

## Birdsrape mustard control in chickpeas with experimental compound X

Henry Wetzel and Drew Lyon

A study was conducted on the Filan Brother's Farm in Dixie, WA to control birdsrape mustard in chickpeas. The emphasis on this trial was to evaluate the optimal timing to use herbicide compound X in a program approach to control birdsrape mustard. We don't typically withhold the identity of herbicides used in our studies, but we were in search of something that might work to control birdsrape mustard in chickpeas and the company did not want us to reveal what active ingredient we were using.



Snow came off the field early which allowed us to get out early and establish the trial. Preplant herbicides were applied on March 19, 2020 with a CO<sub>2</sub>-powered backpack sprayer set to deliver 15 gpa at 50 psi at 2.3 mph. The air temperature was 60°F, relative humidity was 38% and the wind was out of the northwest at 2 mph. The soil at this site is an Athena silt loam with 2.9% organic matter and a pH of 5.4. RT3 (glyphosate) was applied at 40 fl oz/a on April 2<sup>nd</sup> and 14<sup>th</sup> in order to control volunteer wheat and birdsrape mustard seedlings that germinated prior to planting. The trial area was direct seeded to 'Dylan' chickpeas on April 25<sup>th</sup>. Their planter had a harrow attached to it to aid in-row closure. Postplant preemergence herbicides were applied on April 28<sup>th</sup> with a CO<sub>2</sub>-powered backpack sprayer set to deliver 15 gpa at 51 psi at 2.3 mph. The air temperature was 74°F, relative humidity was 29% and the wind was calm. Postemergence herbicides were applied on June 12<sup>th</sup> with a CO<sub>2</sub>-powered backpack sprayer set to deliver 15 gpa at 50 psi at 2.3 mph. The air temperature was 75°F, relative humidity was 48% and the wind was calm. Chickpeas were 6 to 8 nodes, 13 to 15 inches in height and just beginning to flower. The trial area was harvested with a Kincaid 8XP plot combine on September 1<sup>st</sup>.

Nine days after the preplant preemergence herbicides were applied, the trial area received 0.37 inches of rainfall over a five day period. From the date of application to planting, 37 days, the trial area received 0.64 inches of rainfall. This rainfall pattern suggests that the preplant herbicides may not have been activated well. However, two days after the post plant preemergence herbicides were applied, over a two day period the trial area received 0.56 inches of rainfall and then again four days later 0.61 inches of rainfall. In 2019, we observed birdsrape mustard seedlings to continue to emerge into mid-June. This pattern was not developing, but we continued to wait to apply the postemergence products, until the plants began to flower. In hindsight, the timing was too late, as plants that were treated with Ultra Blazer were significantly injured and resulted in yields significantly lower than the nontreated check plots. Birdsrape mustard plants that were emerged at the time of the postemergence applications were large. These products did not kill the plants but significantly reduced their stature compared to the nontreated checks. All treatment combinations evaluated in this trial provided excellent control of birdsrape mustard and common lambsquarters (Table). While the data is not presented, all treatments provided  $\geq 99$  percent control of common lambsquarters. Compound X performed

equally well regardless of application timing. We will continue to evaluate Compound X in the hope that it may one day be labeled for use in chickpea for birdsrape mustard control. The season-long control we achieved in this trial with Sharpen + Valor is not typical of the grower experience in the region. We are not sure if we just got lucky with the weather or if we have solved the problem. We plan to repeat this study in 2021.

			Application	6/19	7/2	7/2	9/1	9/14
						BRSRA <sup>3</sup>		
Trt#	Treatment	Rate	timing (s) <sup>2</sup>	Crop Injury		control	Yield	100-seed wt
		fl oz/a	2020	-----%-----		%	lb/a	(g)
1	Nontreated Check	--	--	--	--	--	1390 c	52.3 b-d
2	Sharpen	2.0	4/28	0 a	0 a	94 ab <sup>4</sup>	1620 bc	53.8 a-d
2	Valor	2.0 oz	4/28					
3	Sharpen	2.0	4/28	0 a	0 a	95 ab	1820 ab	54.3 a
3	Valor	2.0 oz	4/28					
3	Tough + NIS <sup>1</sup>	24	6/12					
4	Sharpen	2.0	4/28	58 b	42 b	99 ab	1040 d	51.9 d
4	Valor	2.0 oz	4/28					
4	Ultra Blazer + NIS	24	6/12					
5	Compound X	--	3/19	0 a	0 a	91 b	1860 a	53.8 a-d
5	Sharpen	2.0	4/28					
5	Valor	2.0 oz	4/28					
6	Compound X	--	3/19	0 a	0 a	91 b	1860 a	53.5 a-d
6	Sharpen	2.0	4/28					
6	Valor	2.0 oz	4/28					
6	Tough + NIS	24	6/12					
7	Compound X	--	3/19	60 b	48 c	100 a	920 d	52.0 cd
7	Sharpen	2.0	4/28					
7	Valor	2.0 oz	4/28					
7	Ultra Blazer + NIS	24	6/12					
8	Compound X	--	3/19	0 a	0 a	95 ab	1890 a	54.8 a
8	Compound X	--	4/28					
8	Sharpen	2.0	4/28					
8	Valor	2.0 oz	4/28					
9	Compound X	--	3/19	0 a	0 a	99 ab	1810 ab	53.4 a-d
9	Compound X	--	4/28					
9	Sharpen	2.0	4/28					
9	Valor	2.0 oz	4/28					
9	Tough + NIS	24	6/12					
10	Compound X	--	3/19	60 b	45 ab	100 a	860 d	52.1 b-d
10	Compound X	--	4/28					
10	Sharpen	2.0	4/28					
10	Valor	2.0 oz	4/28					
10	Ultra Blazer + NIS	24	6/12					
11	Compound X	--	4/28	0 a	0 a	98 ab	1910 ab	53.9 a-d
11	Sharpen	2.0	4/28					
11	Valor	2.0 oz	4/28					
12	Compound X	--	4/28	0 a	0 a	100 a	1770 ab	54.0 ab
12	Sharpen	2.0	4/28					
12	Valor	2.0 oz	4/28					
12	Tough + NIS	24	6/12					
13	Compound X	--	4/28	60 b	43 b	100 a	920 d	52.0 cd
13	Sharpen	2.0	4/28					
13	Valor	2.0 oz	4/28					
13	Ultra Blazer + NIS	24	6/12					

<sup>1</sup>NIS was applied at the rate of 0.25% v/v

<sup>2</sup>Pre-plant (3/19), Chickpeas were planted (4/25), Post plant preemergence (4/28), Postemergence (6/12)

<sup>3</sup>BRSRA (birdsrape mustard)

<sup>4</sup>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**

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.