

## **Evaluation of herbicide options for postemergence weed control in spring wheat at Hettinger, ND, 2024.**

A trial was conducted at Hettinger, ND in 2024 to evaluate the efficacy of herbicides for weed control in spring wheat. The primary focus of this trial was to evaluate kochia control, although we were also able to evaluate wild buckwheat, common lambsquarters, and common mallow. For years, the herbicide fluroxypyr has been instrumental for controlling kochia in spring wheat. In recent years, there has been development of some populations of kochia that have increased tolerance to fluroxypyr, which has necessitated changes in strategies for controlling this weed. Most of the herbicide treatments in this trial contain fluroxypyr as a lone treatment or as premixes or tank-mixes (Table 1). Spring wheat was planted on May 1, 2024, using a no-till drill at a depth of 2 inches. Spring wheat emerged on May 14. Herbicide treatments were applied on June 7 when weeds averaged 2 to 3 inches in height (Table 2). When evaluated 2 weeks after treatment (2 WAT), fluroxypyr alone (Starane Ultra) controlled kochia at 72%, with lesser control of other weeds. The addition of bromoxynil (Maestro 2EC) to fluroxypyr increased kochia control to 81% for 16 oz/A of Maestro 2EC, and 92% for both 24 and 32 oz/A of Maestro 2EC. All other treatments controlled kochia at 84 to 93%. Wild buckwheat control increased with combinations of fluroxypyr and bromoxynil, with the best treatments being, Starane Ultra plus Maestro (24 and 32 oz/A) and Bison (MCPA plus bromoxynil) plus Starane Ultra (2.8 and 5.6 oz/A). Common lambsquarters and common mallow control followed a similar trend with control increasing with higher amounts of bromoxynil added to fluroxypyr. Little to no injury was observed with any of these treatments. Wheat yield was lowest in the untreated control, with most treatments being statistically similar. This trial demonstrates the importance of not relying on a single herbicide or mode of action when trying to control weed in spring wheat (or any crop).

Table 1. Evaluation of postemergence options for weed control in spring wheat at Hettinger, ND, 2024.

Treatment	Rate oz/A	Spring wheat				Injury Bu/A	Yield LB/BU
		Kochia	wild buckwheat	lambsquarters	mallow		
		% control					
1 Untreated		0d	0f	0d	0e	0h	36.1b
2 Starane Ultra	5.6	72c	60e	41c	55d	1gh	38.5ab
3 Starane Ultra	5.6	81bc	82cd	83b	69bc	6bcd	38.0ab
Maestro 2EC	16						
4 Starane Ultra	5.6	92a	88ab	95ab	75ab	8ab	37.6ab
Maestro 2EC	24						
5 Starane Ultra	5.6	92a	92a	96ab	82a	9a	37.5ab
Maestro 2EC	32						
6 Huskie FX	13.5	88ab	82cd	91ab	77ab	4def	40.4a
7 Huskie Complete	13.7	88ab	81cd	92ab	80ab	3efg	39.9ab
8 Batalium Amped	16	88ab	86bc	84ab	82ab	5c-f	38.7ab
9 Talinor	13.7	84ab	81cd	92ab	61cd	3fg	41.4a
10 Tolvera	11	85ab	79d	92ab	77ab	4def	35.9b
11 Carnivore	16	86ab	85bc	88ab	74ab	8abc	38.4ab
12 Carnivore	24	90ab	83bcd	89ab	72abc	7abc	38.5ab
13 Bison	24	85ab	84bcd	92ab	79ab	6b-e	39.0ab
14 Bison	24	93a	88ab	91ab	80ab	7abc	38.9ab
Starane Ultra	2.8						
15 Bison	24	90ab	88ab	97a	81ab	8ab	39.0ab
Starane Ultra	5.6						
LSD P=.05		9.1	6.0	12.9	11.3	2.6	3.70
Standard Deviation		6.4	4.2	9.0	7.9	1.8	2.58
CV		7.9	5.42	11.42	11.45	32.6	7.09
Treatment F		52.358	116.292	32.962	27.195	10.418	2.615
Treatment Prob(F)		0.0001	0.0001	0.0001	0.0001	0.0001	0.0106

Table 2. Application environment and equipment for postemergence application of herbicide treatments for weed control in spring wheat.

Application Description		Application equipment	
Date	Jun-7-2024	Equipment Type	Tractor mounted
Start Time	8:19 AM	Operation Pressure	42 PSI
Stop Time	9:18 AM	Nozzle Model	11002DG
Air Temperature Start, Stop	67.7, 66.7 F	Nozzle Spacing	20 IN
% Relative Humidity Start, Stop	42.5, 36.9	Boom Length	100 IN
Wind Velocity+Dir. Start	4.1 MPH, SSE	Boom Height	20 IN
Wind Velocity+Dir. Stop	9.9 MPH, SSE	Ground Speed	4.2 MPH
Wind Velocity+Dir. Max	12.1 MPH, SSE	Carrier	WATER
Wet Leaves (Y/N)	N, no	Application Amount	10 GAL/AC
Soil Temperature	46 F	Propellant	CO2
% Cloud Cover	25	Tank Mix (Y/N)	Yes