4.4 A comparison of commercially available products, applied on seed or post emergent, to control Ground Lark damage in Canola - Inverleigh, Vic

Location: SFS Inverleigh Research Site

Funding: Southern Farming Systems

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Summary of findings:
- No bird damage was evident in the trial possibly due to the netting used which may have been a deterrent itself.
- There was a significant effect on plant counts established in the absence of bird damage but this didn't relate to final yield.
- The two highest yielding treatments, although not significant (P=.05), were post emergent products applied at 2nd true leaf.

Background/Aim:
In certain areas in the Western districts significant losses occur each year from Ground Lark damage to establishing canola plants. Mesurol is currently the only treatment known to be effective when applied to the seed, but it is NOT legal to use it for this purpose. It is believed that crops treated with mesurol have a bitter taste and, in high doses, can cause behavioural changes through temporary effects on the nervous system. However, most decreases in bird activity have been coupled with a decrease in insect pests. A number of alternative products were tested, which are commercially available both in Australia and overseas, to assess their effectiveness as bird deterrents.

Rainfall:

2011 Total:	595 mm
Avg. Annual:	548 mm (Difference +47mm)
2011 G.S.R.:	377 mm
Avg. G.S.R.:	407 mm (Difference -40)

Paddock History:

2009:	Wheat
2010:	Barley

Soil Characteristics:

Soil Type:	Sandy loam	
pH (1:5 CaCl):	5.8	
Deep N (kg N/ha):		33.6
P (Colwell) (mg/kg):	100	
K (Colwell) (mg/kg):	270	
Organic Carbon %:	1.2	

Variety:	46Y83 CF	
Sowing rate:	60 plants/m^2	
Sowing date:	29-May-11	
Harvest date:	2-Dec-11	
Fertiliser:	29-May-11	MAP 100kg/ha
	18-Aug-11	Urea 150kg/ha
Herbicides:	28-May-11	Roundup DST 2.3 L/ha + Trifluralin 3.0 L/ha
	26-Aug-11	Intervix 0.7 kg/ha + Select 0.5 L/ha + Hasten 1%
Insecticide:	6-Jun-11	Lorsban 1.2 L/ha + Talstar 40 ml/ha
	6-Jul-11	Vitall Plus 2 L/ha (on specific plots)
		Grazers 0.2 L/ha (on specific plots)
Plot size:	10m x 1.45m x 4 reps.	
Plot type:	Flat	
Measurements:	Plants established, bird damage, yield.	

Tillage type: The trial was sown with the new SFS cone seeder on 20cm row spacing's using 2.5cm knifepoints. Stubble burnt prior to sowing.

Treatments:

1	Untreated	7	Mesurol (net covered)
2	Cosmos	8	Thiram (net covered)
3	Mesurol	9	Vitall Plus (seed treated)
4	Thiram	10	Vitall Plus (PSPE bare earth)
5	Untreated (net covered)	11	Vitall Plus @ 2TL
6	Cosmos (net covered)	12	Grazers @ 2TL

Results and discussion:

The trial was laid out in a fully randomised complete block design with four of the treatments repeated with netted plots; this enabled us to eliminate any direct bird damage and to see whether there was any additional control or yield from these specific treatments.

The first measurement taken was plant counts after early establishment. This is often the time the damage is done by Ground Larks from which the canola often doesn't recover. Although we saw a significant (P=.05) difference in established plants (table 1), it was not believed to be as a result of deterring bird feeding, as we had little or no bird damage seen in the trial. Possibly the netting itself created too much of a deterrent as it was right alongside plots without any netting and it's movement in the wind created an unfamiliar environment for the birds.

Table 1. Establishment Plant Counts

Treatment	Plant Counts (Pl/m^2)	Statistical Difference (P=.05)
Thiram covered	58	a
Vittal Plus PSPE	54	ab
Mesurol	51	abc
Mesurol covered	51	abc
Vittal Plus @ 2TL	49	abc
Thiram	48	abc
Untreated	44	bc
Vittal Plus on seed	44	bc
Cosmos	43	bc
Grazer @ 2TL	41	c
Untreated covered	40	c
Cosmos covered	39	c
LSD (P=.05): 13		

*Means followed by same letter do not significantly differ (P=.05, LSD)

Although we did get some variation in yield between treatments the differences were not significant (P=.05) and the additional yield from the foliar applications of Vitall Plus and Grazers at 2nd true leaf could be due to the fact that they are largely made up of trace elements and this may have given the plants a nutritional advantage (figure 1)

Figure 1. Grain yield and Plants established

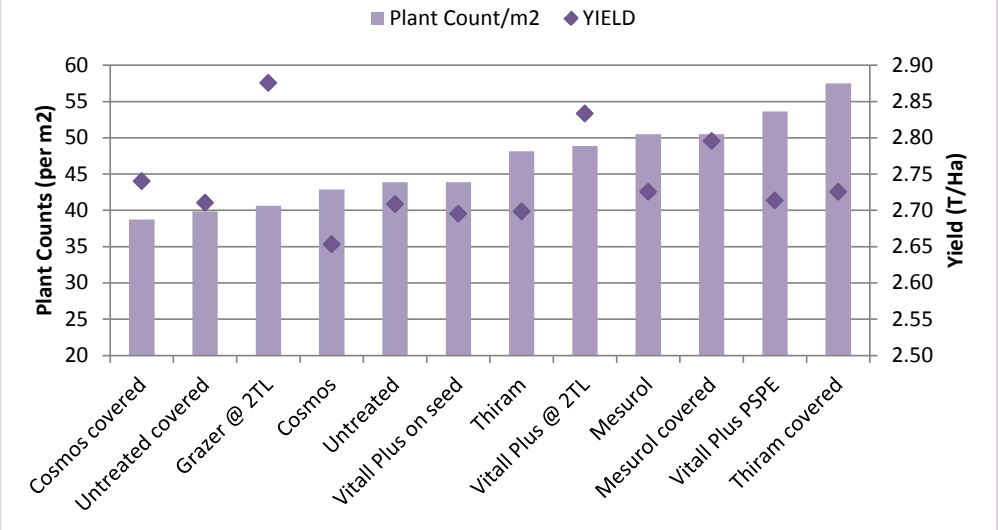

Table 2. Grain yield, Oil content and Test weights

	YIELD (T/Ha)	OIL (%)	TEST WT (Kg/Hl)
Grazer @ 2TL	2.88	44.3	65.9
Vitall Plus @ 2TL	2.83	45.1	65.6
Mesurol covered	2.80	44.3	65.9
Cosmos covered	2.74	44.1	66.1
Mesurol	2.73	44.8	66.5
Thiram covered	2.73	44.7	64.9
Vitall Plus PSPE	2.71	44.2	67.3
Untreated covered	2.71	44.7	67.2
Untreated	2.71	44.9	65.8
Thiram	2.70	44.6	64.6
Vitall Plus on seed	2.70	44.7	65.4
Cosmos	2.65	44.5	64.7
LSD (P=.05)	*0.35*	*0.8*	*1.7*
CV	*8.78*	*1.27*	*1.8*
Grand Mean	*2.74*	*44.57*	*65.8*

Summary:
Unfortunately we had no bird damage on the establishing canola in the trial. This could have been due to the trial layout having nets and stakes randomly placed across the trial, which themselves were acting as a deterrent. A more successful approach may be possible from a larger paddock scale trial looking at similar treatments.

It is encouraging to see a yield increase, albeit not significant, from early post emergence products claimed to act as bird repellents. If they are effective and can generate additional yield then they justify further investigation.