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Systemic insecticides effective against poplar tentmaker in cottonwood plantations

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webbing individual leaves together

(fig. 1). In Texas, each leaf nest insecticides were tested. contained 10-30 larvae. The caterpillars emerge from the nests and May 14 and August 14, 1970. feed on the foliage, leaving only the midribs and major veins of the leaves. Open-grown trees are favored by the insects (2).

Tests were already underway in the infested areas to evaluate several systemic insecticides against the cottonwood twig borer, Gypsonoma haimbachiana Kearfott (3), on the same plots where extensive poplar tentmaker defoliation was observed. No previous reports of the effectiveness of systemic insecticides against the poplar tentmaker are known. although quassia, а insecticide, botanical showed systemic activity against these insects (1).

Methods Test plots were situated on the Texas A&M University farm where

1 Field work was done while the author was employed by the Texas Agricultural Extension Service. The participation of

R. G. Merrifield (Texas A & M University) and R. A. Woessner (Texas Forest Service) in establishing the original cottonwood twig borer study is acknowledged.

the soils are Norwood silt loams and The insecticides used were 10 per-In late 1970, the poplar tentmaker, Miller clays. Test trees were cent granular formulations of aldi-Ichthyura inclusa Hiibner, became propagated from 20-inch cottonwood carb, carbofuran, disulfoton, and very abundant in succulent rapid- cuttings planted at a spacing of 5 xphorate. Each chemical was tested at growing eastern cottonwood 14 feet in April, 1970. A total of 480 rates of 0, 1/2, 1, and 2 ounces of plantations along the Brazos River trees were arranged in a split-plotgranular formulation per tree. The in Burleson County, Tex. The lar- design consisting of three blocks of granules were placed in four holes vae construct characteristic nests by 160 trees; each block contained 16 equidistant around the tree made Three dosages of four with a tree-planting bar. The speciplots. fied dosage was placed in the holes to a

Insecticide applications were made

depth of 6-8 inches and covered with soil.

Figure 1.-Nests constructed by poplar tentmaker larvae on eastern cottonwood

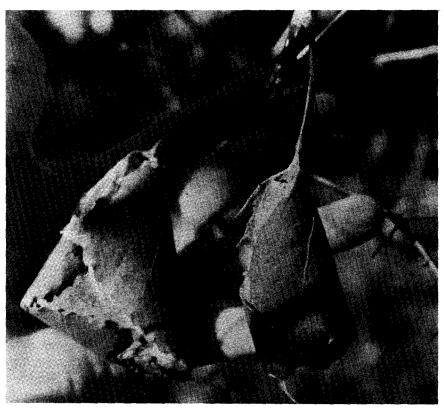


TABLE 1.-Defoliation of eastern cottonwood by the poplar tentmaker in 1-10 percent defoliation class, 49 test plots (November, 1970).

	Total No.	Defoliation Rating Class		Total	
Treatment	Trees	1-10%	11-60%	61-100%	for Treatments
<u> </u>	Percent of total				
Carbofuran	90	0	0	0	0
Phorate	90	2.2	0	0	2.2
Aldicarb	90	0	1.1	1.1	2.2
Disulfoton	90	2.2	3.3	2.2	7.7
Control	120	2.5	11.7	7.5	21.7

The plots were cultivated three times during the season but received no irrigation or fertilization. Rainfall from April to September totalled about 16 inches. However, 14.5 inches occurred during April, May, and September. June, July, and August were extremely dry.

Results

Although the poplar tentmaker is reported to have two generations per year (2), defoliation attributable to the insect was not observed in the early spring generation. During October and November, however, the insects were numerous on cottonwoods throughout the area surrounding the plots. In November, plots were examined and rated as to the extent of defoliation by tentmakers. The rating classes used were: No defoliation; 1-10 percent defoliation; 11-60 percent defoliation; and 61-100 percent defoliation.

trees, there were no clear correlations cottonwood growth are identified or between extent of damage and rate of understood. These studies indicate that application of any of the systemics. certain systemic insecticides used at the Therefore, the data for the three rates rates necessary for control of the of application were combined. About more important cottonwood twig 15 percent of the trees in the 1 and 2 ounce aldicarb plots exhibited foliation caused by the poplar tentmarginal leaf burning during June and maker. July.

In the systemic plots, defoliation ranged from 7.7 percent of the trees in the disulfoton plots, to none in the carbofuran treatments (table 1). With the four insecticides combined, only 3.0 percent of the treated trees were defoliated. On the other hand, 21.7 2. Baker, W. L. percent of the untreated controls were defoliated. The degree of attack on the controls is comparable to that on 3.Coster, J. E., R. G. Merrifield, and R. A. older adjacent plantations where about 30 percent of the trees sustained some degree of defoliation. Of the trees attacked in the systemic plots, 19 percent were in the

percent were in the medium defoliation class, and 32 percent had more than 60 percent of the foliage destroyed.

Discussion and Conclusions

Relatively little is known of the poplar tentmaker's biology. Although it now appears to be a minor pest, intensive cottonwood culture in Texas has not progressed to the point Due to the low number of defoliated where all limiting factors of borer (3), will also markedly reduce de-

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