

## Clearfield® winter wheat tolerance to tank mixes of Beyond® and sulfonylurea herbicides

Drew Lyon, Brianna Cowan, Rod Rood and Henry Wetzel

A field study was conducted on the Allen Ford Farm near Prescott, WA to determine the crop safety of tank-mixes of Beyond herbicide with the sulfonylurea (SU) herbicides, Affinity® BroadSpec and Ally® Extra, on one-gene Clearfield wheat. Imazamox, the active ingredient in Beyond herbicide, is an ALS-inhibitor (Group 2), as are the SU herbicides. The purpose of this study was to determine if ORCF-102 has sufficient tolerance to ALS-inhibitors to allow tank-mixing of SU herbicides with Beyond.



The soil at this site is a Walla Walla silt loam with 3.8% organic matter and a pH of 5.0. ORCF-102 was planted on October 8, 2013 using a Great Plains drill with 10-inch row spacing and set to a depth between 1.5 to 2 inches. The seeding rate was 95 lb/acre along with 100, 15 and 15 lb/acre of N:P:S. Post-emergence applications took place on April 1 using a CO<sub>2</sub> backpack sprayer set to deliver 15 gpa at 30 psi and 3 mph. The air temperature was 52°F, relative humidity was 66% with the wind out of the southeast at 3 mph. Wheat was at the 3-tiller stage and was between 6 and 10 inches tall. Light weed pressure existed in the plots prior to herbicide treatment applications, but these weeds were largely controlled by the herbicide treatments or by subsequent hand weeding. Harvest took place on July 17 using an 8XP Kincaid plot combine.

One week after the herbicide treatments were applied, some visual crop injury was noted in all treatments. By one month after application, this visual injury had pretty much disappeared in the treatments not containing an SU herbicide and treatments containing Ally Extra + Huskie™ + Clarity®. Adding WideMatch® to Affinity BroadSpec reduced crop injury compared to treatments containing Beyond + Affinity BroadSpec alone, but slight crop injury was still visible.

No herbicide treatments had significantly reduced head counts compared to the nontreated check. Plant heights were reduced by all herbicide treatments compared to the nontreated check, but they were reduced the most in treatments containing SU herbicides. While several treatments containing an SU herbicide had grain yields significantly lower than the nontreated check, only in the case of Beyond + Ally Extra was the higher Ally Extra use rate (0.5 oz pr/a) also significantly lower yielding than the lower use rate (0.3 oz pr/a).

The single-gene Clearfield wheat variety, ORCF-102, appears to have marginal tolerance to Beyond plus an SU herbicide tank-mix partner. It does appear, however, that including a synthetic auxin (Group 4) herbicide, such as Clarity or WideMatch, may provide some safening from crop injury when an SU herbicide is added to Beyond.

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		April 8	April 28	June 4	June 4	July 17
Treatment <sup>a</sup>	Rate	Crop injury		Head counts	Plant height	Yield
	oz pr/a	-----%-----		#/ft row	inches	bu/a
Beyond	6	9	0	41	36	99
Beyond	6	9	6	46	33	95
Ally Extra	0.3					
Beyond	6	15	10	53	34	88
Ally Extra	0.5					
Beyond	6	11	0	41	35	93
Ally Extra	0.3					
Huskie	13.5					
Clarity	2					
Beyond	6	10	0	38	36	96
Ally Extra	0.5					
Huskie	13.5					
Clarity	2					
Beyond	6	15	10	48	34	90
Affinity Broadspec	0.6					
Beyond	6	9	11	47	33	96
Affinity Broadspec	0.8					
Beyond	6	13	5	47	34	94
Affinity Broadspec	0.6					
Widematch	21.3					
Beyond	6	11	4	42	34	95
Affinity Broadspec	0.8					
Widematch	21.3					
Huskie	13.5	11	0	45	35	97
Clarity	2					
Beyond	6	9	0	44	35	99
Widematch	21.3					
Nontreated Check	--	--	--	46	37	100
LSD (5%)		ns	4	7	2	7

<sup>a</sup> All treatments were applied POST on April 1 and tank-mixed with 32% UAN and NIS at 2.5% v/v and 0.25% v/v, respectively.

**Some of the pesticides discussed in this presentation were tested under an experimental use permit granted by WSDA. Application of a pesticide to a crop or site that is not on the label is a violation of pesticide law and may subject the applicator to civil penalties up to \$7,500. In addition, such an application may also result in illegal residues that could subject the crop to seizure or embargo action by WSDA and/or the U.S. Food and Drug Administration. It is your responsibility to check the label before using the product to ensure lawful use and obtain all necessary permits in advance.**