

Table 1. Fall application of Anthem Flex for weed control in wheat at Hettinger, ND 2022-23.

Herbicide treatment ^a	Rate	Time ^b	Japanese brome		Kochia		common lambsquarters		Prickly lettuce		green foxtail		Wheat yield									
			36D	85D	36D	85D	36D	85D	36D	85D	36D	85D	bu/A									
			percent control ^c																			
oz/A															bu/A							
1 Untreated			0	c	0	d	0	c	0	d	0	e	0	d	0	c	0	c	0	e	59	cd
2 glyphosate	22	Fall	70	b	0	d	0	c	0	d	0	e	0	d	0	c	0	c	0	e	56	d
3 Anthem Flex	3.5	Fall	88	a	80	ab	78	a	70	bc	23	d	52	c	11	c	56	b	51	d	61	bcd
glyphosate	22	Fall																				
4 Anthem Flex	4	Fall	86	a	70	b	77	a	59	c	28	d	78	b	34	b	73	a	74	b	67	abc
glyphosate	22	Fall																				
5 Anthem Flex	4.5	Fall	91	a	87	a	78	a	77	b	54	c	92	a	78	a	76	a	73	b	65	a-d
glyphosate	22	Fall																				
6 Olympus	0.2	Fall	94	a	33	c	39	b	65	bc	48	c	45	c	47	b	58	b	65	c	65	a-d
glyphosate	22	Fall																				
Olympus	0.2	Spring																				
7 Authority Sup	7.5	Fall	95	a	89	a	88	a	99	a	94	a	92	a	81	a	77	a	74	ab	69	ab
glyphosate	22	Fall																				
8 Anthem Flex	4	Fall	92	a	83	a	87	a	72	bc	68	b	94	a	71	a	79	a	79	a	74	a
glyphosate	22	Fall																				
Olympus	0.2	Spring																				
LSD P=.05			9.84		9.66		10.53		11.97		12.06		11.69		13.02		12.08		5.13		9.01	
Standard Deviation			6.69		6.53		7.12		7.89		8.2		7.95		8.9		8.21		3.5		6.08	
CV			8.71		12.32		14.04		15.44		20.94		14.21		21.37		15.74		6.72		10.42	
Treatment F			91.47		133.35		97.88		78.88		64.49		96.37		58.5		65.92		360.30		3.971	
Treatment Prob(F)			0.0001		0.0001		0.0001		0.0001		0.0001		0.0001		0.0001		0.0001		0.0001		0.0078	

^a Glyphosate, Roundup PowerMax; Anthem Flex, carfentrazone plus pyroxasulfone; Olympus, propoxycarbazone; Authority Supreme, sulfentrazone plus pyroxasulfone.

^b Time of application: Fall, 10/19/2022; Spring, 5/19/2023

^c Weed control was visually evaluated on 6/14/2023 (36 days after wheat emergence) and prior to harvest on 8/2/23 (85 days after emergence).

Table 2. Description of herbicide application and equipment for treatments applied for weed control in spring wheat at Hettinger, ND, 2022-23.

Application Description			Application Equipment		
Date	10/19/2022	5/19/2023	Date	10/19/2022	5/19/2023
Start Time	11:10 AM	8:49 AM	Sprayer type	Tractor	Tractor
Stop Time	11:46 AM	9:00 AM	Pressure	38 PSI	38 PSI
Air Temperature	70 F	47 F	Nozzle Model	DG11002	DG11002
Rel Humidity	31	57	Nozzle Spacing	20 IN	20 IN
Wind Velocity (mph)	4.5	5	Spray Swath	100.0 IN	100.0 IN
Soil Temperature	43 F	51 F	Boom Length	100 IN	100 IN
% Cloud Cover	0	0	Boom Height	20 IN	20 IN
			Ground Speed	3.8 MPH	3.8 MPH
			Application Amount	10 GAL/AC	10 GAL/AC
			Propellant	CO2	CO2

A trial was conducted to evaluate fall application of Anthem Flex for weed control in spring wheat. Fall treatments were applied on October 19, 2022; A spring application of Olympus was included in some of the treatments for comparison and was applied on May 19 as a postemergence application. Spring wheat ‘Lang’ was planted on May 1, 2023 using a no-till drill at a depth of 2 inches with a seeding rate of 102 lb/A; wheat emerged on May 9. Wheat was evaluated for injury and weed control 24, 36, and 85 days after wheat emergence. No injury was observed for wheat. Glyphosate alone, applied in the fall control Japanese brome at 70%; other treatments increased control to a range of 86 to 95%. Fall-applied Anthem Flex provided fair to good control of kochia and prickly lettuce and poor control of common lambsquarters. Olympus alone provided poor control of the broadleaf weeds evaluated in this trial. Authority Supreme provided the most consistent control of all weeds evaluated in this trial. Only the Authority Supreme and Anthem Flex followed by a spring application of Olympus resulted in wheat yields that were significantly greater than the untreated control or just glyphosate alone.