

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 @ 75 kg/ha
Seeding date	26 th May 2017		

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)	1 st June
Early post emergent (3-4 node)	5 th July
Post emergent (5-6 node)	27 th July
Late post emergent (8 node)	8 th August

Treatments were visually assessed and scored for herbicide effects approximately four 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 used here 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. In 2017 a number of the herbicide treatments produced different crop tolerance or control ratings than expected. Care should be taken when interpreting these results as herbicide effects can vary between seasons and depend on soil and weather conditions at time of application.

Majority of the post sowing pre-emergent (PSPE) herbicide applications had no effect on crop growth compared to the nil (Table 1). This would not usually be expected and can be attributed to the dry surface soil conditions during the months of June and July following application.

At the 3 – 4 node application simazine was the safest herbicide option. This is in contrast to previous season (2015 and 2016) where it caused damage (rating 3) on the chickpea and Jumbo 2 lentils. At this timing, metribuzin was more damaging to both lentil varieties, vetch and Genesis090 chickpea. For a number of seasons, Broadstrike has produced severe effects in both vetch varieties (RM4 and Timok) and pasture species. This was consistent in 2017 however, Zulu II clover was the only pasture variety where noticeable damage occurred.

Ecopar is now registered in pastures, vetch, field pea and faba bean however, its use in other crops remains off label. Refer to the crop safety on label for specific variety information. In the Hart trial at the 3rd node application Ecopar resulted in slight damage (1 - 2 rating) to most of the legumes, but moderate damage (3 – 4 rating) to the lentils.

In the post emergent 5 - 6 node treatments a range of herbicides produced very good control of all the oilseed and legume crops. These included Eclipse, carfentrazone, Vortex, Paradigm, Precept, Velocity, Flight, Triathlon and Jaguar. Ecopar was safer on field peas in 2016 and 2017. It should also be noted that crop establishment in the pasture section (Wilpena Sulla, Zulu II and Sultan SU) was patchy and poor early vigour contributed to a number of herbicides causing significant damage scores compared to those usually observed.

For some of the newer product entries;

- Pixxaro with Arylex active (16.25 g/L Arylex + 250 g/L fluroxypyr) is a post-emergent herbicide for use in all winter cereals from 3 leaf to flag leaf for the control of a range of broadleaf weeds. Pixxaro resulted in good control of the legume crops in both 2016 and 2017.
- Rexade is a post emergent grass plus broadleaf herbicide for use in wheat. It contains the group B herbicide pyroxsulam plus the new Group I herbicide Arylex (halauxifen-methyl). It can be tank mixed with a range of broadleaf herbicides, typically MCPA LVE. In 2017 Rexade gave very good control of the legume and canola crops.
- Talinor (37.5 g/L bicyclopyrone and 175 g/L bromoxynil) is a new fast acting cereal broadleaf herbicide that offers broad spectrum post-emergent weed control in wheat and barley (excluding durum). This product has been in the Hart herbicide matrix for two seasons and provided excellent control of all the legume and oilseed crop types.

In the 8 - 9 node treatments Gonyah 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 was slightly more damaging on Genesis090 chickpeas than normally expected. In the knockdown treatments both vetch lines were the most difficult to control, with the woolly pod vetch (RM4) being the hardest. There was little variation in knockdown and spike treatments for the remaining crops in 2017, with all providing good levels of control.

Table 1. Crop damage ratings for legume and oilseed herbicide tolerance trial at Hart 2017.

