.14	0.14	0.12	0.16	0.16	0.20
	Fertilizer Addition at Planting (M = added with manure)					
lbs P_2O_5/acre	38	45	84 (M)	20	30	20
lbs K_2O/acre	38	30	168 (M)	80	60	20

† Soil samples were not taken at the onset of this particular trial. Basic soil fertility assessments reported in this table are based on mean values for the 0 N plots (n=4) sampled after the 1st cut.

Results and Discussion

The forage N, P, and K concentrations are listed in Table 2. Forage N content increased with N application. The lowest N concentrations in plants grown without additional N were seen in the Essex and Jefferson County trials. This may be related to the higher first cut yields for both trials (4.4 tons/acre at 35% dry matter in Jefferson Country and 6.05 ton/acre in Essex

Table 2: Nitrogen, P, K, Ca, and Mg concentrations as impacted by N fertilization rate in six BMR sorghum sudangrass trials in New York (2004 season). Shaded are ranges for optimum economic N rate.

N applied	Jefferson		St Lawrence		Columbia		Essex		Cayuga		Tompkins	
	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
lbs N/acre per cut	Nitrogen (% N)											
0	.	.	1.63 c	1.35 d	1.72 d	1.31 c	0.98 b	1.26 b	1.54 b	1.41 c	1.54 a	1.59 d
0+M	.	.	.	.	2.28 cd	1.83 bc	.	.	.	.	.	.
38	0.91 bc	.	.	.	.	.	.	.	.	.	.	.
50	0.84 c	.	1.97 bc	1.53 cd	2.89 bc	2.21 b	1.42 ab	1.16 b	1.64 b	1.34 c	1.42 a	1.83 cd
100	0.89 bc	.	1.81 bc	1.90 bc	3.40 ab	3.03 a	2.02 ab	1.46 ab	1.87 ab	1.42 c	1.78 a	2.13 bc
150	1.39 b	.	2.32 ab	2.29 ab	3.24 ab	3.27 a	2.05 ab	1.57 a	1.98 ab	1.83 b	2.15 a	2.20 bc
200	1.99 a	.	2.70 a	2.51 a	3.62 a	3.32 a	2.24 a	1.60 a	2.19 a	1.87 b	2.22 a	2.50 ab
250	2.23 a	.	2.72 a	2.64 a	.	.	1.92 ab	1.74 a	2.32 a	2.26 a	1.72 a	2.81 a
	Phosphorus (% P)											
0	.	.	0.32 a	0.43 a	0.30 ab	0.44 a	0.26 a	0.41 a	0.30 a	0.35 a	0.40 a	0.38 a
0+M	.	.	.	.	0.33 a	0.40 ab	.	.	.	.	.	.
38	0.19 a	.	.	.	.	.	.	.	.	.	.	.
50	0.16 ab	.	0.32 a	0.37 b	0.30 ab	0.38 b	0.27 a	0.30 b	0.27 a	0.29 b	0.36 a	0.36 ab
100	0.12 b	.	0.29 a	0.32 c	0.27 ab	0.35 b	0.22 a	0.24 b	0.29 a	0.25 bc	0.33 a	0.35 ab
150	0.14 b	.	0.31 a	0.30 c	0.25 b	0.35 b	0.22 a	0.23 b	0.28 a	0.24 bc	0.34 a	0.32 b
200	0.14 b	.	0.29 a	0.29 c	0.28 ab	0.37 b	0.23 a	0.20 b	0.27 a	0.24 c	0.34 a	0.32 b
250	0.14 b	.	0.29 a	0.29 c	.	.	0.23 a	0.24 b	0.26 a	0.24 c	0.36 a	0.31 b
	Potassium (% K)											
0	.	.	2.73 a	1.76 a	2.39 a	1.87 ab	2.12 a	1.69 a	2.83 a	1.99 a	2.92 a	2.27 a
0+M	.	.	.	.	2.93 a	2.02 a	.	.	.	.	.	.
38	2.33 a	.	.	.	.	.	.	.	.	.	.	.
50	2.21 a	.	2.50 a	1.66 a	3.01 a	1.70 ab	1.70 ab	0.97 b	2.59 a	1.82 ab	2.87 a	2.29 a
100	2.07 a	.	2.55 a	1.56 a	2.83 a	1.38 b	1.59 ab	0.92 b	2.75 a	1.62 bc	2.82 a	2.27 a
150	1.98 a	.	2.38 a	1.54 a	2.29 a	1.64 ab	1.42 ab	0.93 b	2.66 a	1.54 c	2.90 a	1.96 a
200	1.80 a	.	2.30 a	1.63 a	3.01 a	1.67 ab	1.58 ab	0.91 b	2.50 a	1.53 c	2.77 a	2.08 a
250	2.19 a	.	2.37 a	1.62 a	.	.	1.14 b	0.81 b	2.50 a	1.57 c	2.87 a	2.39 a

Note: Average values *within columns* with different letters (a, b, c) are statistically different (P≤0.05).

