

Broadleaf weed control in spring wheat at Crookston, MN - 2005. Durgan, Beverly R., Jochum Wiersma, Jim Cameron, and Douglas Miller. This experiment was designed to evaluate broadleaf herbicides for weed control and wheat injury . The experiment was conducted at Crookston, MN on a Donaldson and Wheaton loam soil. Following weedy fallow, the experimental area received 100 lb/A of N and was fall plowed. In the spring the experimental area was disked and harrowed. 'Alsen' hard red spring wheat was seeded on May 3 at 1.75 Bu/A. All herbicide treatments were applied with a backpack type sprayer delivering 10 gpa at 30 psi using 80015 flat fan nozzles. The experimental design was a randomized complete block with three replications and plot size was 10 by 24 ft. Application date and environmental conditions are listed below. Weed species present were Redroot Pigweed (AMARE), Common Lambsquarters (CHEAL), Common Mallow (MALNE), Wild Buckwheat (POLCO), Pennsylvania Smartweed (POLPY), and Wild Mustard (SINAR). Crop injury and weed control were visually rated and yields were measured. Data presented in the tables below.

Treatment Date	June 4
Target weed stage	2-4" weeds
Crop stage	4 - 4.5 Leaf

Air Temperature (° F)	71
Relative humidity (%)	77
Soil conditions	moist

Rainfall before Application	
Week 1 (inch)	0.47
Rainfall after Application	
Week 1 (inch)	1.40
Week 2 (inch)	2.39

Redroot Pigweed (AMARE)

Population (#/ft ²)	9
Stage	cotyledon

Common Lambsquarters (CHEAL)

Population (#/ft ²)	19
Stage	cot - 2 leaf

Common Mallow (MALNE)

Population (#/ft ²)	27
Stage	cot - 2 leaf

Wild Buckwheat (POLCO)

Population (#/ft ²)	37
Stage	cot - 2 leaf

Pennsylvania Smartweed (POLPY)

Population (#/ft ²)	9
Stage	cot - 2 leaf

Wild Mustard (SINAR)

Population (#/ft ²)	48
Stage	cot - 4 leaf

Table 1. Broadleaf weed control in spring wheat at Crookston, MN - 2005 (Durgan, Wiersma, Cameron, and Miller).

