

Foxtail control in spring wheat with three application times at Rosemount, MN - 2016. Durgan, Beverly R., Douglas W. Miller, Bradley Kinkaid, Rafael Pedroso da Silva, and Maria Karis. This experiment was designed to evaluate foxtail control with several herbicides applied at three different foxtail stages. The experiment was conducted at Rosemount, MN on a Waukegon silt loam soil with pH 6.2 and 3.8% organic matter. Soil test for P and K were 22 lbs/A and 274 lbs/A, respectively. Following soybeans, the experimental area was fall chisel plowed. On April 11, the area was field cultivated. On April 13, the area was fertilized with 70 lbs/A N, 60 lbs/A P, and 60 lbs/A K and field cultivated a second time. 'Linkert' hard red spring wheat was seeded with a 12 foot wide drill at 115 lbs/A on April 14. Bromoxynil (0.31 lb ai/A) and MCPA (0.31 lb ai/A) were broadcast postemergence over the plot area on May 25 to control broadleaf weeds. The experimental design was a randomized complete block with three replications. Plot size was 10 by 24 ft. All herbicide treatments were applied to a 6 foot strip with a backpack type CO₂ powered sprayer delivering 10 gpa at 35 psi using 11001 flat fan nozzles with 18 inch spacing. Target application stages were 1 leaf, 3-4 leaf, and 5-6 leaf foxtail. Application data and environmental conditions are listed below. Weed control and wheat injury were visually rated. Yields were determined by harvesting a 5 X 24 foot strip in the treated area with a small plot combine. Foxtail emergence was monitored in an area adjacent to the experimental area. Emergence results are presented in the chart below. Data is summarized in the Table below (factorial ANOVA results not shown).

Treatment Date	May 2	May 20	June 1
Foxtail (giant and yellow)			
leaf stage	90%-1 lf, 10%-2 lf	5%-1 lf, 30%-2 lf, 60%-3 lf, 5%-4 lf	13%-2 lf, 34%-3 lf, 42%-4 lf, 23%-5 lf, 7%-6 lf
height (inch)	0.25-0.75	0.25-2.5"	1-6
density (#/ft ²)	28	160	221
Wheat			
stage (Haun)	1.3-2.1 leaf (Zadoks Z11-12)	4.8-5.2 leaf (Zadoks Z15, Z21-22)	6.2-6.7 leaf (Zadoks Z16-17, Z21-23)
tillers	0	0-2	1-3
height (inch)	3-4	6-9	12-15
Air temperature (°F)	62	61	61
Relative humidity (%)	29	51	59
Dewpoint (°F)	30	43	47
Sky	10% clouds	90% clouds	90% clouds
Wind	0-5 mph	SE 0-3 mph	WSW 3-8 mph
Soil conditions	moist at 0.5"	moist at 1"	moist
Soil temperature (°F)	68	46	60
Rainfall before Application			
Week 1 (inch)	1.32	0.15	1.48
Rainfall after Application			
Week 1 (inch)	0.01	0.46	0.25
Week 2 (inch)	1.33	1.03	2.85

Results

Foxtail populations averaged 235/ft². 12% of foxtail had emerged by the first application date (May 2). 66% had emerged by the second application date (May 20) and 94% by the late application date (June 1).

