Evaluation of Talinor™ in tank mix combinations for crop safety and downy brome control in Clearfield® Plus winter wheat

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A field study was conducted at Buck Farms near Almota, WA to evaluate crop safety and downy brome control with Talinor in tank mix combinations with group 2 herbicides including Beyond®, Osprey® and PowerFlex® HL. In addition, some treatments contained urea ammonium nitrate (UAN) at 1.5 gal/A. The field, in which the study was conducted, had been in a two-year rotation of winter wheat and chickpeas. The winter wheat variety 'UI Magic CL +' was seeded at the rate of 117 lb/A with a Krause drill on a 7.5-inch row spacing at 1.25 inch depth between October 7 & 17, 2017. Soil at this site is an Athena silt loam with 4.3% organic matter and a pH of 5.1. On April 3, 2018, treatments were applied with a CO_2-powered backpack sprayer set to deliver 10 gpa at 43 psi at 2.3 mph. Wheat was at the beginning of stem elongation and was 10 inches tall. The air temperature was 50°F, relative humidity was 27% and the wind was out of the west at 4 mph.

In 2016, we saw significant crop injury in plots treated with Talinor + CoAct$^+$ + Beyond + UAN (18.2 + 3.6 + 6.0 fl oz/A + 2.0 gal/A) tank mixed with either 1.0% v/v MSO or 0.25% v/v NIS. The injury symptoms were longitudinal bleached streaks on the leaf blade. In this study, we saw crop injury in plots treated with Talinor + CoAct$^+$ + UAN + NIS (13.7 fl oz/A + 2.75 fl oz/A + 1.5 gal/A + 0.25% v/v) and Talinor + CoAct$^+$ + Beyond + UAN + NIS (13.7 fl oz/A + 2.75 fl oz/A + 6.0 fl oz/A + 1.5 gal/A + 0.25% v/v). In the 2016 study, crop injury was noted soon after application because the air temperature at application was 79°F on May 3rd and in turn symptoms persisted longer in the canopy. In this study, the application was made much earlier and under cooler conditions. Crop injury symptoms were slower to come on and did not persist as long in this study. In both studies, it seemed that the newest emerged leaf that was present at the time of application was the one affected. Crop injury was not noted in leaves that emerged after the spray application. In both studies, UAN appeared to aid Talinor movement into the plant, but the herbicide does not appear to be entering the vascular system and translocating. It seems that when Osprey and PowerFlex HL are tank mixed with Talinor and UAN, those products provide a sufficient safener load and that crop injury was not noted. It was observed that UAN was essential for the Osprey to provide acceptable downy brome control. The level of downy brome control provided by Beyond and PowerFlex HL was not compromised when tank mixed with Talinor. Although not statistically significant, the results suggest that downy brome control may have been slightly reduced when Talinor was tank mixed with Osprey. None of the treatments in this study affected the yield and test weight when compared to the nontreated check. The average yield and test weight were 138 bu/A and 60.8 lb/bu, respectively.

		Crop injury		Downy brome control	
		4/18	5/3	5/10	5/29
Treatment	Rate	15 DAT	30 DAT	37 DAT	56 DAT
	fl oz/A	----------%----------		----------%----------	
Nontreated Control	--	--	--	--	--
Talinor + CoAct[+1]	13.7 + 2.75	0 a[2]	0 a	5 d	5 d
Talinor + CoAct[+] + UAN	13.7 + 2.75 + 1.5 gal	19 c	4 b	3 d	3 d
Beyond + UAN	6.0 + 1.5 gal	0 a	0 a	85 ab	99 ab
Osprey + UAN	4.75 oz + 1.5 gal	0 a	0 a	72 bc	84 bc
PowerFlex HL + UAN	2.0 oz + 1.5 gal	0 a	0 a	83 a-c	100 a
Talinor + CoAct[+] + Beyond	13.7 + 2.75 + 6.0	0 a	0 a	80 a-c	91 ab
Talinor + CoAct[+] + Beyond + UAN	13.7 + 2.75 + 6.0 + 1.5 gal	14 b	4 b	88 a	100 a
Talinor + CoAct[+] + Osprey	13.7 + 2.75 + 4.75 oz	0 a	0 a	13 d	5 d
Talinor + CoAct[+] + Osprey + UAN	13.7 + 2.75 + 4.75 oz + 1.5 gal	0 a	0 a	69 c	70 c
Talinor + CoAct[+] + PowerFlex HL	13.7 + 2.75 + 2.0 oz	0 a	0 a	76 a-c	90 ab
Talinor + CoAct[+] + PowerFlex HL + UAN	13.7 + 2.75 + 2.0 oz + 1.5 gal	0 a	0 a	91 a	100 a

[1]All treatments were tank mixed with NIS 0.25% v/v.

[2] 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.