

Native budworm (*Helicoverpa punctigera*) in crops South-eastern Australia Update - 8th Oct 2014

Moth activity August- October (Table 1)

Pheromone trap catches for the past two weeks have, overall, declined relative to those of early in the month. The highest catches were recorded at Bordertown, SA and at Mittyak in Victoria's northern Mallee. Nonetheless, even these catches are relatively small in comparison to those that typically precede major outbreaks of native budworm. In other areas of the Victorian Wimmera and Mallee, moth catches have been relatively low. In addition, there have been no more moths caught in traps further north in South Australia where many of the early season moths presumably arose. The particularly dry conditions in South Australia, Victoria and Southern NSW since July appear to have taken their toll. Thanks to those who are monitoring pheromone traps.

Work undertaken in the 90's established the following budworm moth trap thresholds. These were set as a guide to the level of moth activity required for one egg to be laid on approximately 5% of pulse plants (peas) in a crop:

- Southern Wimmera: 180 moths (cumulative 10-day moth tally)
- Northern Mallee: 400 moths (cumulative 10-day moth tally)(applies to NSW)

The differences were attributable to differences in evening temperatures and hence moth activity. Assuming these thresholds are correct, locations with higher catches approach the threshold trigger.

Table 1. A selection of pheromone trap locations and weekly trap catches of native budworm (*Helicoverpa punctigera*) moths.

State	Location (see map)	1- Aug	8- Aug	15- Aug	22- Aug	29- Aug	5- Sep	12- Sep	19- Sep	26- Sep	3- Oct
South Australia	Nundoo*				210	0	400	24			
	Minnipa*	148	131	123	88	129	196	121	11		0
	Kingoonya*	1	0	0	0.5	0.5	0	0			0
	Yardea*	3	7	1	0	0	0	0	1		
	Buckleboo*	250	325	25	0	0	0	48			
	York Penn. #							119	64	5	2
	Bordertown#							0	32	39	79
	Cummins#							5			
Victoria	Laharum+						0	10	15	20	16
	Rupanyup+						1	5	21	5	14
	Ouyen/Mittyak^							0	180	120	
	Hopetoun^						11	0	27		32
	Warracknabeal^						4	250	55	1	19
	Beulah^						0	107	54		
	Berriwillock (1)^							237			12
	Berriwillock (2)#							20	35		33
	Swan Hill^						52	147	74	25	
	Kerang^						0	2		3	6

Coordinated by UNE (*), SARDI (#), AGRivision (^), **cesar** (+)

Predictions of further budworm appearance in crops

Moths arriving in flowering crops will generally (but not always) start egg-laying immediately. Our predictive tool (Darabug) uses average daily temperatures for 3 different locations/stations from which to generate forecasts of budworm development rates.

Budworm growth rate predictions from the largest flight on 7 September are listed below (as presented in the last Update), and suggest 3rd instar budworm will peak in crops in the second week of October in the Mallee and Wimmera.

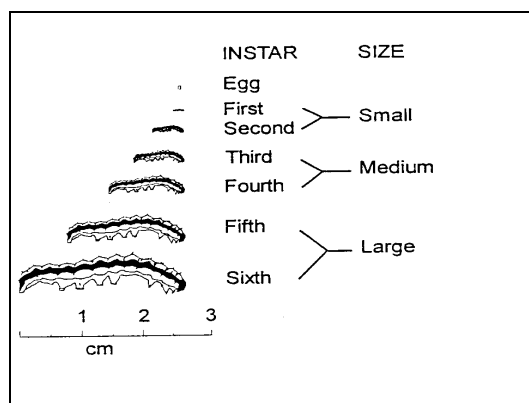
Predictions from the latest moth catches are also listed below. Assuming egg-laying commenced around 26 September and continued through until 3 October, 3rd instar caterpillars are likely to appear in the last week of October in the Mallee and southern NSW, a little later in the Wimmera, assuming crops persist.

Second and third instar budworm are reasonably easily seen in sweep nets, and relatively easily controlled, particularly with biologically active insecticides. Fifth and sixth instar are the budworm stages that tend to inflict most serious crop damage.

These are only guides; development rates will vary if temperatures are above or below average.

Assuming egg lay- 7 Sept	Horsham, Vic	Swan Hill, Vic	Griffith, NSW
Egg hatch (= first instar)	25 Sep	20 Sep	21 Sep
Third instar (mid stage)	22 Oct	12 Oct	13 Oct
Fifth instar	3 Nov	24 Oct	25 Oct
Assuming egg lay- 26 Sept			
Egg hatch (= first instar)	9 Oct	7 Oct	7 Oct
Third instar (mid stage)	2 Nov	26 Oct	26 Oct
Fifth instar	13 Nov	4 Nov	4 Nov
Assuming egg lay- 3 Oct			
Egg hatch (= first instar)	16 Oct	13 Oct	13 Oct
Third instar (mid stage)	6 Nov	31 Oct	31 Oct
Fifth instar	16 Nov	9 Nov	8 Nov

See the following guide for the size of the different stages of budworm development.



Budworm larvae currently in crops

Reports of crop monitoring for native budworm reveal a range of infestation levels. In the Victorian Wimmera, average budworm measures were 0.5 to 1.0 per 10 sweeps in faba beans at Rupanyup; nil in faba beans at Warracknabeal; and very few in other crops samples in the western Wimmera. In the Victorian Mallee, budworm counts were 0.5 per 10 sweeps in faba beans (early podding) at Kerang, and 2 per 10 sweeps in faba beans at Berriwillock (now sprayed).

In the NSW Central Slopes & Plains, low numbers have been recorded in beans and lupins, strikingly lower than in previous years. Similarly, populations in the NSW Riverina near Arianah Park are not causing great concern.