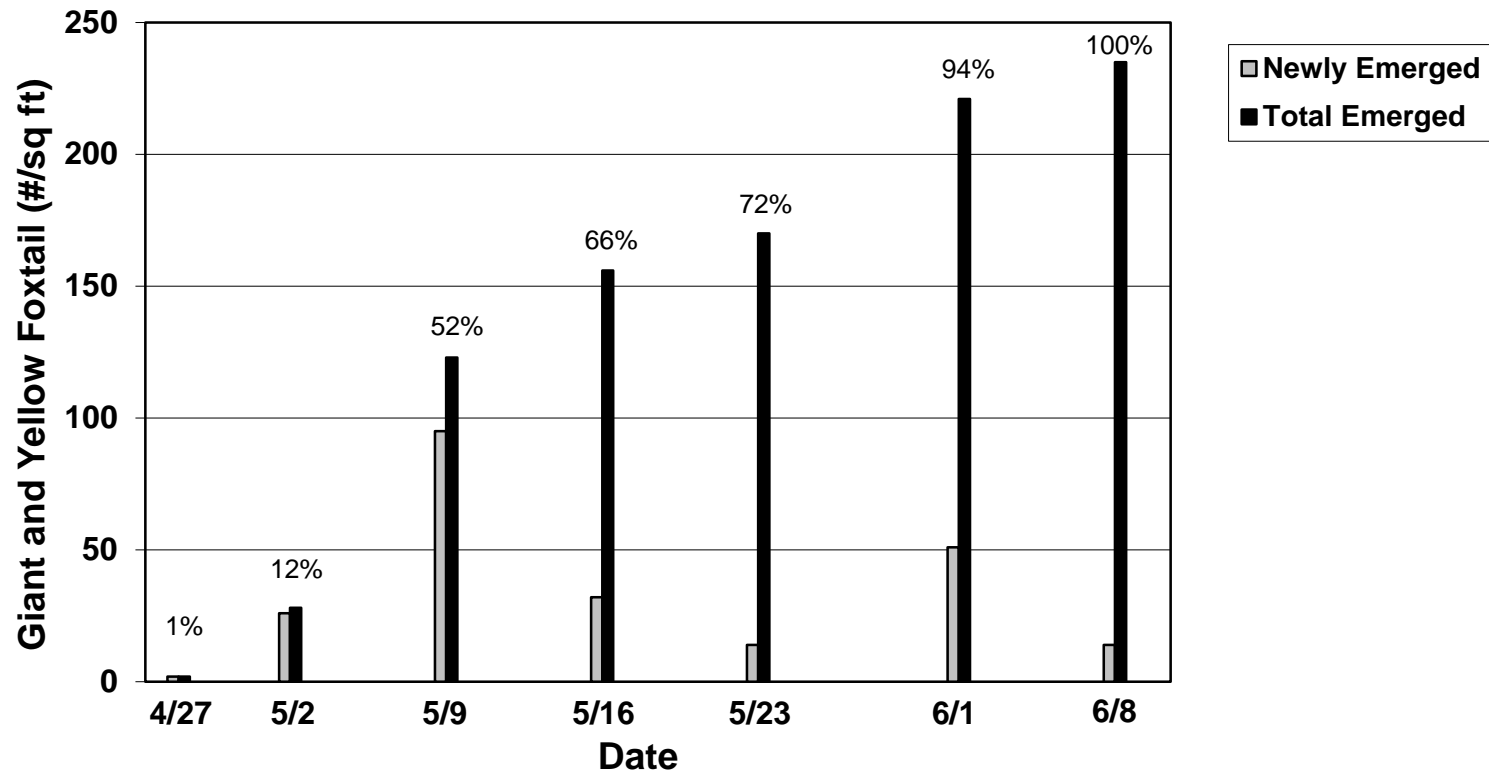
Average foxtail control and wheat yields were significantly lowest for treatments applied at the early application group compared to the two later application dates. Average foxtail control and wheat yields did not differ significantly between the second and third application groups at the June 22 or July 25 rating dates. Control ratings on June 9 for treatments applied on the third application date were lower due to the short time interval between the June 1 application and rating date. None of the treatments in the early application group yielded significantly greater than the weedy check. In contrast, several treatments in the second and third application group yielded significantly greater than the weedy check.

For treatments applied at the first application date, Everest 2.0 had the greatest foxtail control but did not differ significantly different from other treatments except for the Rimfire Max treatment. Rimfire Max had the lowest foxtail control at all rating dates in this group. Everest 2.0 had the highest yield in the first application group which was significantly greater than the Rimfire Max and PerfectMatch treatments. The Rimfire Max treatment yielded significantly lower than the other treatments in the first application group.

For treatments applied at the second application date, foxtail control was significantly lower for the Rimfire Max treatment at each rating date compared to the other treatments, which did not differ significantly among each other. Axial XL had the highest yield of the treatments in the second application group, which was significantly greater than the GoldSky and PerfectMatch treatments, the lowest yielding treatments of that application group.

For treatments applied at the third application date, Rimfire Max had lowest foxtail control at the June 22 and July 25 rating dates. However, foxtail control generally did not differ significantly among treatments at these rating dates in the third application group. Wolverine Advanced had the highest yield in this application group and The Varro treatment had the lowest.

