

**Postemergence weed control with V10206, Roundup and Cobra in soybeans at Rosemount, MN - 2013.**

Gunsolus, Jeffrey L., Douglas W. Miller, and Bradley Kinkaid. The objective of this experiment was to evaluate weed control and crop response with postemergence applications of Roundup + Cobra tank mixed with several residual herbicides. The experiment was conducted at Rosemount, MN on a Waukegon silt loam soil with pH 6.6 and 4.7% organic matter. Soil test P and K were 19 and 131 lbs/A respectively. Following oats, the experimental area was fall chisel plowed. In the spring, 60 lbs/A P and 60 lbs/A K were applied on May 8. The area was disked twice and field cultivated twice on June 3 and planted with Asgrow AG 1431 soybeans at a rate of 150,000 seeds/A with 30 inch row spacing. The experimental design was a randomized complete block with four replications and plot size was 10 by 30 ft. Treatments were applied with a CO<sub>2</sub> powered backpack sprayer utilizing a six nozzle boom with 20 inch nozzle spacing, 110015VS XR Teejet flat-fan nozzles, 35 psi pressure, and a spray volume of 15 gpa. Application dates, environmental conditions, and weed data are presented below. Weed control data, soybean injury and yield data are presented in the Table.

<b><u>Treatment Date</u></b>	<b><u>June 28</u></b>
Air Temperature (°F)	71
Relative humidity (%)	63
Dewpoint (°F)	58
Soil Moisture	dry to 0.25"
Soil Temperature (°F)	71
Sky	5% clouds
Wind (mph)	WNW 8-14
Rainfall before Application	
Week 1 (inch)	1.87
Rainfall after Application	
Week 1 (inch)	0.41
Week 2 (inch)	0.78
Soybean	
Stage	V2
Height (inch)	5-6
<b><u>Weed Height (inches)</u></b>	
Common Lambsquarters - Colq	0.25-2 (most 1)
Common Ragweed - Corw	1-3 (most 2)
Nightshade - Ebns	1-3 (most 2)
Pennsylvania Smartweed - Pesw	1-4 (most 2)
Pigweed species - Rrpw	1-3 (most 1)
<b><u>Weed Density (plants/ft<sup>2</sup>)</u></b>	
Common Lambsquarters - Colq	16
Common Ragweed - Corw	6
Nightshade - Ebns	6
Pennsylvania Smartweed - Pesw	11
Pigweed species - Rrpw	2

## Results

Initial weed control was excellent for all treatments. However, at the July 10 rating date, a few common lambsquarters plants that were not completely killed remained in all treatments. This was the case for all of the broadleaf weed species in the Roundup-only treatment. Generally, tank mixes with Prefix or Cobra resulted in 100% initial kill of these weeds (excluding common lambsquarters).

By the July 26 rating date, new flushes of broadleaf weeds (excluding Pennsylvania smartweed) had emerged. New common lambsquarters and common ragweed were present in all treatments with common lambsquarters most prevalent. New nightshade and pigweed were present in the Roundup-only treatment but were controlled by the residual component in the other treatments. No new Pennsylvania smartweed emerged but injured/stunted plants were present that survived treatment application.

Treatments with Prefix and Cobra resulted in severe soybean injury with greatest injury caused by Cobra. At the July 10 rating, the first and second trifoliolate leaves on Prefix treated soybeans were necrotic and shredded. The unifoliolate leaf was usually gone. The third trifoliolate was not necrotic but had a "corded" or constricted appearance. On the Cobra treated plants, the unifoliolate leaf was usually present but necrotic and shredded. The first and second trifoliolate leaves were generally missing. The third (and sometimes fourth) trifoliolate had a deformed or small center leaflet. Injury ratings on July 26 reflect height reduction and reduced canopy size. Soybeans treated with Prefix or Cobra (in particular Cobra) did not have complete canopy closure which allowed greater weed competition.

Common lambsquarters remained a dominant weed problem for the rest of the growing season in all treatments, resulting in severe competition to the soybean crop and other weeds. As mentioned above, this competition was greater where soybean canopy size was reduced due to crop injury. At the October 2 rating date, the Roundup-only treatment (and to a lesser extent the Prefix treatment), showed better lambsquarters control. This was largely due to greater competition from the soybean crop. Common ragweed did not result in much late season competition, due mainly to the more prominent common lambsquarters. Common ragweed was the dominant weed in the untreated checks however.

Yields were likely affected both by weed competition and herbicide injury. A late season drought probably also factored in. The Roundup-only treatment resulted in the highest yield, followed by the Prefix and Cobra treatments. Untreated check plots were not harvested due to high weed populations. Soybean yields in the untreated plots were estimated to be less than 5 bu/A.

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Table.

Herbicide Treatment	Rate (product/A)	Weed Control															Soybean		
		Colq			Corw			Ebns			Pesw			Rrpw			Injury		Yield
		7/10	7/26	10/2	7/10	7/26	10/2	7/10	7/26	10/2	7/10	7/26	10/2	7/10	7/26	10/2	7/10	7/26	(bu/A)
		----- (%) -----															---- (%) ----		
Roundup <sup>1</sup> + AMS <sup>2</sup>	32 oz + 3 qt	99	87	64	99	87	91	99	81	83	98	97	94	99	92	91	0	0	41
Prefix <sup>3</sup> + Roundup + AMS + COC <sup>4</sup>	1 qt + 32 oz + 3 qt + 1 qt	99	88	54	100	88	99	100	100	99	100	100	100	100	100	100	24	13	33
Cobra <sup>5</sup> + V10206 <sup>6</sup> + Roundup + AMS + COC	12.5 oz + 1.5 oz + 32 oz + 3 qt + 1 qt	99	93	44	100	93	98	100	100	100	100	99	100	100	100	99	43	30	28
Cobra + V10206 + Roundup + AMS + COC	12.5 oz + 2 oz + 32 oz + 3 qt + 1 qt	99	91	23	100	91	99	100	100	100	100	99	98	100	100	100	45	31	28
Cobra + Warrant <sup>7</sup> + Roundup + AMS + COC	12.5 oz + 3 pt + 32 oz + 3 qt + 1 qt	99	93	25	100	93	100	100	100	100	99	99	94	100	100	100	44	28	27
Cobra + Dual II Magnum <sup>8</sup> + Roundup + AMS + CC	12.5 oz + 1.33 pt + 32 oz + 3 qt + 1 qt	99	94	25	100	94	98	100	100	100	100	99	98	100	100	100	50	33	26
LSD (P=.05)		ns	ns	19	ns	ns	3	0.5	13	4	1	2	5	0.3	5	4	9	6	6

<sup>1</sup> Roundup PowerMax 4.5L = glyphosate.

<sup>2</sup> AMS = N-Pak ammonium sulfate solution (3.4 lbs/gal).

<sup>3</sup> Prefix 5.29EC = 4.34 lbs ai/gal s-metolachlor & 0.95 lbs ai/gal fomesafen.

<sup>4</sup> COC = crop oil concentrate.

<sup>5</sup> Cobra 2EC = lactofen.

<sup>6</sup> V10206 85WG = experimental.

<sup>7</sup> Warrant 3CS = acetochlor.

<sup>8</sup> Dual II Magnum 7.64E = s-metolachlor.