Treatment	Rate (lb ai/A)	Weed Control								
		AMARE			CHEAL			MALNE		
		6/9	7/5	7/11	6/9	7/5	7/11	6/9	7/5	7/11
		----- % -----								
Bromoxynil & MCPA ¹	0.375 & 0.375	99	98	100	99	96	100	93	95	98
Bromoxynil & MCPA	0.25 & 0.25	99	97	100	98	97	100	90	95	98
Bromoxynil & MCPA + fluroxypyr	0.25 & 0.25 + 0.062	99	98	100	99	97	100	86	92	97
Bromoxynil & MCPA + fluroxypyr + thifensulfuron + NIS ²	0.25 & 0.25 + 0.062 + 0.0047 + 0.25%	96	97	100	96	95	100	86	92	96
Bromoxynil & MCPA + fluroxypyr + thifensulfuron + NIS	0.187 & 0.187 + 0.062 + 0.0094 + 0.25%	98	98	100	98	98	100	87	95	100
Bromoxynil & MCPA + thifensulfuron + NIS	0.25 & 0.25 + 0.014 + 0.25%	99	95	100	99	98	100	95	95	98
Bromoxynil & MCPA + thifensulfuron & tribenuron ³ + NIS	0.25 & 0.25 + 0.0093 & 0.0047 + 0.25%	98	97	100	98	96	100	77	93	98
Bromoxynil & MCPA + fluroxypyr + thifensulfuron & tribenuron + NIS	0.25 & 0.25 + 0.0093 & 0.0047 + 0.25%	99	98	100	99	98	100	85	90	97
Bromoxynil & MCPA + tribenuron + fluroxypyr + NIS	0.25 & 0.25 + 0.0078 + 0.062 + 0.25%	99	97	100	99	98	100	90	93	97
Bromoxynil & MCPA + tribenuron + NIS	0.187 & 0.187 + 0.0078 + 0.25%	99	97	100	99	97	100	90	90	93
Fluroxypyr	0.062	47	95	100	47	89	93	43	88	95
Fluroxypyr + MCPA ester	0.062 + 0.25	57	100	100	57	97	100	53	92	96
Clopyralid & MCPA ester ⁴	0.092 & 0.51	70	95	100	70	96	100	58	92	98
Clopyralid & fluroxypyr ⁵	0.125 & 0.125	58	95	100	58	98	100	52	93	97
Clopyralid & fluroxypyr + MCPA ester	0.125 & 0.125 + 0.25	62	97	100	62	96	100	55	93	98
Thifensulfuron + tribenuron + NIS	0.015 + 0.00375 + 0.25%	52	98	100	52	97	100	52	90	97
Thifensulfuron + MCPA ester	0.015 + 0.25	48	96	100	48	95	100	48	95	96
Thifensulfuron & tribenuron + MCPA ester	0.0093 & 0.0047 + 0.25	67	99	100	67	95	100	63	95	100
Carfentrazone-ethyl & 2,4-D ester ⁷ + NIS	0.008 & 0.24 + 0.25%	92	95	100	92	98	100	85	92	100
Carfentrazone-ethyl & 2,4-D ester + thifensulfuron	0.008 & 0.24 + 0.014	96	97	100	96	97	100	85	92	98
Carfentrazone-ethyl & 2,4-D ester + thifensulfuron + NIS	0.008 & 0.24 + 0.014 + 0.25%	99	96	100	99	97	100	93	95	100
Carfentrazone-ethyl & 2,4-D ester + thifensulfuron + NIS + AG 02013 ⁷	0.008 & 0.24 + 0.014 + 0.25% + 0.3%	98	95	100	98	96	100	90	93	96
2,4-D Ester ⁸	0.234	66	96	100	66	96	100	63	90	90
2,4-D Ester ⁸	0.5	63	93	100	63	92	100	63	90	92
2,4-D Ester ⁸ + thifensulfuron + NIS	0.234 + 0.014 + 0.25%	60	96	100	60	97	100	60	95	100
2,4-D Ester ⁸ + thifensulfuron + NIS + AG 02013	0.234 + 0.014 + 0.25% + 0.3%	55	98	100	55	95	100	55	92	98
2,4-D Ester ⁹	0.25	52	93	100	52	93	100	52	88	97
2,4-D Ester ⁹	0.5	60	95	100	60	95	100	57	88	92
2,4-D Ester ⁹ + thifensulfuron + NIS	0.25 + 0.014 + 0.25%	55	95	100	55	98	100	55	90	91
2,4-D Ester ⁹ + thifensulfuron + NIS + AG 02013	0.25 + 0.014 + 0.25% + 0.3%	68	97	100	63	96	100	62	92	91
Weedy check		-	-	-	-	-	-	-	-	--
LSD (P=.05)		17	ns	ns	17	ns	ns	17	ns	ns

¹ Premix = Bronate Advanced 5E.

² NIS = Class Preference nonionic surfactant.

³ Premix = Harmony Extra 75DF.

⁴ Premix = Curtail M 2.77E

⁵ Premix = Widematch 1.5E.

⁶ Premix = AGH 02001 from Agrilience.

⁷ AGH 02013 = drift control - deposition agent from Agrilience.

⁸ AGH 02007 from Agrilience.

⁹ 2,4-D LV6.

Table 2 Broadleaf weed control in spring wheat at Crookston, MN - 2005 (Durgan, Wiersma, Cameron, and Miller).