County). Nitrogen removal at optimum N rates ranged from 63 to 204 lbs of N/acre in the two-cut systems where no manure was added and from 188-286 lbs of P_2O_5/acre in the manured site (Table 3).

Phosphorus concentrations ranged from less than 0.15% at the Jefferson County site to over 0.40% in the 2nd cut in Columbia County where over 80 lbs of P_2O_5 were added per acre in the form of manure. Uptake at optimum N rates ranged from 41 to 65 lbs of P_2O_5 in the two-cut systems where no manure was added and from 71-81 lbs of P_2O_5 in the manured site (Table 3). Although sites differed in P uptake per unit yield, P uptake was linearly related to dry matter yield at all locations (Figure 1).

The potassium content of 2nd cut forage was at all sites less than the 2.5% upper limit for feeding of forage to non-lactating cows (Table 2). First cuts were too high in K for non-lactating cows at all sites with the exception of the Essex County site. This was also the only site where K uptake was not linearly related to overall dry matter yield (Figure 1). This was due to low K concentrations in the 2nd cut and may be because this site tested low in K at the onset of the trial and K was applied at planting only.

Conclusions

Nutrient removal was linearly related to dry matter yields and not impacted by N application rate as long as a minimal amount of N was added (50 lbs/acre per cut or greater). However, results were very site-specific indicating that for accurate crop removal estimates, dry matter yields need to be determined and forage analyses need to be done.

References

1. Ketterings, Q.M., G. Godwin, T.K. Kilcer, P. Barney, M. Hunter, J.H. Cherney, S. Beer (2005). Nitrogen management for brown midrib sorghum sudangrass. Results of six NY field studies in 2004. "What's Cropping Up?" 15(4): 4-7.

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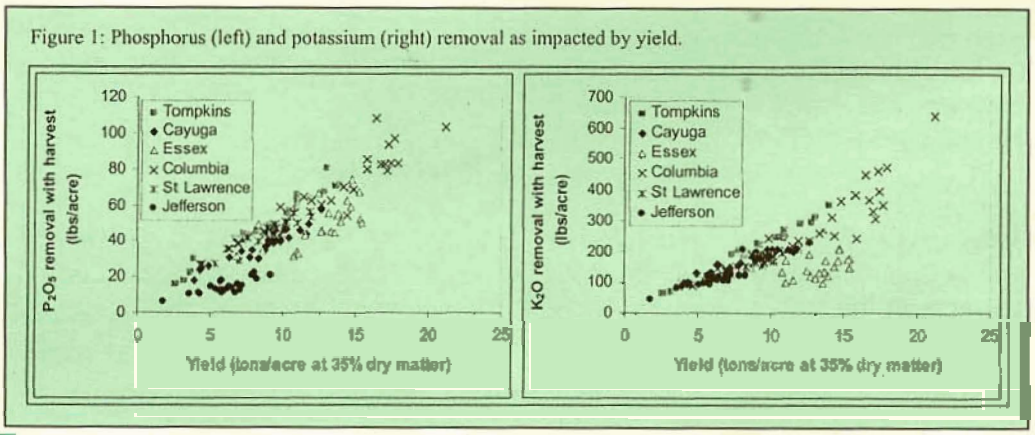
Inc. and seed was supplied by Agriculver. For further information contact Thomas Kilcer at the Rensselaer County Cooperative Extension Office (tfk1@cornell.edu or 518-272-4210) or Quirine Ketterings at Cornell University (qmk2@cornell.edu or 607-255-3061). You could also visit the Nutrient Management Spear Program website at http://nmsp.css.cornell.edu/projects/bmr.asp or the Rensselaer County Cornell Cooperative Extension agriculture website at: http://counties.cce.cornell.edu/rensselaer/Agriculture/new%20bmr_sorghum.htm.

