

Preemergence Soybean Herbicide Performance on Annual Weeds at Waseca, MN in 2014

Thomas R. Hoverstad.

The objective of this study was to evaluate soil applied soybean herbicides at reduced and maximum label rates for control of annual weeds in soybean. This study was conducted on a Clarion Loam soil containing 5.6% organic matter, pH 5.5 and soil test P and K levels of 27 and 128 lb/A, respectively. A randomized complete block design with four replications and a plot size of 10 by 30 ft was used. The site was planted to corn in 2013 and fall tillage was done using a moldboard plow. On May 30, 2014, Asgrow 'AG2031' glyphosate resistant soybean was planted in 30-inch rows at a seeding rate of 160,000 seeds/A. All treatments were applied with a tractor-mounted compressed air sprayer delivering 15 gpa at a pressure of 35 psi. The sprayer was equipped with 80015 flat-fan nozzles spaced 15 inches apart on the boom. Application dates, environmental conditions, plant sizes and rainfall data are listed below:

Date	May 30	July 7
Treatment	Pre	Post
Temperature (F)		
Air	78	76
Soil (4-inch)	68	71
Relative humidity	40	30
Wind (mph)	S 4	Calm
Sky	clear	Clear
Soil moisture	medium	moist
Soybean		
Leaf no.	-	4
Height (inch)	-	6
Giant foxtail		
Leaf no.	-	3
Height (inch)	-	4
Common ragweed		
Leaf no.	-	4
Height (inch)	-	4
Common lambsquarters		
Leaf no.	-	6
Height (inch)	-	4
Velvetleaf		
Leaf no.	-	3
Height (inch)	-	2
Redroot pigweed		
Leaf no.	-	4
Height (inch)	-	3
Common Cocklebur		
Leaf no.	-	2
Height (inch)	-	6
Rainfall after application (inch)		
1 week	3.44	0.42
2 week	0.86	0.00
3 week	7.41	0.46

(Southern Research and Outreach Center, University of Minnesota, Waseca).

Yield, herbicide rates and weed control are shown in Table1. Reduced rates of preemergence herbicides resulted in poor control of Common ragweed and Common cocklebur. Increasing rates of preemergence herbicide resulted in better control of common ragweed for all preemergence herbicides. Only full rates of Authority First and Gangster resulted acceptable control of Common cocklebur

Table 1. Preemergence Soybean Herbicide Performance on Annual Weeds at Waseca, MN in 2014

Herbicide	Rate	Pre ¹						Final ²						Yield bu/A
		Gift	Corw	Colq	Vele	Rrpw	Cocb	Gift	Corw	Colq	Vele	Rrpw	Cocb	
<u>Preemergence/ POST II (6-inch weeds)</u>		(Product/A) % control												
Authority First / Roundup WeatherMax + AMS	4 oz / 32 oz + 3 qt	93	65	95	85	95	56	95	91	95	91	95	95	28.4
Boundary / Roundup WeatherMax + AMS	1.8 pt / 32 oz + 3 qt	95	71	95	95	95	55	95	95	86	81	95	95	31.8
Gangster / Roundup WeatherMax + AMS	1.8 oz / 32 oz + 3 qt	69	83	95	95	95	73	90	95	95	86	95	90	36.2
Optill Pro / Roundup WeatherMax + AMS	12 oz / 32 oz + 3 qt	93	78	95	94	95	81	93	95	95	95	95	95	37.6
Fierce / Roundup WeatherMax + AMS	3 oz / 32 oz + 3 qt	95	88	95	90	95	65	95	95	93	95	95	95	36.4
<u>Preemergence</u>														
Authority First	8 oz	94	95	95	95	95	95	86	80	95	90	95	84	33.8
Boundary	3 pt	95	83	95	95	95	58	95	95	95	81	95	58	35.7
Gangster	3.6 oz	95	90	95	95	95	85	90	81	95	95	95	95	32.6
Pursuit + Sharpen + Outlook	4 oz + 1 oz + 21 oz	95	81	95	95	95	68	90	66	95	95	95	73	25.3
Zidua + Valor	3.5 oz + 3 oz	95	90	95	90	95	64	95	89	95	78	95	48	20.9
<u>Preemergence/ POST II (6-inch weeds)</u>														
Authority First / Flexstar + Fusion + COC + 28%N	8 oz / 1 pt + 12 oz + 1 qt + 3 qt	95	90	95	95	95	90	95	95	95	95	95	95	28.8
Boundary / Flexstar + Fusion + COC + 28%N	3 pt / 1 pt + 12 oz + 1 qt + 3 qt	95	88	95	95	95	73	95	95	95	95	95	95	28.5
Gangster / Flexstar + Fusion + COC + 28%N	3.6 oz / 1 pt + 12 oz + 1 qt + 3 qt	95	95	95	95	95	81	95	95	95	95	95	86	34.5
Pursuit + Sharpen + Outlook / Flexstar + Fusion + COC + 28%N	4 oz + 1 oz + 21 oz	95	90	95	95	95	79	95	95	95	95	95	95	23.9
Zidua + Valor / Flexstar + Fusion + COC + 28%N	3.5 oz + 3 oz	95	90	95	95	95	64	95	95	91	95	95	95	28.7
<u>Checks</u>														
Weedy Check	-	0	0	0	0	0	0	0	0	0	0	0	0	26.9
	LSD(0.10)	10	13	1	6	1	24	7	15	6	15	1	17	ns

¹ Pre = rating of preemergence herbicide efficacy before postemergence treatment application (rating date July 7)

² Final = final rating after all weed control operations performed (rating date Sept 13)