

Broadleaf weed control and wheat tolerance to carfentrazone-ethyl at Crookston, MN - 1998. Durgan, Beverly R. and Jim Cameron. This experiment was designed to evaluate broadleaf weed control and wheat injury with carfentrazone-ethyl. 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. '2375' hard red spring wheat was seeded on April 28 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. Crop injury was visually rated on June 4, June 7, and June 29. Weed control ratings were taken on June 17 and June 29. Wheat yields were measured. All data are presented in the table below.

Treatment Date	May 26
Target weed or crop stage	2-4 inch weeds
Soil Moisture	dry
Sky	clear
Wind (mph)	5 S
Temperature (°F)	77
Rainfall before Application	
Week 1 (inch)	0.00
Rainfall after Application	
Week 1 (inch)	0.29
Week 2 (inch)	0.00
Colq density (#/ft ²)	3-8
Pesw density (#/ft ²)	10-15
Wibu density (#/ft ²)	3-4
Wimu density (#/ft ²)	30-40

At the early rating date, weed control was lower when carfentrazone-ethyl was applied alone compared to all other treatments. At the later rating date, common lambsquarters was generally controlled well by all treatments. Pennsylvania smartweed control was lower for carfentrazone-ethyl applied alone and with 2,4-D and MCPA. Wild buckwheat and wild mustard control remained low at the second rating for the carfentrazone-ethyl alone. Wild mustard control declined somewhat from the first to the second rating for all carfentrazone-ethyl treatments. The lower rate of bromoxynil also resulted in lower weed control rating for all species by the second date. The higher rate of bromoxynil and the treatments with thifensulfuron & tribenuron generally provided excellent control of all species.

All treatments resulted in wheat injury at the early rating date. Injury was greatest for the carfentrazone/dicamba/MCPA tank mix and lowest for the bromoxynil treatments. Injury was still evident at the second rating date for all carfentrazone-ethyl treatments but had disappeared by the final rating.

Yields did not differ between all herbicide treatments, however the weedy check yielded significantly less than any of the herbicide treatments.

Table. Broadleaf weed control and wheat tolerance to carfentrazone-ethyl at Crookston, MN - 1998 (Durgan and Cameron).

Treatment	Rate (lb ai/A)	Weed Control								Wheat			Yield Bu/A
		Colq		Pesw		Wibu		Wimu		Injury			
		6/17	6/29	6/17	6/29	6/17	6/29	6/17	6/29	6/4	6/17	6/29	
Carfentrazone-ethyl + NIS ¹	0.008 + 0.25%	90	95	80	88	80	82	75	57	22	12	0	48
Carfentrazone-ethyl + NIS + 28%N ²	0.008 + 0.25% + 4.0%	87	99	72	88	75	85	63	70	10	12	0	49
Carfentrazone-ethyl + NIS + MCPA ester	0.008 + 0.25% + 0.375	100	96	93	88	93	91	97	88	27	12	0	52
Carfentrazone-ethyl + NIS + 2,4-D butoxyethyl ester	0.008 + 0.25% + 0.375	100	94	97	89	96	91	99	87	22	12	0	54
Carfentrazone-ethyl + NIS + dicamba	0.008 + 0.25% + 0.125	100	99	94	94	93	91	92	88	27	12	0	51
Carfentrazone-ethyl + NIS + dicamba + MCPA ester	0.008 + 0.25% + 0.094 + 0.375	100	100	100	96	98	95	99	91	37	14	0	56
Carfentrazone-ethyl + NIS + thifensulfuron & tribenuron ³	0.008 + 0.25% + 0.009 & 0.005	100	100	98	96	97	97	100	95	30	13	0	49
Bromoxynil	0.25	98	94	94	88	94	88	91	82	15	0	0	51
Bromoxynil	0.5	100	100	100	100	100	100	99	98	10	0	0	50
Thifensulfuron & tribenuron + MCPA ester + NIS	0.009 & 0.005 + 0.375 + 0.25%	100	100	100	100	100	99	100	98	22	0	0	51
Weedy check		--	--	--	--	--	--	--	--	0	0	0	30
LSD (P=0.05)		6	5	11	5	14	5	14	7	15	5	0	6

1 NIS = Class Preference nonionic surfactant.

2 28%N = 28% UAN fertilizer solution.

3 Premix = Harmony Extra 75DF.