

Legume and oilseed herbicide tolerance

Key findings

- In the post emergent treatments, a range of herbicides produced very good control of all oilseed and legume crops included.

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 @ 80-100 kg/ha
Seeding date 26th and 27th May 2015

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

The timings were:

Post seeding pre-emergent (PSPE)	2 nd June
Early post emergent (3-4 node)	17 th July
Post emergent (5-6 node)	29 th July
Late post emergent (8 node)	18 th August

Treatments were visually assessed and scored for herbicide effects on the 1st of September (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.

In 2015, a number of the herbicide treatments produced different crop tolerance affects compared to other seasons and care should be taken when interpreting these results.

Majority of the post sowing pre-emergent (PSPE) herbicide applications in 2015 had no effect on crop growth compared to the nil. Terbyne gave a moderate effect on beans, even at the registered rate.

In 2013, Broadstrike was one of the safest herbicides at the 3rd node stage, but in 2015 and 2014 produced severe effects to both vetch varieties (RM4 and Volga) and Frontier clover and Wilpena Sulla. Simazine caused greater damage on the chickpeas and lentils compared to 2014. At this timing, metribuzin was also more damaging to both lentil varieties. Treatments containing Brodal Options were safer on Gunyah peas compared to 2015, along with Raptor on beans.

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 2015, 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.

Vortex is a new entry from Adama and is a broadleaf herbicide for cereals. It consists of 6.25g/L of Florasulam and 300g/L 2,4-D LV Ester and the recommended application rate is 820mls/ha plus Uptake oil at 0.5%.

In the 8 node treatments Gunyah peas were a standout by tolerating MCPA sodium and amine, and a low rate of 2,4-D ester. A low rate of 2,4-D ester on both vetch varieties (RM4 and Volga) and Genesis090 chickpea resulted in more damage than would normally be expected.

Table 1. Crop damage ratings for legume and oilseed herbicide tolerance trial at Hart 2015.

