

# SPRAY.SEED KNOCKDOWN MIXTURES FOLLOWING ROUNDUP READY\* CANOLA

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## AIM

The objective of this trial was to evaluate the knockdown efficiency of Spray.Seed with and without common tank mix 'spikes', at various rates, on the control of grass and broadleaf weeds including Roundup Ready\* canola volunteers.

\*Simulated by TT canola

## BACKGROUND

Spray.Seed is commonly used as a knockdown herbicide to control small weeds. This trial aims to demonstrate that higher use rates, or the addition of common "spikes" can increase the knockdown efficiency of Spray.Seed and widen the use "window" to include the control of larger weeds (grass and broadleaf).

In the event that Roundup Ready canola becomes an option to WA growers, Spray.Seed has been identified as an important tool to control volunteers or as a knockdown option following a RR canola crop. This trial seeks to demonstrate the knockdown efficiency of Spray.Seed on Canola at various growth stages, both stand alone and in mixes with "spikes".

Ryegrass, canola and lupins were topdressed prior to seeding the site in order to ensure a sufficient weed density and spectrum was present prior to spray applications. A significant background population of wild radish was also present.

The trial was designed to have two timings of spray application to coincide with weed growth stages of ryegrass at GS12 and broadleaves 1-5cm diameter for timing one (T1) and ryegrass GS14 and broadleaves 5-10cm diameter for timing two (T2). In reality an extended dry spell after topdressing of the ryegrass, lupins and canola meant that these "weeds" did not germinate as quickly as expected, and as a result the T1 and T2 sprays were applied slightly earlier than these growth stages

## TRIAL DETAILS

<b>Property</b>	McIlroy Family, Pithara	
<b>Plot size &amp; replication</b>	15m x 2.5m x 3 replicates	
<b>Soil type</b>	Sandy Loam	
<b>Herbicides, Insecticides &amp; Fungicides</b>	<b>T1</b>	<b>T2</b>
	Application date: 25/08/09	Application date: 03/09/09
	Cloud Cover: 95%	Cloud Cover: 55%
	Temperature: 20.5°C	Temperature: 11.9°C
	Relative Humidity: 52%	Relative Humidity: 51%
	Wind: E 5-7 km/hr	Wind: SE 7-10 km/hr
	All treatments applied at 89 L/ha water volume	1.5 bar with Teejet 110001 flat fan nozzles
<b>Growing Season Rainfall</b>	201mm	

## RESULTS

**Table 1.** Average pre spray (T1) weed counts per m<sup>2</sup>.

	Ryegrass	Canola	Radish	Lupin
Cotyledon	-	41	2	7
1 leaf	70	-	-	-
2 leaf	7	1	2	7
>2 leaf	4	0.5	5	-

**Table 2.** Herbicide efficacy 38 days after treatment (DAT) of T1 spray treatments.

Efficacy rated on 0-100 scale where 0 = no effect and 100 = full death/brownout. Treatments followed by the same letter are not significantly different. LSD (P<0.05).

NO.	TREATMENT	TIMING	PRODUCT RATE (per ha)	EFFICACY			
				Ryegrass	Radish	Canola	Lupin
1	Untreated	---	---	0 l	0 i	0 d	0 h
2	Spray.Seed®	T1	1.0 L	65 k	46.7 gh	73.3 c	68.3 g
3	Spray.Seed®	T1	1.2 L	71.7 ijk	33.3 h	90 ab	71.7 fg
4	Spray.Seed®	T1	1.8 L	76.7 f-j	63.3 c-g	96.7 a	85 a-g
5	Spray.Seed® + LV ester	T1	1.0 L + 400 ml	70 jk	53.3 fgh	91.7 a	80 c-g
6	Spray.Seed® + Logran® B-Power + Adigor®	T1	1.0 L + 50 g + 1.0 %	81.7 c-h	81.7 abc	100 a	93.3 a-d
7	Spray.Seed® + Hammer®	T1	1.0 L + 50 ml	75 g-j	56.7 efg	90 ab	75 efg
8	Spray.Seed® + Cadence®	T1	1.0 L + 200 g	75 g-j	60 d-g	86.7 abc	81.7 b-g
9	Spray.Seed® + Cadence® + LV ester®	T1	1.0 L + 200 g + 400 ml	76.7 f-j	76.7 a-e	96.7 a	76.7 d-g
10	Spray.Seed® + Ally®	T1	1.0 L + 5 g	73.3 h-k	46.7 gh	96.7 a	90 a-e
11	Spray.Seed® + Ally® + LV ester	T1	1.0 L + 5 g + 400 ml	78.3 e-j	63.3 c-g	93.3 a	88.3 a-f
12	Spray.Seed® + Lontrel®	T1	1.0 L + 100ml	70 jk	60 d-g	76.7 bc	70 g
13	Spray.Seed® + Boxer® Gold	T1	1.2 L + 2.5L	81.7 c-h	68.3 b-f	86.7 abc	71.7 fg
14	Spray.Seed®	T1	1.2 L	91.7 ab	90 a	95 a	95 abc
	Spray.Seed®	T2	1.2 L				

