

## Insects of Indiana in 1954

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The weather for 1954 provided extremes of temperatures and rainfall which had a marked effect on the abundance of many economic species of insects.

For example, cool weather in the spring was responsible for army worm outbreaks, while dry weather later in the season indirectly affected damage by grasshoppers, webworms, and others.

The future of insect control is rapidly changing. It is generally recognized that many insect outbreaks can be predicted if we know the future weather. Further we know that the meteorological experts are now predicting 85 per cent correct the weather 30 days in advance. With this assurance we may anticipate reasonably accurate insect outbreak predictions.

That insect problems are major factors in agriculture is evidence by the fact that 35 per cent of calls to county agricultural agents during the growing season refer to insect problems.

Again there is a change in inquiries received by the Department of Entomology. In the past we have had a heavy correspondence on insect problems. Today, we still have a heavy mail correspondence but less than a few years ago. On the other hand, the telephone is the usual means of inquiry regarding insect problems. After all, insects are emergency problems and the telephone is a means of quick answers.

Another change is the availability of service work and in particular, the airplane; also ready availability of materials. Emergency needs, importance of quick service, and the low cost of insecticide applications by airplane have been responsible for an increasing use of the service airplane for insect control.

### Field Crop Insects

Army worms (*Pseudaletia unipuncta*) were again very abundant. They were exceptionally abundant in 1953 and it is unusual to have army worm outbreaks two years in succession. The 1954 outbreak can be attributed to the cool spring weather, the same as in 1953, which permitted development of the worms, but was too cool to permit normal parasite development.

The first reports were from southern Indiana, early in May. At that time, most of the worms were small. Continuing into June damaging infestations developed throughout the state to the Michigan border. In many rye and wheat fields 50 per cent of the heads were cut off. Thousands of acres of pasture were cleaned of vegetation and it was sometimes difficult to find pasturage for feeder cattle. In many cases, migration from harvested grain fields resulted in heavy infestations in corn.

Thousands and perhaps millions of dollars damage was prevented by availability of insecticides and means of application. Many farmers now have low pressure spray equipment and there are now available many

dependable airplane applicators who are doing good service work at a reasonable cost. It should also be noted that aerial applicators are acquainting themselves with the needs for insect control. They are certain to play a significant part in field crop insect control in the future. With the more general use of the newer insecticides and adequate ground and aerial equipment for application, at least \$3,000,000 of crops were saved.

By the middle of June many reports were coming in from northern Indiana and several county agents reported 30 to 50 per cent of wheat destroyed.

The variegated cutworm (*Peridroma margaritosa*) appeared in unprecedented numbers, especially in southern Indiana, occurring the last half of May and into June. They were especially abundant on alfalfa and because of their climbing habit they were frequently mistaken for army worms. By early June, they were migrating into and damaging various adjoining crops. I do not recall this cutworm so abundant on field crops during the past forty years. During the latter part of August this cutworm was a serious pest eating into tomatoes.

Overflow or black cutworms (*Agrotis ypsilon*) were abundant in low spots in cornfields in many scattered places in the state, but not as severe as in 1953. The latter part of June the moths were exceptionally abundant and invaded homes where they were reported very annoying.

Grasshoppers (principally *Melanoplus femur-rubrum*) began appearing in threatening numbers the last of June. At that time, they were about a quarter inch long. They attacked all kinds of vegetation, including flowers and vegetables, but especially corn and legumes. The infestation was less in southern Indiana where the heaviest populations occurred in 1953, but northward, especially from Indianapolis north, there occurred very heavy populations, heavier than I have seen for 15 or 20 years. Sprays with low pressure ground sprayers and airplanes proved very effective and profitable.

The chinch bug (*Blissus leucopterus*) was abundant in hibernating quarters in eastern and western counties, north of Lafayette, Williamsport, and Richmond, in April. They were migrating into corn the latter part of June. Farmers had advance advice regarding controls and did an excellent job of preventing what otherwise may have been large losses.

The corn borer (*Pyrausta nubilalis*) wintered over in somewhat larger numbers than the winter before. The first moths appeared at Orleans May 23 and at Lafayette June 7. The more or less universal planting of corn after the recommended date prevented heavy infestations. Damage for 1954 will not be serious.

The sod webworm (*Crambus spp.*) caused extensive damage to corn in several areas early in June.

Garden webworm (*Loxostege similalis*) became very destructive to alfalfa in southern Indiana early in August. Because of the dry weather much of the earlier planted alfalfa died out, necessitating replanting. The new alfalfa was only three to six inches high by the middle of August and only a few worms were necessary to ruin the crop.

Seed corn beetle (*Agonoderus pallipes*) was abundant in a number of localities the last of May and first of June, but apparently was not doing much damage.

Grain aphids (*Macrosiphum granarium*) were reported abundant in heads of wheat from many places. All that we investigated were not doing appreciable damage.

