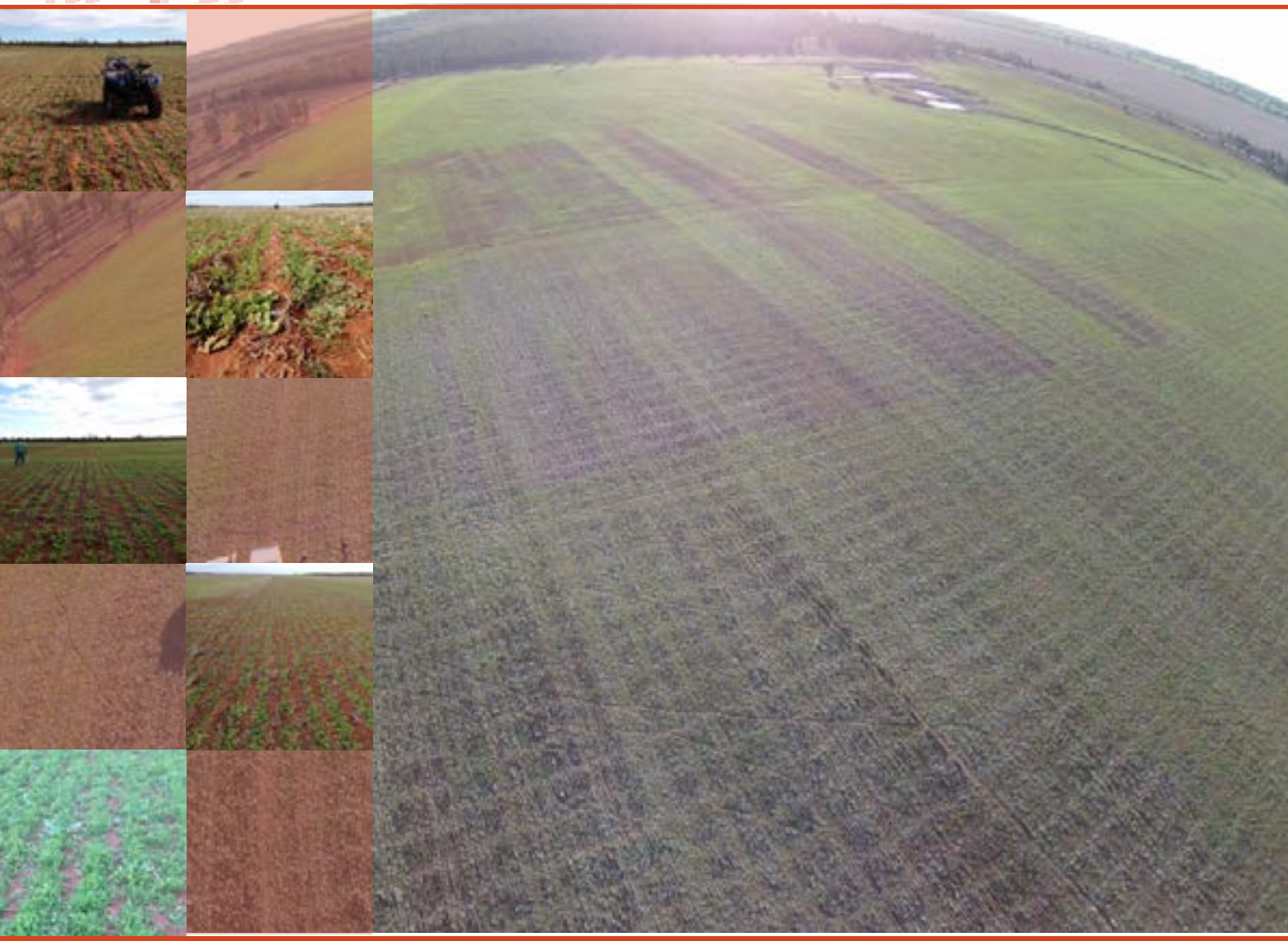
SIPCAM

Innovation Not Imitation

AgGrow

AGRONOMY + RESEARCH



ECOPAR® PULSE CROPS DEMONSTRATION - VETCH

Merriwagga, 2015

INDEPENDENT AGRONOMY ADVICE + CUTTING EDGE RESEARCH

Ecopar® Vetch Demonstration

KEY POINTS

* With vetch a major component of our western farming systems, there is a need for in-crop broadleaf herbicide options that are soft on the crop.