Table 3: Nitrogen, P, K, Ca, and Mg removal with harvest as impacted by N fertilization rate in six brown midrib sorghum sudangrass trials in New York (2004 season). Shaded are ranges for optimum economic N rate.

N applied	Nutrient Removal with Harvest (1st and 2nd cut combined – one cut only for Jefferson County)					
	Jefferson	St Lawrence	Columbia	Essex	Cayuga	Tompkins
per cut lbs N/acre	Nitrogen (lbs N/acre)					
0	.	50 c	69 d	63 b	52 d	36 b
0+M	.	.	188 c	.	.	.
38	27 c	.	.			
50	30 bc	91 b	286 bc	125 ab	88 cd	85 b
100	39 bc	117 b	320 b	166 a	112 bc	148 a
150	70 ab	169 a	345 b	173 a	137 ab	160 a
200	105 a	177 a	455 a	183 a	151 a	204 a
250	95 a	201 a	.	165 a	149 a	198 a
	Phosphorus (lbs P_2O_5/acre)					
0	.	26.8 c	34.5 b	41.4 a	24.5 b	21.5 c
0+M	.	.	70.6 a	.	.	.
38	13.3 a	.	.	.	.	.
50	13.1 a	41.0 b	81.4 a	64.0 a	36.8 ab	43.4 b
100	12.3 a	44.2 ab	68.5 a	51.0 a	42.0 a	59.5 a
150	15.4 a	51.2 a	69.7 a	47.9 a	42.7 a	57.4 ab
200	17.0 a	46.0 ab	90.6 a	47.5 a	43.8 a	64.5 a
250	14.2 a	49.4 ab	.	49.3 a	37.9 a	71.9 a
	Potassium (lbs K_2O/acre)					
0	.	99.6 c	126.1 c	152.9 a	119.4 b	81.2 d
0+M	.	.	297.9 ab	.	.	.
38	87.9 a	.	.	.	.	.
50	106.1 a	138.7 bc	358.5 ab	169.6 a	173.2 a	177.3 c
100	117.4 a	165.9 ab	291 2 b	159.6 a	195.5 a	252.5 b
150	127.5 a	184.6 a	286.9 b	145.4 a	195.7 a	236.8 bc
200	122.1 a	173.9 ab	443.2 a	151.2 a	196.4 a	268.9 ab
250	125.2 a	192.2 a	.	113.9 a	179.0 a	317.6 a

Note: Average values *within columns* with different letters (a, b, c) are statistically different (P≤0.05).

Figure 1: Phosphorus (left) and potassium (right) removal as impacted by yield.



Nutrient Management Spear Program
http://nmsp.css.cornell.edu/
A collaboration: Department of Crop & Soil Sciences, Pro-Dairy, and Cornell Cooperative Extension.

Poncho Seed Treatment On Corn: Looks Promising For Silage But Not For Grain Under Low Pest Pressure

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Crop Management

Cool soil conditions frequently occur after corn planting in New York, which delays emergences and increases the probability of seed corn maggot and wireworm damage. Seed-applied insecticides, such as Poncho and Cruiser, have recently been commercialized for early-season insect control, including seed corn maggot, wireworm, black cutworm, and white grubs. In addition, high rates of these products will control northern and western corn rootworms. Nevertheless, these early-season insect pests are occasional pests in New York, especially when corn follows soybeans in the rotation on non-manured fields.

Consequently, we evaluated two corn hybrids, when following soybeans in the rotation, with two rates of Poncho to determine the response of corn to seed-applied insecticides in the absence of significant insect pest pressure.

We planted a DeKalb and a Pioneer hybrid with three seed treatments at 32,000 plants/acre on May 6, 2004 and April 29, 2005. Seed treatments included a control, Poncho 250, and Poncho 1250. All seed treatments, including the control, also had Apron XL and Maxim XL added for soil-borne pathogen control. Plot dimensions for each seed treatment for each hybrid, replicated four times, measured 100 by 10 feet. Fifty feet of the two center rows of each plot were harvested for silage at about 67% whole plant moisture, and the other 50 feet were harvested for grain at about 25% grain moisture.

All treatments emerged in 7 days at a 98% emergence rate or greater because of very warm wet conditions after planting in 2004 (Table 1). In 2005, however, cool dry conditions prevailed in May and all treatments emerged 17 days after planting at only an 80 to 85% emergence rate. Poncho 250 had final plant densities of 26995 compared with 25515 plants/acre for the control. Major reasons for the lack of emergence in 2005 were seed corn maggot damage and desiccated seed. Corn silage vs. grain corn requires higher plant densities for maximum yield so the lower plant populations in 2005 should have a greater effect on silage than on grain yields.

