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A DEVICE FOR ESTIMATING THRIPS POPULATION ON CITRUS FOLIAGE

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It is very difficult to make population counts of the citrus thrips (Scirtothrips citri (Moult.)) because these insects are small, active, and easily disturbed, and their color blends with that of the foliage of the host. Because of this difficulty the writer developed a number of years ago a "thrips meter," herein described, for obtaining indices to thrips populations.

The thrips meter consists of four items of equipment (fig. 1), each of which will be described separately. Item 1 is a light, durable box, 8 by 6 by 2-1/2 inches in dimensions. A cigar box will fill these requirements. At one end of the inside of the box is placed a spring catch and at the other end a ledge, to hold in place items 2 and 3.

Item 2 is a sheet of black paper to which is applied a thin film of sticky material, such as tanglefoot, and which fits into the bottom of the box. For convenience in handling, the margin of this sheet is left free of the sticky substance; this reduces its effective adhesive area to about 23 square inches. Black paper is used, as the pale insects are readily seen and counted on a dark background. This item is referred to as the capture sheet.

For the preparation of the capture sheets the sticky material is applied with a painter's brush. A supply of these sheets may be prepared in advance and stuck face to face to await use. Care should be taken to apply the sticky fluid as a continuous film of proper thickness. IT is important that the exposed, sticky area of the sheet be always the same, otherwise the records obtained would not be comparable.

Item 3 is a frame of wood or thick cardboard of the same over-all dimensions as the sticky sheet. At one end it fits under the ledge in the box and at the other end under the spring catch. The frame is put into place, or removed, by means of a knob fastened to the upper surface of the frame on the end that fits under the ledge, and is held in place by the ledge and the spring catch. The opening of this frame corresponds in size to the effective sticky area of the sheet and exactly registers with it.

Item 4 is a cover of wire screen soldered to a frame of light angle material made of tinned sheet iron, fitting snugly over the box. The mesh of the screen is large enough to permit the thrips to fall through and at the same time prevent larger insects and trash from passing through to the sticky sheet.

When the device is assembled for use, the arrangement is as follows: The adhesive capture sheet lies directly on the inner bottom surface of the box, the frame lies immediately over the capture sheet, and the screen cover fits snugly over the box opening.

Both larvae and adults of the citrus thrips feed by preference on the tender twigs or terminals of the citrus trees, and these new growth terminals are used as the units of measurement for the thrips counts. The twigs are beaten upon the screen with the thrips meter held in a horizontal position (fig. 2), and the insects fall through the screen and are retained by the sticky capture sheet.

To facilitate the counting of the insects, the sticky sheet is removed and cut into smaller pieces, usually six. Counting is further aided by cutting a series of intersecting cross lines into the surface of each small piece of the capture sheet. It is preferable to make the count in the field with a hand lens before the insects have had time to become quiet or settle into the sticky fluid, when counting becomes more difficult. If necessary, however, the counting may be done later in the laboratory, with either a hand lens or a binocular microscope.

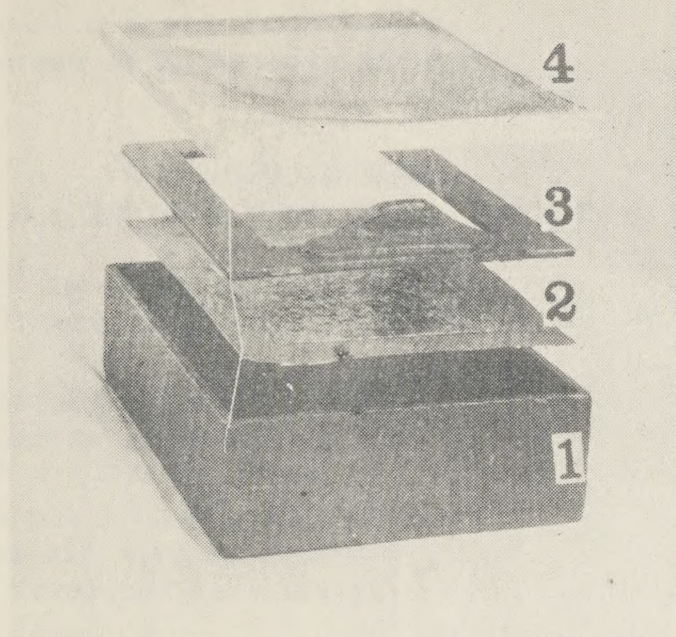


Figure 1.—Four component parts of the thrips meter:  
1, Light box; 2, capture sheet provided with a film  
of sticky material; 3, frame serving to hold the  
paper in place and standardize the area of capture;  
4, screen cover.



Figure 2.—Thrips meter in use in an orchard.

