

## **Barley tolerance to preemergence herbicides**

Some green foxtail populations across North Dakota are known to be resistant to Group 1 herbicides like Puma, Discover, and Axial XL. The objective of the study was to evaluate barley tolerance to soil-applied preemergence herbicides for foxtail control. This study was conducted in 2012, 2014, and 2015. All treatments were applied preemergence (after barley was planted).

In 2012, Dual, Pre-Pare, and Valor caused early moderate crop injury; however, the crop generally recovered by mid-July. Zidua, Warrant, and Prowl caused minimal crop injury in 2012 (Table 3).

In contrast, Zidua and Warrant caused slight to moderate crop injury in 2014 (Table 2). Pre-Pare and Prowl caused only slight crop injury in 2014. Valor caused moderate crop injury both years. Dual and Outlook caused severe injury in 2014. Despite crop injury in 2012, there was minimal effect on crop yield. In 2014, only Dual and Outlook reduced barley yield.

In 2015, all treatments except Prowl caused moderate to severe early-season crop injury (Table 1). However, as in previous years, the crop generally recovered as the season progressed. Only Warrant, Dual, and Outlook tended to have a slightly lower yield, though not statistically significant. These data show that barley generally will recover from herbicide injury and still produce nearly normal yields.

Table 1. Barley tolerance to preemergence herbicides in 2015. (1508)

Treatment <sup>a</sup>	Rate	Injury				Yield	Test wt.
		Jun-12	Jun-20	Jul-3	Jul-23	Aug-11	Aug-11
		-----%-----				bu/A	lb/bu
Untreated		0	0	0	0	89.7	45.4
Zidua	3 oz	28	30	23	14	87.3	46.1
Warrant	1.5 qt	18	16	13	5	80.4	46.1
Dual II Magnum	1.67 pt	30	47	33	18	81.7	45.0
Pre-Pare	0.3 oz	40	35	26	15	86.3	45.2
Prowl H2O	3 pt	7	7	1	2	88.5	46.6
Valor	2 oz	22	22	17	9	82.1	45.8
Outlook	18 oz	27	40	33	17	74.2	45.0
LSD (0.05)		11.7	13.5	7.0	5.7	NS	NS
CV		31.1	31.4	27.4	32.1	8.8	2.1

<sup>a</sup> All treatments applied PRE

Table 2. Barley tolerance to preemergence herbicides in 2014. (1408)

Treatment <sup>a</sup>	Rate	Injury				Yield	Test wt.
		Jun-09	Jun-18	Jul-03	Jul-15	Aug-20	Aug-20
		-----%-----				bu/A	lb/bu
Untreated		0	0	0	0	66.4	42.9
Zidua	3 oz	13	14	15	12	70.3	43.7
Warrant	1.5 qt	10	12	12	9	70.2	44.3
Dual II Magnum	1.67 pt	26	49	54	55	64.6	44.2
Pre-Pare	0.3 oz	5	6	7	3	76.3	43.1
Prowl H2O	3 pt	9	7	5	1	71.3	44.5
Valor	2 oz	18	17	17	14	76.4	45.2
Outlook	18 oz	23	42	45	45	60.1	42.4
LSD (0.05)		3.7	14.4	16.4	18.6	9.8	1.3
CV		16.3	44.7	48.1	60.8	8.1	1.7

<sup>a</sup> All treatments applied PRE

Table 3. Barley tolerance to preemergence herbicides in 2012. (1208)

Treatment <sup>a</sup>	Rate	Injury				Yield	Test wt.
		Jun-05	Jun-25	Jul-11	Jul-21	Aug-06	Aug-06
		-----%-----				bu/A	lb/bu
Untreated		0	0	0	0	76.3	42.4
Zidua	3 oz	0	0	0	0	70.7	43.3
Warrant	1.5 qt	2	1	1	0	77.6	43.3
Dual II Magnum	1.67 pt	15	13	6	5	74.2	43.1
Pre-Pare	0.3 oz	25	17	5	3	72.9	42.6
Prowl H2O	3 pt	2	1	0	0	72.4	43.5
Valor	3 oz	30	20	5	2	73.8	42.9
LSD (0.05)		6	5	NS	NS	NS	NS
CV		29	40	139	257	10	3

<sup>a</sup> All treatments applied PRE