

# Bio-control of Insect Pests of Oilseed Rape Crops

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In 1997, a 3-year EC-funded Concerted Action was begun, with participants from Austria, Denmark, Finland, France, Germany, Sweden, Switzerland and the UK. The project (known under the acronym BORIS) aims to establish a Europe-wide network of researchers, extension workers, agronomists etc. with an interest in pest control on oilseed rape and has the overall objective of 'Minimizing pesticide use and environmental impact by the development and promotion of bio-control strategies for oilseed rape pests'.

Natural enemies of the pests fall into three main groups, each of which will form a major component of one of the study years as follows:

- **parasitoids** – year 1 (1997)
- **predators** – year 2 (1998)
- **pathogens** – year 3 (1999).

Each year will include formal and informal discussions, laboratory-based and field-based workshop activities, in which expertise and knowledge will be shared and topics of relevance to the Concertation discussed. Key ongoing activities are the production of biannual BORIS Newsletters and the development of a BORIS Database which will include a range of specific fields of relevance to oilseed rape pests and their natural enemies. Anyone wishing to become part of the network and to receive, or to contribute to, the BORIS Newsletters should contact the collator: Mr Lars Monrad Hansen – DIAS, Research Centre Flakkebjerg, DK-4200, Slagelse, Denmark.

Although, in detail, the status of pests and the pest complex on oilseed rape crops vary from country to country, the following species are considered the most important, and are those upon which BORIS activities will be concentrated (although other pest species and their natural enemies will also receive attention):

- *Ceutorhynchus assimilis* (Paykull) (cabbage seed weevil)
- *C. napi* (Gyllenhal) (rape stem weevil)
- *C. pallidactylus* (Marsham) = *C. quadridens* (Panzer) (cabbage stem weevil)
- *Dasineura brassicae* (Winnertz) (brassica pod midge)
- *Meligethes aeneus* (Fabricius) (pollen beetle)
- *Psylliodes chrysocephala* (L. ) (cabbage stem flea beetle).

In many areas, insecticides are applied to oilseed rape crops with little or no regard to the possible effect they might have on natural enemies. Although experimentally tested pest control thresholds are often available and advocated, these tend not to include reference to (or to be modified by the presence or absence of) natural enemies. However, awareness of the benefits to be gained from maintaining populations of natural enemies is increasing and can influence recommendations governing the choice of chemical and the timing of sprays – see, for example, Lane & Walters (1994).

Recent studies in England on *Trichomalus perfectus* (Walker) (Hymenoptera: Pteromalidae) (e.g. Alford *et al.*, 1995) have shown that this important and widely distributed parasitoid of *Ceutorhynchus assimilis* (Lerin, 1987) can be affected adversely by pesticides, and that chemical control of the pest can then become counter productive. This is probably not a unique situation and clearly indicates that pest control strategies need to be modified to take account of the beneficial role which parasitoids, and other natural enemies, can play.

In terms of its pest complex and the associated range of naturally occurring bio-control agents available, oilseed rape is unique (Alford, *et al.*, 1996). It offers considerable potential for the development and introduction of bio-control strategies. Such strategies, if implemented, would be of long term benefit to farmers and to the environment and would help to minimize pesticide use on what is today a major European arable crop.

BORIS is currently generating and collating data and information on bio-control. With the help of the various participants, and other experts involved either directly or indirectly in BORIS activities, it is hoped that information capable of being used to enhance current pest control strategies to the benefit of both the environment and modern farming practices will become more readily accessible and also more widely known and applied commercially. A full report on the activities and conclusions arising from the Concerted Action is expected to be produced in the year 2000.

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### References

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