

Broadleaf weed control in hard red spring wheat with carfentrazone-ethyl at Rosemount, MN - 1998. Durgan, Beverly R. and Douglas Miller. The purpose of this experiment was to evaluate broadleaf weed control and crop injury with carfentrazone-ethyl and various tank mixes in hard red spring wheat. The experiment was conducted at Rosemount, MN on a Waukegon silt loam soil. Following soybeans, the experimental area was fall chisel plowed. In the spring, the area was fertilized with 50 lbs/A N and 70 lbs K. Sulfonylurea herbicide resistant kochia was spread across the plot area prior to tillage. The field was disked once, field cultivated once, and harrowed twice. 'Butte 86' hard red spring wheat was seeded on April 23 at 85 lbs/A. The experimental design was a randomized complete block with three replications and plot size was 10 by 25 ft. All herbicide treatments were applied to a 6 ft strip with a backpack type sprayer delivering 10 gpa at 35 psi using 11001 flat-fan nozzles. Visual weed control ratings, wheat injury ratings, and yields are presented in the tables. Environmental conditions and plant sizes are listed below.

Treatment Date	May 26
Time	9:40-10:00 am
Target weed or crop stage	2-4" weeds

Temperature (°F)	
air	70
soil (at 2")	62
Soil Moisture	moist
Wind (mph)	4-6 E
Sky	clear
Rainfall before Application	
Week 1 (inch)	0.59
Rainfall after Application	
Week 1 (inch)	1.10
Week 2 (inch)	0.02

Wheat	
leaf stage	5.5 - 6.25
tillers	2-4
height (inch)	6-11

Giant/Yellow foxtail	
density (#/ft ²)	5
leaf no.	4-6
height (inch)	2-5

Common lambsquarters	
density (#/ft ²)	20
leaf no.	4-14
height (inch)	0.5-7

Common Ragweed	
density (#/ft ²)	1.5
leaf no.	--
height (inch)	3

Eastern black nightshade	
density (#/ft ²)	0.33
leaf no.	5
height (inch)	2

Kochia	
density (#/ft ²)	4.5
leaf no.	--
height (inch)	3-4

Pennsylvania smartweed	
density (#/ft ²)	2
leaf no.	3-5
height (inch)	1-3

Redroot pigweed	
density (#/ft ²)	3
leaf no.	1-4
height (inch)	0.25-4

Velvetleaf	
density (#/ft ²)	3
leaf no.	cot-4
height (inch)	1-4

Carfentrazone + surfactant alone resulted in lower common lambsquarters and Pennsylvania smartweed control compared to the tank mix combinations. The addition of 28%N increased control of these species. The high rate of bromoxynil resulted in the best overall control of all species. Thifensulfuron & tribenuron plus MCPA did not control the sulfonylurea herbicide resistant kochia, as expected. All carfentrazone treatments caused moderate injury on wheat. Poor wheat seed quality caused a reduced wheat stand and consequently, overall wheat yields were low. No treatment effects could be associated to wheat yield results.

Table. Broadleaf weed control in hard red spring wheat with carfentrazone-ethyl at Rosemount, MN - 1998 (Durgan and Miller).

Treatment	Rate (lb ai/A)	Weed Control (6/13)					Wheat		Yield Bu/A
		Colq	Corw	Kocz	Pesw	Vele	Injury		
		----- % -----					5/27	6/13	
Carfentrazone-ethyl + NIS ¹	0.008 + 0.25%	87	87	92	75	95	25	18	13
Carfentrazone-ethyl + NIS + 28%N ²	0.008 + 0.25% + 4.0%	94	88	94	80	97	20	18	17
Carfentrazone-ethyl + NIS + MCPA ester	0.008 + 0.25% + 0.375	94	90	97	86	100	28	22	16
Carfentrazone-ethyl + NIS + 2,4-D ester	0.008 + 0.25% + 0.375	98	96	97	85	100	28	20	15
Carfentrazone-ethyl + NIS + dicamba	0.008 + 0.25% + 0.125	97	97	98	88	98	27	25	15
Carfentrazone-ethyl + NIS + dicamba + MCPA ester	0.008 + 0.25% + 0.094 + 0.375	98	100	100	93	100	28	22	16
Carfentrazone-ethyl + NIS + thifensulfuron & tribenuron ³	0.008 + 0.25% + 0.009 & 0.005	96	91	92	84	100	10	17	15
Bromoxynil	0.25	96	93	96	90	100	0	7	14
Bromoxynil	0.5	99	98	99	96	100	0	3	13
Thifensulfuron & tribenuron + MCPA ester + NIS	0.009 & 0.005 + 0.375 + 0.25%	92	94	57	92	100	0	10	19
Weedy check		--	--	--	--	--	0	0	13
Weedy check		--	--	--	--	--	0	0	14
LSD (P=0.05)		5	ns	6	9	ns	7	9	ns

¹ NIS = Class Preference nonionic surfactant.

² 28%N = 28% UAN fertilizer solution.

³ Premix = Harmony Extra 75DF.