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

Number	Timing	Treatment	Rate kg/ha	Pasture			Lentil		Vetch		C/pea	Pea	Bean	Canola		
				Angel	Frontier	Wilpena Sulla	Jumbo 2	Hurricane	Volga	RM 4	Genesis 090	Gunya	Nura	Diamond	Gen	44Y89
1	PSPE 2/6/15	NIL		1	1	1	1	1	1	1	1	1	1	1	1	
2		Propyzamide (900 g/kg)	550 g	1	1	1	1	1	1	1	1	1	1	1	1	1
3		Diuron (900 g/kg)	550 g	3	5	5	1	1	1	1	1	1	1	3	3	3
4		Simazine (600 g/L)	850 g	5	6	5	1	1	1	1	1	1	1	2	1	3
5		Simazine (600 g/L)	1275 g	5	6	5	2	3	2	1	3	1	1	3	1	5
6		Diuron (900 g/L) + Simazine (600 g/L)	410 g/410 g	4	6	5	1	1	1	2	2	1	1	2	1	1
7		Metribuzin (750 g/kg)	280 g	4	6	3	2	2	2	2	1	1	1	5	2	6
8		Metribuzin (750 g/kg)	420 g	4	6	4	2	2	3	2	1	1	2	6	3	6
9		Terbyne (875 g/kg)	1000 g	5	6	5	2	2	1	1	1	1	3	5	2	5
10		Terbyne (875 g/kg)	1500 g	6	6	6	4	4	2	2	2	2	3	5	3	6
11		Spinnaker	100g	2	6	6	5	2	3	4	4	3	4	6	6	2
12		Spinnaker + Simazine	40 g/850 g	4	6	6	4	3	4	4	2	2	3	6	6	4
13		Balance	100 g	6	6	6	6	6	6	5	1	5	5	6	6	6
14		Balance + Simazine	100 g/830 g	6	6	6	6	6	6	5	1	5	5	6	6	6
15	3-4 Node 17/7/15	NIL		1	1	1	1	1	1	1	1	1	1	1	1	
16		Simazine (600 g/L)	850 g	4	6	1	3	2	2	2	3	1	1	1	1	1
17		Metribuzin (750 g/kg)	280 g	5	6	1	4	4	5	4	5	2	3	4	2	5
18		Broadstrike + wetter	25 g/0.2%	1	4	4	4	2	5	3	1	2	5	5	5	1
19		Brodal Options	150 mL	3	4	5	2	1	2	3	4	1	4	2	2	2
20		Brodal Options + MCPA Amine	150 mL/150 mL	3	4	5	3	3	4	4	4	1	5	4	4	4
21		Spinnaker + wetter	70 g/0.2%	1	3	4	5	1	3	4	4	2	3	6	6	2
22		Raptor + wetter	45 g/0.2%	2	5	4	5	1	3	4	5	2	1	6	6	3
23	5-6 Node 29/7/15	NIL		1	1	1	1	1	1	1	1	1	1	1	1	
24		Logran + wetter	10 g/0.1%	1	6	5	5	4	6	6	6	5	6	6	6	2
25		Ally + wetter	7 g/0.1%	5	6	6	5	5	6	5	6	5	6	6	6	2
26		Eclipse SC + wetter	50 mL/0.5%	5	6	4	5	4	6	5	5	5	6	5	5	2
27		Ecopar + MCPA Amine	400 mL/500 mL	2	1	4	4	4	5	5	5	1	5	5	5	5
28		Carfentrazone + MCPA Amine	100 mL/500 mL	3	4	4	5	5	5	5	6	4	4	5	5	5
29		Conclude + Uptake	700 mL/0.5%	5	6	6	6	5	6	6	6	5	6	6	6	5
30		Paradigm + Uptake	25 g/0.5%	5	6	6	6	5	6	6	6	5	6	6	6	5
31		Precept + Hasten	750 mL/1%	5	5	5	6	6	6	5	5	5	5	6	6	6
32		Velocity + Hasten	670 mL/1%	6	6	6	6	6	6	6	6	6	6	6	6	6
33		Flight EC	720 mL	4	4	6	5	5	5	5	6	1	6	6	6	6
34		Triathlon	1000 mL	3	5	6	5	5	5	5	6	2	5	6	6	6
35		Barvel M	1000 mL	5	5	5	6	6	6	6	6	5	6	5	5	5
36		Intervix + Hasten	600 mL/1%	1	6	5	5	1	5	5	6	5	5	6	6	1
37		Hussar OD + wetter	100 mL/0.25%	5	6	6	6	5	6	6	6	6	6	6	6	4
38		Crusader + wetter	500 mL/0.25%	4	6	5	6	5	6	6	6	6	6	6	6	2
39		Atlantis OD + Hasten	330 mL/0.5%	5	5	5	5	1	6	6	6	5	5	6	6	1
40		Atrazine + Hasten	833 g/1%	6	6	5	6	6	6	5	6	5	3	5	1	5
41		Lontrel 600	150 mL	6	6	6	6	6	6	6	6	5	6	1	1	1
42		NIL		1	1	1	1	1	1	1	1	1	1	1	1	1
43	18-08-15	Vortex + Uptake	820 mL/0.5%	4	6	6	6	6	6	6	6	5	6	6	6	6
44	8 Node 18/8/15	MCPA Sodium (250 g/L)	700 mL	3	3	1	4	4	5	5	4	1	5	2	4	4
45		MCPA Amine (750 g/L)	350 mL	2	3	4	4	5	5	5	5	2	5	4	4	4
46		Amicide Advance 700	1200 mL	3	3	4	5	5	5	5	5	5	5	4	5	5
47		2,4-D Ester (680 g/L)	70 mL	1	1	1	1	1	4	4	4	1	1	1	1	1
48		Sprayseed	2000 mL	5	5	5	6	6	5	5	6	6	5	6	6	6
49		Gramoxone	1000 mL	5	5	5	5	5	5	5	5	5	5	6	6	6
50		Glyphosate	1000 mL	6	6	5	5	5	5	5	5	5	4	6	6	6