* Ecopar®, in past trials, has shown to have an important role in the post-emergent broadleaf weed control of vetch. This was again a key outcome of this trial.

* The addition of a non-ionic surfactant like BS 1000 is recommended to be used with Ecopar® as it improves its efficacy.

* Vetch is a minor crop in NSW and has attracted minimal research investment for weed control options. For this reason very few herbicides are registered to control broadleaf weeds in vetch. Many of the herbicides evaluated in this trial are not registered and as a result are not endorsed for this use pattern by either Ag Grow Agronomy and Research or Sipcam.

BACKGROUND

Vetch has become a major part of the western farming system for use in grain, grazing, hay and brown manure, however broadleaf weed control is difficult with limited registered options. Ecopar®, Pyraflufen-ethyl, is registered for the control of annual broadleaf weeds in winter cereals and pastures and could provide a practical option for managing broadleaf weeds in vetch.

Trials conducted over the past few seasons have shown that Ecopar® has provided good control of the key broadleaf weeds in vetch, with the addition of the non ionic surfactant BS 1000, significantly improving its efficacy.

TRIAL DETAILS

A demonstration was established on 22nd June, 2015 in a crop of Blanchfleur vetch at Matt Headrick's, Merriwagga, in conjunction with Sipcam.

The aim of the demonstration trial was to demonstrate to growers and agronomists the efficacy and crop safety of Ecopar® in vetch applied post-emergence.

It was also set up to compare Ecopar® with various other herbicides, which have been used in the past for controlling broadleaf weeds in vetch. Many of these are unregistered.

The trial consisted of 13 treatments, as shown in table 1, including an untreated control. Plots were not replicated, and were 12m x 150m.

The herbicides were boomsprayed on 22nd June. They were applied at 9km/hr, with a water volume of 80L/ha and with XR110015 nozzles. Environmental conditions at spraying were 18°C tempertaure, 5km/hr winds and 50% cloud cover.

The crop was at the 8-12 node stage when sprayed and the weeds were actively growing, with turnip, Paterson's curse, spiny emex and Tetragonia moorei the main weeds present in the demonstration, as shown in figure 1.

Observations and assessments were carried out throughout the trial. These included a visual assessment of the percent weed control, crop phyto-toxicity and biomass reduction at approximately 7 and 28 days after treatment (DAT). A third assessment, according to weed type and size, was carried out 65 DAT.

A summary of these measurements are shown in tables 2 to 4 in the results section.

Table 1: Treatment and product list for the Ecopar® in vetch demonstration

Treatment Number	Product	Rate (product mL/ha)
1a	UTC (untreated control)	N/A
2a	Ecopar®	400mL
3a	Ecopar®	800mL
4a	Ecopar®	400 ml + BS 1000 @ 0.2%
5a	Ecopar®	800 ml + BS 1000 @ 0.2%
6b	Ecopar®	400 ml + Hasten @ 0.5 %
7b	Ecopar®	800 ml + Hasten @ 0.5 %
8c	Brodal® Options	150mL
9b	Ecopar® + Brodal® Options	800m + 150mL
10c	Atrazine® 900WG	600g
11c	Simazine® 900WG	1000g
12c	Broadstrike®	35g + BS 1000 @ 0.2%
13c	Diuron® 900	600g

NOTE:
a = Not a registered use, in development by Sipcam (trts 1-5)
b = Not a registered use, not in development in vetch by Sipcam (trts 6, 7 & 9)
c = Not a registered use (Trts 8, 10,11, 12, 13). Diuron IBS and PSPE only.
Broadstrike popany vetch only.

