

EVALUATION OF ETHOTRON AND STINGER IN SUGARBEET IN 2016

Thomas J. Peters¹ and Andrew B. Lueck²

¹Extension Sugarbeet Agronomist and Weed Control Specialist, ²Sugarbeet Research Specialist Plant Sciences Department, North Dakota State University & University of Minnesota, Fargo, ND

The objective of this study was to evaluate a weed control systems approach with Ethotron and Stinger in Roundup Ready (RR) sugarbeet.

MATERIALS AND METHODS

An experiment was conducted near Hickson, ND in 2016. The trial site was prepared using a Kongskilde 's-tine' field cultivator with rolling baskets on May 20, 2016. Bioassay strips of quinoa, common lambsquarters, redroot pigweed, foxtail millet, and oat were established by spreading seeds by hand perpendicular to herbicide treatments and then harrow incorporating the seeds. 'SV36272RR' sugarbeet, treated with NipsIt Suite, Tachigaren at 45g per unit, and Kabina at 7g per unit, was seeded in 22-inch rows at 60,560 seeds per acre on June 8 with a John Deere 1700XP 6-row planter. Post emergence (POST) treatments were applied June 16. All herbicide treatments were applied with a bicycle sprayer in 17 gpa spray solution through 8002 XR flat fan nozzles pressurized with CO₂ at 40 psi to the center four rows of six row plots 28 feet in length. Sugarbeet injury and weed control were evaluated June 22, 28 and July 19.

All evaluations were a visual estimate of percent fresh weight reduction in the four treated rows compared to the adjacent untreated strip. Experimental design was randomized complete block with 4 replications for each trial. Data were analyzed with the ANOVA procedure of ARM, version 2016.4 software package.

Table 1. Application Information – Hickson, ND 2016

	Post emergence
Date	16 June
Time of Day	8:00 AM
Air Temperature (F)	65
Relative Humidity (%)	75
Wind Velocity (mph)	6
Wind Direction	E
Soil Temp. (F at 6")	63
Soil Moisture	Good
Cloud Cover (%)	0
Next rainfall	June 18 (0.9")
Sugarbeet stage (avg)	4-6 leaf
quinoa	3 inch
common lambsquarters	1.5 inch
foxtail millet	2 inch
oat	3 inch
redroot pigweed	2 inch

SUMMARY

Sugarbeet injury was 20% at 6 days after application (data not shown) in treatments containing Stinger + PowerMax. Injury symptoms were curling of the sugarbeet leaf margins. Applying Stinger + MSO resulted in 15% sugarbeet injury at 6 days after application. Sugarbeet injury declined substantially by the June 28 evaluation (Table 2) from treatments containing Stinger to a maximum of 10% injury. No injury was observed from Stinger containing treatments on July 19. When Stinger was absent from a treatment, no sugarbeet injury was observed at any evaluation timing.

Treatments containing Roundup PowerMax showed greater than 90% control of quinoa, common lambsquarters, redroot pigweed, foxtail millet, and oat throughout the evaluations. There were very little, if any, synergistic or antagonistic effects on weed control when Ethotron or Stinger were added to PowerMax. Stinger plus MSO gave 10% to 20% control of quinoa, but no control of other weed species evaluated. Ethotron plus MSO gave 60% redroot pigweed control at 6 days after application (data not shown), but control declined to 46% and 23% at 12 and 33 days after application (Table 2). Ethotron plus MSO gave 30% to 35% control of common lambsquarters, but virtually no control of emerged grass species.

Table 2. Sugarbeet injury and weed control from Roundup PowerMax, Stinger, and Ethotron applied postemergence to sugarbeet at Hickson, ND in 2016.

Treatment ¹	Rate	June 28						July 19					
		sgbt ²	quin	rrpw	colq	fxmi	oat	sgbt	quin	rrpw	colq	fxmi	oat
		% inj	-----% control-----					% inj	-----% control-----				
RU PowerMax + AMS + NIS	22 fl oz/a + 8.5 lb ai/100 gal + 0.25 % v/v	0	100	98	95	100	100	0	96	98	91	100	100
Stinger + MSO	2 fl oz/a + 1.5 pt/a	5	10	0	3	0	0	0	20	0	0	0	0
Ethotron + MSO	12 fl oz/a + 1.5 pt/a	0	33	46	35	18	13	0	33	23	30	0	0
RU PowerMax + Stinger + AMS + HSMOC	22 fl oz/a + 2 fl oz/a + 8.5 lb ai/100 gal + 1.5 pt/a	10	100	96	95	100	100	0	98	96	96	100	100
RU PowerMax + Ethotron + AMS + HSMOC	22 fl oz/a + 12 fl oz/a + 8.5 lb ai/100 gal + 1.5 pt/a	0	100	98	96	100	100	0	96	96	94	100	100
RU PowerMax + Stinger + Ethotron + AMS + HSMOC	22 fl oz/a + 2 fl oz/a + 12 fl oz/a + 8.5 lb ai/100 gal + 1.5 pt/a	10	99	95	95	100	100	0	99	98	94	100	100
Untreated Check		0	0	0	0	0	0	0	0	0	0	0	0
LSD (0.05)		3.2	7.3	8.4	8.3	7.1	7.1	NS	6.5	8.1	6.1	1.0	1.0

¹RU PowerMax= Roundup PowerMax, AMS = N-Pak AMS from Winfield, NIS = Prefer 90 NIS from West Central, Inc., MSO = Methylated Seed Oil from Loveland, Inc., HSMOC = Destiny HC from Winfield.

²sgbt = sugarbeet, quin = quinoa, colq = common lambsquarters, rrpw = redroot pigweed, fxmi = foxtail millet, inj = injury

CONCLUSION

Stinger provides a narrow spectrum of weed control, but combines well with glyphosate or Ethotron plus glyphosate to enhance weed control on species such as lambsquarters, ragweed, and thistle. Stinger caused nominal sugarbeet injury that was unobservable 33 days after application. Sugarbeet injury was similar when Stinger was tank-mixed with glyphosate or Ethotron plus glyphosate.

Postemergence application of Ethotron did not cause sugarbeet injury. Ethotron provided some suppression of common lambsquarters, quinoa, and redroot pigweed when applied alone. Postemergence application of Ethotron did not provide grass weed control. Preplant-incorporated or preemergence applications of Ethotron at 6 to 7 pt/A should be made if grass weed control is desired from this product.