Evaluation of herbicide programs in fresh market sweet corn

Darcy Telenko, Extension Associate
Cornell Cooperative Extension Cornell Vegetable Program, Cornell University
21 South Grove St., East Aurora, NY 14052
Email: dep10@cornll.edu

Sweet corn herbicide programs were evaluated in an on-farm Extension demonstration site in Batavia, NY in 2015. Six herbicide treatments including two new herbicides that will be available in New York for 2016 were assessed. The field site was previously a hay crop for six years with a mixture of weed species included lambsquarters (*Chenopodium album* L), shepherd's purse (*Capsella bursa-pastoris*), redroot pigweed (*Amaranthus retroflexus*), green foxtail (*Setaria viridis*), common mallow (*Malva neglecta*), common ragweed (*Ambrosia artemisdiifolia*), velvetleaf (*Avutilon theophrasti*), barnyardgrass (*Echinochloa crus-galli*), orchardgrass (*Dactylis glomerata*), and quackgrass (*Elymus repens*).

Sweet corn was planted on May 15. Pre-emergence treatments of the premixture of *S*-metolachlor (1.605 kg ai ha^{-1}) + atrazine (1.798 kg ai ha^{-1}) + mesotrione (0.202 kg ai ha^{-1}) + bicyclopyrone (0.050 kg ai ha^{-1})(Acuron); and pendimethalin (1.596 kg ai ha^{-1}) + dimethenamid-P (0.945 kg ai ha^{-1}) + atrazine (1.12 kg ai ha^{-1}) were applied on May 16. Post emergence treatments of glyphosate (0.882 kg ai ha-1) and the premixture of nicosulfuron (0.034 kg ai ha^{-1}) + mesotrione (0.088 lb ai ha^{-1}) (Revulin Q) were applied on June 5. All herbicide programs performed similarly at the initial weed ratings on June 15, controlling 72 to 94% of grass species and 93 to 98% of broad leaf weed species as compared to untreated control. By August 12 the Revulin Q mixture, pendimethalin+ dimethenamid-P + atrazine, and Acuron programs continued to provide greater than 72% grass control and over 96% broadleaf weed control (Table 1). All herbicide programs increase ear size, ear number, and yield (lb/A) in over the untreated control. There were no differences in weed management programs on yield in the SV9827 variety, but a yield loss was noted in the Incredible sweet corn variety where glyphosate drift injured plants. This study found that the new products Revulin Q and Acuron are as effective as standard programs and can bolster weed resistance management programs in fresh market sweet corn.

Table 1. Weed control and yield of sweet corn, 2015

	% weed control (12 Aug)		Yield							
			SV9827				Incredible			
Treatment	Grass	Broad leaf	# ear/plot	Ear size (in.)	# ear/A	lb/A	# ear/plot	Ear size (in.)	# ear/A	lb/A
Untreated	0.0 c	0.0 c	39 b	7.3 b	11253 b	6098 b	51 c	7.0 b	14810 c	8857 c
Weed-free	77.5 ab	96.0 a	55 a	7.9 a	15827 a	11688 a	62 ab	7.8 a	18077 ab	13794 ab
Acuron 3.0 qt/A + Atrazine 1 pt/A	81.5 ab	99.0 a	52 a	7.4 b	15174 a	11107 a	65 a	7.9 a	18876 a	14448 a
Prowl H20 3 pt/A + Outlook 18 oz/A + Atrazine 1 qt/A	72.8 ab	97.5 a	53 a	8.0 a	15319 a	11834 a	61 ab	7.9 a	17715 ab	13794 ab
Round-up 1.4 pt/A*	61.3 b	80.0 b	55 a	8.0 a	16045 a	11761 a	54 bc	7.7 a	15754 bc	11761 b
Revulin Q 3.404 oz/A	87.5 a	99.0 a	52 a	8.0 a	14956 a	12051 a	59 a-c	7.8 a	17206 a-c	13141 ab
LSD	*23.1*	*14.4*	*9*	*0.3*	*2742*	*2336*	*9.5*	*0.2*	*2749*	*2456*

Round-up broadcast over SV9827 variety; applied under hood in Incredible variety. Broadleaf weeds- ragweed, pigweed, lambsquarters, shepherds purse, mallow, velvetleaf, speedwell; Grasses – orchard, barnyard, timothy and foxtail. Ear size determined averaged from sample of ten ears per plot.