

Legume and oilseed herbicide tolerance

Key findings

- Good soil moisture conditions allowed clear separation of relatively safe and more damaging treatments.
- Wilpena sulla showed improved tolerance to Simazine and Broadstrike at the 5 node stage.
- At the 6 node stage Hussar and Crusader did a good job of controlling all crops.

Why do the trial?

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

How was it done?

Plot size 2m x 3m

Fertiliser MAP @ 75 kg/ha + 2% Zinc

Seeding date 24th May 2010

12 strips of canola, pasture, vetch, chickpeas, faba beans, field peas and lentils were sown. 52 herbicide treatments were applied across these crops at one of 5 timings.

The timings were

Pre sowing (IBS)	24 th May
Post seeding pre-emergent (PSPE)	31 st May
Early post emergent (3 – 4 node)	1 st June
Post emergent (6 node)	8 th July
Late post emergent (8 node)	3 rd August

Treatments were visually assessed and scored for herbicide effects 4 weeks after application.

Crop damage ratings were:

- 1 = no effect
- 2 = slight effect
- 3 = moderate effect
- 4 = severe effect
- 5 = 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 depending on soil and weather conditions.

This was particularly the case in 2010 as the initial herbicide control may have been very good, but good growing conditions meant that in some cases plants were able to re-shoot or exhibit improved tolerance.

Wilpena (*Sulla hedysarum*) was a new pasture addition this year. It had similar tolerance to the post sowing pre-emergent treatments compared to the other pasture entries. However, for the 5 node treatment simazine and Broadstrike had no effect on the Wilpena. It had improved tolerance to metribuzin, but was affected more by Brodal Options or Sniper. At the 6 node growth stage it had greater tolerance to Logran, Ally, Eclipse and atrazine compared to the other pastures.

The pre-emergent herbicides Outlook, Boxer Gold and Sakura produced slight effects on all 3 canola varieties. This also occurred in 2009, while the other pre-emergent herbicides had little or no effect on all of the crops. Sakura gave a slight effect on balansa clover and Rasina vetch, while Outlook effected both vetches and the Farah beans.

Terbyne is a relatively new post sowing pre-emergent (PSPE) herbicide. It is a triazine (group C) herbicide and provides good control of mustards, turnips, radish, medic and thistles. Care is needed with Terbyne as it was the only PSPE herbicide to produce damage in the lentils and peas.

Metribuzin applied at 5 node produced greater damage to lentils and Broadstrike was severe on both varieties of vetch.

At the 6 node stage Hussar and Crusader did a good job of controlling all crops. Ecopar and Affinity Force had only a slight effect on lentils and vetch, while Rasina vetch showed only slight effects to ally for the second year in a row.

Most of the knockdown chemicals did a good job on all crops other than the Rasina vetch. When glyphosate and Sprayseed were applied alone the control of legumes was not 100% in many cases. Of the 2 double knock treatments glyphosate // Sprayseed 3DAS gave the best result across all crops. The only knockdown treatment that killed the Rasina vetch was Basta which also did a good job on all other crops.

