

Evaluation of eight synthetic pyrethroids for delphacid and cicadellid pest control on rice

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Cypermethrin (Cymbush and Ripcord), deltamethrin (Decis), fenvalerate (Sumicidin), permethrin (Ambush), and three coded compounds (FMC 54800, MTI 11500, and WL 085871) were evaluated at 12.5 g ai/ha (deltamethrin) to 25–100 g ai/ha (others) in the field in 1983 wet season. Against *Nilaparvata lugens* (STÅL) and *Sogatella furcifera* (HORVÁTH) (Delphacidae), MTI 11500 showed the lowest population. Against *Nephotettix* spp. (mainly *N. virescens*) (DISTANT) (Cicadellidae) deltamethrin & WL the best. Against other pests (whorl maggot, deadhearts, leafhopper, and rice bug), deltamethrin is the best.

On the dormancy forms of Auchenorrhyncha

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To overcome unfavourable conditions in the seasonal course of weather Auchenorrhyncha use rarely migrations but rather dormancy as a restriction of the energetic expensive functions of metabolism by retardation or even stop of the ontogenetic development. This can be obtained by two different ways: either consecutively as an obligatory consequence of already deteriorated environmental conditions or prospectively more or less long before these occur after an announcing signal only.

The basic mechanism of consecutive dormancy is quiescence as a consequence of the van't Hoff's law. At constant 20 °C *Euscelis incisus* (KBM.) may perform 6 generations per year, in the open only 2 to 4 according to the latitudinal performance of temperature. Their larvae, hibernating in quiescence, can be caused to continue their development at any time by higher temperatures.

In the consecutive dormancy of oligopause the reaction to unfavourable conditions is more or less delayed, as an accumulation of the insufficient valences of the inducing factors is necessary and at last may be overcome in these too. Short photophases retard the larval development of *Laodelphax striatellus* (FALLÉN) at first in a later stage. The females of *Muellerianella brevipennis* (BOH.), grown up in short days, produce only diapausing eggs, but transferred to a long day regime they lay nondormance eggs after 2 or 3 weeks.

In the prospective forms of dormancy, diapause and parapause, always two different factors are effective: an initiating one and a terminating one. In diapause the reaction of the organisms are facultatively depending on the valences of the effecting factors. In short days the females of *Macrostelus sexnotatus* (FALLÉN) produce exclusively eggs with an embryonic diapause, only terminated by a period

of chilling, but in long days they lay nondormance eggs. Such photoperiodic regulation of egg diapause restricts many potential polyvoltine leafhoppers as *Turrutus socialis* (FLOR), *Jassargus obtusivalvis* (KBM.), *Arthaldeus pascuellus* (FALLÉN) and others in Central Europe to 2 or 3 generations.

In parapauses the dormancy occurs obligatory in an endogenous fixed phase of the ontogenesis and by this often guarantees monovoltinism, as for instance in the ovarial development of *Stenocranus minutus* (FAB.) and *Mocydia crocea* (H.-S.), which can produce eggs only after they had experienced a short day period. In a continuous long day regime they never oviposit. In a similar manner *Agallia brachyptera* (BOH.) and *A. venosa* (FOURCROY) as *Mocuellus metrius* (FLOR) demand obligatory a period of chilling after the invagination of the embryo.

Thus the dormancy forms in first line serve as ecological means to overcome unfavourable environmental conditions indeed, but in the same time they synchronize the ontogenetic phases within the populations, especially the sexual partners, and moreover support a chronological displacement of the density peaks within members of the same guild in the biocoenosis.

Biotaxonomy of the birch feeding *Oncopsis flavicollis* (L.) species complex

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Populations of *Oncopsis flavicollis* (L.) associated with birches, *Betula pendula* ROTH and *B. pubescens* EHRH. were studied from the southern British Isles (South Wales and South-West England).

Three sibling species are now recognised and are here termed species 1, 2 and 3 until the correct nomenclature has been established.

The following techniques have been used to investigate the taxonomy of the group.

1. Morphological (male abdominal Apodemes).
2. Acoustic Behaviour (Species Specific Calls).
3. Female Colour Polymorphism (Frequency and Distribution).
4. Morphometric methods (Discriminant Analysis).

Males of the three species are clearly separated on the basis of morphological, acoustic and morphometric (South Wales samples only) characters.

Females from South Wales may be separated by morphometric analysis. Also there is strong evidence to suggest that certain colour morphs of the highly polymorphic females may be species specific.

Sampling sites may be separated into two distinct areas of study (South Wales and South-East England with the Forest of Dean), based on the distribution and host association of the three species.

A preliminary study suggests that a similar differentiation occurs between the western and eastern highlands of Scotland.

Fifth Auchenorrhyncha meeting in Davos, Switzerland August 28-31, 1984

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