- Higher rates of Spray.Seed® (1.8L/ha compared to 1L/ha) provided significantly greater levels of final ryegrass, radish, canola and lupin control.
- Addition of spikes with some Ryegrass activity (Logran® B Power, Boxer® Gold) provided greater final levels of Ryegrass control.
- Two shots of Spray.Seed® provided highest level of ryegrass control.
- Higher rates of Spray.Seed® (1.8L/ha compared to 1L/ha) provide greater levels of final radish control.
- Good control of canola was achieved with all mixes. The 1L/ha Spray.Seed® rate struggled on Canola.
- High rates of Spray.Seed® and mixes containing Group B chemistry gave the best control of Lupins

**Table 3.** Average pre spray (T2) weed counts per m<sup>2</sup>.

	Ryegrass	Canola	Radish	Lupin
Cotyledon	n/a	29	0	2
1 leaf	33	-	-	-
2 leaf	41	24	2	7
3-4 leaf	14	2	1	7
>4 leaf	7	0	4	2

Note: Whilst the weed size was bigger the starting rate of Spray.Seed has also been increased from 1L/ha in T1 to 1.8L/ha in T2

**Table 4.** Herbicide efficacy 29 days after treatment (DAT) of T2 spray treatments.

Efficacy rated on 0-100 scale where 0 = no effect and 100 = full death/brownout. Treatments followed by the same letter are not significantly different. LSD (P<0.05).

NO.	TREATMENT	TIMING	PRODUCT RATE (per ha)	EFFICACY			
				Ryegrass	Radish	Canola	Lupin
15	Untreated	---	---	0 l	0 i	0 d	0 h
16	Spray.Seed®	T2	1.2 L	83.3 b-g	78.3 a-d	98.3 a	83.3 a-g
17	Spray.Seed®	T2	1.8 L	90 abc	81.7 abc	100 a	83.3 a-g
18	Spray.Seed®	T2	2.4 L	93.3 a	88.3 ab	100 a	91.7 a-e
19	Spray.Seed® + LV ester	T2	1.8 L + 400 ml	91.7 ab	85 ab	100 a	95 abc
20	Spray.Seed® + Logran® B-Power + Adigor®	T2	1.8 L + 50 g + 1.0 %	93.3 a	86.7 ab	100 a	95 abc
21	Spray.Seed® + Hammer®	T2	1.8 L + 50 ml	93.3 a	81.7 abc	100 a	95 abc
22	Spray.Seed® + Cadence®	T2	1.8 L + 200 g	91 abc	83.3 abc	100 a	100 a
23	Spray.Seed® + Cadence® + LV ester®	T2	1.8 L + 200 g + 400 ml	94.3 a	83.3 abc	100 a	95 abc
24	Spray.Seed® + Ally®	T2	1.8 L + 5 g	85 a-f	76.7 a-e	100 a	90 a-e
25	Spray.Seed® + Ally® + LV ester	T2	1.8 L + 5 g + 400 ml	86.7 a-e	85 ab	100 a	98.3 ab
26	Spray.Seed® + Lontrel®	T2	1.8 L + 100ml	80 d-i	78.3 a-d	100 a	88.3 a-f
27	Spray.Seed® + Boxer® Gold	T2	1.8 L + 2.5L	88.3 a-d	86.7 ab	96.7 a	88.3 a-f

- Significantly higher levels of final ryegrass control were achieved from using the higher rate of Spray.Seed® (2.4L/ha compared to 1.2L/ha).
- Ryegrass control was similar for all other mixes, except Lontrel® which appeared to reduce the effectiveness of the Spray.Seed® on Ryegrass.
- There was no significant difference in Radish, Canola or Lupin control between any of the sprayed treatments.

#### COMMENTS

Final conclusions:

- Spikes without residual activity are generally ineffective presumably due to the fast acting nature of Spray.Seed®.
- Increasing the rate of Spray.Seed is (in most cases) as good an option as adding a spike to a low rate of Spray.Seed®.
- If taking out RR canola is the objective then adding some SU spike is probably the best option.
- Addition of Lontrel® appeared to reduce the efficacy of Spray.Seed on ryegrass control.
- When deciding on the best option, growers should always consider the total cost of products and application, in addition to keeping to a sound resistance management strategy.

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