Common stalk borer (*Papaipema nitela*) was common throughout the state, but especially central Indiana, during June, attacking wheat, corn, and certain vegetable crops.

The stem maggot (*Meromyza americana*) caused much loss to a large field of blue grass grown for seed.

Corn seed maggots (*Hylema cilicrura*) were reported damaging soybeans June 7 in a field following spring plowed rye. Following that report a number of cases (corn, beans, cantaloupes, etc.) were reported.

Flea beetles (principally *Chaetocnema pulicaria* and *Epitrix cucumeris*) were abundant generally on corn and potatoes. Stewart's disease followed infestations on corn.

The vetch bruchid (*Bruchus brachialis*) heavily infested vetch seed in several south central areas.

The alfalfa caterpillar (*Colias philodice eurytheme*) was abundant in many alfalfa fields.

Clover leaf weevil (*Hypera punctata*) was normally abundant in April and in some localities did noticeable damage.

Lesser clover leaf weevil or clover bud worm (*Hypera nigrirostris*) was common, infestations being rather general and in some cases 95 per cent of buds showed damage. The infestations occurred largely in northern Indiana and damage was largely to the first crop of clover.

The pea aphid (*Macrosiphum pisi*) built up to destructive numbers on alfalfa early in the season (April).

Alfalfa plant bug (*Adelphacoris lineolatus*) was conspicuously abundant at lights at Lafayette June 23.

Spittle bug (*Philaenus leucopthalmus*) began hatching at Lafayette April 9. Cool weather in May kept the developing bugs low on the plants. Adults appeared in southern Indiana the last of May, at Lafayette June 3 and were abundant in northern Indiana June 11. An interesting observation was made at Delphi the last of May where oats were heavily infested. In this particular field the wheat stubble of the year before, along with clover which was a poor stand, was disked leaving considerable litter which may have been responsible for abundance on oats. In general, more spraying was done and with excellent results.

Clover root borer (*Hylastinus obscurus*) was severe in some fields in northern Indiana, and in isolated fields the crop was completely destroyed.

Blister beetles (black, striped, and margined) (*Epicauta pennsylvanica*, *E. vittata* and *E. pestifera*) were generally abundant and destructive throughout the state. It might be noted that in Daviess County soybeans were defoliated in areas where grasshoppers had been abundant the past few years. Possibly this may be explained by the fact that in the larval stage, blister beetles are important, feeding on grasshopper eggs.

Green June beetle (*Cotinus nitida*) grubs were abundant in the spring throughout the southern part of the state, from Indianapolis south. In one instance they were very destructive by uprooting plants in hotbeds. Another notable case of damage was to a 1953 planting of alfalfa. This was a pasture field which had been heavily pastured for the previous five years. The beetles were unusually abundant during the season. In September, a report from southern Indiana indicated grubs very abundant on lawns, sidewalks, and streets following heavy rains.

Potato leafhopper (*Empoasca fabae*) has been especially abundant on alfalfa, snap beans and potatoes in the northern half of the state.

The green clover worm (*Plathypena scabra*) was abundant on soybeans and alfalfa in scattered locations.

The annual white grub (*Cyclocephala sp.*) has been very abundant and destructive to lawns this fall in northwestern Indiana.

### Vegetable Garden Insects

The squash bug (*Anasa tristis*) built up to very large populations throughout the state by late August and early September, and has been responsible for heavy losses, especially in commercial plantings of squash and pumpkins. In Jackson County, for example, 20 per cent of the canning pumpkin acreage was disked up because of this insect and another 20 per cent was a total loss.

Rhubarb curculio (*Lixus concavus*) was damaging to rhubarb in many cases throughout the state.

Onion thrips (*Thrips tabaci*) were very severe on onions where no spraying was done.

Bean leaf beetle (*Cerotoma trifurcata*) caused considerable injury to soybeans in southern Indiana during the latter part of the season. In the truck garden area near Indianapolis, this species caused serious damage to pods and foliage of green beans and was especially serious adjacent to maturing soybeans. Early in the season, it was a pest of garden beans generally.

Twelve-spotted cucumber beetles (*Diabrotica 12-punctata*) were abundant and injuring pods of green beans and rind of squash early in September. Some commercial gardeners near Indianapolis were harvesting Hubbard squash early because of these beetles.

Corn ear worm (*Heliothis obsoleta*) adults first appeared at lights in Posey County May 25. It was a pest of corn, especially sweet corn, throughout the state. In commercial, as well as home plantings of tomatoes, it has been a real problem. In tomatoes it became especially serious and many commercial canning tomato plantings were abandoned because of the earworm. It has also damaged peppers, beans, and other vegetable crops late in the season.

Tomato hornworm (*Protoparce sexta*) was very abundant, especially in central Indiana, late in the season.

