

Two-Gene Clearfield Wheat Tolerance to Beyond[®] + SU Herbicides

A field study was conducted on the Ed Chvatal farm near Walla Walla, WA to evaluate the tolerance of a two-gene Clearfield wheat variety to Beyond (imazamox) + various sulfonylurea herbicides. The soil was a silt loam with 1.6% organic matter and a pH of 6.0. The experimental design was a randomized complete block with four replications. 'AP 503 CL2' hard red winter wheat was planted in the fall of 2012 with a Flexi-Coil no-till drill with 12-inch row spacing. Starter fertilizer was applied with the seed at 70 pounds of nitrogen, 15 pounds of phosphorus, and 15 pounds of sulfur per acre. All treatments were applied postemergence on March 26, 2013 when wheat was tillered and 6-8 inches tall. Applications were made using a CO₂ backpack sprayer set to deliver 10 gpa at 35 psi 3 mph. A large emergence of broadleaf weeds, particularly tarweed fiddleneck, required the entire plot area to be sprayed with Bronate Advanced (bromoxynil + MCPA ester) on April 12, 2013 using a CO₂ backpack sprayer set to deliver 15 gpa at 22 psi and 3 mph. Wheat plants had 1-2 joints visible and were 12-14 inches tall. Weeds in the nontreated check were too large for effective control by this time. As a consequence of the heavy weed pressure, particularly in the nontreated check plots, and non-uniform wheat development across the plots, this plot was not harvested for grain yield.

No visible crop injury was observed in this study. Prior to applying Bronate Advanced across the entire plot area for broadleaf weed control, the plots were evaluated for the control of tarweed fiddleneck. Beyond provided very little control of this weed, so a tank mix partner will be needed if this is a problem weed in a field planted to Clearfield wheat and sprayed with Beyond herbicide. The best control of tarweed fiddleneck was achieved with treatments containing Huskie (pyrasulfotole + bromoxynil) herbicide. Treatments containing Widematch (clopyralid + fluroxypyr) provided fair control, while adding a sulfonylurea herbicide [Ally Extra (thifensulfuron + tribenuron + mestisulfuron) or Affinity BroadSpec (thifensulfuron + tribenuron)] to Beyond did not provide commercially acceptable control of tarweed fiddleneck.

Although we did not see any visible injury from any of the treatments, we did not harvest the plots to verify effects on grain yield. We will need to verify that grain yield is not affected before feeling completely comfortable about the tolerance of two-gene Clearfield wheat varieties to Beyond + SU herbicides. We did document the need for a tank mix partner such as Huskie with Beyond herbicide if tarweed fiddleneck is a problem weed.

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.

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Treatment	Rate	9-Apr-13
		Tarweed fiddleneck control
	oz/a	-----%-----
Beyond ¹	6	10
Beyond	6	43
Ally Extra	0.3	
Beyond	6	51
Ally Extra	0.5	
Beyond	6	84
Ally Extra	0.3	
Huskie	13.5	
Clarity	2	
Beyond	6	83
Ally Extra	0.5	
Huskie	13.5	
Clarity	2	
Beyond	6	51
Affinity BroadSpec	0.6	
Beyond	6	48
Affinity BroadSpec	0.8	
Beyond	6	73
Affinity BroadSpec	0.6	
Widematch	1.33 pt/a	
Beyond	6	70
Affinity BroadSpec	0.8	
Widematch	1.33 pt/a	
Huskie	13.5	84
Clarity	2	
Beyond	6	35
Widematch	1.33 pt/a	
Nontreated check		0
LSD (5%)*		11

¹UAN at 2.5% v/v and NIS at 0.25% v/v were added to all treatments containing Beyond herbicide.

*Treatment differences less than the LSD value are not considered significant because we do not feel confident that the difference is due to the treatment rather than to experimental error or random variation associated with the experiment.