ENTOMOLOGY

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ABSTRACTS

The Alfalfa Weevil, Hypera postica (Gyll.) a New Economic Pest of Alfalfa in Indiana. RALPH A. BRAM, Purdue University.—Larvae of the alfalfa weevil, *Hypera postica*, were collected for the first time in Indiana on May 13, 1964 near Vincennes, Knox County. Subsequently, adults of this major economic pest of alfalfa were discovered in nine other counties in the southern quarter of the state, including Vanderburgh, Gibson, Spencer, Perry, Warrick, Dubois, Harrison, Jefferson, and Switzerland counties. In each instance there was no evidence of economic damage and specimens were present in only trace numbers. Experience in other states in which the alfalfa weevil has been newly introduced indicates that economic damage may be expected approximately two years after trace numbers are first discovered.

Color Pattern Inheritance in Experimental Hybrids or North and South American Forms of Tropisternus collaris (Fabricus) (Coleoptera: Hydrophilidae). FRANK N. YOUNG, Indiana University.—Crosses of a melanic form of *Tropisternus collaris* (Fabricius) from Colombia with typical *T. mexicanus mexicanus* (Castelnau) and *T. m. striolatus* (LeConte) from Indiana indicate the specific identity of these putative species. Both the *mexicanus* and *striolatus* pronotal and elytral patterns show dominance over the melanic *collaris* pattern with penetrance of over 85%. The exceptions are thought to be due to modifier genes. F_1 Hybrids are highly sterile, but backcrosses show nearly normal fertility. Both F_1 hybrids and backcrosses show indications of hybrid vigor or enhancement.

Effect of Photoperiod upon Rate of Development in Naiads of Erythemis simplicicollis (Say) (Odonata; Libellulidae). B. ELWOOD MONTGOMERY and JERRY M. MACKLIN, Purdue University.—Almost all naiads of *E. simplicicollis* (Say) collected in the middle instars (octult to sextult) late in October survived to emergence as adults when reared in an environment with constant photoperiods. The final three instars required about 80 days at 27°C., and 91 days at 21° with a photoperiod of 16 hours, with about half this time in the ultimate instar; these times were 211 days at 27° and 238 days at 21°, respectively, with a photoperiod of nine hours, with about half this time in the teritult instar. Very few naiads of the same species collected in August survived to emergence under the same conditions. With a photoperiod of nine hours only five per cent survived to the final instar, and 90 per cent died before passing through more than two instars; with longer photoperiods the survival rate was higher, but no lots showed a survival rate (to the ultimate instar) greater than 65 per cent.

Notes on the Biology of Psorophora ciliata (Fabricius) in Indiana. R. E. SIVERLY, Ball State College.—Presumably the largest mosquito

found in Indiana, *Psorophora ciliata* (Fabricius) is produced in exposed pools of a temporary nature, following summer rains. As many as ten larvae of *Aedes vexans* may be eaten by one *P. ciliata* larva in one day. There are several broods a season. At prevailing temperatures in Indiana during July and August, egg to adult development may be completed in one week. In spite of its predaceous habit and rapid development, *P. ciliata* is of doubtful economic importance in natural control, because of its cannibalistic tendencies and the extreme dominance of *Aedes vexans*, which usually occupies the same type habitat.

Occurrence of Psorophora discolor (Coquillett) in Indiana. R. E. SIVERLY and RICHARD W. BURKHARDT, JR., Ball State College.—Larvae of *Psorophora discolor* (Coquillett) were taken in a roadside ditch in Delaware County in July, 1964. Adults of this species of mosquito are similar in appearance to *Psorophora confinnis* adults. Larvae of *P. discolor* are readily distinguished from other *Psorophora* larvae by the presence of long, tracheated anal gills. Although known to feed both on livestock and on man, *P. discolor* probably is of minor economic importance in Indiana because of its relative infrequency in adult mosquito collections. Evidently there are no previously published records of the occurrence of *P. discolor* in Indiana.

