

Native budworm (*Helicoverpa punctigera*) in crops South-eastern Australia Update - 24th Sept 2014

Moth activity 13th-19th September (Table 1)

Moth catches over the last week have declined sharply in South Australia. In Victoria, weekly catches have evened out: low to moderate catches in most traps, with the Mittyak (Victorian Mallee) trap in mid-flowering field peas catching the highest catch of 180 moths. There would have been very few moth arrivals during last week's cooler and more stable conditions. As in the previous week, traps in the Victorian Mallee and northern Wimmera caught relatively higher catches than traps to the south and in the NSW Riverina, where numbers remain quite low.

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 S. 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)	18- Jul	25- Jul	1- Aug	8- Aug	15- Aug	22- Aug	29- Aug	5- Sep	12- Sep	19- Sep
South Australia	Nundoo*						210	0	400	24	
	Minnipa*	84	101	148	131	123	88	129	196	121	11
	Kingonya*	0	0	1	0	0	0.5	0.5	0	0	
	Yardea*	1	5	3	7	1	0	0	0	0	1
	Buckleboo*	0	0	250	325	25	0	0	0	48	
	York Penn/ Pt Broughton#									119	64
	Bordertown#									0	32
	Cummins#									5	
Victoria	Laharum+								0	10	15
	Rupanyup+								1	5	21
	Ouyen/Mittyak^									0	180
	Hopetoun^								11	0	27
	Warracknabeal^								4	250	55
	Beulah^								0	107	
	Berriwillock (1)^									237	
	Berriwillock (2)#									20	35
	Swan Hill^								52	147	74
	Kerang^								0	2	
NSW	Yerong Creek+								0	1	7

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

Egg-laying this last week.

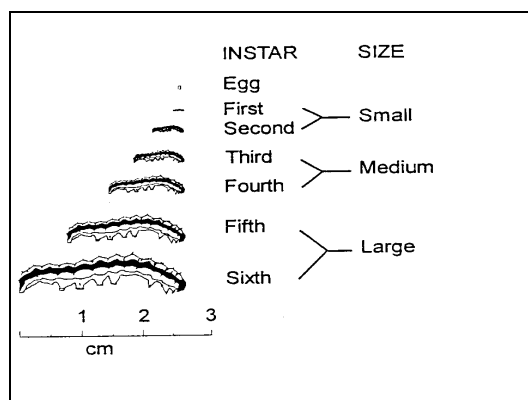
Moths arriving in flowering crops will generally (but not always) start egg-laying immediately. Our predictive tool (Darabug) uses a limited range of meteorological stations from which to generate forecasts of budworm development rates.

Assuming egg-laying commenced on the arrival on the immigrant moths on 7 September and continued through until 19 September, the following table lists the approximate date ranges for budworm egg hatch and 3rd and 5th instar development, using average daily temperatures for 3 different locations. 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- 19 Sept			
Egg hatch (= first instar)	4 Oct	1 Oct	2 Oct
Third instar (mid stage)	28 Oct	22 Oct	22 Oct
Fifth instar	9 Nov	30 Oct	31 Oct

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



Budworm larvae currently in crops

We have received reports from the Mallee indicating both budworm. The budworm caterpillars will have arisen from moth flights from SA in early August (See Table for South Australian catches in August).

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.

The immediate outlook for moth arrivals (24 Sept 2014)

The BOM forecast conditions for the next five days are expected to see the passage of two fast-moving low-pressure systems, preceded by northerly and north-easterly winds. The further opportunity for south moving moths will be on these northerly airflows immediately preceding the forecast rain on Wednesday 23 September. Any moths arriving from this system will have their origins in western NSW which had exceptional rains in August. It is unlikely that the winds will result in large catches. Further north-westerly winds (and moth flights) are expected on 28-29 September (Sunday and Monday).

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.

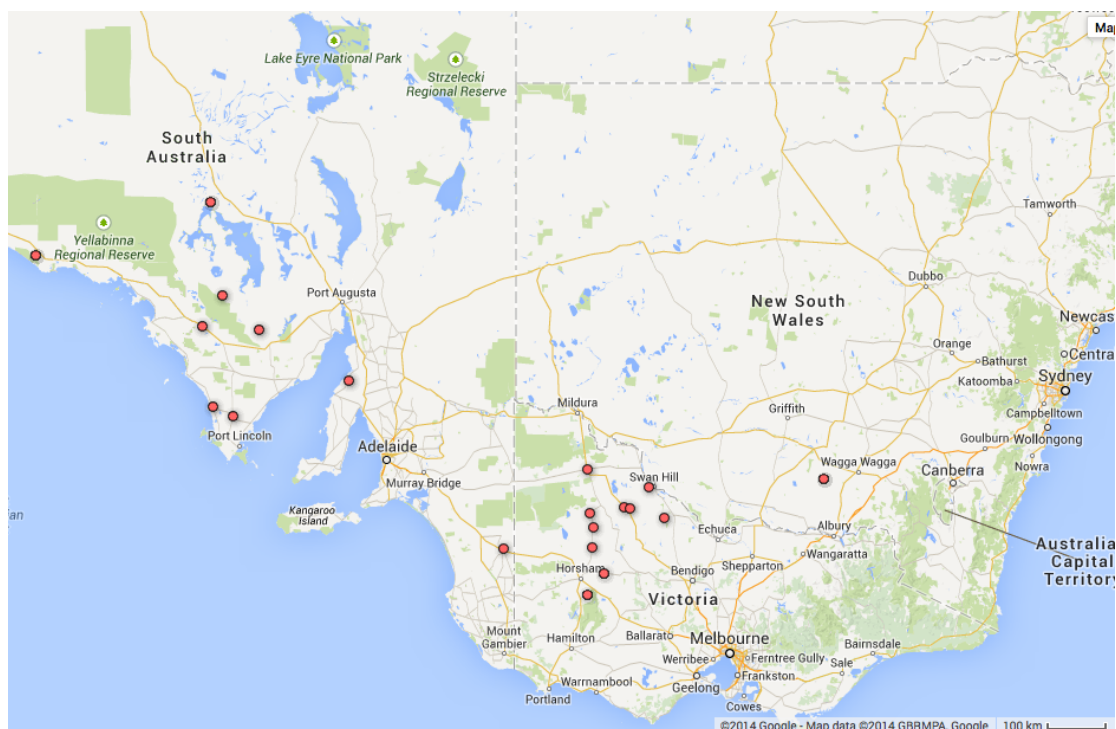


Figure 1. Locations of pheromone traps in south-eastern Australia

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 Soccorro & Peter Greg, UNE
Bill Kimber, SARDI

Victoria/NSW

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

Acknowledgements

We thank the following for running traps and reporting information to support this forecast service.

South Australia:

Dr Peter Gregg and Dr Alice del Socorro - School of Environmental & Rural Science, University of New England, Armidale.
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 Sonogan (AGRIvision Consultants)

AGRIvision at Beulah and Ouyen

Landmark Berriwillock

Agronomic Results Kerang

CropRite at Swan Hill

NSW Riverina:

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