To sample for budworms, multiples of 10 sweeps should be taken in several parts of the crop, and budworms carefully distinguished from other larvae, including the beneficial hover fly larvae.

Entomologists from DAFWA have calculated the following dynamic [economic thresholds for native budworm](#) in various crops, but estimates using other grain price and control costs can be estimated by applying the formula:

$$ET = (C \times 1000) / (K \times P)$$

	K – grain loss kg/larva/ha	P – grain price \$/tonne	C – cost of control \$/ha	ET – larvae per 10 sweeps
Field peas	50	350	10	0.6
Lentils	60	435	10	0.4
Faba bean	90	335	10	0.3
Chickpeas - desi	30	275	10	1.2
Canola	6	580	10	2.9
Lupins	7	300	10	4.8

Regardless, lupins and canola have much higher thresholds than other pulses.

About the Trapping program

This is a trial program aimed at evaluating the value of a pheromone trap network for native budworm in cropping for PestFacts subscribers in south-eastern Australia. **cesar** is collaborating with colleagues from the University of New England, SARDI and agronomists/growers in the Victorian Wimmera and Mallee and NSW Riverina to provide an advanced warning system for native budworm (*Helicoverpa punctigera*) infestations in the southern cropping zone.

A broad network of pheromone traps has now being established. Current trap locations are covering cropping and non-cropping areas of the North West Pastoral and Eastern Eyre Peninsula districts of South Australia, the Victorian Wimmera and Mallee and NSW Riverina. Pheromone traps specifically attract male moths of native budworm and often provide a good indication of current female egg-laying activity.

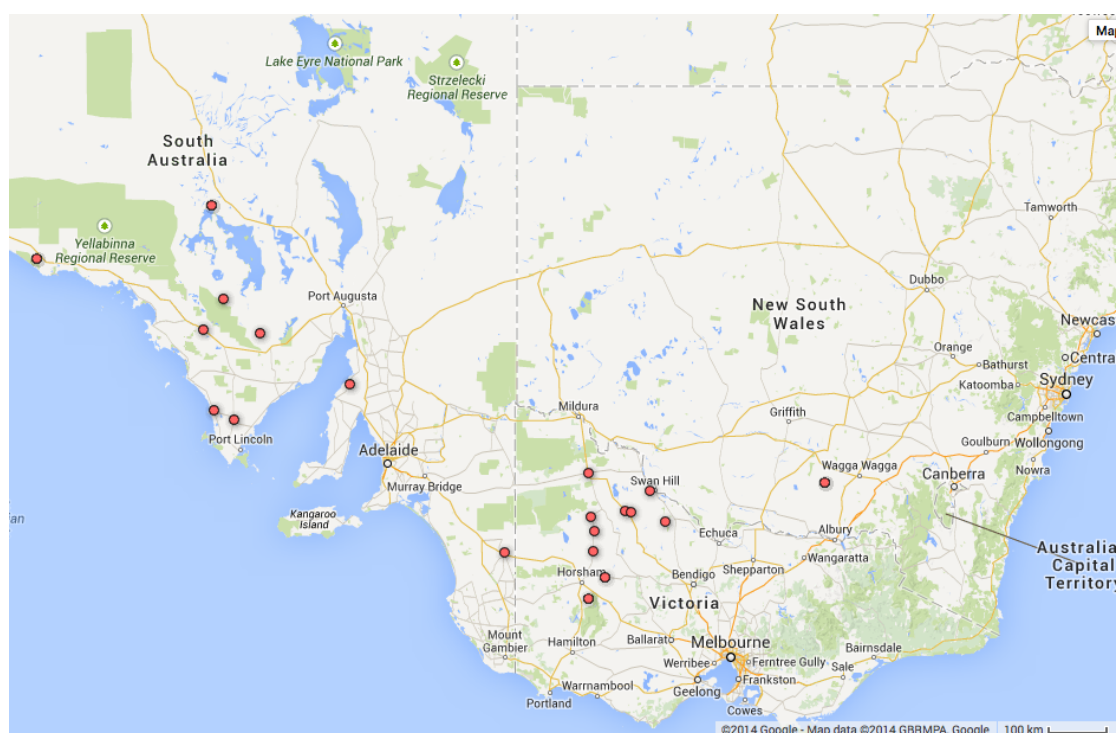


Figure 1. Locations of pheromone traps in south-eastern Australia

Current trap locations are listed from north to south, in each region, below.

South Australia	Victorian Mallee	Victorian Wimmera	NSW Riverina
Kingoonya	Ouyen	Warracknabeal	Lockhart
Nundroo	Swan Hill	Rupanyup	
Yardea	Berriwillock	Laharum	
Buckleboo	Hopetoun		
Minnipa	Beulah		
Cummins	Kerang/Normanville		
Mt Hope			

Coordination of trap collections

Pheromone trap coordinators (and *H. punctigera* researchers) are:

South Australia

Alice del Socorro & Peter Greg, UNE
Bill Kimber, SARDI

Victoria/NSW

Rob Sonagan, AGRlvision
Garry McDonald, **cesar** (0419 521 238)

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South Australia:

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Bill Kimber - South Australian Research and Development Institute

Victorian Wimmera:

Bill Gardner (Agronomist)
Ben Cordes (Agronomist, Tylers Hardware & Rural Supplies)
Robert Smith and Co Warracknabeal

Victorian Mallee:

Rob Sonagan (AGRlvision Consultants)
AGRlvision at Beulah and Ouyen
Landmark Berriwillock
Agronomic Results Kerang
CropRite at Swan Hill

NSW Riverina:

David White (Delta Agribusiness)

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