Foxtail control in spring wheat with three application times at Rosemount, MN - 2018. Durgan, Beverly R., Douglas W. Miller, Bradley Kinkaid, Ryan Mentz, and Aryane Batista. 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 (5% sand, 51% silt, 44% clay) with pH 5.7 and 4.7% organic matter. Soil test for P and K were 26 lbs/A and 204 lbs/A, respectively. Following soybeans, the experimental area was fall chisel plowed. On April 30, the area was tilled with a soil finisher. On May 3, the area was fertilized with 70 lbs/A N, 60 lbs/A P, and 60 lbs/A K. The area was field cultivated on May 4 and 'Linkert' hard red spring wheat was seeded with a 12 foot wide drill at 115 lbs/A. Broadleaf weeds were controlled with an application of bromoxynil + MCPA ester (0.31 lb ai/A + 0.31 lb ae/A) on May 23. 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 wide strip with a backpack type CO_2 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 5.74 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.

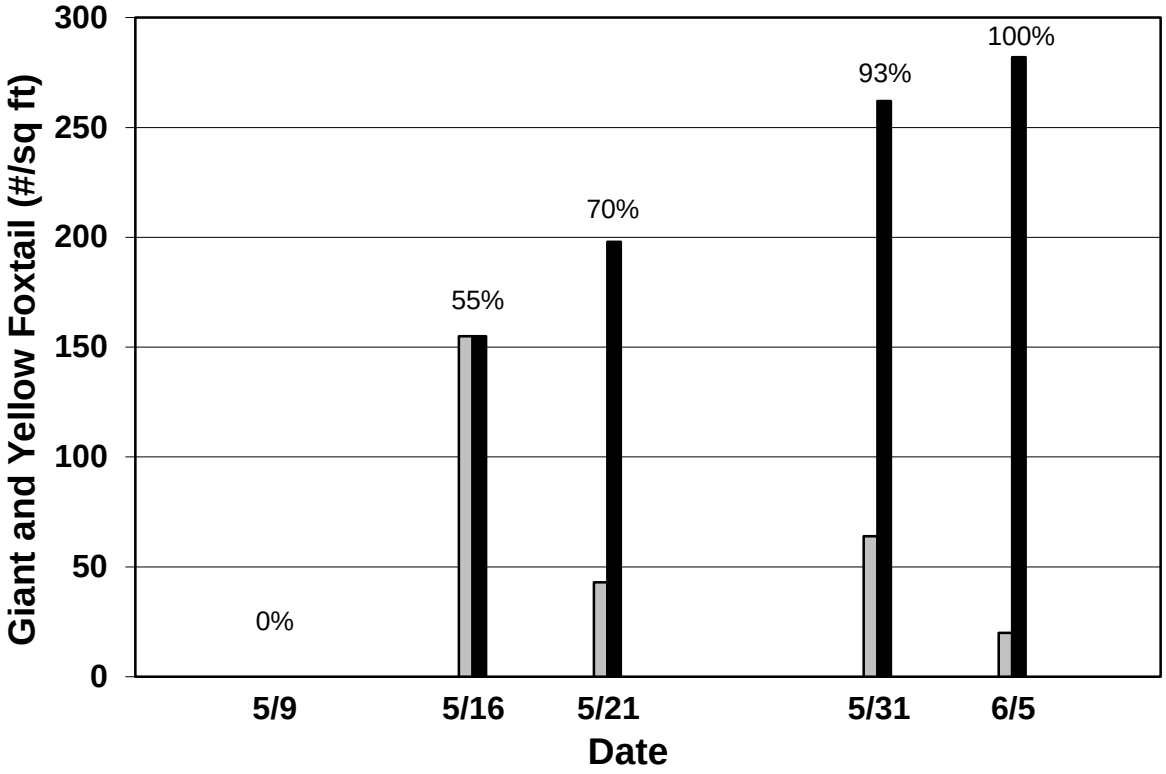
Treatment Date	**May 16**	**May 21**	**May 31**
Foxtail (giant 85% and yellow 15%)			
leaf stage	30%-1 lf, 70%-2 lf	5%-1 lf, 15%-2 lf, 30%-3 lf, 50%-4 lf	5%-1 lf, 10%-2 lf, 15%-3 lf, 20%-4 lf, 35%-5 lf, 15%-6 lf
height (inch)	0.25-0.75	0.25-3	0.25-9
density (#/ft^2)	155	198	262
Wheat			
stage (Haun)	1.5-1.7 leaf (Zadoks Z12)	2.6-2.9 leaf (Zadoks Z13, Z21)	5.1-5.4 (Zadoks Z15, Z21-22)
tillers	0	0-1	1-2
height (inch)	2-4	4-6	8-10
Air temperature (°F)	77	71	83
Relative humidity (%)	41	52	50
Dewpoint (°F)	52	53	63
Sky	0% clouds	10% clouds	20% clouds
Wind	SW 0-4 mph	E 4-8 mph	W 0-2 mph
Soil conditions	moist at 0.25”	moist at 1.25”	moist
Soil temperature (°F)	70	80	83
Rainfall before Application			
Week 1 (inch)	0.29	0.30	2.37
Rainfall after Application			
Week 1 (inch)	0.08	0.76	0.23
Week 2 (inch)	2.26	1.71	0.61