Legume & Canola Herbicide Tolerance Hart 2010

			Pasture			Lentil	Vetch		Chick Peas	Peas	Beans	Canola		
			Wilpena sulla	Scimitar medic	Frontier Balansa	Flash	Rasina	Capello	Genesis 090	Gunyah	Farah	Conv Garnet	TT Cobbler	CL 44C79
	Treatment	Rate kg/ha	10	10	10	45	45	45	80	100	140	5	5	5
Pre-sow 24/05	1 NIL		1	1	1	1	1	1	1	1	1	1	1	1
	2 Avadex Xtra	1600ml	1	1	1	1	1	1	1	1	1	1	1	1
	3 Dual Gold	500ml	1	1	1	1	1	1	1	1	1	1	1	1
	4 Outlook (NUL 1493)	1000ml	1	1	1	1	2	2	1	1	2	2	2	1
	5 Boxer Gold	2500ml	1	1	1	1	1	1	1	1	1	1	3	1
	6 Sakura (BAY-191)	118g	1	1	2	1	2	1	1	1	1	1	3	3
PSPE 31/05	1 NIL		1	1	1	1	1	1	1	1	1	1	1	1
	2 Diuron	850g	4	4	4	1	1	1	1	1	1	5	4	3
	3 Simazine	850g	4	5	5	1	1	1	1	1	1	5	1	3
	4 Diuron + Simazine	410g/410g	4	5	5	1	1	1	1	1	1	3	2	3
	5 Metribuzin	280g	3	5	5	1	1	1	1	1	1	5	1	4
	6 Terbyne	1000g	5	5	5	2	1	1	1	2	1	5	1	5
	7 Spinnaker	70g	2	4	2	3	3	2	1	1	1	5	5	1
	8 Spinnaker + Simazine	40g/850g	4	5	5	2	2	2	1	1	1	5	5	5
	9 Balance	100g	5	5	5	4	4	4	1	4	3	5	5	5
	10 Balance + Simazine	100g/830g	5	5	5	4	4	4	1	4	4	5	5	5
5 node 1/07	1 NIL		1	1	1	1	1	1	1	1	1	1	1	1
	2 Simazine	850g	1	2	4	1	1	1	1	1	1	1	1	3
	3 Metribuzin	280g	3	5	5	3	3	3	4	2	3	5	2	5
	4 Broadstrike	25g	1	2	1	1	3	4	1	1	2	4	4	2
	5 Brodal Options	150ml	4	1	2	1	2	1	3	1	3	2	4	3
	6 Brodal Options + MCPA Amine	150ml/150ml	4	1	1	1	2	3	4	2	3	4	5	4
	7 Sniper 750WG	50g	3	1	1	1	1	2	2	1	2	2	3	3
	8 Spinnaker + wetter	70g/0.2%	2	3	3	3	3	3	4	1	2	5	5	1
	9 Raptor + wetter	45g/0.2%	3	2	3	4	2	2	4	1	1	5	4	*
6 node 8/07	1 NIL		1	1	1	1	1	1	1	1	1	1	1	1
	2 Logran+wetter	10g/0.1%	2	4	4	4	4	5	4	4	4	5	5	1
	3 Ally + wetter	7g/0.1%	4	5	5	4	2	5	5	5	5	5	5	1
	4 Eclipse SC + Uptake	50ml/0.5%	2	4	5	4	4	4	4	4	4	5	5	1
	5 Ecopar + MCPA Amine	400ml/500ml	3	3	1	2	2	3	4	3	3	4	4	4
	6 Conclude + Uptake	700ml/0.5%	4	4	5	4	4	5	5	5	4	5	5	4
	7 Precept + Hasten	750ml/1%	4	4	3	4	3	5	4	4	4	4	5	5
	8 Velocity + Hasten	670ml/1%	4	5	4	4	4	5	5	5	4	5	5	5
	9 Banvel M	1L	4	4	5	4	4	5	5	3	4	4	5	4
	10 Intervix + Hasten	600ml/1%	4	5	5	4	3	4	5	4	4	5	5	1
	11 Midas + Hasten	900ml/0.5%	5	5	4	4	4	4	5	4	4	5	5	4
	12 Hussar OD + wetter	100ml/0.25%	4	5	5	5	5	5	5	5	5	5	5	3
	13 Crusader + Uptake	500ml/0.5%	3	4	5	5	4	5	5	5	5	5	5	1
	14 Atlantis OD + Hasten	330ml/0.5%	4	4	5	4	4	4	4	4	4	5	5	1
	15 Affinity Force + MCPA Amine	100ml/500ml	3	3	2	2	2	3	4	3	3	5	5	4
	16 Atrazine + Hasten	833g/1%	3	5	5	1	1	3	3	3	3	4	1	5
	17 Lontrel	150ml	4	5	5	5	4	4	5	4	4	1	1	1
8 node 3/08	1 NIL		1	1	1	1	1	1	1	1	1	1	1	1
	2 MCPA Sodium	700ml	1	1	1	3	4	3	3	1	3	3	3	3
	3 MCPA Amine	350ml	1	1	2	2	3	3	3	1	3	3	3	3
	4 Amicide 625	1.2L	3	3	3	3	4	4	4	4	4	4	4	4
	5 2,4-D Ester	70ml	2	2	1	1	3	3	2	2	3	2	2	2
6 node 8/07	1 NIL		1	1	1	1	1	1	1	1	1	1	1	1
	2 Sprayseed	2L	5	5	5	4	4	4	4	5	4	5	5	5
	3 Glyphosate	1L	4	4	5	5	3	4	4	5	4	5	5	5
	4 Glyphosate + LVE 680	1L/500ml	4	5	5	5	4	5	4	5	4	5	5	5
	5 Glyphosate + Hammer	1L/50ml	4	5	5	5	2	4	4	5	4	4	5	4
	6 Glyphosate + Goal	1L/100ml	4	5	5	5	3	4	4	5	4	5	5	4
	7 Glyphosate + Cadence	1L/115g	5	5	5	5	4	5	5	5	4	5	5	4
	8 Glyphosate + Pyresta	1L/400ml	4	5	5	5	2	4	4	5	4	5	5	5
	9 Glyphosate // Sprayseed 3DAS	1.2L/1.2L	5	5	5	5	3	4	4	5	5	5	5	5
	10 Sprayseed // Sprayseed 3DAS	1.2L/1.2L	5	5	5	3	3	4	4	5	4	5	5	5
	11 Basta	2.5L	5	5	5	4	5	5	5	5	5	4	4	4
	12 NIL		1	1	1	1	1	1	1	1	1	1	1	1