

Cotesia ruficrus

Insect name: Previously: *Apanteles ruficrus*; armyworm parasitoid, cutworm parasitoid, looper parasitoid (Hymenoptera: Braconidae)

Hosts: *Mythimna separata* (cosmopolitan/northern armyworm) in corn and maize, and other noctuid caterpillars (cutworm, loopers and armyworm) in various crops



Cotesia ruficrus ovipositing into a large caterpillar of *Mythimna separata* (cosmopolitan/northern armyworm)



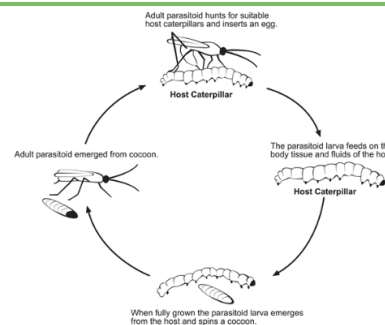
Larvae of *Cotesia ruficrus* emerging from their host, a caterpillar of *Mythimna separata*



Cocoon masses of *Cotesia ruficrus* are commonly sighted in corn and maize crops



A *Cotesia* cocoon mass that emerged from a looper caterpillar infesting a leafy vegetable crop



Life cycle of a parasitic wasp. This example produces a single parasitoid from each host caterpillar

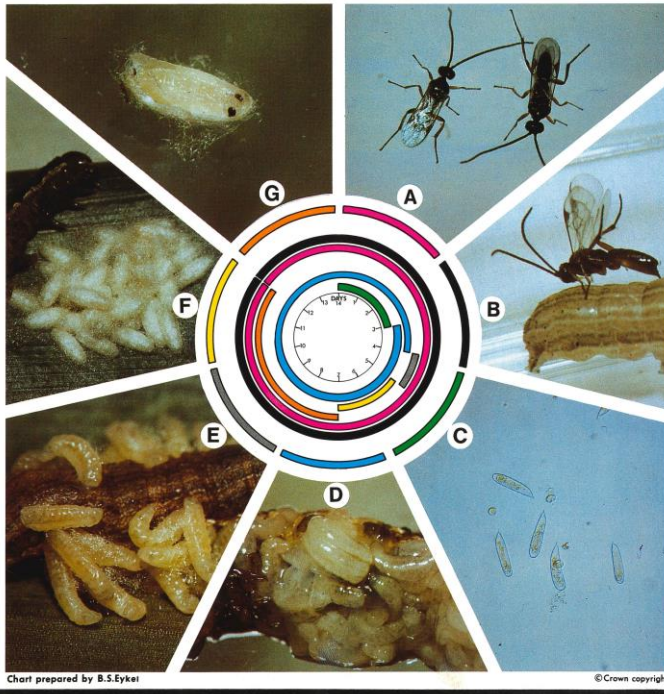
- *Cotesia ruficrus* was introduced into New Zealand in 1971 to control noctuid caterpillar pests, and established immediately on *Mythimna separata*
- Chemical control of *M. separata* is now rarely necessary, with parasitism greater than 95% in corn and maize crops
- *Cotesia ruficrus* also attacks *Agrotis ipsilon* (greasy cutworm), looper caterpillars and tropical armyworm (*Spodoptera litura*)
- Parasitoids that produce many wasps from a single host are called gregarious parasitoids

Cotesia ruficrus

Insect name: Previously: *Apanteles ruficrus*; armyworm parasitoid, cutworm parasitoid, looper parasitoid, various *Cotesia* species (Hymenoptera: Braconidae)

Hosts: *Mythimna separata* (cosmopolitan/northern armyworm) in corn and maize, and other noctuid caterpillars (cutworm, loopers and armyworm) in various crops

ARMYWORM PARASITE (*Apanteles ruficrus*) LIFE CYCLE



Identification (using life cycle chart opposite)

Adults (A) have a predominantly black body with some yellow colouring on the abdomen and legs are 2.0–2.5 mm long. Females have a short, pointed ovipositor through which eggs are injected (‘stung’) into host caterpillars (B).

Eggs are elongated and translucent, with a stalk at the posterior end, and are about 0.3mm long (C). Each female lays about 250 eggs during a lifespan of approximately 2 weeks, depositing them in batches of about 30, although up to 130 *Apanteles* can develop in a single host caterpillar if it is ‘stung’ several times.

Larvae (D) hatch from eggs within 3 days of oviposition, and pass through three larval stages (instars), feeding on the body fluids of the host. During summer, 15 days after eggs are laid, third instar larvae force their way through the host’s body wall (E), emerging to spin cocoons, which are grouped in masses (F). Host caterpillars die within 24 hours of parasite emergence.

Pupae begin to develop in cocoons within about 2 days of cocoon formation (G), and 5 days later the adult cuts a circular hole in the cocoon with its mouthparts and emerges. Mating occurs almost immediately after emergence, and females are then able to parasitise new hosts.

Source for life cycle chart:

BURGESS, E.P.J. 1985: Armyworm parasite, *Apanteles ruficrus* (Haliday), life cycle. DSIR Information Series No. 105/44 ISSN 0077-9636

This work is part of the Cambodia Quality Horticulture project, funded by the New Zealand Ministry of Foreign Affairs and Trade (MFAT) and delivered by The New Zealand Institute for Plant and Food Research Limited. For more information contact the author: graham.walker@plantandfood.co.nz

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