Results

Foxtail populations averaged 282/ft^2. 55% of foxtail had emerged by the first application date (May 16). 70% had emerged by the second application date (May 21) and 93% by the late application date (May 31). Average foxtail control was greatest for treatments applied at application timing #3 and lowest for treatments applied at application timing #1.

Overall wheat yields were low. Treatments with poorer foxtail control generally resulted in lower yields compared to treatments with good control.

2018 Foxtail Emergence at Rosemount, MN



Herbicide Application Dates
Application #1 = 5/16
Application #2 = 5/21
Application #3 = 5/31

Average Total Population = 282/sq ft

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		Foxtail Control			Wheat Injury			Wheat
Treatment	Rate	6/5	6/20	7/11	6/5	6/20	7/11	Yield
	(Product/A)	(%)	(%)	(%)	(%)	(%)	(%)	(Bu/A)
Application #1 (May 16)								
Everest 2.0 + Widematch + MCPA ester + Preference + AMS	1 oz + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	93	90	75	0	0	0	17
GoldSky + Widematch + MCPA ester + Preference + AMS	1 pt + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	82	82	68	0	0	0	12
Varro + Widematch + MCPA ester + Preference + AMS	6.85 oz + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	92	88	77	0	0	0	17
Rimfire Max + Widematch + MCPA ester+ Destiny HC	3 oz + 1 pt + 0.5 pt + 0.75 pt	70	63	50	0	0	0	7
Axial XL+ Widematch + MCPA ester	16.4 oz+ 1 pt + 0.5 pt	77	53	40	0	0	0	10
Wolverive Advanced	27.4 oz	80	53	30	0	0	0	7
Huskie Complete	13.7 oz	93	92	75	0	0	0	19
PerfectMatch + Activator 90 + AMS	1 pt + 6.4 oz + 3.5 pt	88	82	63	0	0	0	18
Application #2 (May 21)								
Everest 2.0 + Widematch + MCPA ester + Preference + AMS	1 oz + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	95	93	98	0	0	0	20
GoldSky + Widematch + MCPA ester + Preference + AMS	1 pt + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	92	88	93	0	0	0	19
Varro + Widematch + MCPA ester + Preference + AMS	6.85 oz + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	95	93	98	0	0	0	19
Rimfire Max + Widematch + MCPA ester+ Destiny HC	3 oz + 1 pt + 0.5 pt + 0.75 pt	82	50	37	0	0	0	10
Axial XL+ Widematch + MCPA ester	16.4 oz+ 1 pt + 0.5 pt	92	93	83	0	0	0	19
Wolverive Advanced	27.4 oz	92	80	83	0	0	0	18
Huskie Complete	13.7 oz	90	75	80	0	0	0	18
PerfectMatch + Activator 90 + AMS	1 pt + 6.4 oz + 3.5 pt	93	85	85	0	3	0	14
Application #3 (May 31)								
Everest 2.0 + Widematch + MCPA ester + Preference + AMS	1 oz + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt		93	98	0	3	2	15
GoldSky + Widematch + MCPA ester + Preference + AMS	1 pt + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt		93	98	0	0	0	17
Varro + Widematch + MCPA ester + Preference + AMS	6.85 oz + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt		92	98	0	0	0	17
Rimfire Max + Widematch + MCPA ester+ Destiny HC	3 oz + 1 pt + 0.5 pt + 0.75 pt		77	87	0	3	0	14
Axial XL+ Widematch + MCPA ester	16.4 oz+ 1 pt + 0.5 pt		90	83	0	0	0	15
Wolverive Advanced	27.4 oz		93	99	0	0	0	14
Huskie Complete	13.7 oz		90	96	0	0	0	14
PerfectMatch + Activator 90 + AMS	1 pt + 6.4 oz + 3.5 pt		87	99	0	0	0	17
Weedy Check	--	--	--	--	0	0	0	4
LSD (0.05)		8.5	15.7	14.0	ns	ns	ns	4.6

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 = pyroxsulam (0.11 lb ai/gal) & fluroxypyr (0.71 lb ae/gal) & florasulam (0.018 lb ai/gal).
Varro = thiencarbazone-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).
Huskie Complete 1.76L = thiencarbazone-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) & pyroxsulam (0.11 lb ai/gal).
Activator 90 = nonionic surfactant.