

Foxtail control in spring wheat with three application times at Rosemount, MN - 2017. Durgan, Beverly R., Douglas W. Miller, Bradley Kinkaid, Hugo Oliveira, and Ryan Mentz. 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 5.7 and 4.7% organic matter. Soil test for P and K were 22 lbs/A and 154 lbs/A, respectively. Following soybeans, the experimental area was fall chisel plowed. On April 21, the area was field cultivated and fertilized with 70 lbs/A N, 60 lbs/A P, and 60 lbs/A K and field cultivated a second time. The area was field cultivated again on May 4 and 'Linkert' hard red spring wheat was seeded with a 12 foot wide drill at 115 lbs/A on May 5. 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 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 4 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 19	June 1	June 15
Foxtail (giant 85% and yellow 15%) leaf stage	30%-1 lf, 65%-2 lf 10%-3 lf	10%-1 lf, 40%-2 lf, 20%-3 lf, 25%-4 lf, 5%-5 lf	5%-3 lf, 20%-4 lf, 30%-5 lf, 20%-6 lf, 20%-7 lf, 5%-8 lf
height (inch)	0.25-0.1.5	0.25-3	1-12
density (#/ft ²)	71	163	205
Wheat stage (Haun)	1.8-2.2 leaf (Zadoks Z12)	3.9-4.5 leaf (Zadoks Z14-15, Z21-23)	-- (Zadoks Z22-23, 39)
tillers	0	1-3	2-3
height (inch)	4-5	6-9	12-18
Air temperature (°F)	68	47	77
Relative humidity (%)	52	32	44
Dewpoint (°F)	37	30	54
Sky	100% clouds	0% clouds	0% clouds
Wind	ENE 5-10 mph	SE 0-3 mph	W 0-3 mph
Soil conditions	moist	moist at 0.75"	moist
Soil temperature (°F)	51	75	71
Rainfall before Application			
Week 1 (inch)	4.14	0.17	1.70
Rainfall after Application			
Week 1 (inch)	1.65	0.12	0.55
Week 2 (inch)	0.15	1.70	1.23

Results

Foxtail populations averaged 205/ft². 35% of foxtail had emerged by the first application date (May 19). 80% had emerged by the second application date (June 1) and 100% by the late application date (June 15).

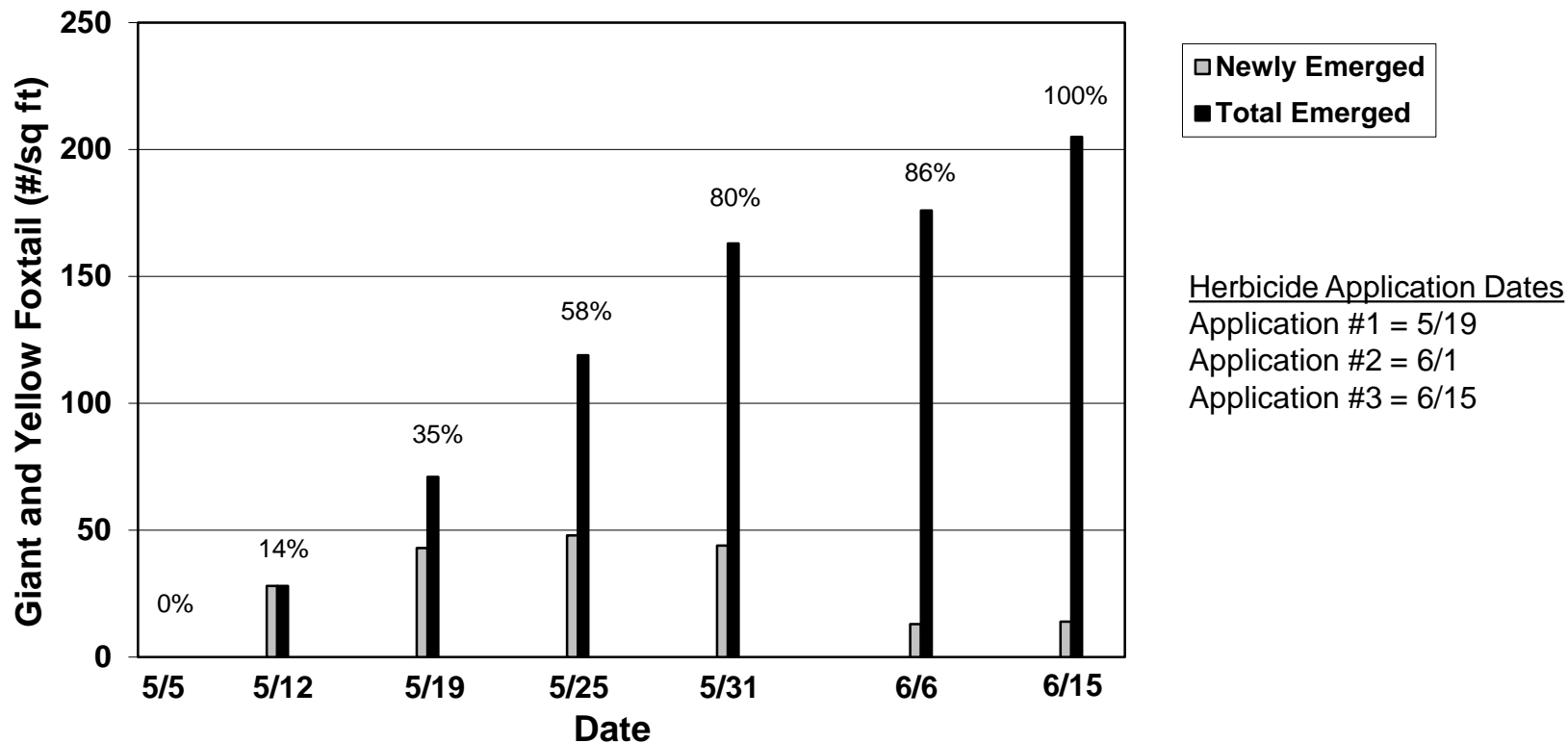
For treatments applied at application #1 (May 19), Varro had the greatest foxtail control followed by Everest 2.0 and Axial XL at the June 27 rating date. Rimfire Max and Huskie Complete had the lowest foxtail control at the June 27 rating date. Foxtail control for treatments applied May 19 did not differ significantly at the July 5 or July 30 rating dates.

