

Evaluation of crop safety with tank mixtures of Beyond[®] plus Talinor[™] herbicides on WB1376 CL+ winter wheat

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A field study was conducted on the WSU Cook Agronomy Farm near Pullman, WA to evaluate crop safety with tank mixtures of Beyond plus Talinor herbicides on WB1376 CL+ winter wheat. Talinor is in development as a broadleaf herbicide for use in cereals by Syngenta Crop Protection Inc. Talinor combines two modes of action, bicyclopyrone which inhibits 4-HPPD and bromoxynil which inhibits photosynthesis at photosystem II. These same two herbicide



mechanism of action classes are in Huskie[®]. Talinor was tested, and upon commercialization will be tank mixed, with CoAct+[™], a safener which provides optimum performance of the two active ingredients. Seed was sown at a rate of 86 lb/A on October 28, 2015 with a John Deere 9400 hoe drill with row openers on a 7-inch spacing. Plot area was fertilized with dry urea on April 11th at the rate of 100 lb N per acre. Soil at the site is a Naff silt loam with 3.2% organic matter and a pH of 5.1. On May 3rd, treatments were applied with a CO₂-powered backpack sprayer set to deliver 10 gpa at 45 psi at 2.3 mph. Wheat primarily had 2 nodes and was 12.5 inches tall. The air temperature was 79 F, relative humidity was 29% and wind was out of the south at 5 to 7 mph.

The week following application, average high and low temperatures were 71 and 46 F, respectively. During that same period, 0.05 inch of rain fell on May 5th, two days after application. Symptoms of chlorosis, bleaching that appeared to streak across the leaf and leaf tip necrosis were evident shortly after application in the Beyond + Talinor + CoAct+ regardless of MSO or NIS in the mixture. Evaluating these plots over time did not suggest that this herbicide combination moved with any significance in the xylem, as only the leaves that were present at the day of application exhibited symptoms. Even though significant injury was observed in the Beyond + Talinor + CoAct+-treated plots, there was no difference in yield and test weight when compared to the non-treated check.

Treatment	Rate	Crop Injury						8/13	
		5/12	5/19	5/26	6/2	6/9	6/23	Yield	Test weight
		9 DAT	16 DAT	23 DAT	30 DAT	37 DAT	51 DAT		
fl oz/A	-----%						bu/A	lb/bu	
Nontreated Check	--	--	--	--	--	--	--	85 a	61 a
Beyond ¹	6	0 a ³	0 a	0 a	0 a	0 a	0 a	83 a	61 a
Brox [®] M + Beyond ¹	32 + 6	0 a	0 a	0 a	0 a	0 a	0 a	75 a	61 a
Talinor + CoAct+ + Beyond ²	18.2 + 3.6 + 6	62 b	21 b	16 b	15 b	4 b	4 b	77 a	61 a
Talinor + CoAct+ + Beyond ¹	18.2 + 3.6 + 6	57 b	17 b	12 b	14 b	3 b	4 b	77 a	61 a

¹ Tank mixed with 1.0% v/v MSO and 20% v/v UAN32

² Tank mixed with 0.25% v/v NIS and 20% v/v UAN32

³ Means, based on four replicates, within a column, followed by the same letter are not significantly different at P = 0.05 as determined by Fisher's protected LSD test, which means that we are not confident that the difference is the result of treatment rather than experimental error or random variation associated with the experiment.

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.