

Control of mayweed chamomile in winter wheat

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A study was established at Mark Hall's farm near Steptoe, WA to evaluate crop tolerance and mayweed chamomile control with herbicides in winter wheat. The objective of the study was to determine how FMC's Affinity[®] BroadSpec [thifensulfuron + tribenuron (group 2)] and Aim[®] EC [carfentrazone (group 14)] would influence the performance of Talinor[™] [bicyclopyrone (group 27) + bromoxynil (group 6)] and WideMatch[®] [clopyralid + fluroxypyr (group 4)] for the control of mayweed chamomile in winter wheat. Moxy[®] 2E plus Affinity BroadSpec were considered tank mix partners for the control of mayweed chamomile in this study. Cadet[™] [fluthiacet (group 14)] was also evaluated in combination with WideMatch. Cadet is not labeled for use in wheat.

The soil at this site is a Caldwell silt loam with 3.4% organic matter and a pH of 7.2. On October 12, 2019, PNW Trident II winter wheat, which is a blend of 'SY Assure' & 'Northwest Tandem', was conventionally planted using a disk drill with a 7.5-inch row spacing at the rate of 100 lb seed per acre. Postemergence treatments were applied on May 4, 2020 with a CO₂-powered backpack sprayer set to deliver 10 gpa at 49 psi at 2.3 mph. The applications were made under light, 2 mph winds out of the southwest with an air temperature of 64°F and relative humidity of 28%. The majority of the wheat had just begun to joint and plants were 16 inches tall. Mayweed chamomile was uniformly distributed, and its population was high across the trial area. Mayweed chamomile was 1.0-inch-tall at the time of application and had a density of 20 plants per square foot in the nontreated check plots. Mayweed chamomile was continuing to germinate at the time of application, as this area of the field was sub-irrigated. The trial area was harvest with a Wintersteiger plot combine on August 10th and 11th.

Crop injury was evident in Aim EC- and Cadet-treated plots 3 days after treatment (DAT) and peaked on May 11th, 7 DAT (Table). Small circular lesions were initially yellowish-brown with a dark brown border that over time appeared bleached in color. This was most likely a plant reaction from where the spray droplets landed on the leaf. These symptoms were only seen on the leaves that were actively growing at the time of application. There was no evidence of systemic movement of the compounds into newly emerged leaves after application. From a distance, symptoms appeared as a leaf tip necrosis or bronzing. Symptoms were present in the Aim EC- and Cadet-treated plots for the duration of the trial. As the wheat canopy expanded, these symptoms were low in the canopy and not very noticeable over time. In general, crop injury symptoms from Aim EC and Cadet were more evident when leaves were closely inspected than from a distance. Carfentrazone and fluthiacet are fast acting, contact herbicides. We hypothesized that the addition of Aim EC to Talinor, Moxy 2E + Affinity BroadSpec and WideMatch, as well as the addition of Cadet to WideMatch, would accelerate and improve control of mayweed chamomile, particularly when added to WideMatch, which often requires three to four weeks to kill mayweed chamomile plants. This was not the case when the initial rating was taken 14 DAT (May 18th) (Table). On June 16th, 43 DAT, all treatments containing Talinor and WideMatch were providing $\geq 87\%$ control of mayweed chamomile (Table). Treatments containing Moxy 2E + Affinity BroadSpec provided fair control of mayweed chamomile. The addition of Affinity BroadSpec, Aim EC or Cadet to Talinor or WideMatch did not provide better mayweed chamomile control when compared to Talinor or WideMatch applied alone. The average yield among all treatments, including the nontreated check, was 84

bu/A. Yield data were not presented since there were no significant differences among treatments.

Trt#	Treatment ¹	Rate fl oz/A	5/7			5/11			5/18			5/18			6/1			6/16		
			Crop injury									Mayweed chamomile control								
			-----%-----																	
1	Nontreated check	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2	CoAct +	2.75	0 a ²	0 a ²	0 a ²	63 a ²	85 ab ²	88 ab ³												
2	Talinor	13.7																		
3	CoAct +	2.75	0 a	0 a	0 a	73 a	95 a	93 a												
3	Talinor	13.7																		
3	Affinity BroadSpec	1.0 oz																		
4	CoAct +	2.75	5 c	13 d	10 d	73 a	92 ab	90 ab												
4	Talinor	13.7																		
4	Aim EC	0.5																		
4	Affinity BroadSpec	1.0 oz																		
5	Moxy 2E	24	5 c	10 c	7 c	67 a	63 d	70 c												
5	Aim EC	0.5																		
5	Affinity BroadSpec	1.0 oz																		
6	Moxy 2E	24	0 a	0 a	0 a	67 a	63 d	75 bc												
6	Affinity BroadSpec	1.0 oz																		
7	WideMatch	16	4 bc	10 c	10 d	67 a	73 cd	90 ab												
7	Aim EC	0.5																		
8	WideMatch	16	0 a	0 a	0 a	70 a	90 ab	100 a												
8	Affinity BroadSpec	1.0 oz																		
9	WideMatch	16	1 a	5 b	3 b	70 a	88 ab	95 a												
9	Affinity BroadSpec	1.0 oz																		
9	Aim EC	0.5																		
10	WideMatch	16	3 b	8 c	6 c	70 a	90 ab	95 a												
10	Cadet	0.75																		
11	WideMatch	16	0 a	0 a	0 a	60 a	82 bc	87 a-c												

¹Treatments 2 to 11 were tank mixed with NIS at 0.25% v/v. Treatments were applied 5/4/20.

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.

³Means, based on four replicates, within a column, followed by the same letter are not significantly different at P = 0.10 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.

Disclaimer

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