When averaged across years, Poncho 250 and Poncho 1250 had 0.7 tons/acre higher silage yield compared with the control with yield differences most pronounced in 2005 (Table 1). In 2004, when insect pest pressure was minimal, both Poncho treatments and the control yielded the same. Also, Poncho treatments had no effect on silage quality characteristics when compared with the control in either year of the study (Table 2). The results indicate that Poncho has no effect on silage yield and quality in years when corn emergence is rapid and has a positive effect on silage yield in years when corn emergence is delayed because of cool soil conditions.

Poncho 250 and Poncho 1250 had similar grain yield as the control treatment in both years of the study (Table 1). In 2004, Poncho 1250 yielded 22 bu/acre less than Poncho 250 for reasons that are not clear. In 2005, the control treatment yielded the same as Poncho 250, despite having almost 1500 less plants/acre. Apparently, final plant densities of 25,500 plants/acre were adequate for maximum grain yield in the hot and dry 2005 growing season.

Poncho 250 and Poncho 1250 did not affect silage or grain yield in a year when emergence was rapid and soil insect pest pressure was low. Poncho 250 and 1250 increased silage yield but not grain yield in a year when emergence was delayed because of cool soil conditions. Poncho 250, which costs about $15/bag or about $6.50/acre for corn silage and about $5.75/acre for grain, is probably an inexpensive insurance treatment for corn silage but not for grain corn when early-season soil insect pressure is low and corn rootworm is not a problem.

Table 1. Final plant densities, silage yield, and grain yield of two corn hybrids with three seed treatments in 2004 and 2005 and pooled across years at the Aurora Research Farm in Cayuga Co., NY.

TREATMENT	PLANT DENSITIES			SILAGE YIELD			GRAIN YIELD		
	2004	2005	Avg.	2004	2005	Avg.	2004	2005	Avg.
	---------plants/acre------			---------tons/acre--------			---------by/acre----------		
Control	31450	25515	28484	27.6	20.7	24.1	220	164	192
Poncho 250	31450	26995	29222	28.3	21.4	24.8	228	158	192
Poncho 1250	31760	26305	29033	27.8	21.8	24.8	206	159	182
LSD 0.10	NS	1334	653	NS	1.1	0.7	17	NS	NS

Table 2. Neutral detergent fiber (NDF), NDF digestibility (NDFd), crude protein (CP), and starch of two corn hybrids with three seed treatments in 2004 and 2005 and pooled across years at the Aurora Research Farm in Cayuga Co., NY.

TREATMENT	NDF			NDFd		
	2004	2005	Avg.	2004	2005	Avg.
	----------%----------					
Control	44.6	41.8	43.2	59.0	57.8	58.4
Poncho 250	45.8	41.2	43.5	60.5	57.8	59.1
Poncho 1250	43.9	41.1	42.5	58.7	57.8	58.3
LSD 0.10	NS	NS	NS	NS	NS	NS
	CP			STARCH		
Control	5.98	7.8	6.9	27.6	24.4	26.0
Poncho 250	6.05	7.6	6.8	27.8	24.3	26.1
Poncho 1250	5.77	7.7	6.7	27.4	24.2	25.8
LSD 0.10	0.24	NS	NS	NS	NS	NS

Calendar of Events

Jul. 6, 2006	Cornell Weed Science Field Day, Valatie, NY
Jul. 6, 2006	Seed Growers Field Day
Jul. 12, 2006	Cornell Weed Science Field Day, Aurora, NY
Jul. 13, 2006	Cornell Weed Science Field Day, Freeville, NY
Oct. 24, 2006	Field Crop Dealer Meeting, Comfort Suites, 7 Northside Drive, Clifton Park, NY
Oct. 25, 2006	Field Crop Dealer Meeting, Holiday Inn, 1777 Burrstone Road., New Hartford, NY
Oct. 26, 2006	Field Crop Dealer Meeting, Batavia Party House, 5762 East Main Road, Batavia, NY
Oct. 27, 2006	Field Crop Dealer Meeting, Auburn Holiday Inn, 75 North Street, Auburn, NY
Nov. 7-9, 2006	NE Division of the American Phytopathological Society, Burlington, VT

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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