

**Preemergence weed control in soybeans with Fierce MTZ at Rosemount, MN - 2016.** Gunsolus, Jeffrey L, Douglas W. Miller, Bradley D. Kinkaid, Rafael Pedroso da Silva, and Maria Karis. The objective of this experiment was to evaluate weed control and soybean injury with Fierce MTZ (Fierce + metribuzin), Authority MTZ, and several other treatments. The experiment was conducted at Rosemount, MN on a Waukegon silt loam soil with pH 5.6 and 4.0% organic matter. Soil test P and K were 38 and 314 lbs/A respectively. Following weedy fallow, the experimental area was chisel plowed in fall 2015. On April 11, 2016, the area was field cultivated, fertilized with 60 lbs/A P and 60 lbs/A K, and field cultivated a second time. On May 20, the area was field cultivated and Asgrow RR2 AG1435 soybeans were seeded in 30 inch rows at a rate of 150,000 seeds/A. The experimental design was a randomized complete block with four replications. Plot size was 10 by 30 feet. Herbicide treatments were applied with a tractor mounted, compressed air sprayer with an eight nozzle boom, 15 inch nozzle spacing, 110015VS XR Teejet flat-fan nozzles at 35 psi pressure producing a spray volume of 15 gpa. All treatments were applied preemergence on May 20 (application data below). Select (clethodim) at 12 oz product/A was applied on June 17 to control grassy weeds. Weed control and soybean injury were visually rated on June 17 (28 DAT), July 1 (42 DAT), July 18 (59 DAT), and October 6. Data are presented in the tables below.

<b>Treatment Date</b>	<b>May 20</b>
Air Temperature (°F)	74
Relative humidity (%)	32
Dewpoint (°F)	43
Soil Moisture	moist at 3"
Soil Temperature (°F)	65
Sky	80% clouds
Wind (mph)	SE 4-8
Rainfall before Application	
Week 2 (inch)	1.18
Week 1 (inch)	0.15
Rainfall after Application	
Week 1 (inch)	0.46
Week 2 (inch)	1.03

<b>Primary weed species</b>	<b>densities (#/ft<sup>2</sup>)</b>
Common Lambsquarters (Colq)	1.2
Eastern Black Nightshade (Ebns)	0.5
Tall Waterhemp (Tawh)	14.4

## **Results**

Common lambsquarters, eastern black nightshade, and tall waterhemp were the primary weed species present. Common ragweed (Corw), Pennsylvania smartweed (Pesw), and velvetleaf (Vele) were also present, however densities were low and highly variable. These more variable species were visually rated for control once on July 18.

Common lambsquarters control was good to excellent for all treatments throughout most of the season. The 11 oz/A rate of Authority MTZ had significantly lower control at the October rating date. Eastern black nightshade control was excellent throughout the season. The 11 oz/A rate of Authority MTZ had slightly lower control at the October rating date but the difference was not significant. All treatments controlled tall waterhemp through the June 17 rating date. By the July 1 rating date, the 11 oz/A rate of Authority MTZ and the Authority First treatments had significantly lower waterhemp control compared to most of the other treatments. These differences were also observed at the July 18 and October rating dates. By October, the 11 oz/A rate of Authority MTZ treatment showed the least control of tall waterhemp while Boundary and the Fierce treatments maintained the greatest control.

The Boundary and the Fierce treatments had the greatest control of common ragweed on July 18 while the Authority MTZ treatments (in particular the 11 oz/A rate) had the least common ragweed control. Pennsylvania smartweed control was generally good to excellent for all treatments on July 18 with the Authority MTZ treatments having the slightly lower control ratings. No significant differences in velvetleaf control were observed on July 18 but the Authority MTZ and the Valor + metribuzin treatments had lower control ratings compared to the other treatments.

The Fierce treatments showed the greatest soybean injury, especially the higher rate of Fierce + metribuzin (Fierce MTZ). Boundary also showed visible injury. Authority MTZ, Authority First, and Valor + metribuzin resulted in little to no injury on June 17. Injury symptoms were not observed at the July 1 or later rating dates.

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Treatment	Rate (product/A)	Weed Control														Soybean	
		Colq				Ebns				Tawh				Corw	Pesw	Vele	Injury
		6/17*	7/1*	7/18*	10/6	6/17	7/1	7/18*	10/6	6/17*	7/1*	7/18*	10/6*	7/18*	7/18*	7/18	6/17
(%)																	
<b>Preemergence May 20</b>																	
Authority MTZ <sup>1</sup>	11 oz	99 a	97 b	96 a	78 b	99 a	97 b	97 c	93 a	100 a	91 c	85 c	67 c	77 c	93 c	88 a	0 d
Authority MTZ	16 oz	100 a	100 a	100 a	99 a	100 a	98 ab	99 c	97 a	100 a	97 abc	98 ab	97 ab	90 bc	96 bc	84 a	0 d
Fierce <sup>2</sup> + metribuzin	3 oz + 4 oz	100 a	100 a	99 a	98 a	100 a	100 a	100 ab	100 a	100 a	100 a	99 ab	100 a	96 ab	100 a	99 a	10 bc
Fierce + metribuzin	4.5 oz + 6 oz	100 a	100 a	100 a	100 a	100 a	100 a	100 ab	100 a	100 a	100 a	100 a	100 a	100 a	100 a	98 a	19 a
Fierce XLT <sup>3</sup>	4 oz	100 a	100 a	100 a	100 a	100 a	100 a	100 ab	100 a	100 a	99 ab	99 ab	100 a	100 a	99 ab	99 a	13 ab
Valor SX <sup>4</sup> + metribuzin	2 oz + 4 oz	99 a	97 b	97 a	95 ab	100 a	100 a	100 ab	100 a	100 a	98 ab	94 bc	95 ab	95 ab	98 abc	88 a	4 cd
Fierce	3 oz	100 a	99 ab	99 a	100 a	100 a	100 a	100 ab	100 a	100 a	100 ab	99 ab	99 ab	100 a	100 a	100 a	13 ab
Boundary <sup>5</sup>	2 pts	100 a	100 ab	99 a	99 a	100 a	100 a	100 ab	98 a	100 a	100 a	100 a	100 a	99 a	100 a	96 a	11 b
Authority First <sup>6</sup>	4.5 oz	100 a	99 ab	99 a	94 ab	100 a	100 a	99 bc	98 a	100 a	95 bc	88 c	91 b	95 ab	100 ab	96 a	1 d

\* = ANOVA with arcsine square root percent transformed data.

<sup>1</sup> Authority MTZ 45WG = 18% sulfentrazone & 27% metribuzin .

<sup>2</sup> Fierce 76WDG = flumioxazin (33.5%) & pyroxasulfone (42.5%).

<sup>3</sup> Fierce XLT 62.4WDG = flumioxazin (24.57%) & pyroxasulfone (31.17%) & chlorimuron (6.67%).

<sup>4</sup> Valor SX 51WDG = flumioxazin.

<sup>5</sup> Boundary 6.5L = S-metolachlor (5.25 lb ai/gal) & metribuzin (1.25 lb ai/gal).

<sup>6</sup> Authority First 70DF = 62% sulfentrazone & 8% chloransulam-methyl .