

An Apparatus for Measuring Oviposition in Some Insects

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A SIMPLE DEVICE has been constructed which allows one to measure amount and time of insect oviposition of nonsurface-adhering eggs. The apparatus was developed to record oviposition rhythms of *Crambus* moths (Family Crambidae), larvae of which are known as sod webworms. Under room conditions moths of most Northwest species oviposit nocturnally as a rule. Bohart (1947) observed in California that *C. bonifatellus* H1st. has a dusk oviposition flight that appears dependent on light conditions, although such flights were not observed by Crawford (1961) in a study of the bionomics of *Crambus* species in Washington.

The apparatus consists essentially of a one-and-a-half-cubic-inch cage enclosing the gravid female insect and resting on a modified hopper. This combination is suspended by wires over a sticky-surfaced revolving drum to which the falling eggs adhere (see Figure 1). The cage itself is made of stiff gauze on three sides and of thin plastic sheeting on one side and top. Materials used allow for observation and air passage. Thin, vertical plastic strips with even thinner extensions projecting beneath the cage are fastened to the inside corners to increase rigidity and to anchor the cage over the hopper.

A two-inch square piece of window screen with sides bent down is fit snugly over the top of the hopper. Eggs fall easily through the mesh while the insect remains above. The plastic strips extending from the cage corners fit into the mesh, holding the cage in place. The hopper is made entirely of plastic sheeting, thus enabling one to notice if falling eggs are in any way obstructed. Sections composing the walls of cage and hopper may be fastened together by glue or transparent tape.

The revolving drum presently being used is part of a Bendix Hygro-Thermograph assembly. Its axis is at right angles to the surface on which it rests. Over the installed chart is stretched transparent tape, sticky side up. (There is no reason why other types of clear adhesive coating should not work as well.)

When the bottom slit of the hopper, which is approximately one millimeter in width, is placed at an angle corresponding to the area on the chart denoting

the correct time, the device is operative. A distance of one-two mm. between hopper slit and drum surface appears sufficient to avoid lateral scattering of eggs.

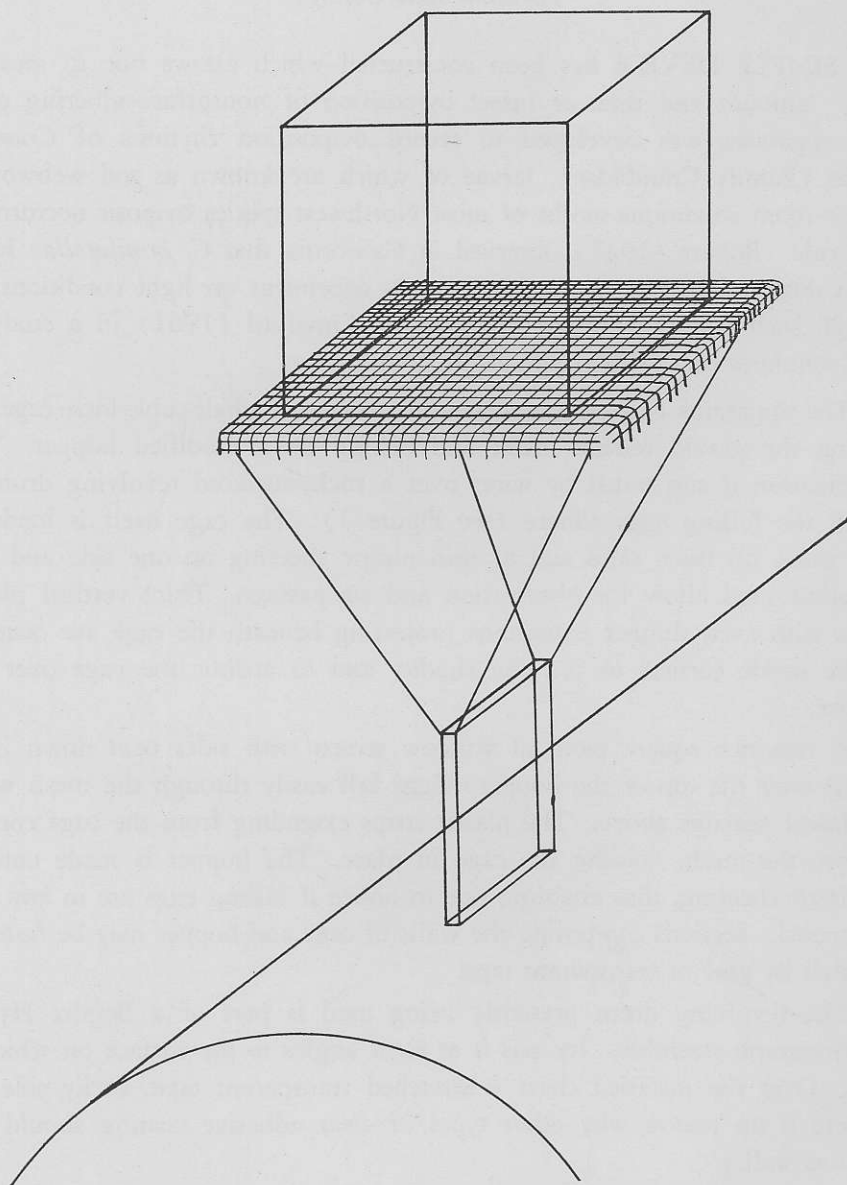


Figure 1. Diagram of oviposition-measuring apparatus over a revolving drum. See text for details.



Figure 2. Line tracing of photograph showing 24-hour record of oviposition by a single *Crambus bonifatellus* Hlst.

If a semipermanent record of oviposition is desired (see Figure 2), the chart and tape with eggs may be carefully removed together and the surface sprayed with an acrylic coating. However, counts of periodic egg deposition may be read directly off the drum before chart removal.

Two oviposition devices may be used simultaneously over the same drum. Rolled gauze moistened in sugar solution can be placed in the cages as a food source.

Literature Cited

- Bohart, R. M. 1947. Sod webworms and other lawn pests in California. *Hilgardia*, 17:267-307.
- Crawford, C. S. 1961. The bionomics of destructive microlepidoptera of grass fields. Ph.D. Thesis, Washington State University. 140 pp.