Treatment	Rate (lb ai/A)	Weed Control								
		POLCO			POLPY			SINAR		
		6/9	7/5	7/11	6/9	7/5	7/11	6/9	7/5	7/11
Bromoxynil & MCPA ¹	0.375 & 0.375	98	93	99	99	96	100	99	95	100
Bromoxynil & MCPA	0.25 & 0.25	99	95	98	99	98	100	99	98	100
Bromoxynil & MCPA + fluroxypyr	0.25 & 0.25 + 0.062	99	95	96	99	95	100	99	95	100
Bromoxynil & MCPA + fluroxypyr + thifensulfuron + NIS ²	0.25 & 0.25 + 0.062 + 0.0047 + 0.25%	96	96	99	96	96	100	96	95	100
Bromoxynil & MCPA + fluroxypyr + thifensulfuron + NIS	0.187 & 0.187 + 0.062 + 0.0094 + 0.25%	98	96	99	98	95	100	98	98	100
Bromoxynil & MCPA + thifensulfuron + NIS	0.25 & 0.25 + 0.014 + 0.25%	99	96	98	99	96	100	99	98	100
Bromoxynil & MCPA + thifensulfuron & tribenuron ³ + NIS	0.25 & 0.25 + 0.0093 & 0.0047 + 0.25%	95	92	96	98	96	100	98	98	100
Bromoxynil & MCPA + fluroxypyr + thifensulfuron & tribenuron + NIS	0.25 & 0.25 + 0.0093 & 0.0047 + 0.25%	99	95	100	99	95	100	99	95	100
Bromoxynil & MCPA + tribenuron + fluroxypyr + NIS	0.25 & 0.25 + 0.0078 + 0.062 + 0.25%	99	95	97	99	95	100	99	99	100
Bromoxynil & MCPA + tribenuron + NIS	0.187 & 0.187 + 0.0078 + 0.25%	99	95	97	99	95	100	99	95	100
Fluroxypyr	0.062	47	92	96	43	93	97	48	98	100
Fluroxypyr + MCPA ester	0.062 + 0.25	57	96	96	53	94	97	58	96	100
Clopyralid & MCPA ester ⁴	0.092 & 0.51	70	95	100	67	94	100	72	96	100
Clopyralid & fluroxypyr ⁵	0.125 & 0.125	58	97	99	55	96	100	60	98	100
Clopyralid & fluroxypyr + MCPA ester	0.125 & 0.125 + 0.25	62	96	100	58	96	100	55	95	100
Thifensulfuron + tribenuron + NIS	0.015 + 0.00375 + 0.25%	52	96	99	52	96	100	52	96	100
Thifensulfuron + MCPA ester	0.015 + 0.25	48	96	98	48	96	100	48	98	100
Thifensulfuron & tribenuron + MCPA ester	0.0093 & 0.0047 + 0.25	67	97	100	67	95	100	67	97	100
Carfentrazone-ethyl & 2,4-D ester ⁷ + NIS	0.008 & 0.24 + 0.25%	87	90	88	92	92	92	87	97	100
Carfentrazone-ethyl & 2,4-D ester + thifensulfuron	0.008 & 0.24 + 0.014	96	96	100	96	97	98	98	95	100
Carfentrazone-ethyl & 2,4-D ester + thifensulfuron + NIS	0.008 & 0.24 + 0.014 + 0.25%	99	96	98	98	96	98	99	96	100
Carfentrazone-ethyl & 2,4-D ester + thifensulfuron + NIS + AG 02013 ⁷	0.008 & 0.24 + 0.014 + 0.25% + 0.3%	96	96	93	98	95	92	99	98	100
2,4-D Ester ⁸	0.234	66	86	95	66	94	93	66	96	100
2,4-D Ester ⁸	0.5	63	86	96	63	96	95	63	93	100
2,4-D Ester ⁸ + thifensulfuron + NIS	0.234 + 0.014 + 0.25%	60	96	100	60	96	100	60	95	100
2,4-D Ester ⁸ + thifensulfuron + NIS + AG 02013	0.234 + 0.014 + 0.25% + 0.3%	55	97	99	55	96	100	55	95	100
2,4-D Ester ⁹	0.25	52	90	93	52	90	93	52	93	100
2,4-D Ester ⁹	0.5	60	90	95	60	85	100	63	93	100
2,4-D Ester ⁹ + thifensulfuron + NIS	0.25 + 0.014 + 0.25%	55	92	95	55	94	100	60	96	100
2,4-D Ester ⁹ + thifensulfuron + NIS + AG 02013	0.25 + 0.014 + 0.25% + 0.3%	68	97	99	65	95	100	63	95	100
Weedy check		-	-	-	-	-	-	-	-	--
LSD (P=.05)		17	ns	ns	16	ns	ns	18	ns	ns

¹ Premix = Bronate Advanced 5E.

² NIS = Class Preference nonionic surfactant.

³ Premix = Harmony Extra 75DF.

⁴ Premix = Curtail M 2.77E

⁵ Premix = Widematch 1.5E.