2016 Foxtail Emergence at Rosemount, MN



Average Total Population = 235/sq ft

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Treatment	Rate (Product/A)	Grass Control			Wheat Injury					Wheat
		6/9	6/22	7/25	5/20	5/24	6/9	6/9	7/25	Yield
		(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(Bu/A)
Application #1 (May 24)										
Everest 2.0 + Widematch + MCPA ester + Preference + AMS	1 oz + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	70	55	58	3	0	2	0	0	47
GoldSky + Widematch + MCPA ester + Preference + AMS	1 pt + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	57	47	45	7	0	3	0	0	45
Varro + Widematch + MCPA ester + Preference + AMS	6.85 oz + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	50	43	37	5	0	3	0	0	43
Rimfire Max + Widematch + MCPA ester+ Destiny HC	3 oz + 1 pt + 0.5 pt + 0.75 pt	47	30	27	8	0	8	0	0	36
Axial XL+ Widematch + MCPA ester	16.4 oz + 1 pt + 0.5 pt	63	40	42	3	2	3	0	0	43
Wolverive Advanced	27.4 oz	57	37	37	0	0	2	0	0	45
Huskie Complete	13.7 oz	57	40	40	0	0	2	0	0	45
PerfectMatch + Activator 90 + AMS	1 pt + 6.4 oz + 3.5 pt	63	40	43	3	0	8	0	0	41
Application #2 May 20)										
Everest 2.0 + Widematch + MCPA ester + Preference + AMS	1 oz + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	93	88	87	--	5	3	0	0	47
GoldSky + Widematch + MCPA ester + Preference + AMS	1 pt + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	88	87	90	--	7	7	0	0	45
Varro + Widematch + MCPA ester + Preference + AMS	6.85 oz + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	95	90	84	--	5	3	0	0	50
Rimfire Max + Widematch + MCPA ester+ Destiny HC	3 oz + 1 pt + 0.5 pt + 0.75 pt	73	50	53	--	7	3	0	0	47
Axial XL+ Widematch + MCPA ester	16.4 oz + 1 pt + 0.5 pt	96	90	86	--	2	2	0	0	49
Wolverive Advanced	27.4 oz	96	88	88	--	3	2	0	0	51
Huskie Complete	13.7 oz	95	88	87	--	2	5	0	0	48
PerfectMatch + Activator 90 + AMS	1 pt + 6.4 oz + 3.5 pt	90	80	77	--	10	10	0	0	46
Application #3 (June 1)										
Everest 2.0 + Widematch + MCPA ester + Preference + AMS	1 oz + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	68	88	83	--	--	5	0	0	48
GoldSky + Widematch + MCPA ester + Preference + AMS	1 pt + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	75	92	85	--	--	7	2	0	47
Varro + Widematch + MCPA ester + Preference + AMS	6.85 oz + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	77	90	83	--	--	8	0	0	41
Rimfire Max + Widematch + MCPA ester+ Destiny HC	3 oz + 1 pt + 0.5 pt + 0.75 pt	77	73	68	--	--	7	0	0	48
Axial XL+ Widematch + MCPA ester	16.4 oz + 1 pt + 0.5 pt	92	93	83	--	--	8	0	0	44
Wolverive Advanced	27.4 oz	63	92	87	--	--	8	0	0	50
Huskie Complete	13.7 oz	73	87	85	--	--	7	0	0	47
PerfectMatch + Activator 90 + AMS	1 pt + 6.4 oz + 3.5 pt	73	82	78	--	--	10	0	10	49
Weedy Check	--	--	--	--	0	0	0	0	0	43
LSD (0.05)		18	19	21	ns	4	ns	ns	1	4

Everest 2.0 3.5SC = 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).
GoldSky 0.84L = pyroxulam (0.11 lb ai/gal) & fluroxypyr (0.71 lb ae/gal) & florasulam (0.018 lb ai/gal).
Varro = thien carbazone-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.
Wolverive Advanced 1.58E = fenoxaprop-p-ethyl (0.40 lb ai/gal) & pyrasulfotole (0.13 lb ai/gal) & bromoxynil (1.05 lb ai/gal).
Huskie Complete 1.76L = thien carbazone-methyl (0.042 lb ai/gal) & pyrasulfotole (0.26 lb ai/gal) & bromoxynil phenol equivalent (1.46 lb ai/gal).
PerfectMatch 1.61SE = clopyralid (0.75 lb ae/gal) & fluroxypyr (0.75 lb ae/gal) & pyroxulam (0.11 lb ai/gal).
Activator 90 = nonionic surfactant.