Yellow Foxtail Management in Field Corn, Kasson, MN. 1997. Breitenbach Fritz, Thomas Hoverstad, and Jeffery Gunsolus.

The objective of this study was to evaluate pre-emergent and post-emergence herbicides for control of yellow foxtail in field corn. The site selected for this trial was a grower's field. This research was conducted on a Racine silt loam soil. The previous crop was soybean. The field had been chisel plowed in the fall. Urea was applied in the spring, at a rate of 120 lb actual nitrogen per acre. The field was leveled with a field cultivator, and planted. The field was planted with Pioneer 3751 IR, DeKalb 493SR, and DeKalb 493GR hybrid seed corn on April 29, 1997, in 30 inch rows at a population of 32000 seeds per acre. The trial was a randomized complete block design replicated four times. All treatments were applied with a tractor mounted compressed air sprayer equipped with XR8002 flat-fan nozzles spaced 15 inches apart delivering 20 gpa at 32 psi. None of the treatments were cultivated. Application dates and environmental conditions, crop stage and weed heights are listed below:

Date	May 15	May 31	June 7	June 10
Treatment	Pre	E-Post	Post I	Post II
Temperature	50	62	56	79
Percent Relative Humidity	39	80	93	35
Percent Cloud Cover	60	0	0	0
Wind Speed (MPH)	16	5	6	12
Soil Moisture	dry	moist	dry	dry
Corn Stage (collars)	NA	2	3	4
Wocg Height (inches)	NA	1.0	3.0	4.0
Weed Density per sq ft		97		

Pre-emergence treatments: The majority of the pre-emergence treatments provided fair to good control of yellow foxtail. Percent yellow foxtail control ratings taken on 8/5/97 generally were in the upper 70's to mid 80's range. The exceptions were Balance 2 oz + acetochlor 2.0 lb ai which provide 93 percent control, and Balance 2.0 oz alone which performed poorly and only provided 63 percent control. The addition of of 1.0 lb ai of either atrazine, or acetochlor as a tank mix partner with Balance significantly improved control. No crop injury was visible from any of the pre-emergence treatments.

Pre-emergence followed by sequential post-emergence treatments: Sequential grass control treatments performed consistently better than the pre-emergence herbicides by themselves, with the exception of Balance followed by Accent. The sequential treatments excluding Balance provided yellow foxtail control between 89 to 97 percent control. The Balance followed by Accent treatments resulted in percent control rating of 69 and 73 percent (8/5 ratings)

Early Post treatments: Early post treatments generally performed below expectations, and offered control ratings ranging from 25 to 68 percent (8/5 rating). Basis + Clarity provided poor control of yellow foxtail (53 percent 8/5 rating), Lightning + Clarity, and Prowl + Lightning + Clarity also performed poorly (25 and 53 percent respectively 8/5 ratings). Herbicide resistance was suspected, and confirmed to be the cause of Lightning's poor performance.

Post emergence treatments: Post emergent treatments provided only fair control (64 to 79 percent 8/5 ratings). Accent + Exceed + Clarity, and Liberty + atrazine provided the best post emergent yellow foxtail control with 79 percent (8/5 ratings).

Table1. Lightning resistant yellow foxtail control in field corn at Kasson, MN

in 1997. (Breitenbach, Hoverstad, and Gunsolus).