Seeding date: 26th May 2017
Fertiliser: MAP (10:22) @ 75 kg/ha

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Number	Timing	Treatment	Rate kg/ha	Pasture	Clover	Medic	Lentil	Lentil	Vetch	Veich	Cipea	Pea	Bean	Canola	Canola	Canola
				Wilpena Sulla	Zulu II	Sulfan SU	Hurricane	Jumbo 2	Tinok	RM 4	Genesis090	Guruyah	Nura	Pioneer 44Y90	Hyola659TT	AV Garnet
1	Post seeding pre-emergent 1st June 2017	NIL		1	1	1	1	1	1	1	1	1	1	1	1	1
2		Diuron (900 g/kg)	550 g	4	4	1	1	1	1	1	1	1	1	3	3	3
3		Diuron (900 g/kg)	825 g	6	6	5	1	1	1	1	1	1	1	3	5	5
4		Simazine (900 g/kg)	550 g	4	6	2	1	1	1	1	1	2	1	2	1	3
5		Simazine (900 g/kg)	825 g	5	6	2	1	1	1	1	1	2	1	2	1	4
6		Diuron (900 g/kg) + Simazine (900 g/kg)	410 g + 410 g	5	6	2	1	1	1	1	1	1	1	2	3	4
7		Metribuzin (750 g/kg)	180g	4	5	2	1	1	1	1	1	1	1	2	2	3
8		Metribuzin (750 g/kg)	280g	4	5	2	2	1	1	2	1	1	1	5	3	3
9		Terbyne (750 g/kg)	1000 g	6	6	6	1	1	1	1	1	1	1	5	2	6
10		Spinneraker	100g	4	6	2	1	3	1	1	3	1	2	2	6	6
11		Spinneraker + Simazine	45 g + 830 g	5	6	3	1	2	1	1	1	1	1	2	5	6
12		Balance	100 g	6	6	6	4	4	1	1	1	2	3	6	6	6
13		Balance + Simazine	100 g + 830 g	6	6	6	5	5	2	1	1	3	6	6	6	6
14		Ternain (500 g/kg)	180 g	5	5	4	3	3	2	1	1	2	2	4	4	4
15	3-4 Node 5th July 2017	NIL		1	1	1	1	1	1	1	1	1	1	1	1	1
16		Simazine (900 g/kg)	650 g	2	2	1	1	1	1	1	1	1	1	1	1	1
17		Metribuzin (750 g/kg)	280 g	2	6	4	3	3	4	3	5	1	3	6	1	6
18		Broadstrike + Wetter 1000	25 g + 0.2%	1	5	2	2	1	5	6	1	1	3	1	6	6
19		Brodal Options	150 mL	6	5	2	2	1	1	1	5	1	3	4	4	4
20		Brodal Options + MCPA Amine 750	150 mL + 100 mL	6	3	4	3	3	5	5	5	2	5	6	6	5
21		Spinneraker + Wetter 1000	70 g + 0.2%	2	2	2	2	4	3	1	4	1	1	2	6	6
22		Raptor + Wetter 1000	45 g + 0.2%	1	3	1	1	4	2	2	4	1	3	2	6	6
23		Ecopar + Wetter 1000	800 mL + 0.2%	3	3	1	4	3	1	1	2	2	2	2	3	2
24	5-6 Node 27th July 2017	NIL		1	1	1	1	1	1	1	1	1	1	1	1	1
25		Ally + Wetter 1000	7 g + 0.1%	6	6	6	5	6	4	5	6	5	6	2	4	5
26		Eclipse SC + Wetter 1000	50 mL + 0.1%	5	6	5	4	5	6	5	6	5	6	1	4	5
27		Alrazine + Hasten	825 g + 1%	6	6	6	6	5	4	5	6	5	4	5	2	5
28		Lontrel 600	150 mL	4	3	3	4	4	4	4	5	4	5	1	1	2
29		Ecopar + MCPA Amine 750	400 mL + 330 mL	4	2	2	4	4	4	4	5	3	4	4	4	4
30		Jaguar	1000 mL	5	4	4	5	5	6	5	6	4	4	5	5	5
31		Carfentrazone + MCPA Amine 750	100 mL + 330 mL	6	6	5	6	5	4	6	5	6	6	6	6	5
32		Velocity + Uptake	670 mL + 0.5%	6	5	6	5	5	5	5	6	5	5	6	6	6
33		Talinor + Hasten	1000 mL + 1 %	6	6	6	5	5	6	6	6	5	5	6	6	6
34		Paradigm + Uptake	25 g + 0.5%	6	6	5	5	5	5	5	5	5	5	6	6	6
35		Vortex + Uptake	820 mL + 0.5%	6	6	5	5	5	5	5	5	5	5	5	5	5
36		NIL		1	1	1	1	1	1	1	1	1	1	1	1	1
37		Flight EC	720 mL	6	4	4	4	4	5	5	6	4	5	6	6	6
38		Triathlon	1000 mL	6	4	5	5	4	5	5	6	4	5	6	6	6
39		Banvel M	1000 mL	4	5	4	4	4	5	4	4	4	4	4	5	5
40		Intervix + Hasten	600 mL + 0.5%	5	6	1	1	5	4	4	4	3	4	1	5	5
41	Starane	600 mL	2	6	4	4	4	5	5	6	4	4	4	4	4	
42	Pixaro + Uptake	300 mL + 0.5%	5	6	4	5	5	6	5	6	5	5	3	3	3	
43	Revade + Wetter 1000	100 g + 0.25%	4	6	5	5	4	5	6	5	5	5	1	5	5	
44	Atlantis OD + Hasten	330 mL + 0.5%	5	6	5	4	4	4	5	5	5	5	1	5	5	
45	Late post emergent 8 - 9 node 8th August 2017	MCPA Amine (750 g/L)	350 mL	6	6	2	4	4	4	4	2	2	5	6	6	6
46		Butress	1500 mL	3	3	2	2	2	2	2	2	2	4	5	5	5
47		NUL 3342	2000 mL	3	3	1	5	4	5	4	4	4	4	6	6	6
48		Amicide Advance 700	1200 mL	6	6	6	6	6	6	6	6	5	6	6	6	6
49		2,4-D Ester (680 g/L)	70 mL	5	5	2	1	1	1	1	3	1	1	4	4	4
50		NIL		1	1	1	1	1	1	1	1	1	1	1	1	1
51		Sprayseed	2000 mL	5	6	5	5	5	5	4	6	6	4	6	6	6
52		Gramoxone	1500 mL	5	6	6	5	5	5	4	6	6	4	6	6	6
53		Alliance	2000 mL	6	6	5	6	6	4	4	6	6	6	6	6	6
54		Glyphosate 450 + LI700	1000 mL + 0.25%	6	6	6	6	6	4	4	5	6	6	6	6	6
55		Glyphosate + Goal + LI700	1000 mL + 75 mL + 0.25%	6	6	6	6	6	4	3	5	6	6	6	6	6
56	Glyphosate + B-Power + Hasten	1000 mL + 160 mL + 0.5%	6	6	6	6	6	4	4	6	6	6	6	6	6	
57	Glyphosate + Hammer400 + LI700	1000 mL + 30 mL + 0.25%	5	6	6	6	6	3	3	5	6	5	6	6	6	
58	Glyphosate + Sharpen + Hasten	1000 mL + 17 g + 1%	6	6	6	6	6	4	4	6	6	6	6	6	6	
59	Glyphosate + Terrain + Hasten	1000 mL + 30 g + 1%	6	6	6	6	6	4	4	6	6	6	6	6	6	
60	Glyphosate + Amicide Advance 700 + LI700	1000 mL + 500 mL + 0.25%	6	6	6	6	6	4	4	6	6	6	6	6	6	
61	Glyphosate + Dicamba + BS1000	1000 mL + 240 mL + 0.25%	5	6	6	6	6	4	4	6	6	6	6	5	6	