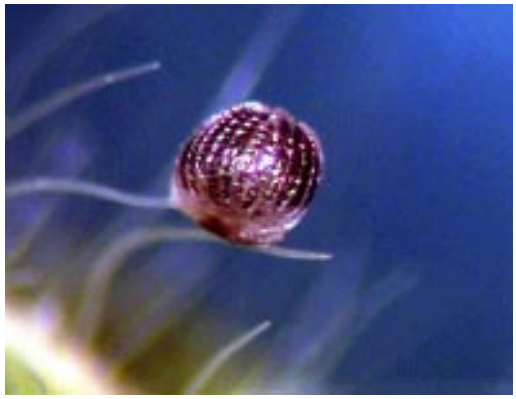
Releases of *Trichogramma pretiosum* in soybeans
Kyogle NSW Jan-Feb 2002
Richard Llewellyn, BioResources Pty Ltd

Trichogramma wasps are tiny wasps that lay their eggs into moth eggs. The Trichogramma larvae hatch inside the moth egg and proceed to devour the egg contents, developing into a fully formed wasps and thus preventing the development of the caterpillar. Parasitised eggs go a coal black colour as the wasps develop. When mature the wasps cut an escape hole. This process takes between 7 and 14 days depending on temperature. Two or three wasps typically emerge from one heliothis egg.

Near fresh heliothis egg

A total of 90 sheets of *Trichogramma pretiosum* capsules were distributed over 150 ha from 5 Jan to 22 Feb 2002. There are 60 capsules per sheet each yielding around 1,000 wasps.



'Black' parasitised heliothis egg

On 28 Feb egg samples were taken in the last planting (flowering-early pod development) five days after the last release of 30 capsules per hectare. The grower had not sprayed at all to this time. He checked the crop regularly for caterpillars and had deemed it unnecessary to spray.

At the time of egg collection, egg pressure was low to moderate at about 1 egg per 5 plants. Eggs collected were 50/50 looper and heliothis. Only one larva was observed at the time of egg collection which took about 45 minutes. 43 eggs on leaf discs were collected into a microtitre tray. At least 6 of the eggs were still white. Only 2 larvae emerged from the 43 eggs.

Fate of eggs collected 28 Feb 2002

	Larvae	Parasitised	Collapsed/Unhatched
Number	2	37	4
Percent	5.1%*	94.9%*	9.3% of total eggs collected
*percent of viable eggs			

Wasp species	Number	% of total parasitised
T. pretiosum	30	81
T'toidea species	6	16
Unknown-damaged	1	3

Trichogrammatoidea species are found in many areas. Species was most likely *bactrae*.

Over 80% of the parasitism was from the released species *T. pretiosum*. All the *Trichogrammatoidea* wasps emerged from looper eggs. The very high level of parasitism in this last planting is unlikely to be the result of the last release of Trichogramma alone. Inoculative releases of 30 capsules per hectare are unlikely to cause such high levels of parasitism so quickly.

It can therefore be deduced that the high level of parasitism is the result of a combination of the most recent release and drift of wasps from the adjacent crop where releases had been made over the previous six weeks.

These results indicate Trichogramma thrive in soybeans and can have a major impact on caterpillar pests. The variety of eggs commonly present (heliothis, looper and others) no doubt aids persistence of the wasps in the crop.

Fresh looper egg, broader and flatter than heliothis eggs.

'Black', parasitised looper egg.

Costs to grower

Item		$ excl. GST
Trichogramma	90 sheets of capsules	4050.00
Application costs	Labour at $7 per sheet	630.00
Total		4,680.00
Total cost per hectare		$30.20

Acknowledgments
Thanks to Brett Slater, Kyogle, for access to his crops and for providing planting information.