Project Title:	2022 Spring Wheat Pre & Post Herbicide Treatments
Objective:	To evaluate herbicide combinations applied pre planted and/or post planted on weed control performance in spring wheat in environments and cropping systems representative of northwestern Montana
Personnel:	Clint Beiermann. Jessica Pavelka

## Summary:

Spring wheat was planted on April 27<sup>th</sup>, 2022 and thirteen different herbicide combination were tested (Tables 1, 2).

At four weeks after application there was 90% or greater control of wild oat in treatments (2) Axial Bold, (6) Prowl followed by (fb) Axial Bold, (7) Zidua SC fb Axial Bold, (8) Anthem Flex fb Axial Bold, (9) Prowl H2O + Axial Bold, (10) Zidua SC + Axial Bold, and (11) Anthem Flex + Axial Bold. Lambsquarters control was 88% or higher in treatments (3) Prowl H2O, (4) Zidua SC, (6) Prowl followed by (fb) Axial Bold, (7) Zidua SC fb Axial Bold, (8) Anthem Flex fb Axial Bold, (9) Prowl H2O + Axial Bold, and (11) Anthem Flex + Axial Bold, (8) Anthem Flex fb Axial Bold, (9)

Weed density was assessed four weeks after the final POST treatments were applied. High amounts of wild oat were present in treatments (1) non-treated, (3) Prowl H2O, (4) Zidua SC, and (5) Anthem Flex. Lambsquarters density was higher in treatments with poor control, including (1) non-treated, (2) Axial Bold, and (10) Zidua SC + Axial Bold (Table 5).

There was a significant effect of herbicide treatment on crop injury. Treatments (2) Axial Bold, (6) Prowl H2O fb Axial Bold, (7) Zidua SC fb Axial Bold, and (8) Anthem Flex + Axial Bold ranged from 16-21.3% crop injury; however, spring wheat recovered from these injuries, as each of these treatments resulted in high yield. The highest yielding treatment was (8) Anthem Flex fb Axial Bold at 98.6 bu/A, while the non-treated yielded the lowest at 52.5 bu/A (Table 3). We cannot conclude that Prowl, Zidua, or Anthem Flex provided improved wild oat control beyond using Axial Bold as a POST treatment. Prowl, Zidua, and Anthem Flex did improve lambsquarters control compared to non-treated.

## Table 1. Management Information

Seeding date:	4/27/2022	Field Location:	R6
Julian date:	117	Harvest date:	8/23/2022
Seeding rate:		Julian date:	235
Previous crop:	Alfalfa	Soil type:	Creston Silt Loam
Herbicide:	Study Treatments	Tillage:	Conventional
Insecticide:	NA	Soil residual nutrient (NO3 <sup>-1</sup> , P, K lb/A):	78.5-6-122-8s
Fungicide:	NA	Nutrient fertilizer applied (N, P <sub>2</sub> O <sub>5</sub> , K <sub>2</sub> O lb/A):	80-50-60-10s

## Table 2. Spring Wheat Pre & Post Combinations

		Form				
Trt No.	Trt Name	Concentration	Form Unit	Rate	Rate Unit	Appl Timing
1	Non-trt					
2	Axial Bold	0.685	LBA/GAL	15	fl oz/a	POST
3	Prowl H2O	3.8	LBA/GAL	2	pt/a	Early POST
4	Zidua SC	4.17	LBA/GAL	2.5	fl oz/a	PRE
5	Anthem Flex	4	LBA/GAL	3	fl oz/a	PRE
6	Prowl H2O	3.8	LBA/GAL	2	pt/a	Early POST
	Axial Bold	0.685	LBA/GAL	15	fl oz/a	POST
7	Zidua SC	4.17	LBA/GAL	2.5	fl oz/a	PRE
	Axial Bold	0.685	LBA/GAL	15	fl oz/a	POST
8	Anthem Flex	4	LBA/GAL	3	fl oz/a	PRE
	Axial Bold	0.685	LBA/GAL	15	fl oz/a	POST
9	Prowl H2O	3.8	LBA/GAL	2	pt/a	Early POST
	Axial Bold	0.685	LBA/GAL	15	fl oz/a	Early POST
10	Zidua SC	4.17	LBA/GAL	2.5	fl oz/a	Early POST
	Axial Bold	0.685	LBA/GAL	15	fl oz/a	Early POST
11	Anthem Flex	4	LBA/GAL	3	fl oz/a	Early POST
	Axial Bold	0.685	LBA/GAL	15	fl oz/a	Early POST

Trootmont	Injury (%)	Yield	
meatment	1 WAT	(bu/A)	
1	-	52.5	
2	16.3	91.6	
3	<u>5.0</u>	81.4	
4	7.5	81.6	
5	6.3	84.6	
6	21.3	96.8	
7	21.0	90.9	
8	16.0	<u>98.6</u>	
9	9.0	91.3	
10	7.3	92.8	
11	6.0	98.0	
Mean	11.6	87.3	
CV	38.4	8.4	
LSD	6.4	10.6	
PR>F	<0.001	<0.001	

Table 3. Crop Injury & Yield

WAT = weeks after treatment

Table 4. Weed Control (4 WAT)

Treatment	Wild Oat	Lambsquarters
Treatment	%	%
2	<u>99.0</u>	10.0
3	16.3	<u>99.0</u>
4	18.8	89.5
5	22.5	68.5
6	<u>99.0</u>	<u>99.0</u>
7	<u>99.0</u>	89.5
8	<u>99.0</u>	88.3
9	<u>99.0</u>	<u>99.0</u>
10	96.8	32.5
11	<u>99.0</u>	<u>99.0</u>
Mean	74.8	77.4
CV	6.9	17.9
LSD	7.5	20.2
PR>F	<0.001	<0.001

WAT = weeks after treatment

Treatment	Wild Oat	Lambsquarters
Treatment	plants/m <sup>2</sup>	plants/m <sup>2</sup>
1	18.5	19.0
2	0.0	<u>20.0</u>
3	<u>18.5</u>	0.0
4	11.5	4.0
5	17.0	3.5
6	0.5	0.0
7	0.5	5.0
8	0.0	1.5
9	0.0	0.5
10	0.0	10.0
11	0.0	2
Mean	6.0	6.0
CV	72.2	92.9
LSD	6.3	8.0
PR>F	<0.001	<0.001

Table 5. Weed Density (4 WAT)

WAT = weeks after treatment