Products

Ecopar	*20 g/L pyraflufen-ethyl*
Broadstrike	*800g/kg Flumetsulam*
Diuron	*900 g/kg Diuron*
Brodal Options	*500 g/L Diflufenican*
Simazine	*900 g/kg Simazine*
Atrazine	*900 g/kg Atrazine*
Hasten	*Spray Adjuvent*
BS 1000	*Non ionic surfactant*

Figure 1: Weed types and sizes at time of chemical application, 22nd June, 2015.

RESULTS AND DISCUSSION

The paddock chosen for the trial was a paddock of Blanchfleur vetch. It was sown on the 20th April, and had 600g Diuron 900WG applied IBS.

The herbicide treatments were applied on the 22nd June 2015, when the crop was at the 8-12 node stage. Conditions were very dry two weeks prior to the application of the herbicides.

Rain then freshened up the crop and it continued to rain throughout the winter, favouring further weed growth. Figures 3 to 5 show the weed types and sizes at each assessment.

1st Assessment - 30th June, 2015

Table 2 shows the assessments taken on 30th June. The treatments which gave the greatest percent weed burndown around 7 DAT were treatments 4 and 5, both Ecopar® treatments with the addition of BS 1000. This was closely followed by treatments 3, 6, 7, and 9.

Crop phyto-toxicity was greatest in treatment 9, with the addition of Brodal®. This was closely followed by treatments 4 and 7.

Treatment 9 also had the greatest biomass reduction, with 50% reduction. This was followed by treatment 7 with 45% reduction.

2nd Assessment - 21st July, 2015

Table 3 shows the assessments taken on 21st July. Treatment 9 had the greatest percent weed control at the second assessment, followed by treatment 12.

Treatment 9 also had the greatest crop phyto-toxicity with 50% and the greatest biomass reduction, with an estimated 60% reduction. Treatment 8, another Brodal® treatment, had the second highest phyto-toxicity with 30% and biomass reduction of 40%.

3rd Assessment - 26th August, 2015

Table 4 shows the assessments taken on 26th August. The weeds in the trial were assessed as small, less than 10cm in diameter, or large, greater than 10cm in diameter.

Treatment 12 gave the greatest percent weed control of the 4 main weeds in the trial, which were mostly large. Treatment 12 also had one of the highest crop biomass reduction with 20%, just behind treatment 9 with 30%, as shown in figure 2, and treatment 13 with 25%.

Figure 2: Crop biomass reduction, untreated control (left) vs treatment 9 (right), Ecopar @ 800ml + Brodal® Options @ 150ml, 26th August 2015.

Table 2: Percent weed control (weed burndown), crop phyto-toxicity and biomass reduction, 30th June, 2015.

No	Treatment	% weed control 30.06.2015	% Phytotoxicity 30.06.2015	% Biomass Reduction 30.06.2015
1	UTC	0	0	0
2	Ecopar® @ 400ml	90	2	5
3	Ecopar® @ 800ml	95	2	5
4	Ecopar® @ 400ml + BS 1000 @ 0.2%	98	20	10
5	Ecopar® @ 800ml + BS 1000 @ 0.2%	98	15	10
6	Ecopar® @ 400ml + Hasten @ 0.5 %	95	15	30
7	Ecopar® @ 800ml + Hasten @ 0.5 %	95	20	45
8	Brodal® Options @ 150ml	5	0	0
9	Ecopar® @ 800ml + Brodal® Options @ 150ml + Hasten @ 0.5 %	95	25	50
10	Atrazine® 900WG @ 600g	0	0	0
11	Simazine® 900WG @ 1000g	0	0	0
12	Broadstrike® @ 35g + BS 1000 @ 0.2%	0	10	40
13	Diuron® 900 @ 600g	5	0	0

Figure 3: Weed types and sizes at first assessment, 30th June, 2015.

Table 3: Percent weed control, crop phyto-toxicity and biomass reduction, 21st July, 2015.

