

Fierce and Fierce MTZ comparisons in dicamba tolerant soybeans at Rosemount, MN - 2018. Gunsolus, Jeffrey L., Douglas W. Miller, Bradley Kinkaid, Ryan Mentz, and Aryane Batista. The objective of this experiment was to evaluate residual weed control with Fierce, Fierce MTZ and other herbicides in an Xtend soybean herbicide program. The experiment was conducted at Rosemount, MN on a Waukegon silt loam (5% sand, 51% silt, 44% clay) with pH 5.7 and 4.6% organic matter. Soil test P and K were 26 and 204 lbs/A, respectively. The previous crop was corn and the area was chisel plowed in the fall of 2017. The area was tilled with a soil finisher on April 30, 2018. On May 3, the area was fertilized with 60 lbs/A P and 60 lbs/A K. The area was field cultivated on May 4 and on May 21. On May 22, NorthStar NS61882N XR2 RR2 Xtend 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 15 by 30 feet. Treatments were applied to a 10 foot wide strip with a tractor mounted, compressed air sprayer with an eight nozzle boom and 15 inch nozzle spacing. Applications were made using 110015VS XR Teejet flat-fan nozzles (preemergence treatments) or AI110015 Teejet air induction nozzles (postemergence treatments) at 35 psi pressure producing a spray volume of 15 gpa. Preemergence treatments were applied on May 22. A postemergence sequential application of Roundup PowerMax (32 oz/A) + Xtendimax with Vapogrip (22 oz/A) + Intact (9.6 oz/A) + Induce (4.8 oz/A) was applied to all treatments on June 5. Weed control and soybean injury were visually rated. Yields were not determined. Data are presented in the Table. Application environmental conditions and weed data are presented below.

Treatment Date	May 22	June 5
Application	Preemergence	Postemergence Sequential
Target Weed Stage	--	2" weeds
Soybean Stage	--	unifoliate
Air Temperature (°F)	68	75
Relative humidity (%)	70	43
Dewpoint (°F)	58	53
Soil Moisture	moist at 2"	moist at 2"
Soil Temperature (°F)	66	84
Sky	90% clouds	5% clouds
Wind (mph)	SSE 0-3	NE 0-5
Rainfall before Application		
Week 1 (inch)	0.08	1.71
Rainfall after Application		
Week 1 (inch)	0.76	0.74
Week 2 (inch)	1.71	4.21
Weed Size (inches / leaf stage)		
Amaranth species*	--	0.25 -0.75" / cot – 2lf
Common Lambsquarters (Colq)	--	0.25 -0.75" / cot – 4lf
Common Ragweed (Corw)	--	0.25 -0.75" / cot – 2lf
Eastern Black Nightshade (Ebns)	--	0.25 -0.5" / cot – 2lf
Giant Ragweed (Girw)	--	1-4" / cot-4lf
Velvetleaf (Vele)	--	0.5 -1" / cot – 2lf
Foxtail (giant and yellow)	--	0.25-1.5" / 1-4lf
Woolly Cupgrass	--	1-3" / 1-4lf
Weed Densities in Untreated Check (#/m²)		
Amaranth species*	--	10
Common Lambsquarters (Colq)	--	19
Common Ragweed (Corw)	--	10
Eastern Black Nightshade (Ebns)	--	7
Giant Ragweed (Girw)	--	22
Velvetleaf (Vele)	--	3
Foxtail (giant and yellow)	--	5 - 270
Woolly Cupgrass	--	0 - 65

* 90-95% tall waterhemp and 5-10% Powell amaranth

Results

Glyphosate resistant giant ragweed was the dominant weed species present. Fierce MTZ, Fierce, V-10452, and Valor EZ1 provided good to fair preemergence control while Authority MTZ, Authority Supreme, Warrant and Zidua Pro provided little preemergence control. The postemergence application of Roundup + Xtendimax controlled all emerged giant ragweed. Late germinating giant ragweed emerged to some extent in all treatments resulting in plants that produced seed by the October rating. The no preemergence herbicide check and the Authority MTZ, Authority Supreme, Warrant and Zidua Pro treatments generally had slightly more of these escapes and/or the plants were more robust in size.

Amaranth species (90-95% tall waterhemp and 5-10% Powell amaranth), common lambsquarters, common ragweed, eastern black nightshade, and velvetleaf were the other broadleaf weeds present. Densities of these species were variable throughout the experimental area. Due to this variability, preemergence control differences were not statistically significant. All preemergence treatments provided excellent control of amaranth species and eastern black nightshade. Common lambsquarters control was slightly less with Warrant and Zidua Pro compared to the other treatments. Common ragweed control was slightly less with Authority MTZ, Authority Supreme, and Warrant compared to the other preemergence treatments. Velvetleaf control was slightly less with Warrant compared to the other preemergence treatments. The postemergence Roundup/Xtend application controlled all of these species that were emerged at the time of application. Based on the no-herbicide check, there were some late emerging amaranths and lambsquarters following the postemergence application. All preemergence treatments provided excellent residual control of amaranth species and lambsquarters compared to the check. Common ragweed, nightshade, and velvetleaf had little or no late emergence and all treatments including the no-herbicide check resulted in excellent control of these species through the October rating (data not shown).

