

Wild oat control in spring wheat with three application times at Crookston, MN - 2021. Durgan, Beverly R., Jochum Wiersma, Jim Cameron, and Houston Lindell. This experiment was designed to evaluate wild oat control with several herbicides applied at three different wild oat stages. The experiment was conducted at Crookston, MN on a Donaldson and Wheaton loam soil. Following weedy fallow, the area was chisel plowed in the fall of 2020. In the spring of 2021, 149 lbs/A N and 52 lbs/A P was applied, and a seedbed was prepared using a field cultivator with rolling baskets. 'Linkert' hard red spring wheat was seeded on April 19 at 1.75 bu/a. The experimental design was a randomized complete block with three replications. Plot size was 10 by 16 ft. Target application stages were 1-2 leaf, 3-4 leaf and 5-6 leaf wild oat. All herbicide treatments were applied with a backpack type sprayer delivering 10 gpa at 30 psi using 80015 flat fan nozzles. Application data and environmental conditions are listed below. Crop injury and wild oat control were rated visually. Yields were measured. All data are presented in the table below. Wild oat emergence was monitored weekly and is presented in the chart below.

Treatment Date	May 14	May 21	June 1
Target wild oat stage	1-2 leaf	3-4 leaf	5-6 leaf
Air temperature (°F)	--	74	74
Relative humidity (%)	--	84	43
Wind	--	S 6 mph	SW 6.6 mph
Soil temperature (under sod) (°F)	--	58	56
Rainfall before Application			
Week 1 (inch)	0.00	0.18	0.24
Rainfall after Application			
Week 1 (inch)	0.18	0.51	0.08
Week 2 (inch)	0.51	0.09	0.41

Results

Average wild oat control was generally greatest when treatments were applied to 3-4 leaf wild oat compared to applications at the 1-2 leaf and 5-6 leaf stage. However, Everest 3.0, Rimfire Max, Axial XL, and Axial Bold resulted in good to excellent wild oat control when applied at either the 3-4 leaf or 5-6 leaf wild oat stage. OpenSky, Varro, Wolverine Advanced, and PerfectMatch resulted in lower control of wild oat when applied at the 5-6 leaf stage compared to applications at the 3-4 leaf stage. All treatments applied at the 1-2 leaf stage resulted in overall poor wild oat control due to later emerging wild oats.

The greatest injury observed was with OpenSky, Varro, and Rimfire Max applied at the early application date.

Crop yields were highly variable, most likely the result of low precipitation over the growing season. Average wheat yields were highest when treatments were applied at the 1-2 and 3-4 leaf wild oat stage compared to the later 5-6 leaf stage. Early control of wild oats at the 1-2 leaf application date probably was a factor in the better yields compared to the late applied treatments, even though late season wild oat control was poor for the early applied treatments.

**Wild oat control in spring wheat with three application times at Crookston, MN – 2021.
Durgan, Wiersma, Cameron, and Lindell.**

