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NOTES ON TOBACCO INSECTS IN 1937

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Introduction

On July 8, 1937, the entomologists interested in the control of tobacco insects met in Florence, S. C., and organized the Tobacco Insect Council. In connection with the work of this group of entomologists, a committee was appointed to make a survey of the distribution and abundance of the principal tobacco insects in 1937. It is expected that in the future surveys the committee will be able to present more detailed reports. The need for making an annual survey of the insects infesting tobacco in the States where it is grown was recognized and plans are under way for making this a more detailed survey.

TOBACCO FLEA BEETLE (Epitrix parvula F.)

Hibernation

At Oxford, N. C., an infestation on the edge of a woods showed 3.5 beetles per square foot in December 1936 but only 0.6 beetle per square foot in March 1937. Records from hibernation cages indicated that beetles were active in February.

There was a recovery of living beetles in 1937 of 24.1 percent from muslin-covered cages located in the edge of a woods and 33.6 percent in similar cages located from 6 to 8 feet within the woods. In the spring of 1936 there was a recovery of 47.3 percent in cages located from 6 to 8 feet within the woods and placed over the natural undisturbed litter, and the greatest percentages of beetle recovery occurred in cages having the smallest quantities of litter on the soil surface.

^{1/} For assistance in assembling these notes on tobacco insects, the writer is indebted to the members of the Survey Committee of the Tobacco Insect Council as follows: W. A. Shands, North Carolina; J. O. Rowell, North Carolina; H. H. Jewett, Kentucky; L. B. Scott, Tennessee; W. W. Stanley, Tennessee; and W. E. Britton, Connecticut.

At Florence, S. C., tobacco flea beetles were active on January 23 in muslin-covered cages located in the edge of a woods. The recovery of living beetles during the spring ranged from 0 to 41 percent in individual cages. The lowest recoveries were from cages in which the beetles had been placed late in September 1936.

The earliest recorded activity of the tobacco flea beetle in Tennessee was on April 12.

Plant Beds

During the latter part of March a survey of 47,350 square yards of plant beds in eastern North Carolina showed that flea beetle damage was severe in poorly constructed beds. Of 18 beds examined, 7 had from 0 to 40 beetles per square foot. No attempt was made by growers to control the beetles in the beds examined. In 8 counties of north-central North Carolina from 80 to 100 beds were examined and beetle populations ranged from 8 to 45 per square foot.

Owing to unseasonably warm weather in January and February in South Carolina, seeds germinated early and plants made an early growth. The first beetle injury in the beds was observed on February 25, near Loris. During March injury in plant beds was common. A maximum infestation of about 46 beetles per square foot was found on 1 bed, and injury was more pronounced where the beds were poorly constructed.

Observations made in the tobacco districts of Georgia and Florida showed the populations of tobacco flea beetles to be heavier in all periods of growth of the crop than in 1936.

In Tennessee and Kentucky the damage by flea beetles in plant beds was reported to be severe.

Plants in the Field

Counts in fields of newly set plants over southeastern North Carolina late in March and in April showed infested plants ranging from 20 to 100 percent in the various fields examined. Similar counts made in 1936 indicated that beetles were more numerous on newly set tobacco than in 1937. Severe injury by adults and larvae on newly set tobacco occurred in the northwestern and north-central parts of North Carolina. Loss in stand was heaviest in Surry, Stokes, Yadkin, Forsyth, and Guilford Counties. The injury was also common but less severe in Person and Granville Counties. In localities where the plants were most severely injured replanting was carried out as many as six times. Some of the fields were plowed and seeded to other crops. Some of this injury could be attributed to diseases, methods of culture, and weather conditions. Apparently three broods of beetles were produced in tobacco fields in North Carolina. The general abundance of beetles and severity of injury on the mature tobacco appeared not to vary greatly from that in 1936.

Owing to cool weather and previous injury from downy mildew, tobacco that was transplanted the latter part of March and the first part of April in South Carolina made slow growth, and flea beetle injury in many instances was severe. This made a large number of re-plantings necessary and resulted in an uneven growth of plants. No survey of the tobacco-growing area in South Carolina was made in 1936 or 1937, but flea beetle outbreaks were serious in some sections of the State. Injury to the tobacco in the fields in Horry County was severe during the growing season of 1937. Severe injury to growing plants in the fields was reported from many sections of the State in July.

In Tennessee the peak of abundance of flea beetles in tobacco fields was reached during the period August 1 to 7, at which time a survey at Knoxville showed an average of 16 beetles per plant.

POTATO FLEA BEETLE (Epitrix cucumeris Harr.)

The overwintered brood of potato flea beetles appeared in the tobacco fields of Connecticut about the first of June. The peak of abundance of adults was reached in the fields during the period July 6 to 18. Owing to the application of control measures, the populations in shade tents were not large. This insect was the most destructive pest of tobacco in the Connecticut River Valley in 1937.

HORNWORMS (Protoparce spp.)

