

New weed control methods for leafy green brassicas

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Methods

One experiment was established at OARDC, Wooster to test crop tolerance and weed control efficacy of potential herbicides on mustard greens. The experimental design was a randomized complete block with four replications. Mustard green variety 'Green wave' was used. Herbicides tested in the experiment included Nortron, Prowl H2O, Outlook, Lorox, Zidua, Spartan 4F and Dual Magnum. All herbicides were sprayed right before crop emergence.

Take home message

All herbicides provided good weed control one week after application, except for Dual Magnum and Prowl H2O. Herbicides gradually lost their control over time, but Lorox, Nortron and Spartan continued to provide relatively good control four weeks after application (Table 1).

Prowl H2O, Outlook, Lorox and Zidua caused significant stand loss and crop injury. Dual Magnum and Spartan caused about 30% crop damage one week after treatment, but the crop gradually recovered. Considering weed control efficacy and crop safety, Spartan has the potential to be used as a new weed control tool in mustard green production

Table 1: Weed response to different herbicides in mustard greens

Treatment	Rate	Timing	Weed control %		
			6/7/2018	6/13/2018	7/2/2018
1 Untreated			0 e	0 e	0 c
2 Nortron	48 oz/a	PRE	85 bc	94 ab	84 a
3 Prowl H2O	1.5 pt/a	PRE	76 cd	83 bcd	50 b
4 Outlook	14 oz/a	PRE	85 bc	85 bc	50 b
5 Lorox	3 lb/a	PRE	100 a	99 a	98 a
6 Zidua	2 oz/a	PRE	84 bc	81 cd	43 b
7 Spartan 4F	6 oz/a	PRE	95 ab	91 abc	80 a
8 Dual Magnum	1.3 pt/a	PRE	63 d	71 d	48 b

Note: mustard greens were seeded on 5/24/18. No other maintenance activities were performed. On 7/2/18, all plants in a plot were harvested and total fresh weight were measured

Table 2: Response of mustard greens to different herbicides

Treatment	Rate	Timing	5/31/2018	6/7/2018	6/13/2018	7/2/2018	6/27/2018	7/2/2018
			Injury				Stand count	Total fresh weight
			%				#	kg
1 Untreated			0 c	0 e	0 d	0 d	138 a	13.1 a
2 Nortron	48 oz/a	PRE	0 c	70 b	78 b	48 c	97 bc	5.6 b
3 Prowl H2O	1.5 pt/a	PRE	0 c	45 c	94 a	89 a	27 d	0.3 c
4 Outlook	14 oz/a	PRE	0 c	73 b	76 b	45 c	77 c	4.9 b
5 Lorox	3 lb/a	PRE	20 b	100 a	100 a	100 a	0 e	0.0 c
6 Zidua	2 oz/a	PRE	0 c	76 b	89 ab	65 b	44 d	2.6 bc
7 Spartan 4F	6 oz/a	PRE	28 a	31 cd	31 c	13 d	114 ab	12.6 a
8 Dual Magnum	1.3 pt/a	PRE	0 c	25 d	41 c	13 d	107 b	11.8 a

Note: mustard greens was seeded on 5/24/18. No other maintenance activities were performed. On 7/2/18, all plants in a plot were harvested and total fresh weight were measured

Figure 1: Comparison of mustard green in control plot and plot treated with Spartan 4F at 6 oz/a three weeks after treatment



Control



Spartan 4F at 6 oz/a