

ENTOMOLOGY

Chairman: JOHN FAVINGER, Indiana Department of Conservation
JOHN DAVIS, Purdue University, was elected chairman for 1959

ABSTRACTS

Problems in Regulatory Entomology. JOHN J. FAVINGER, Indiana Department of Conservation.—Several new Japanese beetle infestations were located this past summer, the largest of which affects the greater part of Lafayette. Goshen, Huntington, Frankfort and Greenfield are also new locations for this pest. An extensive soy bean cyst nematode survey found no evidence of infestation in Indiana. A small infestation of potato rot nematode, *Ditylenchus destructor*, in dahlia tubers is believed to be completely eliminated. This is the first record of this nematode in Indiana. The field personnel of the State Entomologist's office is constantly on the alert for other pests known to occur in the United States but not yet found in Indiana. White fringed beetle, European chafer, khapra beetle, gypsy moth, imported fire ant, and witchweed are all examples of such pests.

Preliminary Survey of Plant Parasitic Nematodes Found in Indiana. JOHN M. FERRIS and GLENN B. BERGESON, Purdue University.—Soil and plant samples were collected in Indiana during the 1958 growing season and were examined for the presence of plant parasitic nematodes. Some of the nematode genera found are known to contain important plant parasitic species. These include *Meloidogyne*, *Pratylenchus*, *Xiphinema* and *Heterodera*. In many cases, when these nematodes are present, they must be controlled in order to obtain a commercially profitable yield from a particular crop plant. Other genera present in the state are of potential importance, but the extent of damage they cause is not known. Work is in progress to answer this question.

Habitat Segregation as a Factor in Reducing Interspecific Competition Among Species of *Laccophilus*. JAMES R. ZIMMERMAN, Indiana Central College.—As many as four species of the aquatic beetle genus *Laccophilus* have been taken in the same ponds in Indiana. These predatory insects are presumed to be competitive to some degree. Frequently no difference in habitat preference can be detected, but collections which were made in late summer and early autumn give evidence that different parts of an aquatic situation are occupied by one species to a greater extent. The segregation in a few instances was shown to be pronounced and sharply defined. Differences in temperature and amount of vegetation are probably two physical factors that influence this.

A Technique of Growing Wheat Seedlings in Nutrient Solutions for Hessian Fly Race Studies. R. L. GALLUN, Entomology Research Division, U.S.D.A.—In the study of hessian fly races a technique has been devel-

oped for an efficient and inexpensive method of growing wheat seedlings in nutrient solutions. "Styrofoam" plastic blocks 8" x 8" x 1", each holding 100 wheat seedlings, are floated on the surface of nutrient solutions contained in Pyrex baking dishes 8½" x 8½" x 2". The wheat seedlings are inserted in spaced ⅜" holes bored through each block and held in place by plastic plugs. The oxygen requirement of the primordial root system is provided by inserting the base of the wheat seedling ½" above the bottom of the block. Since the plastic material has a very low specific gravity it floats on the surface of the solution, thereby providing an air space between the base of the plant and the surface of the solution. All Pyrex dishes are painted black to prevent algae formation. The volume of nutrient solution can be maintained by observing the position of the block on the solution and replenishing the supply of solutions when the blocks drop below a preferred level.

Entomology as a Business: Its Beginning and Future. J. J. DAVIS, Purdue University.—A brief history of entomology is reported from biblical times through its evolution into a science, including economic entomology, largely controlled by federal and state agencies, and including biological and control studies to enable the individual to prevent losses to crops and animals, and to protect health of humans and domestic animals. These early studies led to the development of extension entomology to disseminate and demonstrate the knowledge gained through research, and likewise the development of entomology as a business, first in the production of valuable products, such as honey, beeswax and silk, and later to control pests, since there has been an increasing demand for service, as well as information on pest control. Entomology as a vocation or profession is only about 100 years old and pest control as a service or business is only about 25 years old, although there were commercial pest control service operators a century ago. During these comparatively few years, great strides and progress have been made, especially because of increased interest by educators. Both phases of the science of entomology have grown tremendously during the past hundred years and the future of both, especially entomology as a business, is great. There will be an increasing demand for college-trained men and women, and an increasing source of income. For these reasons, Purdue University inaugurated a four-year curriculum especially designed for those planning to go into insect control service. Those who have thus far graduated from this course are already taking their place in promoting an ethical business.

Preliminary Experiments on Introducing Systemic Insecticides into Fruit Trees. G. E. MARSHALL and J. V. OSMUN, Purdue University.—Six methods of applying the systemic insecticides, Systox and Thimet, in fruit trees were tested. Three methods involved modifications of applying the chemicals to the soil beneath trees without soil injection; another method utilized an exposed roots dipping method; and two applications involved methods of introducing the insecticides into the trunks. Some phytoresponses were noted in certain tests. Encouraging results were obtained against aphids and webworms, and treatments in May protected trees against bronzing by mites during the entire season.

Observations were made on the relative rate of assimilation after pressure injection.

Occurrence of *Aedes grossbecki* Dyer and Knab, and *Aedes aurifer* (Coquillett) in Indiana. R. E. SIVERLY, Ball State Teacher's College.—Larvae of *Aedes grossbecki* Dyar and Knab were recovered from a woodland pool near Muncie, Indiana, in April, 1958. Larvae of *Aedes aurifer* (Coquillett) were also collected in early April from a bog near Muncie. Larvae of both species were reared to adults and identifications were verified. So far as it is known, these collections constitute new state records for both species. Larvae of *Aedes aurifer* were taken from water that was quite cold. Adults are reported to be daytime biters. This may be an important pest species in certain areas within the state in early spring.

Adults of Tobacco and Tomato Hornworms Collected with Survey Traps in Indiana in 1953-58. HOWARD O. DEAY, Purdue University.—Unidirectional light traps each equipped with a 15-watt BL lamp were operated in several localities in Indiana during the seasons of 1953-58. The numbers of *Protoparce sexta* and *P. quinquemaculata* taken varied from locality to locality in the same season and from year to year in the same locality. Larger numbers of both species were taken in southern than in northern Indiana.

Studies on *Sitotroga cerealella* (Olivier) (Angoumois Grain Moth). NITTY NAIR, Purdue University.—The Angoumois grain moth, *Sitotroga cerealella* (Olivier) is becoming increasingly important as a pest affecting the production of corn in Indiana. Ecological investigations under climatic conditions of Indiana indicate that during daytime the moths are inactive and vary in number, being scarce during the hottest and windiest periods, or when it is rainy. At other times of the day or during twilight, the moths are more active. Maximum activity occurs during dusk. Flight of the moth is weak and irregular. Observations indicate that moths flying near the corn ears are mostly females. This behavior seems to be influenced by oviposition stimulus. It was observed that adult moths are able to fly considerable distance. Dispersal of the moth shows interesting distribution pattern. Field and laboratory studies indicate no regular oviposition patterns. Study of the biology of the moth indicates that females may lay about 350 eggs. Minimum life cycle occupies about 34 days. Field observations show that the parasites of the moth are never abundant enough to play an important part in the control of the moth.