Grass populations (giant and yellow foxtail and woolly cupgrass were highly variable with highest densities in replication #1 (over 300/m² combined) and low densities (0-5 /m²) in the other three replications. Grass control ratings were not statistically analyzed, however based on visual observations in the first replication, Authority MTZ and Warrant generally resulted in poor preemergence grass control. Authority Supreme and Zidua Pro had fair control and Fierce, Fierce MTZ, and V-10452 had good preemergence control. The postemergence sequential application controlled all existing grasses. Later emerging grass occurred in all treatments. At the October rating, Authority MTZ and the no preemergence herbicide check had poor to fair residual grass control while the other treatments had residual control in the 96% to 98% range.

Soybean injury was slight at the June 5 rating with symptoms showing on the unifoliate soybeans from Fierce, Fierce MTZ, V-10452, and Valor EZ1 treatments. On June 13, symptoms on the first trifoliate leaves were more apparent and were mainly a leaf deformation (drawstring effect) and light chlorosis.

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(Gunsolus, Miller, Kinkaid, Mentz, and Batista).**

Treatment ²	Rate (product/A)	Weed Control																			
		Girw					amaranth spp. ¹					Colq					Corw	Ebns	Vele	Soybean Injury	
		6/5	6/22	6/29	7/17	10/12	6/5	6/22	6/29	7/17	10/12	6/5	6/22	6/29	7/17	10/12	6/5	6/5	6/5	6/5	6/13
No preemergence	--	--	98	98	98	92	--	99	99	92	84	--	99	98	94	91	--	--	--	0	0
Fierce ³	3 oz	69	100	99	99	99	100	100	100	100	100	100	100	100	100	100	100	100	100	5	14
Fierce	3.75 oz	79	99	99	99	97	100	100	100	100	100	98	100	100	99	100	100	100	100	5	9
Fierce MTZ ⁴	1 pt	86	98	98	98	96	100	100	100	100	100	100	100	100	100	100	100	100	100	5	10
V-10452 ⁵	6 oz	78	99	99	99	98	100	100	100	99	99	100	100	100	99	100	100	100	100	5	9
Valor EZ1 ⁶	2.5 oz	66	99	99	99	99	100	100	100	100	100	100	100	100	99	99	100	100	100	6	10
Authority MTZ ⁷	11 oz	6	99	99	99	94	98	100	100	100	99	100	100	100	100	100	90	100	100	1	10
Authority Supreme ⁸	7.7 oz	8	99	99	99	95	100	100	100	100	100	100	100	100	100	100	93	100	100	0	0
Warrant ⁹	1.25 qt	3	98	99	98	93	100	100	100	99	96	93	100	100	97	98	91	100	100	0	3
Zidua Pro ¹⁰	4.5 oz	9	99	99	99	95	98	100	100	99	99	94	100	100	100	100	99	100	95	0	3
LSD (0.05)		13.1	1.0	ns	ns	4.3	ns	0.2	0.5	2.2	8.5	ns	0.2	0.2	1.4	4.2	ns	ns	ns	1.6	4.9

¹ 90-95% tall waterhemp and 5-10% Powell amaranth.

² All treatments received postemergence applications of Roundup PowerMax + Xtendimax with Vapogrip + Intact + Induce (1 qt + 22 oz + 9.6 oz + 4.8 oz) on June 5.

³ Fierce 76WDG = 33.5% flumioxazin & 42.5% pyroxasulfone (3.75 oz product/A = 1.26 oz ai/A flumioxazin & 1.6 oz ai/A pyroxasulfone).

⁴ Fierce MTZ 2.64 SC = flumioxazin & pyroxasulfone & metribuzin (1 pt product/A = 1.0 oz ai/A flumioxazin & 1.28 oz ai/A pyroxasulfone & 3 oz ai/A metribuzin).

⁵ V-10452 = experimental from Valent.

⁶ Valor EZ1 4SCG = flumioxazin.

⁷ Authority MTZ 45WG = 18% sulfentrazone & 27% metribuzin .

⁸ Authority Supreme 4.16SC = sulfentrazone (2.08 lb ai/gal) & pyroxasulfone (2.08 lb ai/gal).

⁹ Warrant 3CS (3 pts/A) = acetochlor.

¹⁰ Zidua Pro 4.09L = 2.28 lbs ai/gal pyroxasulfone & 0.48 lbs ai/gal saflufenacil & 1.33 lbs ai/gal imazethapyr .