Effect of Different Crop Plants on the Population Level of Pratylenchus penetrans in Muck Soil. JOHN M. FERRIS and MELVIN S. MILLER, Purdue University.—Population changes of *Pratylenchus penetrans* (Cobb, (1917) Filipjev & Schuurmans Stekhoven, 1941, an endo-phytoparasitic nematode, were followed in the field and in greenhouse pot cultures. Seven fields were sampled at monthly intervals between April and October 1962. Corn was grown in two of the fields, onions in another two, and potatoes in one field. The same three crop plants were grown in the greenhouse in clay pots filled with muck soil naturally infested with *P. penetrans* at two different levels of infestation. In the field plots and in the greenhouse test the smallest build-up of *P. penetrans* occurred where onions were grown.

Effects of Nutrition on Duration of Instars in Tropisternus (Coleoptera: Hydrophilidae. SHIDONKT O. HOSSEINIE, Indiana University.—In larvae of *Trophisternus lateralis nimbatus* (Say) fed heavily with mosquito larvae, the 1st instar lasts from 2 to 4 days, the 2nd from 3 to 5, the 3rd from 10 to 20, and the pupal stage from 10 to 15 days. In experiments beetle larvae were fed only *one* mosquito larvae per day (mosquito larvae graded according to size of beetle larvae but of standard size for each instar) for various periods: From hatching to molt 1; from molt 1 to adult; from hatching to molt 2; from molt 2 to adult; from molt 1 to molt 2; from hatching to molt 1 then after molt 2; from hatching to adult. Normal feeding of larvae was resumed after period of dieting. The effect on instar 1 and 2 is not great, and sometimes it is very low. Instar 3 was affected greatly, however, by dieting of instar 1 and 2. When instar 3 was also dieted the effect was even greater, and instead of 10-20 days it would take 1-3 months to be ready to pupate. No matter what instar was under diet the pupal stage was almost always close to the standard length. Evidently the

effect of the amount of food increases as the larva grows, and the larva must apparently reach a definite physiological condition before pupation.

Collembola and Mite Incidence in Wood Lot Soils Treated with Cyclodiene Insecticides. WILLIAM H. LEASE, Purdue University and JAMES W. BUTCHER, Michigan State University.—Replicated 4" x 4" soil cores were cut from wood lots treated with insecticides. Plots included soil treated with aldrin (2#/A) in 1960 plus dieldrin (3#/A in 1962, and soil treated with dieldrin only in 1962. Cores taken from adjacent wood lots having no history of cyclodiene treatment were studied for comparison. Comparisons of Collembola and mite abundance are given for the check and treated areas. In addition, the relative abundance of Collembola species is given for the three soil conditions. The relationship of apparent differences to GLC, cyclodiene, determinations is discussed.

The Threat of the Japanese Beetle to Indiana Crops. GEORGE E. GOULD, Purdue University.—The Japanese beetle has been found in most urban areas of Indiana, but occurs in farm lands around only a few cities. The only infestation starting in a rural area is that along the Illinois-Indiana state line. The infestation was reported in 1953 and in eight years had spread to over 300,000 acres, about half of which is in Newton and Benton Counties. High populations of the insect have been concentrated in about 1000 acres in Jefferson township (Newton County). Here during the 1962 season the beetles caused losses in yields up to 10 bushels per acre of soybeans and 8 to 12 bushels of corn. During the 1963 and 1964 seasons the population in this area showed a decided decrease, while farms five miles north in Washington township had an increase. Damage to these crops was associated with the crop maturity at the time of the peak of beetle abundance. This occurred around the first of August when the pods of soybeans were filling and the silks of corn were present. The beetle fed on the foliage of the beans and often destroyed the green corn silks. Losses from larval feeding on the roots of grasses and related plants were not noticeable. Although the infestation covers a large area, losses have been confined to fields in a small area. Farmers have had excellent control of beetles on soybeans by insecticide applications to the foliage. Control of the larvae and a general reduction of the beetle population on any one farm was obtained by a broadcast application of a soil insecticide commonly used against corn pests.