⁶ Premix = AGH 02001 from Agrilience.

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⁹ 2,4-D LV6.

Table 3. Broadleaf weed control in spring wheat at Crookston, MN - 2005 (Durgan, Wiersma, Cameron, and Miller).

Treatment	Rate (lb ai/A)	Wheat Injury			Wheat Yield (bu/A)
		6/12	6/18	7/1	
		----- % -----			
Bromoxynil & MCPA ¹	0.375 & 0.375	5	0	0	50
Bromoxynil & MCPA	0.25 & 0.25	2	0	0	54
Bromoxynil & MCPA + fluroxypyr	0.25 & 0.25 + 0.062	5	0	0	57
Bromoxynil & MCPA + fluroxypyr + thifensulfuron + NIS ²	0.25 & 0.25 + 0.062 + 0.0047 + 0.25%	3	0	0	58
Bromoxynil & MCPA + fluroxypyr + thifensulfuron + NIS	0.187 & 0.187 + 0.062 + 0.0094 + 0.25%	3	0	0	58
Bromoxynil & MCPA + thifensulfuron + NIS	0.25 & 0.25 + 0.014 + 0.25%	5	0	0	58
Bromoxynil & MCPA + thifensulfuron & tribenuron ³ + NIS	0.25 & 0.25 + 0.0093 & 0.0047 + 0.25%	3	0	0	57
Bromoxynil & MCPA + fluroxypyr thifensulfuron & tribenuron + NIS	0.25 & 0.25 + 0.0093 & 0.0047 + 0.25%	5	0	0	56
Bromoxynil & MCPA + tribenuron + fluroxypyr + NIS	0.25 & 0.25 + 0.0078 + 0.062 + 0.25%	2	0	0	58
Bromoxynil & MCPA + tribenuron + NIS	0.187 & 0.187 + 0.0078 + 0.25%	7	0	0	56
Fluroxypyr	0.062	0	0	0	57
Fluroxypyr + MCPA ester	0.062 + 0.25	2	0	0	55
Clopyralid & MCPA ester ⁴	0.092 & 0.51	2	0	0	52
Clopyralid & fluroxypyr ⁵	0.125 & 0.125	0	0	0	55
Clopyralid & fluroxypyr + MCPA ester	0.125 & 0.125 + 0.25	3	0	0	53
Thifensulfuron + tribenuron + NIS	0.015 + 0.00375 + 0.25%	3	0	0	58
Thifensulfuron + MCPA ester	0.015 + 0.25	5	0	0	59
Thifensulfuron & tribenuron + MCPA ester	0.0093 & 0.0047 + 0.25	3	0	0	59
Carfentrazone-ethyl & 2,4-D ester ⁷ + Carfentrazone-ethyl & 2,4-D ester + NIS	0.008 & 0.24 0.008 & 0.24 + 0.25%	19 22	0 0	0 0	57 54
Carfentrazone-ethyl & 2,4-D ester + thifensulfuron	0.008 & 0.24 + 0.014	17	0	0	56
Carfentrazone-ethyl & 2,4-D ester + thifensulfuron + NIS	0.008 & 0.24 + 0.014 + 0.25%	15	0	0	52
Carfentrazone-ethyl & 2,4-D ester + thifensulfuron + NIS + AG 02013 ⁷	0.008 & 0.24 + 0.014 + 0.25% + 0.3%	20	0	0	52
2,4-D Ester ⁸	0.234	8	0	0	53
2,4-D Ester ⁸	0.5	13	0	0	47
2,4-D Ester ⁸ + thifensulfuron + NIS	0.234 + 0.014 + 0.25%	10	0	0	53
2,4-D Ester ⁸ + thifensulfuron + NIS + AG 02013	0.234 + 0.014 + 0.25% + 0.3%	12	3	3	53
2,4-D Ester ⁹	0.25	5	0	0	55
2,4-D Ester ⁹	0.5	12	0	0	55
2,4-D Ester ⁹ + thifensulfuron + NIS	0.25 + 0.014 + 0.25%	12	0	0	56
2,4-D Ester ⁹ + thifensulfuron + NIS + AG 02013	0.25 + 0.014 + 0.25% + 0.3%	7	0	0	57
Weedy check		0	0	0	43
LSD (P=.05)		5	ns	ns	6

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