For treatments applied at application #2 (June 1), Rimfire Max had the greatest foxtail control at each rating date while Rimfire Max had the lowest control at each rating date compared to the other treatments.

For treatments applied at the application #3 (June 15), foxtail control did not differ significantly between treatments at the first or second rating date. By the third rating date (July 30), the Rimfire Max treatment showed significantly lower foxtail control than the other treatments.

Overall, at the July 30 rating date, average control of treatments applied at application #3 (86%) was significantly higher than the treatments applied at application #1 (69%) and application #2 (70%). Wheat yields did not differ significantly between treatments.

2017 Foxtail Emergence at Rosemount, MN



Average Total Population = 205/sq ft

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Treatment	Rate (Product/A)	Grass Control			Wheat Injury			Wheat
		6/27	7/5	7/30	5/20	5/24	7/25	Yield (Bu/A)
Application #1 (May 19)								
Everest 2.0 + Widematch + MCPA ester + Preference + AMS	1 oz + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	92	87	60	0	0	0	25
GoldSky + Widematch + MCPA ester + Preference + AMS	1 pt + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	87	83	57	0	0	0	22
Varro + Widematch + MCPA ester + Preference + AMS	6.85 oz + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	95	90	73	3	0	0	25
Rimfire Max + Widematch + MCPA ester+ Destiny HC	3 oz + 1 pt + 0.5 pt + 0.75 pt	80	77	68	2	0	0	25
Axial XL+ Widematch + MCPA ester	16.4 oz+ 1 pt + 0.5 pt	92	87	77	0	0	0	28
Wolverive Advanced	27.4 oz	88	85	77	0	0	0	29
Huskie Complete	13.7 oz	83	78	68	0	0	0	26
PerfectMatch + Activator 90 + AMS	1 pt + 6.4 oz + 3.5 pt	88	82	75	0	0	0	28
Application #2 June 1)								
Everest 2.0 + Widematch + MCPA ester + Preference + AMS	1 oz + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	95	87	90	0	0	0	30
GoldSky + Widematch + MCPA ester + Preference + AMS	1 pt + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	85	80	67	0	0	0	27
Varro + Widematch + MCPA ester + Preference + AMS	6.85 oz + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	90	82	67	3	0	0	26
Rimfire Max + Widematch + MCPA ester+ Destiny HC	3 oz + 1 pt + 0.5 pt + 0.75 pt	62	65	47	3	0	0	20
Axial XL+ Widematch + MCPA ester	16.4 oz+ 1 pt + 0.5 pt	83	75	70	0	2	0	27
Wolverive Advanced	27.4 oz	92	78	87	0	0	0	29
Huskie Complete	13.7 oz	85	78	70	0	0	0	25
PerfectMatch + Activator 90 + AMS	1 pt + 6.4 oz + 3.5 pt	80	82	60	3	3	0	25
Application #3 (June 15)								
Everest 2.0 + Widematch + MCPA ester + Preference + AMS	1 oz + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	90	78	90	0	0	0	25
GoldSky + Widematch + MCPA ester + Preference + AMS	1 pt + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	88	87	85	5	2	0	26
Varro + Widematch + MCPA ester + Preference + AMS	6.85 oz + 1 pt + 0.5 pt + 3.2 oz + 2.35 pt	90	83	88	7	3	0	22
Rimfire Max + Widematch + MCPA ester+ Destiny HC	3 oz + 1 pt + 0.5 pt + 0.75 pt	83	80	68	3	2	0	28
Axial XL+ Widematch + MCPA ester	16.4 oz+ 1 pt + 0.5 pt	92	85	92	0	2	0	23
Wolverive Advanced	27.4 oz	90	83	93	2	2	0	23
Huskie Complete	13.7 oz	92	87	88	0	0	0	22
PerfectMatch + Activator 90 + AMS	1 pt + 6.4 oz + 3.5 pt	89	81	86	7	2	0	26
Weedy Check	--	--	--	--	0	0	0	16
LSD (0.05)		9	ns	21	5	ns	ns	ns

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 = thiencazabone-methyl & safener.
Rimfire Max 6.67WDG = propoxycarbazono-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 = thiencazabone-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.