

Legume and oilseed herbicide tolerance

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Key findings

- In the post emergent treatments a range of herbicides produced very good control of all oilseed and legume crops included.
- Lucerne was significantly damaged by almost all herbicides applied.

Why do the trial?

To compare the tolerance of legume and canola varieties to a range of herbicides and timings.

How was it done?

Plot size 2.0 m x 3.0 m **Fertiliser** MAP (10:22) + 2% Zn @ 75 kg/ha
Seeding date 15th May 2014

Thirteen strips of canola, pasture, vetch, chickpea, faba bean, field pea and lentils were sown. Fifty seven herbicide treatments were applied across all 13 crops at x different timings.

The timings were:

Incorporated by sowing (IBS)	15 th May
Post seeding pre-emergent (PSPE)	20 th May
Early post emergent (3-4 node)	16 th June
Post emergent (5-6 node)	2 nd July
Late post emergent (8 node)	22 nd July

Treatments were visually assessed and scored for herbicide effects 4 and 6 weeks after application (Table 1).

Crop damage ratings were:

1 = no effect
2 = slight effect
3 = moderate effect
4 = increasing effect
5 = severe effect
6 = death

Results

Many of the herbicides are not registered for the crops that have been sprayed. It is important to check the herbicide label before following strategies used in this demonstration. Herbicide effects can vary between seasons and depend on soil and weather conditions at time of application.

Majority of the incorporated by sowing (IBS) or IBS + post sowing pre-emergent (PSPE) herbicide applications in 2014 had no effect on crop growth compared to the nil. Sakura produced a slight effect to TT canola, chickpeas, balansa clover and Angel medic. The addition of simazine did not increase crop damage in these species, but did produce slight effects in both lentil varieties and the lucerne.

Applications of propyzamide (0.75 L/ha – 1.5 L/ha) as IBS or IBS + PSPE was recorded to give no damage symptoms for all crop varieties except, Frontier clover and Gem canola (Table 1). These results are similar to 2013 and 2012 for propyzamide applied IBS and 2011 applied as PSPE. The incidence of crop damage from propyzamide however, was increased when applied all PSPE particularly at the 1.5 L/ha rate.

In 2013 Broadstrike was one of the safest herbicides at the 3rd node stage, but in 2014 produced severe effects to both vetch varieties and all of the pasture varieties. Metribuzin was again very damaging at this stage, with Gonyah peas being the only exception.

In the post emergent treatments a range of herbicides produced very good control of all the oilseed and legume crops. These included Ecopar, Carfentrazone, Conclude, Paradigm, Precept, Velocity, Flight, Triathlon and Banvel M. Ecopar was safer on field peas in 2014, but this result would not normally be expected. Adding Metribuzin to carfentrazone did not generally improve the control of volunteer legumes, apart from Hurricane lentils and Frontier balansa clover.

Lucerne was a new crop addition in the 2014 trial and showed good crop safety to propyzamide. However, all other herbicides produced significant effects. This was unexpected, especially for Broadstrike, Spinnaker and Raptor, and so will be repeated in 2015.

Table 1. Crop damage ratings for legume and oilseed herbicide tolerance trial at Hart 2014.

Crop damage ratings:

1= no effect, 2 = slight effect, 3 = moderate effect,
4 = increasing effect, 5 = severe effect and 6 = death

