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ANOTHER OLETHREUTINE, *PHANETA LATENS* (LEPIDOPTERA: TORTRICIDAE), ATTRACTED TO THE SEX PHEROMONE OF THE CODLING MOTH[1]

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ABSTRACT

The olethreutine, *Phaneta latens* (Heinrich), was attracted to the pheromone of the codling moth *Cydia pomonella* (L.), *(E,E)*-8,10-dodecadien-1-ol. Field trapping records indicated that flights of *P. latens* occurred between May 12 and June 20, 1978, with the greatest trap catches in late May. In 1979 flights occurred from May 15 to July 2, and the peak catches dispersed throughout May and June. Responses of *P. latens* to the pheromone was significantly less at concentrations of 0.25 mg/trap than at 1.0 and 2.0 mg/trap; the latter two were equally attractive.

The attraction of extracts from female codlongmoths, *Cydia pomonella* (L.), to male colding moths was first shown at Yakima, Wash., in July 1963 (Butt and Hathaway 1966). Later, Roeloefs et al. (1971) identified the sex attractant of codling moth to be *(E,E)* 8,10-dodecadien-1-01. We found another olethreutine, *Phaneta latens* (Heinrich), to be attracted to this pheromone.

In 1929, Heinrich reported that the adult tortricid, *P. latens*, was known only from the type locality in Tulare County, Calif. The food plant was listed as unknown. Dr. Thomas D. Eichlin of the Insect Taxonomy Laboratory, Sacramento, Calif., identified *P. latens* for us strictly by comparing the male genitalia with illustrations of the species in Heinrich (1929). Dr. Eichlin said that information about *P. latens* was limited and that specific determinations were very difficult (pers. comm.).

In this paper we describe the effects of the sex attractant of the codling moth on *P. latens*, including the seasonal flight activity and variations in the attractiveness of different dosage rates of the attractant.

METHODS AND MATERIALS

The seasonal activity of the moth was determined with two pheromone traps tht were set out in peach trees from May 1 to Sept. 28 in 1978, 1979, and 1980 at Moxee, Wash. In 1980, two additional pheromone traps were placed in apricot trees in Moxee from May 20 to June 12 and in pear trees in Ellensburg, Wash., from June 10 to July 7. The Sectar 1® traps were baited with red rubber-sleeve stoppers (septa)

[1]Mention of a commercial product does not constitute a recommendation for use by the U.S. Department of Agriculture.

