Pests of
ORNAMENTALS
Reports on control experiments

John C. Schread

Pod Gall of Honey Locust

Honey locust pod gall injury to Moraine locust.

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Notice

The accompanying publication, printed some years ago, contains descriptions and biological information, and suggestions for control by spraying. It suggests the use of DDT.

Present regulations of the State Board of Pesticide Control restrict use of DDT by custom spray operators for this purpose.

Carbaryl (Sevin®) or lindane may be used to control these pests.

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THE CONNECTICUT AGRICULTURAL EXPERIMENT STATION

"Being in Newport . . . I observed"

In the November 1958 issue of FRONTIERS OF PLANT SCIENCE, a publication of this Station, Director James G. Horsfall noted the disappearance of amateurs in science and invited them to return. Down through the years some of these amateurs have shown an amazing ability to excell in diverse fields.

Such a man, we may assume, was Baron Charles Robert Romanovich von der Osten-Sacken, born in St. Petersburg in 1828, educated in his native city. He came to the United States at the age of 28, an amateur entomologist, as secretary of the Russian legation at Washington. In 1862 he was named Russian Consul General at New York, a position he held for about 10 years. Osten-Sacken then resigned public office but remained in the United States until 1877 to continue his entomological research. When he died at Heidelberg in 1906, he was recognized as a leading authority on the Diptera of North America.

"In August 1866, being in Newport, Rhode Island," Osten-Sacken wrote, "I observed a young tree of *Gleditschiae triacanthos*, the leaves of which were quite conspicuously deformed." He described and named the larvae he found in these rolled-up locust leaflets. And so it happens that entomologists a half century after the death of Osten-Sacken add the letters O. S. to the scientific name of the insect he observed on a honey locust tree in 1866.

Osten-Sacken didn't propose to do anything about the gall-forming insect, he simply described and classified his findings. Almost 40 years later, W. E. Britton of this Station noted infestations of this same insect on honey locusts. He commented simply: "There is probably no remedy."

And now, roughly 460 gallfly generations after 1866, Mr. Schread reports on experiments to control *Dasyneura gleditschiae* O. S., first noted by the Russian amateur, probably on a holiday.

POD GALL OF HONEY LOCUST

John C. Schread

The insect responsible for the honey locust pod gall, *Dasyneura gleditschiae* O. S., is widely distributed on honey locust. Britton (1904) reported serious infestations in New Haven and Middlefield. The pest was noted long ago in Indiana (Cook, 1905), and may interfere with nursery production of the honey locust today (Neiswander, 1957).

Injury

Severe injury to the Moraine locust and the Shademaster by the pod gall midge is becoming more noticeable with the recent increase in the number of trees. The insect seems to prefer these new thornless locusts to other varieties.

The leaves of Moraine locust are bipinnate with 7 to 25 leaflets and an average of 18. The new leaflets on the tips of the branches of midge-infested locust do not open normally.

Instead they become globular or pod-like galls. When an infestation reaches epidemic status, all leaflets may be galled. At a time of lesser outbreak the number of galled leaflets may vary from 1 to 25 with an average of about 16 on each leaf.

Completely galled leaflets may dry up and be shed prematurely. This is especially true when they have been attacked several times. Continuous serious injury and repeated defoliation may cause death of small branches. Under such conditions new growth may develop at the base of dead twigs. Hence, trees are rarely ruined by infestation. Unsightlyness is another matter and may be dealt with as the situation requires.

Seasonal history. The adult midges appear in April at about the time locusts start growth. These midges are about an eighth of an inch long, the males black, and the females with a red abdomen. The tiny kidney-shaped eggs vary in color from lemon-yellow to light amber. They are inserted singly or in small clusters among the young leaflets. The larva hatch in a day or two and start feeding immediately.

Larval feeding on the inner surface of a leaflet stops its development, but the outer surface grows normally. This produces a pod from which the insect gets its common name. When feeding is completed, the larvae transform to pupae in the pods. The emerging adults escape between the edges of the folded leaflets, leaving their pupal skins.

Eggs may be found as soon as the locusts start growth, and galls may be well formed as early as May 21.

A study of the honey locust pod gall insect on Moraine locust in southern Connecticut showed that from five to seven broods could occur in one season. Most of the life history study was made in 1956, with supplementary observations in 1957 and 1958. Table 1 gives the dates of adult emergence of the six broods in 1956 and the approximate length of each life cycle. Because of overlapping of broods the study was somewhat difficult under field conditions. Because of the early emergence of overwintering adults in 1956 (about April 27) there was a possibility of an additional brood in that year.

Table 1.
Occurrence of locust pod gall broods, 1956

First adults appeared	Length of life cycle egg to adult
April 27 (overwintering)	.....
June 5	21 days
June 20	15 days
July 6	16 days
July 26	20 days
Aug. 15	20 days
Sept. 15	30 days

The cold wet spring and early summer of 1958, however, extended brood development well beyond the comparable period in 1956. Hence, there appeared to be no more than five broods in 1958.

Although most of the studies reported here were carried on with Moraine locust trees growing in dense sod, some observations were made on trees growing in cultivated nursery rows. The number of broods was the same in either location.

The stage of development in which the locust pod gall insect overwinters was studied in 1955. Observations made on September 15 indicated that many adults had emerged from infested leaflets, and they continued to emerge until about October 1. Examination made on October 3 of many hundreds of galls taken at random from infested trees growing in cultivated nursery rows showed that all adults had emerged. At this time the trees had stopped growing, buds were formed for the next year, and the leaves were turning yellow and falling. These observations, and the appearance of adults noted in April, seem to indicate that the insect overwinters as an adult.

Control by Spraying

Neiswander (1957) reported that two sprays with DDT at a 10-day interval early in July gave effective control of pod gall midges.

In 1958, DDT emulsion (3 per cent DDT) was applied to Moraine locust trees on April 21, just before the leaves opened. No midges or eggs were present when the spray was applied. On June 17 there were 16 galled leaves from the sprayed trees, and 760 galls on untreated trees.

On July 11 samples from the same trees showed no control of the second generation. The spray delayed opening of the buds.

In an earlier experiment, foliage of infested trees was sprayed on May 21, 1956, for control of the first brood of midges. The trees were about 7 feet high, and five trees were used for each dosage. Results were obtained by examining the leaflets from 10 compound leaves taken at random from each tree (Table 2).

Lindane at 1 pint in 100 gallons of water gave the best control of the gall makers of the honey locust pod gall on Moraine locust.

Table 2. Control of first brood gall makers with foliar sprays, 1956

Material	Dilution (100 gals. water)	Gall makers		Per cent kill
		Dead	Alive	
DDT 25%	1 pint	17	37	31.4
DDT	½ pint	19	23	45.2
Lindane 20%	1 pint	48	8	85.7
Lindane	½ pint	26	19	57.7
Endrin 20%	1 pint	61	126	32.6
Endrin	½ pint	105	74	58.6
Malathion 57%	1 pint	18	40	31.0
Malathion	½ pint	19	21	47.5
Untreated	.....	0	62	.....

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