

Evaluation of Axial® Bold plus Talinor™ in tank mix combinations with nitrogen sources for crop safety, common lambsquarters and mayweed chamomile control in spring wheat
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A field study was conducted at Nelson Farms near Albion, WA to evaluate crop safety and broadleaf and grass weed control with Axial Bold plus Talinor in tank mix combination with either UAN (32-0-0) or McGregor's liquid urea (20-0-0). The study area followed the planting of 'M-Press' winter wheat. On October 27, 2020, the field was fertilized with 100 lb N:20 lb P:15 lb S and one quart of N-Serve®



per acre, which was applied with a McGregor's ripper shooter implement. The soil at this site is a Palouse silt loam with 5.4% organic matter and a pH of 5.5. 'Ryan' spring wheat was seeded on March 28, 2021 at the rate of 105 lb/A with a JD 455 double-disc drill on a 7.5-inch row spacing. Postemergence treatments were applied on May 21st with a CO₂-powered backpack sprayer set to deliver 10 gpa at 50 psi at 2.3 mph. The applications were made with an air temperature of 45°F and relative humidity of 47% with winds at 6 mph out of the west. The majority of the wheat had just begun to joint and plants were 13 inches tall. Mayweed chamomile was uniformly distributed, and its population was moderate across the trial area. Mayweed chamomile was 2.0-inches-tall at the time of application and had a density of less than one plant per square foot in the nontreated check plots. Common lambsquarters were uniformly distributed, and its population was high across the trial area. Common lambsquarters were 2.5-inches-tall at the time of application and had a density of 11 plants per square foot in the nontreated check plots. There were no grassy weeds present in the trial area. The trial area was harvested on July 30th with a Kincaid 8XP plot combine.

From the date of seeding (March 28th) to the day treatments were applied (May 21st), 0.57 of an inch of rain fell on the field. From the day that treatments were applied (May 21st) to the day the trial was harvested (July 30th), 0.63 of an inch of rain fell. For nearly the entire duration of the trial, the crop was under drought stress. All herbicide treatments contained Axial Bold + Talinor (Table), thus results will be discussed as to how the tank mix components influenced crop injury or broadleaf weed control. Tilt + UAN 32-treated plots exhibited the most crop injury (Table). Crop injury included bleached streaks on the uppermost leaves in the canopy. The injury symptoms did not move systemically. Minor penultimate leaf burning was observed in some wheat plants within the plots treated with Quilt Xcel or Quilt Xcel + Liquid Urea. This may have been in part due to the azoxystrobin component of the Quilt Xcel formulation. This injury was short lived and was barely noticed 14 DAT. Mayweed chamomile control was excellent and nearly complete by 14 DAT in all herbicide-treated plots. Common lambsquarters control was excellent in plots treated with Tilt + UAN 32, Quilt Xcel + Brox-M, and Miravis Ace + Brox-M (Table). The addition of UAN 32 to Axial Bold + Talinor + Tilt exhibited quicker and nearly complete control of common lambsquarters compared to the same treatment without UAN 32 (Table). In general, treatments that did not contain a nitrogen source (exceptions being Quilt Xcel + Brox-M and Miravis Ace + Brox-M) and treatments containing Liquid Urea (exception

being Miravis Ace + Liquid Urea)- only provided good control of common lambsquarters when compared to Tilt + UAN 32 that provided near complete control. While the addition of UAN 32 to Axial Bold + Talinor + Tilt significantly improved common lambsquarters control, it also negatively impacted yield (Table). We have seen significant crop injury in previous trials evaluating Talinor + UAN 32. This is the first trial where we saw this treatment negatively impact yield. This may have been in part due to the unique growing season that the crop experienced and the lack of significant rainfall following the application to help the crop recover from the injury.

		5/28	6/4	7/2	6/4	7/22	
		7 DAT	14 DAT	42 DAT	14 DAT	69 DAT	7/30
Treatment ¹	Rate	Crop injury			Common lambsquarters		124 DAP
	fl oz/A	-----%-----			control		Yield
					-----%-----		bu/a
Nontreated Check	--	--	--	--	--	--	49 cd
Tilt + UAN-32	4.0 + 64	9 a ²	18 a	5 a	98 a	99 a	47 d
Tilt	4.0	0 d	0 b	0 b	79 cd	79 b	64 ab
Quilt Xcel	7.0	2 bc	0 b	0 b	83 cd	79 b	70 a
Trivapro	7.0	0 d	0 b	0 b	76 d	58 c	60 a-d
Miravis Ave	7.0	0 d	0 b	0 b	80 cd	80 b	56 b-d
Tilt + Liquid Urea	4.0 + 5.0 gal	0 d	0 b	0 b	84 b-d	84 b	62 a-c
Quilt Xcel + Liquid Urea	7.0 + 5.0 gal	0 d	0 b	0 b	76 d	86 b	67 ab
Trivapro + Liquid Urea	7.0 + 5.0 gal	1 cd	0 b	0 b	81 cd	84 b	61 a-c
Miravis Ave + Liquid Urea	7.0 + 5.0 gal	0 d	0 b	0 b	86 b-d	90 a	63 ab
Quilt Xcel + Brox-M	7.0 + 16	3 b	1 b	0 b	94 ab	99 a	71 a
Miravis Ave + Brox-M	7.0 + 16	0 d	0 b	0 b	89 a-c	100 a	71 a

¹With the exception of the nontreated check, all treatments were tank mixed with CoAct+ + Talinor + Axial Bold at 3.2 + 16 + 15 fl oz/a.

²Means, 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.