

CAN EGG PARASITES BE USED FOR HELIOTHIS MANAGEMENT IN COTTON?

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Small parasitic wasps, scientifically known as *Trichogramma*, are used as biological control agents of moth pests in overseas countries, thereby reducing the need to use insecticides. These wasps attack the egg stages of moths, killing them before they hatch and cause damage. Large numbers of *Trichogramma* need to be produced and released per hectare of crop (hundreds of thousands) to have an affect on a pest population.

In Australia, *Trichogramma* are known to attack heliothis. Research at the QDPI Toowoomba laboratories has shown that three native species of *Trichogramma* have potential to control heliothis. Earlier this year, one of these wasps (*Trichogramma carverae*) was mass produced and released into Siokra cotton at Dalby, west of Toowoomba.

In February, 20,000 female wasps were released per hectare of crop. This low number of wasps was not expected to have a significant impact on the number of heliothis eggs hatching. However, the results were somewhat surprising, because the level of egg parasitism in the cotton where the wasps were

released increased to be six times that in a nearby commercially managed crop (Figure 1). This increase was believed to be due to the action of the wasps that were released plus the action of naturally occurring egg parasites. In the commercially managed cotton, the action of naturally occurring egg parasites did not increase, presumably because an insecticide application had killed many of them.

These findings suggest that correctly timed releases of *Trichogramma* could be used to supplement the action of naturally occurring individuals. Despite these encouraging results, there is insufficient data to prove that egg parasites can be used to control heliothis. Further scientific research is required to determine how many *Trichogramma* must be released to prevent heliothis from causing economic damage in cotton. In next season's trials, larger numbers of *Trichogramma* will be released into cotton. Then it will be possible to better evaluate the potential of these parasitic wasps at controlling heliothis.

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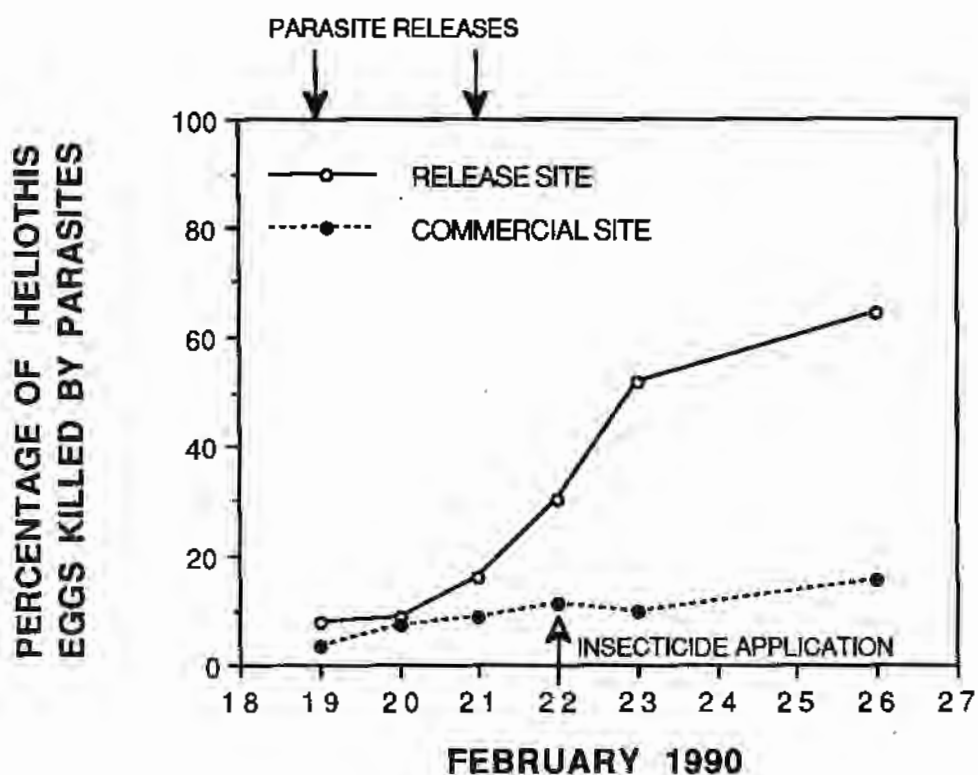


FIGURE 1: A comparison of the percentage of heliothis eggs killed by parasites in two adjacent blocks of cotton. Closed arrows indicate when *Trichogramma carverae* was released in the release site (10,000 females/ha), and the open arrow indicates when endosulfan was applied in the commercial site. There were approximately 40 heliothis eggs/m throughout this trial.

