

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	1 st June 2018		

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

The timings were:

Post seeding pre-emergent (PSPE)	4 th June
Early post emergent (3-4 node)	27 th July
Post emergent (5-6 node)	20 th August
Late post emergent (8 node)	7 th September

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 2018 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.

The majority of post sowing pre-emergent (PSPE) herbicide applications had no effect on legume crop growth compared to the nil (Table 1), while all the canola varieties were significantly effected. 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 and has been across a number of seasons. At this timing, metribuzin was more damaging to both lentil varieties (rating >5), vetch and Genesis090 chickpea. This season, Broadstrike caused severe effects in RM4 vetch and noticeable damage in Zulu II clover.

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 3-4 node application, Ecopar resulted in slight damage (1 - 2 rating) to most of the legumes, but moderate damage (3 rating) in both lentil varieties.

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, Vortex, Paradigm, Velocity, Triathlon and Starane. Ecopar was safe on field peas in the last three seasons. It should also be noted that crop establishment in the pasture section (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. Linseed was a new addition to the trial and was not controlled by a number of the 5-6 node treatments this season.

For some of the newer product entries in the 5-6 node section:

- 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 has resulted in good control of the legume crops in this trial over the past three years.
- 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 and 2018 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 three seasons and provided excellent control of all the legume and oilseed crop types.

In the 8 - 9 node treatments Gunyah peas and Genesis090 tolerated MCPA amine, and a low rate of 2,4-D ester. Thistrol Gold (NUL3342) was a new entry (likely registration 2020) and will be registered for clover and grass pastures. The label will feature a broad spectrum of weeds, including various thistles and brassica type weeds. This product showed good safety on Zulu II clover at Hart this year.

Table 1. Crop damage ratings for legume and oilseed herbicide tolerance trial at Hart 2018.

Number	Application Timing	Treatment	Rate kg/ha	Pasture	Pasture SU	Lentil	Lentil	Vetch	Vetch	Linseed	C/pea	Pea	Bean	Canola	Canola	Canola
1	Post sow pre-emergent 4th June 2018	NIL		8	10	55	45	45	45	40	120	100	140	4	4	4
2		Diuron (900 g/kg)	825 g	1	1	1	1	1	1	1	1	1	1	1	1	1
3		Simazine (900 g/kg)	825 g	6	1	1	1	1	1	1	2	1	1	1	5	5
4		Metribuzin (750 g/kg)	280g	6	4	1	1	2	1	1	4	1	2	2	4	3
5		Terbyne (750 g/kg)	1000 g	6	1	3	3	3	3	3	6	1	1	1	5	3
6		Balance + Simazine	100 g + 830 g	6	6	1	2	2	2	2	6	1	1	1	6	3
7		NIL		1	1	1	1	1	1	1	1	1	1	1	1	1
8	3-4 Node 27th July 2018	Simazine (900 g/kg)	850 g	5	1	2	2	1	1	1	2	1	3	3	3	
9		Metribuzin (750 g/kg)	280 g	6	5	5	6	6	6	6	3	1	3	6	3	
10		Broadstrike + Wetter 1000	25 g + 0.2%	3	1	2	2	2	2	2	4	2	2	4	2	
11		Brodal Options	150 mL	5	4	2	3	4	5	2	5	2	4	4	4	
12		Brodal Options + MCPA Amine 750	150 mL + 100 mL	4	3	4	4	3	4	2	4	2	4	4	5	
13		Spinmaker + Wetter 1000	70 g + 0.2%	4	1	2	4	3	4	3	4	2	4	3	6	
14		Raptor + Wetter 1000	45 g + 0.2%	3	1	1	4	3	2	1	4	1	2	2	6	
15		Ecopar + Wetter 1000	800 mL + 0.2%	2	1	3	3	3	1	5	2	2	2	2	1	
16		NIL		1	1	1	1	1	1	1	1	1	1	1	1	1
17		Ally + Wetter 1000	7 g + 0.1%	6	5	5	6	4	6	1	6	6	6	6	4	6
18		Eclipse SC + Wetter 1000	50 mL + 0.1%	6	4	4	6	6	5	4	5	5	6	6	4	6
19	Atrazine + Hasten	1000 g + 1%	6	4	4	4	3	3	1	4	4	4	4	1	5	
20	Lontrel 600	150 mL	6	6	6	6	6	6	2	4	4	6	6	1	1	
21	Ecopar + MCPA Amine 750	400 mL + 330 mL	4	4	4	4	4	4	2	3	3	4	4	5	5	
22	Jaguar	1000 mL	4	4	4	5	5	3	2	4	4	3	6	6	5	
23	Carfentrazone + MCPA Amine 750	100 mL + 330 mL	4	3	4	4	4	4	2	4	4	4	4	6	6	
24	Velocity + Uptake	670 mL + 0.5%	6	6	6	6	6	6	2	6	6	6	6	6	6	
25	Talinor + Hasten	750 mL + 1 %	6	6	6	6	6	6	5	2	6	6	6	6	5	
26	Paradigm + MCPA LVE + Uptake	25 g + 500 mL + 0.5%	6	6	6	6	6	6	6	6	6	6	6	6	6	
27	Vortex + Uptake	820 mL + 0.5%	6	3	6	6	6	5	6	4	6	6	6	6	6	
28	Flight EC	720 mL	3	3	5	5	3	3	2	3	3	5	5	6	6	
29	Triathlon	1000 mL	3	4	5	6	5	5	3	5	4	5	5	6	6	
30	Intermix + Hasten	600 mL + 0.5%	5	2	1	4	5	4	4	3	3	4	4	1	6	
31	Starane	300 mL	3	4	6	6	6	6	6	6	6	6	6	4	4	
32	Pixaro + Uptake	300 mL + 0.5%	6	6	6	6	6	6	6	6	6	6	6	3	3	
33	Rexade + Wetter 1000	100 g + 0.25%	6	5	5	6	6	6	6	6	5	5	6	1	6	
34	Atlantis OD + Hasten	330 mL + 0.5%	6	4	4	5	6	6	6	2	6	6	6	1	6	
35	NIL		1	1	1	1	1	1	1	1	1	1	1	1	1	
36	MCPA Amine (750 g/L)	350 mL	2	1	4	2	4	5	2	2	2	2	4	2	2	
37	2,4-DB 500 g/L	1500 mL	3	1	2	2	2	3	2	2	2	2	4	2	2	
38	Thistral Gold + NUL 3279	2000 mL + 0.5%	2	2	4	4	4	5	4	4	3	3	5	5	5	
39	Amicide Advance 700	1200 mL	5	5	6	5	5	6	4	5	5	6	6	5	4	
40	2,4-D Ester (680 g/L)	70 mL	2	2	2	2	3	2	2	2	3	3	3	2	1	