Tomato russet mite (*Vasates lycopersici*) had become a serious pest throughout Indiana and especially bad over the tomato canning producing area. Apparently does not winter over in Indiana and is brought into the state on plants from Tennessee and Georgia.



Cabbage worm (*Pieris rapae*) and cabbage looper (*Autographa brassicae*) were serious pests of cabbage and related crops throughout the state, but perhaps especially so in central Indiana, and late in the season.

#### Fruit Insects

Cherry fruit fly (*Rhagoletis cingulata*) was more abundant and widespread in northern Indiana than for several years.

The raspberry cane borer (*Oberca bimaculata*) has been reported from a number of localities throughout the state, although it is not a serious problem.

#### Insects of Shade Trees and Ornamentals

Cottony maple scale (*Pulvinaria vitis*) was very abundant in many parts of northern Indiana.

Forbes' scale (*Aspidiotus forbesi*) and Putnam's scale (*A. ancyclus*) were rather common on shade trees in the Indianapolis area.

Juniper webworm (*Ypsolophus marginellus*) was very destructive to ornamental juniper plantings in many localities.

Sawflies are becoming major problems on pine plantings over the state. Most serious is the European pine sawfly (*Neodiprion sertifer*) which occurs in the northern half of the state and is especially destructive to Christmas tree plantings. The Jack pine sawfly (*N. americanus banksianae*) was common on Jack pine in the Indianapolis area. The short leaf pine sawfly (*N. americanus*, near *banksianae*) is common on short leaf pine plantings in southern Indiana.

European pine shoot moth (*Rhyacionia buoliana*) was generally abundant in the northern part of the state and especially on red pine in Christmas tree and reforestation plantings.

Elm leaf beetle (*Galerucella xanthomelaena*) was more generally abundant than I have ever known it to be in Indiana. It occurred throughout the southern half of the state. From reports Chinese elms were most severely attacked.

Bagworms (*Thyridopteryx ephemeraeformis*), which were scarce in 1951 following years of abundance, are again building up to conspicuous and destructive numbers.

Black vine weevil (*Brachyrhinus sulcatus*) is becoming an increasingly important pest on *Taxus*.

Bronze birch borer (*Agrilus anxius*) has been reported frequently during the year, more than any previous year I can recall. This may be partly explained by the unusually dry years of 1953 and 1954.

The flat-headed maple borer (*Chrysobothris femorata*) was destructive generally over the state, more so than usual. Perhaps a major cause was the dry season of 1953 and again in 1954, which weakened the trees and made them susceptible to borer attack.

#### Household and Miscellaneous Pests

The little house fly (*Fannia canicularis*) was exceptionally abundant around poultry establishments in several sections of the state.

American dog ticks (*Dermacentor variabilis*) were commonly reported during May and June, from many parts of Indiana.

The brown dog tick (*Rhipicephalus sanguineus*) was reported from a number of localities during August and September, and in all cases the infestations were severe.

Chiggers (*Eutrombicula alfreddugesi*) were abundant in lawns according to the many reports received.

The damp wood termite (*Zootermopsis angusticollis*) was found in a consignment of lumber at South Bend, shipped from Broadbent, Oregon. The lumber was 2 x 4—8' green Douglas fir, anti-stain treated. Some fifteen pieces in the carload were infested. Although the damage was not great, Dr. T. E. Snyder advises us that this termite possibly could become established in our area, and might become a serious problem.

Fruit or vinegar flies (*Drosophila melanogaster*) were a serious problem in tomato canning plants, heavy infestations developing in the field because of the cracking of tomatoes before being picked.

#### Invading Pests

The clover mite (*Bryobia praetiosa*) was again a serious annoying pest, especially during April, migrating into homes from adjacent vegetation. As noted in last year's report, practically all reports were where new lawns occurred.

Click beetles (*Melanotus spp.*) were very abundant in an old home, vacant for eight years, and rehabilitated in June. The beetles were so abundant and annoying the first night of occupation, that the family got up and left the house in the early hours of the morning.

There are received annually many inquiries regarding such annoying pests as bees in walls of homes, wasps, hornets and yellow jackets.

The oats bug (*Anaphothrips striatus*) was annoying throughout the state the last of June. A great number of inquiries were received.

Elm leaf beetles (*Galerucella xanthomelaena*) were very abundant throughout the southern half of the state. By early September, reports of invasion into homes, where they are very annoying, were being received.

Box-elder bugs (*Leptocoris trivittatus*) continue as an annoying pest of first importance. This year they are not maturing uniformly and even the last of September we find the bugs in all stages of development.

Black widow spiders (*Latrodectus mactans*) were reported unusually abundant in several localities in southern Indiana.

Hackberry phyllids (*Pachypsylla celtedis mamma*) were again a conspicuous annoyance in homes.

Millipedes were reported invading homes this fall from all parts of the state.