

Weed control with Clarity and Cobra in glyphosate tank mixes at Rosemount, MN - 2015. Gunsolus, Jeffrey L., Douglas W. Miller, and Bradley Kinkaid. The objective of this experiment was to evaluate weed control with Clarity and Cobra combinations tank mixed with glyphosate. The experiment was conducted at Rosemount, MN on a Waukegon silt loam. The area was disked twice on May 20. The experimental design was a randomized complete block with three replications and plot size was 12 by 30 ft. Herbicide treatments were applied to a 10 ft. wide strip with a tractor mounted, compressed air sprayer with an eight nozzle boom and 15 inch nozzle spacing. Applications were made using AI110015 Teejet air induction nozzles at 35 psi pressure producing a spray volume of 15 gpa. Treatments were applied as a single application on June 23 or split applications on June 23 and July 10. Plots were visually rated and weed control data are presented in the Table. Application dates, environmental conditions, and weed data are presented below.

Treatment Date	June 23	July 10
Air Temperature (°F)	75	77
Relative humidity (%)	46	66
Dewpoint (°F)	53	65
Soil Moisture	moist	moist at 0.75"
Soil Temperature (°F)	82	87
Sky	10% clouds	clear
Wind (mph)	WNW 5-8	S 6
Rainfall before Application		
Week 1 (inch)	1.60	4.80
Rainfall after Application		
Week 1 (inch)	1.10	1.39
Week 2 (inch)	4.90	0.82
<u>Weed Height (inch)</u>		
Common Ragweed (Corw)	2-8	--
Common Lambsquarters (Colq)	2-12	3-5
Pennsylvania Smartweed (Pesw)	2-5	--
Eastern Black Nightshade (Ebns)	0.25-0.5	3-5
Redroot Pigweed (Rrpw)	0.5-1	3

Results

Common ragweed, common lambsquarters, and Pennsylvania smartweed were the primary weed species present on the June 23 application date. The July 8 ratings represent control of these species present on June 23 with the exception of some later emerging common lambsquarters. Scattered eastern black nightshade and redroot pigweed were also present on June 23 and were controlled by all treatments. Later emerging nightshade and pigweed were present at both rating dates however these species were only rated on July 21.

Common ragweed was the dominant weed present with densities greater than 25 per square foot. The majority of common ragweed was 5-7 inches on the June 23 application date. On July 21, common ragweed control was 100% for nearly all of the treatments with Clarity or V-10405 as a component. Roundup alone or tank mixed with Cobra resulted in good control of ragweed but not complete kill of some of the larger plants. There was little to no late emerging common ragweed.

Control of common lambsquarters was 100% by July 21 for nearly all of the treatments with Clarity or V-10405 as a component. Roundup alone or tank mixed with Cobra resulted in fair control of lambsquarters on July 21. This lower control was mainly the result of later emerging lambsquarters. Clarity, Flexstar, and V-10405 provided soil residual control of the late emerging lambsquarters.

Pennsylvania smartweed control was good to excellent for all treatments. Treatments with Clarity and Cobra either as a tank mix or with Cobra applied sequentially, plus the Clarity + Flexstar and V-10405 treatments, generally had the greatest control of Pennsylvania smartweed on July 21.

Densities of late emerging nightshade were moderate while pigweed densities were light and more variable. Nightshade control was lowest for the Roundup alone treatment and Cobra + Roundup tank mixes due to lack of soil residual control. Clarity provided some soil residual control of nightshade and the higher rate had slightly better control than the lower rate. The sequential Cobra treatments killed any existing nightshade on the July 10 application date. Control of pigweed generally followed the same trends as nightshade control but not as pronounced due to the lighter and more variable populations.

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Treatment ¹	Rate ¹ (product/A)	Weed Control									
		Corw		Colq		Pesw		Ebns	Rrpw		
		7/8	7/21	7/8	7/21	7/8	7/21	7/21	7/21		
<u>Postemergence June 23</u>											
Roundup PowerMax ²	22 oz	96	94	96	83	92	94	90	96		
Clarity ³ + Roundup PowerMax	8 oz + 22 oz	97	100	99	99	89	96	95	98		
Clarity + Roundup PowerMax	16 oz + 22 oz	98	100	98	100	89	97	100	100		
Cobra ⁴ + Roundup PowerMax + COC ⁵	10 oz + 22 oz + 1 pt	97	90	96	85	88	92	77	95		
Cobra + Roundup PowerMax + COC	12.5 + 22 oz oz + 1 pt	99	92	97	83	92	95	88	97		
Cobra + Roundup PowerMax + COC	16 oz + 22 oz + 1 pt	99	95	95	85	91	95	87	95		
Clarity+ Roundup PowerMax + Cobra + COC	8 oz + 22 oz + 10 oz + 1 pt	99	99	96	100	96	97	96	95		
Clarity+ Roundup PowerMax + Cobra + COC	8 oz + 22 oz + 12.5 oz + 1 pt	100	100	98	100	93	98	99	96		
Clarity+ Roundup PowerMax + Cobra + COC	16 oz + 22 oz + 10 oz + 1 pt	100	100	97	100	99	99	100	99		
Clarity+ Roundup PowerMax + Cobra + COC	16 oz + 22 oz + 12.5 oz + 1 pt	100	100	98	100	96	99	100	98		
Clarity + Flexstar ⁶ + Roundup PowerMax + COC	16 oz + 1.5 pt + 1 pt	99	100	98	100	98	100	99	100		
V-10405 ⁷ + Roundup PowerMax + COC	10 oz + 1 pt	98	100	97	100	97	99	97	99		
<u>(Postemergence June 23) / (Postemergence July 10)</u>											
(Clarity+ Roundup PowerMax) / (Cobra + COC)	(8 oz + 22 oz) / (10 oz + 1 pt)	98	100	98	100	93	99	100	100		
(Clarity+ Roundup PowerMax) / (Cobra + COC)	(8 oz + 22 oz) / (12.5 oz + 1 pt)	99	100	98	100	96	99	100	100		
(Clarity+ Roundup PowerMax) / (Cobra + COC)	(16 oz + 22 oz) / (10 oz + 1 pt)	100	100	97	100	94	99	100	100		
(Clarity+ Roundup PowerMax) / (Cobra + COC)	(16 oz + 22 oz) / (12.5 oz + 1 pt)	99	100	98	100	91	100	100	100		
LSD (0.05)		2	4	ns	7	ns	3	5	4		

¹ Treatments and rates in parenthesis represent a separate application timing.

² Roundup PowerMax 4S = glyphosate.

³ Clarity 4SL = dicamba.

⁴ Cobra 2EC = lactofen.

⁵ COC = crop oil concentrate.

⁶ Flexstar 1.88L = fomesafen.

⁷ V-10405 = experimental from Valent.