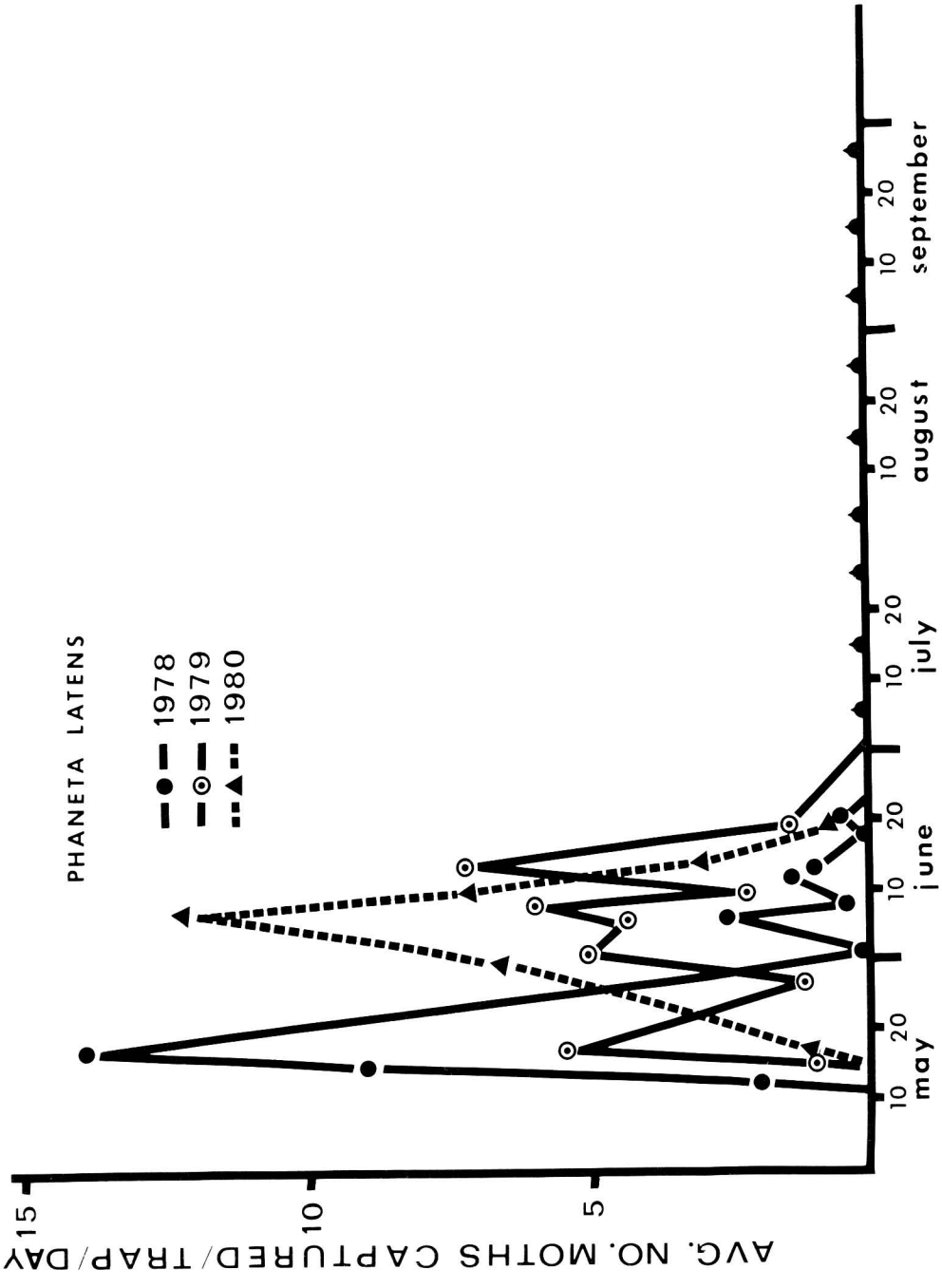

Fig. 1. The seasonal catches of *Phaneta latens* by codling moth pheromone traps set in peach trees in one location in 1978, 1979 and 1980.

impregnated with codling-moth pheromone obtained from Zoecon Corporation. These traps were hung about 30 m apart and 1.7 m high in trees. The septa were changed every 4-5 wk to maintain uniform attractiveness. Other traps without pheromone were hung in the trees to serve as controls.

In another experiment the attractiveness of the pheromone was tested at concentrations of of 0.25, 0.5, 1.0 and 2.0 mg. Two traps at each concentration were tested from May 20 to June 2. The traps were spaced by placing them in every other tree in a peach orchard, and the sites were rotated several times per week during the test.

RESULTS AND DISCUSSION

Adults of *P. latens* were first captured on May 12, 1978, and peak catches occurred in mid-May; catches declined rapidly thereafter (Fig. 1). Other activity occurred from June 1 to 21. Although the traps were left in the field until Sept. 28, no additional moths were caught. A somewhat similar pattern occurred in 1979, with the first moth being captured on May 14 and the first peak of activity occurring in mid-May. Unlike 1978, however, more moths were caught from the end of May to mid-June than earlier in May. No additional moths were caught from July 2 to Sept. 28, 1979. In 1980 the 1st moths were captured on May 18, with the peak activity occurring the early part of June. The last moths caught were collected in traps on June 20.

When different concentrations of colding moth pheromone were compared in the field (Table 1), the low concentration of 0.25 mg/trap caught significantly less moths than concentrations of 1.0 and 2.0 mg/trap. The number of moths caught at 0.5 mg/trap was not significantly different from the numbers caught in traps with lower or higher concentrations.