Hibernation

In 1937 at Oxford, N. C., there was a recovery of 436 moths or 19.66 percent of the larvae that were placed in hibernation cages in September 1936. The numbers of male and female adults recovered from the cages in 1936 were approximately equal, and the greatest emergence occurred in mid-August. A total of 750 hornworm moths were collected during 1937 in 9 traps, with heaviest catches on August 18. From moths taken in the traps it was found that about 75 percent were the tomato hornworm (P. sexta Johan.) and the remainder the tobacco hornworm (P. quinquemaculata Haw.). Of the adults of P. sexta caught, about 66 percent were males, while only about 60 percent of the P. quinquemaculata were males.

Field Injury

Larval injury in 1937 was probably more abundant in the vicinity of Oxford than in 1936. The period of most severe injury was late in August, which was soon after trap catches indicated the greatest abundance of moths. This injury occurred after about one-half to two-thirds of the plant had been harvested.

The hornworms were present in destructive numbers in many parts of South Carolina tobacco districts. No figures are available on the damage that resulted. Two species of predacious wasps on hornworm larvae were reported. These were determined as Polistes canadensis annularis L., and Polistes fuscatus rubiginosus Lep.

Larvae of the hornworms attacking tobacco were abundant in tobacco fields around Knoxville, Tenn., during the period August 12-September 13, reaching the peak of abundance on the station farm on August 31. The population counts showed 80 larvae on units of 50 plants, or 1.6 larvae per plant, in untreated fields.

The spring brood of adults of the tomato hornworm on tobacco began around April 25 in the Florida-Georgia tobacco districts. The first generation of adults emerged in June and the second generation the latter part of July. The populations increased in each brood, but during the latter part of August and September these insects largely disappeared from tobacco fields. By the first of October adults were difficult to find.

In Connecticut the late fields of tobacco and suckers in harvested fields were heavily attacked by larvae of P. quinque maculata. This was an unusually heavy infestation for this section.

A heavy infestation of the hornworms appeared in Maryland at about harvest time and severe losses resulted in many tobacco fields. Damage was reported also in the barns where the stalks were cut and hung for air curing.

BUDWORMS (Heliothis spp.)

In the Florida-Georgia tobacco districts the tobacco budworm (H. virescens F.) was present in about the same numbers as in 1936. Owing to the efficient manner in which control measures were applied by the growers of cigar tobaccos, highly destructive populations were not present in tobacco fields.

The tobacco budworm (H. virescens) and the corn ear worm (H. obsoleta F.) on tobacco were abundant in North Carolina around July 1 but, owing to the effective application of control measures, the insects were brought under control in most fields.

During June and July severe outbreaks of the budworms were reported on tobacco in many sections of the South Carolina tobacco districts.

The budworms on tobacco were reported from Tennessee and Kentucky but no unusual outbreaks occurred on the burley and dark fire-cured tobaccos.

H. virescens was observed in small numbers in fields of sun-grown tobacco in Connecticut.

TOBACCO THRIPS (Frankliniella fusca Hinds)

This insect is of greatest economic importance in the shade-grown cigar tobacco districts of Connecticut and Florida. Severe damage was reported from Florida in 1936 but in 1937 little damage was reported, owing apparently to more abundant rainfall. Heavy damage was reported from the shade tobacco districts of the Connecticut River Valley, including the States of Connecticut and Massachusetts. The damage was observed to be most severe around the edges of fields bordering on grasslands.

CUTWORMS (Noctuidae)

Cutworms were reported to be inflicting important damage to tobacco plant beds in 1937 from South Carolina, North Carolina, Connecticut, Tennessee, and Kentucky. In North Carolina the identified species found injuring tobacco plants were as follows: Feltia subgothica (Haw.), Lycophotia margaritosa saucia Hbn., Parastichtis bicolorago Guen., and Agrotis ypsilon (Rott.).

The species reported most destructive in Connecticut were the dark-sided cutworm (Euxoa messoria (Harr.)) and the climbing cutworm (Agrotis c-nigrum (L.)).

WIREWORMS (Elateridae)

Wireworms were observed in North Carolina and South Carolina, inflicting severe damage on newly set plants. The species involved were not identified. In South Carolina fields were examined which showed that from 70 to 80 percent of all the newly set plants were attacked by wireworms. Severe injury to newly set plants was observed also from some sections of North Carolina.

Wireworms, the principal species of which was Limonius agonus Say, inflicted severe damage to newly set plants of cigar tobaccos in Connecticut in 1937.

VEGETABLE WEEVIL (Listroderes obliquus Klug)

The vegetable weevil was found attacking young tobacco plants in the seedbeds at Quincy, Fla. This is the first record of the appearance of this insect as a pest of tobacco in the United States.

MISCELLANEOUS INSECTS

Grasshoppers were reported in destructive numbers from Tennessee, North Carolina, and Connecticut.

White grubs, Cotinis nitida (L.), and mole crickets, Scapteriscus spp., were serious pests of tobacco plant beds in South Carolina and sections of the Florida-Georgia tobacco districts.

In North Carolina midges, Chironomidae, and the black European slug (Agriolimax agrestis L.), were present in injurious numbers in tobacco plant beds.

The following soil-inhabiting insects were destructive to newly set tobacco plants in Connecticut: The seed corn maggot (Hylemyia cilicrura Rond.) and the crane fly (Nephrotoma sodalis Loew).

Infestations of the root aphid Trifidaphis phaseoli Pass., on the roots, and of the tarnished plant bug (Lygus pratensis (L.)), on the leaves, were reported on the growing crop in Connecticut.