Treatment	Rate (Product/A)	Wild Oat Control			Wheat Injury					Wheat Yield (Bu/A)
		6/24	7/2	7/21	5/21	5/28	6/4	6/12	6/18	
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	
Application #1 (May 14)										
Everest 3.0 + Widematch + MCPA ester + Preference + AMS	2 oz + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	57	55	27	2	0	0	0	0	29
OpenSky + Widematch + MCPA ester + Preference + AMS	1 pt + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	75	67	47	10	0	2	0	2	38
Varro + Widematch + MCPA ester + Preference + AMS	6.85 oz + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	82	52	40	12	2	0	0	2	34
Rimfire Max + Widematch + MCPA ester+ Destiny HC	3 oz + 1 pt + 0.5 pt + 0.75 pt	82	43	27	13	5	0	0	2	31
Axial XL+ Widematch + MCPA ester	16.4 oz+ 1 pt + 0.5 pt	78	58	43	3	0	0	0	0	37
Wolverive Advanced	27.4 oz	67	45	27	2	0	0	0	0	40
PerfectMatch + Activator 90 + AMS	1 pt + 6.4 oz + 3.5 pt	67	60	48	7	2	0	0	0	39
Axial Bold+ Widematch + MCPA ester	15 oz+ 1 pt + 0.5 pt	55	57	50	3	2	0	0	0	38
Application Date Mean *		70b	55c	39c	--	--	--	--	--	36a
Application #2 (May 21)										
Everest 3.0 + Widematch + MCPA ester + Preference + AMS	2 oz + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	80	87	91	--	0	0	3	0	25
OpenSky + Widematch + MCPA ester + Preference + AMS	1 pt + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	87	85	93	--	3	5	0	3	38
Varro + Widematch + MCPA ester + Preference + AMS	6.85 oz + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	88	90	95	--	5	2	0	0	34
Rimfire Max + Widematch + MCPA ester+ Destiny HC	3 oz + 1 pt + 0.5 pt + 0.75 pt	96	92	98	--	7	8	3	5	32
Axial XL+ Widematch + MCPA ester	16.4 oz+ 1 pt + 0.5 pt	95	94	98	--	2	0	0	0	34
Wolverive Advanced	27.4 oz	95	94	98	--	0	2	2	0	41
PerfectMatch + Activator 90 + AMS	1 pt + 6.4 oz + 3.5 pt	94	87	91	--	5	0	0	0	34
Axial Bold+ Widematch + MCPA ester	15 oz+ 1 pt + 0.5 pt	93	88	96	--	0	0	0	2	46
Application Date Mean *		91a	90a	95a	--	--	--	--	--	36a
Application #3 (June 1)										
Everest 3.0 + Widematch + MCPA ester + Preference + AMS	2 oz + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	--	80	91	--	--	0	0	2	25
OpenSky + Widematch + MCPA ester + Preference + AMS	1 pt + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	--	70	76	--	--	0	0	0	20
Varro + Widematch + MCPA ester + Preference + AMS	6.85 oz + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	--	70	80	--	--	0	0	3	21
Rimfire Max + Widematch + MCPA ester+ Destiny HC	3 oz + 1 pt + 0.5 pt + 0.75 pt	--	82	95	--	--	0	5	0	27
Axial XL+ Widematch + MCPA ester	16.4 oz+ 1 pt + 0.5 pt	--	85	98	--	--	0	0	0	20
Wolverive Advanced	27.4 oz	--	63	80	--	--	0	0	0	28
PerfectMatch + Activator 90 + AMS	1 pt + 6.4 oz + 3.5 pt	--	67	77	--	--	0	0	0	21
Axial Bold+ Widematch + MCPA ester	15 oz+ 1 pt + 0.5 pt	--	88	99	--	--	0	0	0	19
Application Date Mean *		--	76b	87b	--	--	--	--	--	23b
Untreated Check	--	--	--	--	0	0	0	0	0	18
LSD (0.05) **		25.4	29.6	21.9	7.0	2.4	3.0	2.8	2.5	13.6

Everest 3.0 1.75SC = flucarbazone-sodium & cloquintacet (safener).

Widematch 1.5E = clopyralid (0.75 lb ae/gal) & fluroxypyr (0.75 lb ae/gal).

MCPA Ester 4E.

Preference = nonionic surfactant.

AMS = N-PaK AMS = 34% ammonium sulfate solution (3.4 lbs ammonium sulfate/gal).

OpenSky 1.057L = pyroxsulam (0.107 lb ai/gal) & fluroxypyr (0.95 lb ae/gal).

Varro 0.083OD = thien carbazole-methyl & safener.

Rimfire Max 6.67WDG = propoxycarbazone-sodium (4.76%) & mesosulfuron-methyl (1.91%).

Destiny HC = methylated soybean oil, high fructose corn syrup, sorbitan fatty acid esters.

Axial XL 0.42EC = pinoxaden and adigor adjuvant.

Wolverine Advanced 1.58E = fenoxaprop-p-ethyl (0.40 lb ai/gal) & pyrasulfotole (0.13 lb ai/gal) & bromoxynil (1.05 lb ai/gal).

PerfectMatch 1.61SE = clopyralid (0.75 lb ae/gal) & fluroxypyr (0.75 lb ae/gal) & pyroxsulam (0.11 lb ai/gal).

Activator 90 = nonionic surfactant.

Axial Bold 0.685EC = pinoxaden (0.457 lb/gal) & fenoxaprop-p-ethyl (0.228 lb/gal).

* Application date means followed by same letter are not significantly different as determined by factorial anova (P=0.05, LSD).

** LSD for comparing all herbicide treatment means.