There were 67 *P. latens* moths caught from May 20 to June 12, 1980 in the pheromone traps in apricot trees, and other 45 moths were caught in pheromone traps in pear trees from June 10 to July 7.

In summary, this study showed that another olethreutine moth species was attracted to *(E,E)*-8,10-dodecadien-1-01, a known sex attractant of the codling moth. Furthermore, because all captured moths were identified as males, we assumed that the pheromone was also an important component of the sex attractant of *P. latens*.

TABLE 1. The comparison of different concentrations of *E,E*-8,10-dodecadien-1-o1 pheromone in the field in capturing the moths of *Phaneta latens*.

Concentration of pheromone (mg/trap)	Mean no. moths captured per trap per day[1]
0.25	0.11 a
0.50	0.45 ab
1.00	1.33 b
2.00	1.31 b

[1]/Means in a column not followed by the same letter are significantly different (P = 0.05) by Duncan's multiple range test.

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IMPROVED CONTROL OF THE WESTERN CHERRY FRUIT FLY, *RHAGOLETIS INDIFFERENS* (DIPT.:TEPHRITIDAE), BASED ON AREA-WIDE MONITORING

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ABSTRACT

A monitoring program, using spherical wooden traps of Saturn Yellow® color, was tested on an area-wide basis for control of the western cherry fruit fly, *Rhagoletis indifferens* Curran. All calendar sprays were eliminated and substituted by sprays applied only after the first female flies were caught on any of 8 traps/acre. This approach resulted in elimination of all spray treatments for *R. indifferens* control in 4 of 10 study orchards during the 1977 season. The remaining study orchards required one fewer spray treatment. In 1978, 1 of 14 study orchards required 4 fewer treatments. Among the remaining orchards, 3 sprays were eliminated in 2 orchards, 2 sprays in 4 orchards and 1 spray in 6 orchards. It is estimated that the average saving in spray costs alone amounted to about $31.00/acre in 1977 and $26.00 in 1978. The overall reduction in number of sprays applied was about one-half during 2 seasons. The orchard blocks under the fly monitoring program had about the same level of infestation in the fruit as the calendar treatment blocks.

INTRODUCTION

The western cherry fruit fly*Rhagoletis indifferens* Curran, is the most important pest of cherries in the Pacific Northwest. More than 80% of all insecticide sprays applied to cherry trees are directed against this pest. Untreated orchards sustain between 50 and 100% fruit infestation. Almost all commercial growers in Oregon and Washington rely on preventative sprays ranging from 3 to 6 ULV sprays of malathion or ground sprays of diazinon per season, and causing excessive over-spraying, with resultant environmental contamination and financial loss. As an alternative to this method, AliNiazee (1978) suggested a program of minimum presticide use based on trap catches. This involved the use of suspended or hanging spherical traps of 5 cm diam., painted with Saturn Yellow® fluorescent paint or Zoecon's AM standard traps, at the rate of 4-8/acre. The application of control treatments was delayed until the flies were trapped in each individual orchard. Frick et al. (1954) also suggested the use of traps to determine the emergence of flies and the timing of control treatments. Other workers (Madsen and Vakenti 1973, Riedl and Croft 1974, Minks and DeJong 1975, Neilson *et al.* 1976, Westigard and Graves 1976) used pheromone or attractant traps to monitor pest emergence and population fluctuations, to provide a basis for pest control decisions.

Reported here are the results of an area-wide application of a cherry fruit fly management program involving 22 cherry growers throughout the Willamette Valley of Oregon.

MATERIALS AND METHODS

Fly emergence in study orchards was monitored by using 5 cm diam. wooden shperical traps (AliNiazee 1978), at 8 traps/acre.

The spheres were painted with fluorescent Saturn yellow paint (Day Glo Co., Cleveland, Ohio) and a thin coat of Stickem Special® (Michael Pelton Co., Emeryville, California) for catching the attracted flies. The traps were placed randomly throughout the study blocks