

Insects and Other Arthropods of Economic Importance in Indiana in 1957¹

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The year 1957 in Indiana was characterized by conditions of high moisture and slightly lower temperatures, two conditions which combined to produce an abnormal insect season. Rainfall during the spring and early summer was between 3 and 4 inches above normal in most of the state, while early temperatures were 0.5° F. below normal average in the north and as much as 3° F. below in the southern area of Indiana during a similar period.

That the conditions which prevailed were unusual is evidenced by a brief abundance analysis of the 10 insects and other arthropods normally rated by our entomology staff as the most important on crops and trees in Indiana. They are corn earworm, potato leafhopper, European corn borer, cutworms, smaller European elm bark beetle, meadow spittle bug, two-spotted mite, codling moth, Hessian fly, and aphids. Of these, only the meadow spittle bug, probably the elm bark beetle, and possibly the potato leafhopper were of normal or highly economic importance. Not only were high moisture and less desirable temperatures direct factors, but many host crops had not yet reached a desirable state of growth at periods of normal insect abundance.

A detailed record of certain insects follows:

Field Crop Insects

Corn earworm (*Heliothis zea* (Boddie)). In 1956 the fall survey showed 50-85% of the ears infested in the state. There was no evidence of over-wintering as far north as Lafayette. In 1957, based on light trap records and field observation, the corn earworm was comparatively low (See tomato fruitworm), with counts ranging from 6.5% of the ears infested in the northern counties up to 43% in the southern most counties.

European corn borer (*Pyrausta nubilalis* (Hbn.)). The 1956 fall survey showed moderate counts in the northern 2/3 of the state both in percent infestation and number of borers per stalk. This spring egg laying was heavy in spots but survival was low. As a result, the first generation was never high, since most of the corn at time of oviposition was small due to weather incurred delays, and except in northern regions, the intensity of infestation decreased appreciably as the season advanced. Mid-summer moth flight was erratic and the fall larval generation was low except in the northern tier of counties which showed great variation between fields.

Armyworm (*Pseudaletia unipuncta* (Haw.)). The armyworm was neither abundant nor destructive in Indiana this year.

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Fall armyworm (*Laphygma frugiperda* (J. E. Smith)). Although states immediately to our west had extensive severe damage from this insect in southern counties, our damage was rather restricted to corn in Vanderburgh and Posey counties. In early August the larvae attacked corn leaves extensively and later entered the tips of the ears causing damage similar to that of the corn earworm.

Corn leaf aphid (*Rhopalosiphum maidis* (Fitch)) abundant only in scattered areas in corn and grain sorghum.

Northern corn rootworm (*Diabrotica longicornis* (Say)) occurred again as an adult pest of stalks and exposed tips of corn in southern Indiana.

Noctuid caterpillar (*Simyra henrici* (Grote)) recorded as feeding on the leaves of corn in appreciable numbers in Newton County.

Four-Spotted corn sap beetle (*Glischrochilus quadrisignatus* (Say)) generally abundant and pestiferous. Economically important in picked strawberries and raspberries readied for market.

Cutworms—General reduction noted over the populations which occurred last year.

Spittle bug (*Philaenus leucophthalmus* (L.)). This insect occurred in record abundance this season. High moisture and rank growth contributed to a population that reached counts of 5 per stem on alfalfa and clover in May in southeastern areas of the state.

Potato leaf hopper (*Empoasca fabae* Harris). This insect started entering the state early in May from the southwest and had achieved wide distribution by the 2nd week in June. Populations were moderately high early in the year, dropped off appreciably in the middle of August, but rose again to economic numbers late in the same month.

Two-spotted spider mite (*Tetranychus telarius* (L.)) generally less important economically this season.

Spotted alfalfa aphid (*Therioaphis maculata* (Buckton)). The introduction of this insect into Indiana late in 1956 seemed to indicate that we would have a heavy infestation in 1957. However, this aphid did not appear until the latter part of August. The intensity has been low although the area infested extended to include Crawford, Harrison, Floyd, Switzerland, Ohio, Dearborn, Dubois, Orange, Washington, Jefferson, Clark, Lawrence and Jackson counties. Sullivan, Knox, Daviess, Martin, Gibson, Pike, Posey, Vanderburgh, Warrick, Spencer and Perry counties were again infested as in 1956.

Green clover worm (*Plathypena scabra* (F.)) found to be common on soybeans in west-central Indiana with extensive but not serious feeding.

Plant bugs (principally *Lygus lineolaris* (P.deB.), *Adelphocoris rapidus* (Say), *Adelphocoris lineolatus* (Goeze)). Populations were high especially in the south on alfalfa and other legumes.

Clover root borer (*Hylastinus obscurus* (Marsh.)) feed extensively but due to high available moisture, stands of clover were able to recover from any injury caused by this insect.

Lesser clover leaf weevil (*Hypera nigrirostris* (F.)) was as heavy as in 1956 with 80-90% of the stems infested.

Clover leaf weevil (*Hypera punctata* (F.)). Populations low this year.

Hessian fly (*Phytophaga destructor* (Say)). Infestations light throughout the state except in Gibson County where a moderate infestation occurred.

Bean leaf beetle (*Cerotoma trifurcata* (Forst.)). For a number of years this insect has shown an increasing ability to adapt to soybeans. This summer some fields in the south had up to 25% leaf defoliation and nearly that amount occurred in many northern fields.

