

Project Title: Clearfield Winter Wheat Study - 2018

Objective: To examine the phytotoxicity of herbicide treatments on winter wheat

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Summary:

This experiment was utilized a randomized complete block design (factorial combination of variety and herbicides). The six winter wheat varieties were paired with two different herbicide treatments: 1) 2x the recommended rate of Beyond herbicide with MSO and 2) Husky Complete herbicide) in three replications. The herbicides were applied on May 4<sup>th</sup>, 2018. The first and second phytotoxicity ratings were done on May 18<sup>th</sup> and June 1<sup>st</sup>, respectively. Table 1 summarizes detailed management information.

The nursery was planted in the fall of 2017. Phytotoxicity ratings were conducted to document loss of green pigmentation. During the first and second rating, no observable tissue discoloration was observed. The 2x rate of Beyond herbicide caused no observable plant death on this site among the varieties tested (Table 2).

Table 1. Management information

Seeding date:	9/26/2017	Harvest date:	8/1/2018
Julian date:	269	Julian date:	213
Seeding rate:	25 plants/ft <sup>2</sup>	Soil nutrient residual (lb/A):	172-8-178 (Fall, 2017)
Previous crop:	Spring wheat (Egan)	Nutrient fertilizer applied (lb/A):	9-42-60 (Fall) 5-45-0 (Spring)
Tillage:	conventional	Herbicide:	Beyond Husky complete

Table 2. Effect of herbicide on phytotoxicity and agronomic performance

Treatment	Variety	HD	Crop injury		HT	LOD	YLD <sup>1</sup>	PRO <sup>2</sup>	TWT <sup>1</sup>	TKW	FN
		Julian	5/18	6/1	in	%	bu/A	%	lb/bu	g	seconds
2X rate Beyond + MSO	MTCS1601	157	0	0	35.0	0	91.6	13.0	59.4	39.4	444.7
	Clearstone	159	0	0	38.8	0	90.6	11.5	59.3	40.9	445.8
	MTCL1732	159	0	0	31.8	0	80.5	11.3	59.0	34.5	429.5
	MTCL1834	155	0	0	34.8	0	87.1	12.7	60.8	39.0	493.9
	MTCL1835	156	0	0	35.3	0	75.6	12.1	60.0	37.1	400.3
	MTCL1737	160	0	0	31.5	0	80.6	11.3	57.9	31.4	406.0
Husky Complete	MTCS1601	154	0	0	38.3	0	109.5	13.2	59.9	41.4	444.1
	Clearstone	159	0	0	41.6	0	104.0	11.6	56.1	40.3	434.9
	MTCL1732	158	0	0	31.3	0	93.1	11.3	58.7	37.9	405.2
	MTCL1834	156	0	0	33.8	0	83.0	12.9	61.1	36.7	481.4
	MTCL1835	157	0	0	36.0	0	83.3	12.1	61.0	38.1	393.1
	MTCL1737	159	0	0	32.1	0	65.0	11.9	57.9	31.6	438.0
	Mean	158	0.0	0.0	35.0	0.0	87.0	12.1	59.3	37.3	435
	CV	1.0	0.0	0.0	8.5	0.0	11.0	5.6	2.1	8.2	7
	LSD	1.4	ns	ns	3.1	ns	17.6	0.4	1.6	1.9	18
	Pr>F	<.0001	ns	ns	<.0001	ns	0.0299	<.0001	0.001	<.0001	<.0001

YLD: yield, PRO: protein, TWT: test weight, TKW: thousand kernel weight, HT: plant height, LOD: lodging, HD: heading, and FN: falling number

ns: non-significant at alpha = 0.05

<sup>1</sup> Adjusted to 13% protein

<sup>2</sup> Adjusted to 12% protein