Number	Timing	Treatment	Rate kg/ha	Canola			Bean	Pea	C/pea	Vetch		Lentil		Pasture			
				44Y84	Gem	Garnet	Farah	Gunya	Genesis 090	Capello	Rasina	Hurricane	Flash	Lucerne	Frontier	Angel	
1	IBS 15/05/2014	NIL		5	5	5	140	100	80	45	45	45	55	15	15	10	
2		Propyzamide (500 g/kg)	0.75 L	1	1	1	1	1	1	1	1	1	1	1	1	1	
3		Propyzamide (500 g/kg)	1.0 L	1	2	1	1	1	1	1	1	1	1	1	2	1	
4		Propyzamide (500 g/kg)	1.5 L	1	2	1	1	1	2	1	1	1	1	1	3	1	
5		Sakura	118g	1	2	1	1	1	2	1	1	1	1	1	4	2	
6		Sakura + Simazine	118g/550g	1	1	1	1	1	2	1	1	2	2	2	4	3	
7		Terrain	120 g/ha	1	2	2	1	1	2	1	1	1	1	2	2	2	
8	IBS + PSPE	Propyzamide (500 g/kg)	0.5 L/0.5 L	1	1	1	1	1	1	1	1	1	1	1	1	1	
9		Propyzamide (500 g/kg)	0.75 L/0.75 L	1	2	2	1	1	1	1	1	1	1	1	1	1	
10	PSPE 20/05/2014	Propyzamide (500 g/kg)	0.75 L	1	1	1	1	1	1	1	1	1	1	1	1	1	
11		Propyzamide (500 g/kg)	1.0 L	2	2	1	1	1	1	1	1	1	1	1	1	1	
12		Propyzamide (500 g/kg)	1.5 L	1	3	2	1	1	2	1	1	2	2	1	2	2	
13		Diuron	1275 g	6	6	5	2	2	2	1	2	1	1	2	6	6	4
14		Simazine	850 g	2	1	3	1	2	2	1	1	1	1	3	6	6	3
15		Simazine	1275 g	5	2	5	1	2	2	1	1	2	2	5	6	4	
16		Diuron + Simazine	410 g /410 g	4	4	4	1	2	2	1	1	2	1	4	5	3	
17		Metribuzin	280 g	4	3	5	1	2	1	1	1	1	1	1	6	1	
18		Metribuzin	420 g	6	3	6	2	3	2	3	1	2	1	5	6	5	
19		Terbyne (750 g/kg)	1000 g	4	2	6	2	2	1	1	1	3	2	6	6	5	
20		Terbyne (750 g/kg)	1500 g	5	2	6	2	3	3	1	3	3	2	6	6	5	
21		Spinnaker	100g	1	6	6	2	2	4	4	4	1	5	4	4	1	
22		Spinnaker + Simazine	40 g/850 g	3	6	6	2	1	2	1	1	1	3	5	5	3	
23		Balance	100 g	5	6	6	5	5	1	5	5	5	5	6	6	6	
24		Balance + Simazine	100 g /830 g	6	6	6	5	5	2	5	5	5	5	6	6	6	
25		3-4 Node 16/06/2014	NIL		1	1	1	1	1	1	1	1	1	1	1	1	1
26	Simazine		850 g	1	2	1	1	1	1	1	1	1	1	4	5	4	
27	Metribuzin		280 g	6	2	6	5	2	5	5	4	3	3	5	6	6	
28	Broadstrike		25 g	1	5	5	4	1	1	5	5	1	1	3	3	2	
29	Brodal Options		150 mL	3	4	3	3	3	4	4	4	2	2	4	5	4	
30	Brodal Options + MCPA Amine		150 mL/150 mL	5	5	4	5	4	5	5	5	4	4	4	4	4	
31	Spinnaker + wetter		70 g/0.2%	1	6	6	2	2	4	3	3	1	5	4	4	1	
32	Raptor + wetter		45 g/0.2%	1	6	6	2	1	4	3	4	1	5	4	3	1	
33	5-6 Node 02/07/2014	NIL		1	1	1	1	1	1	1	1	1	1	1	1	1	
34		Logran + wetter	10 g/0.1%	2	5	5	5	5	5	5	5	3	5	4	3	5	
35		Ally + wetter	7 g/0.1%	2	5	5	5	5	5	6	5	3	5	5	5	5	
36		Eclipse SC + wetter	50 mL/0.5%	2	5	5	5	5	5	5	5	3	5	5	5	5	
37		Ecopar + MCPA Amine	400 mL/500 mL	5	5	5	5	3	4	4	5	4	4	4	6	5	
38		Carfentrazone + MCPA Amine	100 mL/500 mL	6	6	6	5	5	6	5	5	4	5	5	5	5	
39		Carfentrazone + Metribuzin + MCPA Amine	100 mL/150 g/500 mL	6	6	6	5	5	6	5	5	5	5	5	6	5	
40		Conclude + Uptake	700 mL/0.5%	5	6	6	5	5	5	5	5	5	5	5	6	5	
41		Paradigm + MCPA LV600 + Uptake	25 g/420 mL	5	6	5	5	5	6	6	6	5	5	6	6	6	
42		Precept + Hasten	750 mL/1%	5	6	5	4	5	5	4	5	5	5	5	4	5	
43		Velocity + Hasten	670 mL/1%	6	6	6	5	6	4	5	5	5	5	5	4	6	
44		Flight EC	720 mL	5	5	5	4	4	5	5	5	4	4	5	4	5	
45		Triathlon	1000 mL	5	5	5	5	5	6	5	5	5	5	5	3	4	
46		Barvel M	1000 mL	5	5	5	5	5	5	5	5	4	4	5	4	5	
47		Intervix + Hasten	600 mL/1%	1	6	6	4	4	4	5	5	1	4	5	5	2	
48		Hussar OD + wetter	100 mL/0.25%	1	6	6	5	5	5	6	5	4	5	5	5	5	
49	Crusader + wetter	500 mL/0.25%	1	6	5	5	5	5	5	5	3	4	5	5	3		
50	Atlantis OD + Hasten	330 mL/0.5%	1	6	5	4	5	4	5	5	2	4	5	5	5		
51	Atrazine + Hasten	833 g/1%	5	1	5	4	5	5	4	4	5	5	5	6	6		
52	Lontrel 600	150 mL	1	1	1	5	5	5	5	5	5	5	4	5	3		
53	Starane	300 mL	1	1	1	4	4	4	5	5	4	4	2	5	2		
54	8 Node 22/7/2014	MCPA Sodium (250 g/L)	700 mL	3	3	3	4	3	3	4	4	3	3	3	3	1	
55		MCPA Amine (750 g/L)	350 mL	4	4	4	4	2	3	4	3	3	3	3	2	2	
56		Amicide Advance 700	1200 mL	4	4	4	4	4	4	4	4	3	3	3	3	2	
57		2,4-D Ester (680 g/L)	70 mL	2	2	2	3	3	3	3	3	3	3	3	3	2	