No	Treatment	% weed control 21.07.2015	% Phytotoxicity 21.07.2015	% Biomass Reduction 21.07.2015
1	UTC	0	0	0
2	Ecopar® @ 400ml	55	0	2
3	Ecopar® @ 800ml	60	0	0
4	Ecopar® @ 400ml + BS 1000 @ 0.2%	70	15	5
5	Ecopar® @ 800ml + BS 1000 @ 0.2%	80	20	10
6	Ecopar® @ 400ml + Hasten @ 0.5 %	75	10	5
7	Ecopar® @ 800ml + Hasten @ 0.5 %	70	5	2
8	Brodal® Options @ 150ml	80	30	40
9	Ecopar® @ 800ml + Brodal® Options @ 150ml + Hasten @ 0.5 %	95	50	60
10	Atrazine® 900WG @ 600g	5	0	0
11	Simazine® 900WG @ 1000g	5	0	0
12	Broadstrike® @ 35g + BS 1000 @ 0.2%	85	10	20
13	Diuron® 900 @ 600g	10	0	0

Figure 4: Weed types and sizes at second assessment, 21st July, 2015.

Table 4: Percentage of small and large weeds controlled and overall percent weed control for each of the main weeds, plus crop biomass reduction 26th August, 2015.

No	Treatment	Turnip			Paterson's Curse			Spiny Emex			Tetragonia Moorei			% Biomass Reduction 26.08.2015
		% Large weeds	% Small weeds	**% Weed Control**	% Large weeds	% Small weeds	**% Weed Control**	% Large weeds	% Small weeds	**% Weed Control**	% Large weeds	% Small weeds	**% Weed Control**	
1	UTC	95	5	**0**	95	5	**0**	95	5	**0**	100		**0**	0
2	Ecopar® @ 400ml	100		**5**	90	10	**10**	50	50	**2**	100		**0**	0
3	Ecopar® @ 800ml	90	10	**20**	80	20	**50**	60	40	**30**	100		**0**	0
4	Ecopar® @ 400ml + BS 1000 @ 0.2%	90	10	**20**	80	20	**80**	80	20	**50**	100		**20**	2
5	Ecopar® @ 800ml + BS 1000 @ 0.2%	90	10	**80**	90	10	**95**	90	10	**60**	100		**20**	10
6	Ecopar® @ 400ml + Hasten @ 0.5 %	80	20	**40**	90	10	**30**	90	10	**90**	100		**20**	2
7	Ecopar® @ 800ml + Hasten @ 0.5 %	50	50	**40**	80	20	**60**	90	10	**90**	90	10	**70**	2
8	Brodal® Options @ 150ml	95	5	**20**	70	30	**75**	85	15	**90**	90	10	**40**	5
9	Ecopar® @ 800ml + Brodal® Options @ 150ml + Hasten @ 0.5 %	100		**95**	100		**95**	70	30	**10**	100		**90**	30
10	Atrazine® 900WG @ 600g	100		**40**	80	20	**80**	80	20	**30**	100		**70**	5
11	Simazine® 900WG @ 1000g	100		**60**	80	20	**70**	70	30	**30**	100		**85**	0
12	Broadstrike® @ 35g + BS 1000 @ 0.2%	100		**95**	100		**95**	100		**95**	100		**95**	20
13	Diuron® 900 @ 600g	100		**20**	95	5	**80**	100		**95**	100		**60**	25

Figure 5: Weed types and sizes at third assessment, 26th August, 2015.

ACKNOWLEDGEMENTS

This trial was a collaboration between Ag Grow Agronomy and Research and Sipcam.

Ag Grow Agronomy and Research would like to thank trial cooperator Matt Headrick for hosting the trial, and also providing assistance with the management of the trial.

SIPCAM
Innovation Not Imitation

Further contacts

Barry Haskins	Ag Grow Agronomist	barry@aggrowagronomy.com.au
Rachael Whitworth	Ag Grow Research Manager	rachael@aggrowagronomy.com.au
Scott Golding	NSW (south) Sales Manager, Sipcam	sgolding@sipcam.com.au