Birdsrape mustard and mayweed chamomile control in chickpeas with herbicides

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A study was conducted on the Filan Brother's Farm near Dixie, WA to control birdsrape mustard in chickpeas. The primary objective was to evaluate post-plant preemergence herbicides for the control of birdsrape mustard. In addition, Tough® 5EC (pyridate) was evaluated for postemergence control. Also, lower label rates of TriCor® DF (metribuzin) were evaluated very early after the chickpeas emerged for its activity on seedling birdsrape mustard plants.

The week of April 3rd, the growers sprayed RoundUp® + Prowl® + Sharpen® for preplant burndown and preemergence control of birdsrape mustard. Environmental conditions from April through June were below average temperatures and above average precipitation. These conditions may have inhibited birdsrape mustard emergence and the decision by the growers was made not to make an additional glyphosate application just prior to planting. This is a common practice for them to control as many seedling plants just prior to planting. Due to the weather and the location of the field, the field was planted approximately a month later than most years. The trial area was direct seeded to 'Dylan' chickpeas on May 19th. Their planter had a harrow attached to it to aid in-row closure. The soil at this site is a Palouse silt loam with 4.6% organic matter and a pH of 5.4. Post-plant preemergence herbicides were applied on May 24th with a CO_2-powered backpack sprayer set to deliver 15 gpa at 52 psi at 2.3 mph. The air temperature was 65°F, relative humidity was 34% and the wind was out of the west at 4 to 6 mph. The early postemergence TriCor® DF treatment was applied on June 6th with a CO_2-powered backpack sprayer set to deliver 15 gpa at 57 psi at 2.3 mph. The air temperature was 62°F, relative humidity was 63% and the wind was out of the west at 6 to 8 mph. Chickpeas were predominantly 4 nodes (two leaves) and 2 inches in height. Late postemergence applications of TriCor DF and Tough® 5EC were applied on June 17th with a CO_2-powered backpack sprayer set to deliver 15 gpa at 49 psi at 2.3 mph. The air temperature was 69°F, relative humidity was 35% and the wind was out of the east at 2 to 4 mph. Chickpeas had 3 to 4 pairs of leaves and were 4 to 6 inches tall.

Within the first week following the application of the post-plant preemergence treatments, the trial area received 0.77 of an inch of rainfall. The following week the trial area received 0.82 of an inch of rainfall. This suggests that the herbicides were activated. Chickpeas were very slow to emerge due to cool soil temperatures and abundant rainfall. One week after application (May 31st) was the first observation of birdsrape mustard cotyledons in the trial area. By the third week of June, it was concerning as to whether or not the birdsrape mustard population would survive as there was evidence of significant damage on larger plants and death of cotyledons from the feeding activity of the crucifer flea beetle (*Phyllotreta cruciferae*). The incidence of birdsrape mustard across the trial area remained low throughout the duration of the trial. All post-plant

preemergence herbicide treatments provided excellent control of birdsrape mustard, except for Pursuit® applied at 3 fl oz/A (Table). Tough® 5EC did not provide postemergence control of birdsrape mustard. Tough 5EC did not improve the excellent control already provided by Sharpen® + Valor® SX, Sharpen + Pursuit or Sharpen + TriCor DF applied post-plant preemergence. The postemergence application of TriCor DF at 4.0 oz/A or the split application of 2.0 + 2.0 oz/A, provided excellent control of birdsrape mustard (Table). The trial area also had a very high, uniform infestation of mayweed chamomile. All post-plant preemergence herbicide treatments provided excellent control of mayweed chamomile, except for the two treatments containing Pursuit at 3 fl oz/A (Table). Tough 5EC provided fair postemergence control of mayweed chamomile. These plants were smaller than the size of a silver dollar and had limited upright growth at the time of application. Tough 5EC did not improve the excellent control already provided by Sharpen + Valor SX or Sharpen + TriCor DF applied post-plant preemergence. The addition of Tough 5EC to the post-plant preemergence treatment of Sharpen + Pursuit improved mayweed chamomile control (Table). TriCor DF applied early postemergence at 4 oz/A or the split application of 2.0 oz/A + 2.0 oz/A provided fair control of mayweed chamomile, but these treatments were not as effective as the 8.0 oz/A rate applied post-plant preemergence. It is not known if it was the rate or application timing of the TriCor DF that caused the difference in efficacy. Since the infestation of birdsrape mustard was low, the trial was not taken to harvest.

			Application	7/15	8/5	7/15	8/5
		Rate	Date(s)[1]	Birdsrape mustard control		Mayweed chamomile control	
Trt #	Treatment	fl oz/a	2022	----------%----------		----------%----------	
1	Nontreated Check			--	--	--	--
2	Valor SX	2.0 oz	5/24	99 a[2]	99 a	98 ab	96 ab
3	Pursuit	3.0	5/24	53 b	8 b	38 e	33 d
4	TriCor DF	8.0 oz	5/24	100 a	100 a	90 a-c	89 ab
5	Sharpen + Valor SX	2.0 + 2.0 oz	5/24	100 a	100 a	100 a	100 a
6	Sharpen + Pursuit	2.0 + 3.0	5/24	90 a	95 a	86 b-d	86 bc
7	Sharpen + TriCor DF	2.0 + 8.0 oz	5/24	100 a	100 a	100 a	96 ab
8	Sharpen + Valor SX	2.0 + 2.0 oz	5/24	96 a	99 a	100 a	99 a
8	Tough 5EC + NIS	24 + 0.25% v/v	6/17				
9	Sharpen + Pursuit	2.0 + 3.0	5/24	100 a	100 a	100 a	99 a
9	Tough 5EC + NIS	24 + 0.25% v/v	6/17				
10	Sharpen + TriCor DF	2.0 + 8.0 oz	5/24	100 a	100 a	100 a	100 a
10	Tough 5EC + NIS	24 + 0.25% v/v	6/17				
11	Tough 5EC + NIS	24 + 0.25% v/v	6/17	0 c	0 c	75 d	75 c
12	TriCor DF	4.0 oz	6/6	98 a	98 a	76 d	75 c
13	TriCor DF	2.0 oz	6/6	100 a	100 a	84 cd	76 c
13	TriCor DF	2.0 oz	6/17				

[1] Chickpeas were planted (5/19), Post plant preemergence (5/24), Early postemergence (6/6), Postemergence (6/17)

[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.

Disclaimer

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