Japanese beetle (*Popillia japonica* Newm.). For the first time the adults of this insect were abundant enough on crops (soybeans in Newton County) to require chemical control. Statewide recommendations for control were made available this year due to the increasingly wide distribution.

Grasshoppers. The fall survey indicated a very low grasshopper population with one or less than one grasshopper per square yard. *Melanoplus femur-rubrum* (De G.) appeared to be the dominate species.

Chinch bug (*Blissus leucopterus* (Say)). As was expected, this insect did not develop in appreciable numbers this year.

Tomato fruitworm (*Heliothis zea* (Boddie)) was only moderately destructive this year with larval populations well below those experienced in 1956.

Squash bug (*Anasa tristis* (De G.)) not reported serious this year.

Spotted cucumber beetle (*Diabrotica undecimpunctata howardi* Barber). Adults common on beans, squash, melons, and cucumber—normal.

Mint looper (*Rachiplusia ou* (Guerin)) was severely abundant in mint areas of the northern part of the state. The first generation larvae, early in July, defoliated up to 50% of the leaves of peppermint and spearmint and was also found infesting carrots, corn, and soybeans. The second generation looper was also abundant and destructive in untreated mint fields.

Fruit Insects

Oriental fruit moth (*Grapholitha molesta* (Busck)) was reported as generally severe in sub-standard orchards.

Codling moth (*Carpocapsa pomonella* (L.)) infestations were moderate to low in most orchards this season.

The apple aphid (*Aphis pomi* De G.) were of considerable concern to apple growers in the northern part of the state.

Mite populations were the lowest in ten years with most activity from the European red mite (*Metatetranychus ulmi* (Koch)), although the two-spotted spider mite built up toward the end of the season.

Tobacco Insects

Tobacco hornworm (*Protoparce sexta* (Johan.)) was more abundant on tobacco than it has been for some time, some fields being 100% infested with one or more larvae per plant.

Tomato hornworm (*P. quinquemaculata* Haworth) was only 1/10 as abundant on tobacco as *Protoparce sexta* (Johan.).

Tobacco flea beetle (*Epitrix hirtipennis* (Melsh.)) moderately abundant as normal except in tobacco seed beds where it was economically important.

The green peach aphid (*Myzus persicae* (Sulz.)) sometimes called the tobacco aphid, was economically important for the first time in 5 years doing damage late in the season.

Tree and Shrub Insects

Oak galls of several species were recorded in unusual abundance especially on white oak early in the season.

Fuller rose beetle (*Pantomorus godmani* (Crotch)) reported for the first time in Indiana (Warrick County) in late September attacking crape myrtle and forsythia.

Catalpha sphinx (*Ceratonia catalpa* (Bdv.)) larvae caused unusually heavy defoliation of trees in northern Indiana.

Zimmerman pine moth (*Dioryctria zimmermani* (Grote)) was first reported in Indiana late in 1956, and became alarmingly abundant this spring, in LaPorte county in red and Scotch pines. Moths were in flight early in the fall.

Elm leaf beetle (*Galerucella xanthomelaena* (Schr.)) was again recorded as destructive almost inclusively to Chinese elms especially in central and southern Indiana, although a northward trend is indicated. American elms almost free of infestation.

Bagworms (*Thyridopteryx ephemeraeformis* (Haw.)) continue to be economically very important on shrubs and trees in Indiana. Although not quite as abundant as the record year of 1956, the condition was severe.

Red-headed pine sawfly (*Neodiprion lecontei* (Fitch)) abundant in Owen County in July.

Sycamore tussock moth (*Halisidota harrisii* Walsh) was unusually abundant in the Lafayette area causing considerable defoliation.

Fall webworm (*Hyphantria cunea* (Drury)) extremely heavy in northern Indiana on black walnut, hickory, wild black cherry and oak.

European pine shoot moth (*Rhyacionia buoliana* (Schiff.)) destructive to buds of Scotch and red pine in LaPorte County in August.

Yellow-necked caterpillar (*Datana ministra* (Drury)) reported severe on multiflora rose and apple.

Locust leaf miner (*Chalepus dorsalis* Thunb.) damaged black locust very heavily throughout Indiana in August.

Mimosa webworm (*Homadaula albizziae* Clarke) was abundant on Moraine and Thornless honey locust in the Indianapolis area and south.

Man and Animal and Household Insects

German cockroach (*Blattella germanica* (L.)) is increasing in abundance rapidly due primarily to its widespread resistance to chlordane and change in habits.

Brown banded cockroach (*Supella supellectilium* (Serv.)) continues to be increasingly important in homes throughout the state.

Box-elder bug (*Leptocoris trivittatus* (Say)) continued to be important in the fall of the year principally because convenient control measures are unavailable.

Subterranean termite (*Reticulitermes flavipes* (Kollar)) is apparently increasing in importance due principally to desirable environments provided by new types of house construction.

House fly (*Musca domestica* L.) was unexpectedly low this season in spite of favorable moisture conditions.

Dog and cat fleas (*Ctenocephalides canis* (Curt.) and *C. felis* (Bouché)) have become major problems due to the increasing amount of DDT resistance.

American dog tick (*Dermacentor variabilis* (Say)) reached its highest population in many years, being unusually abundant in wooded areas throughout the spring.

Mosquitoes of most common species were unusually abundant throughout the year due to the continuous supply of standing water.

The year 1957 in Indiana was rather unusual from the standpoint of economically important insects. Populations of principal species were generally lower than normal while several species of other insects became unusually abundant.