Treatment	Rate	Timing	Yeft (5/30)	Yeft (6/20)	Yeft (8/5)
	Rate/acre			% Control	
Balance	2.0 oz	Pre	55	53	63
Balance + Atrazine	2.0 oz + 1.0 lb ai	Pre	92	87	83
Balance + Acetochlor	2.0 oz + 1.0 lb ai	Pre	85	85	84
Balance + Acetochlor	2.0 oz + 1.5 lb ai	Pre	85	85	82
Balance + Acetochlor	1.5 oz + 1.0 lb ai	Pre	84	83	76
Balance + Acetochlor	1.3 oz + 2.0 lb ai	Pre	95	95	93
Acetochlor / Buctril	1.6 lb ai / 1.0 pt	Pre/ Post II	78	81	79
Axiom / Buctril	19.0 oz / 1.0 pt	Pre/ Post II	88	88	83
Dual II Mag / Buctril	1.6 8 pt / 1.0 pt	Pre/ Post II	72	80	82
Frontier / Buctril	25.0 oz / 1.0 pt	Pre/ Post II	83	86	86
Lasso / Buctril	2.75 qt / 1.0 pt	Pre/ Post II	77	78	77
Balance / Accent 1/	1.5 oz / 0.5 oz	Pre/ Post II	59	79	73
Balance / Accent 1/	2.0 oz / 0.5 oz	Pre/ Post II	55	75	69
Balance + Acetochlor / Accent 1/	1.3 oz + 2.0 lb ai / 0.5 oz	Pre/ Post II	88	93	97
Dual II Mag / Accent + Beacon + Clarity	1.68 pt / 0.33 oz + 0.38 oz + 2.0 oz 1/	Pre/ Post II	76	93	97
Frontier / Poast Plus + Clarity 3/	28 oz / 24 oz + 8 oz	Pre/ Post II	81	90	89
Acetochlor / Liberty 4/	1.6 lb ai / 20.0 oz	Pre/ Post II	79	91	90
Basis + Clarity 3/	0.43 oz + 4.0 oz	E-Post	0	54	53
Dual II Mag + Accent + Beacon + Clarity 1/	1.0 pt+ 0.33 oz + 0.38 oz + 2.0 oz	E-Post	0	80	68
Acetochlor + Accent + Buctril 2/	1.5 lb ai + 0.5 oz + 1.0 pt	E-Post	0	75	60
Prowl + Accent + Beacon 1/	2.4 pt+ 0.5 oz + 0.38 oz	E-Post	0	75	66
Lightning + Clarity 5/	1.28 oz + 6.0 oz	E-Post	0	15	25
Prowl + Lightning + Clarity 5/	3.0 pt+ 1.28 oz + 6.0 oz	E-Post	0	50	53
Basis Gold + Clarity 3/	14.0 oz + 4.0 oz	Post I	0	75	65
Accent + Buctril 2/	0.67 oz + 1.0 pt	Post II	0	80	70
Accent + Exceed + Clarity 1/	0.33 oz + 0.8 oz + 2.0 oz	Post II	0	84	79
Accent + Beacon + Clarity 1/	0.33 oz + 0.38 oz + 2.0 oz	Post II	0	84	76
Poast Plus + Marksman 3/	16.0 oz + 3.5 pt	Post II	0	80	64
Liberty + Atrazine 4/	20.0 oz + 1.0 lb ai	Post II	0	86	79
Untreated Check			0	0	0
	LSD (0.10)		5	6	9

1/ Prime Oil 1.25% V/V + 28% N 4 qt/a. 2/ Activate Plus 0.25% V/V + 28% N 4 qt/a. 3/ Prime Oil 1.25% V/V + 28% N 2 qt/a. 4/ AMS 2.0 lb/a. 5/ Activate Plus 0.25% V/V + 28% N 1.0 qt/a. Riverside/Terra Prime Oil (petroleum based crop oil concentrate with 17 % emulsifier), Riverside/Terra Activate Plus Non-Ionic Surfactant, 28% N = aqueous solution of urea and ammonium nitrate. AMS = sprayable ammonium sulfate

Table 2. Impact of herbicide treatments on Lightning resistant yellow foxtail control, and yield in field corn at Kasson, MN 1997. (Breitenbach, Hoverstad, and Gunsolus)

Treatment	Rate	Timing	Yeft (6/20)	Yeft (8/5)	Yield
	Rate/acre		% Control		Bu/a
Dual II Mag / Accent + Beacon + Clarity 1/	1.68 pt / 0.33 oz + 0.38 oz + 2.0 oz 1/	Pre/ Post II	93	97	159
Dual II Mag / Buctril	1.6 8 pt / 1.0 pt	Pre/ Post II	80	82	157
Dual II Mag + Accent + Beacon + Clarity 1/	1.0 pt+ 0.33 oz + 0.38 oz + 2.0 oz	E-Post	80	68	68
Lightning + Clarity 5/	1.28 oz + 6.0 oz	E-Post	15	25	32
Accent + Beacon + Clarity 1/	0.33 oz + 0.38 oz + 2.0 oz	Post II	84	76	135
	LSD (0.10)		10	17	18

1/ Prime Oil 1.25% V/V + 28% N 4 qt/a. 5/ Activate Plus 0.25% V/V + 28% N 1.0 qt/a. Riverside/Terra Prime Oil (petroleum based crop oil concentrate with 17 % emulsifier), Riverside/Terra Activate Plus Non-Ionic Surfactant, 28% N = aqueous solution of urea and ammonium nitrate.