



An Insect Sweepnet— Construction and Use

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A good index of expected damage from the alfalfa weevil is the number of weevil grubs per 20 sweeps with a sweepnet at the time of the first flower bud stage.

A worksheet for such prediction is in "Toward Estimating Benefits From Alfalfa Weevil Control" in the *Late Report Insect Newsletter* of June 11, 1974. An important limitation to the use of this worksheet is that very few growers own or know how to use a sweepnet. Growers are urged to obtain and use a net, especially if alfalfa is important to their operation.

The sweepnet is useful for sampling insects in many crops. We suggest that all growers become familiar with the sweepnet. Suggestions on the construction and use of a sweepnet are presented here.

CONSTRUCTION

A sweepnet is a sturdy piece of equipment. The common collecting (or butterfly) net simply is not tough enough to do the job. We no longer have a reliable source for purchase of sweepnets; if you have one, hold on to it. A good sweepnet can be constructed rather simply and inexpensively.

Handle

Use a solid piece of wood about $\frac{3}{4}$ in. in diameter by 3 ft long. An old broom handle will do. Drill holes large enough to accept the wire of the hoop (see below) at about $2\frac{1}{2}$ in and $3\frac{1}{2}$ in from one end of the handle. You may want a groove forward from the holes so that the wire is flush with the wood (Figure 1).

Hoop

Heavy wire, thin rod or strong spring steel about 5 ft long should be bent into a circle of 15-in diameter. Sharply bend each end of the wire to form arms: one about $2\frac{1}{2}$ in and the other about $3\frac{1}{2}$ in long. Bend the tips of each arm to enter the holes drilled in the handle (Figure 2). A common

fault with homemade nets is with the hoop bending at the ends of the arms. Use a sturdy hoop material.

Net

Two pieces of sturdy muslin cloth about 25 in by 30 in can be used for the net. Tightly woven nylon netting may also be used if it is sturdy enough to take the beating. Place the two pieces together and fold them lengthwise. Cut the cloth in an arc from the point of the fold to about 10 in from the top of the cloth (Figure 3). Make the bottom of the net rounded and not pointed; this will make sewing and emptying the net much easier. The cutting will give you two equal bullet-shaped halves of the net. Sew the edges together with about a $\frac{1}{2}$ -in seam, leaving the upper 10 in on each side unsewn (Figure 4). The seam can be doubled over and stitched flat. Double down the loose upper 10 in of the net, double it down again, and sew it securely. This will form a reinforced channel for the hoop.

Assembly

The hoop should be pushed through the channel at the top of the net, leaving the arms projecting from the net. The fit will be tight. Place the tips of the arms into the holes in the handle and squeeze the arms tightly to the wood. Wrap the arms tightly to the wood, using wire. This will give you a serviceable sweepnet.

USE

A sweepnet is made to sweep insects out of vegetation by swinging the net in an arc in front of you as you move through the field. A "sweep" is a single swing of the net and will cover, generally, about 5 ft of arc (Figure 5). Keep the net in the vegetation during the sweep (this will take a little energy in tall alfalfa), swing it sharply, and keep the net moving to avoid escape of the insects from the net between sweeps. You will find

that you can make a sweep with each step with a little practice. Some insects will hide in any available crevice. Keep the seam of the net, where the insects could hide, on the outside while sweeping.

Sweep samples can be made in any direction with respect to the rows of tall drilled crops, such as small grains or forages. Your net will sweep through vegetation constantly, no matter which way you are going in these crops. You should move perpendicularly to the row and sweep down the row in row crops or in small drilled crops that have not yet filled the row.

Samples of 20 sweeps each are generally used for most insects. Take 20 sweeps in an area of the field, shake or snap the net after the last sweep to get the insects into the bottom of the net, and then pinch the net shut about the insects. The insects can be counted in the net itself or spread out in a shallow pan or box for counting.

Insect numbers may vary in different sections of a field. Samples of 20 sweeps each, taken from 5 different areas of a field will give a fair idea of the numbers of the pests that are in the field. Use the average number of insects from the five samples as representing the entire field.

Time of day, temperature, sun, wind, rain and moisture on the plants will affect the number of insects that are collected. The best time to sample is when winds are low and the plants are dry, on warm, late afternoons or early evenings. Some insects, such as adult alfalfa weevils and armyworms, are active mostly at night and remain hidden near the bases of the plants during the day. Sampling of these insects should be done right after dark when they are up on the plants.

A sweepnet will pick up all kinds of insects. A hand lens of about 10 power is adequate for examining and identifying most insects. Such lenses are available at many stores. Bulletins on the identification of insect pests

are available from your County Agricultural Extension Agent. He will also help you identify insects that you find feeding on your crops. Preserve as many of the unknown insects as you can and take them to your County Agricultural Extension Agent for identification. Insects can be preserved by placing them in rubbing alcohol in small, tightly corked medicine bot-

tles. A penciled (not ink) note stuck in the bottle with the insect with the location, date collected, crop and your name on it will help in identifying the insect.

SPECIAL NOTE

Cereal leaf beetle, alfalfa weevil, western corn rootworm and Essex skipper are foreign insect pests that

have recently "invaded" Michigan. The earlier you report new pests, the greater the chances of subduing them. Preserve and turn in any unknown insects you find feeding on your crops to your County Agricultural Extension Agent or representative of the Michigan Department of Agriculture. Your alertness could be a real benefit to Michigan agriculture.

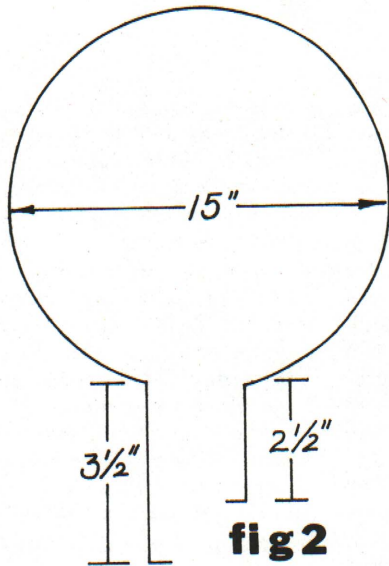


fig 2

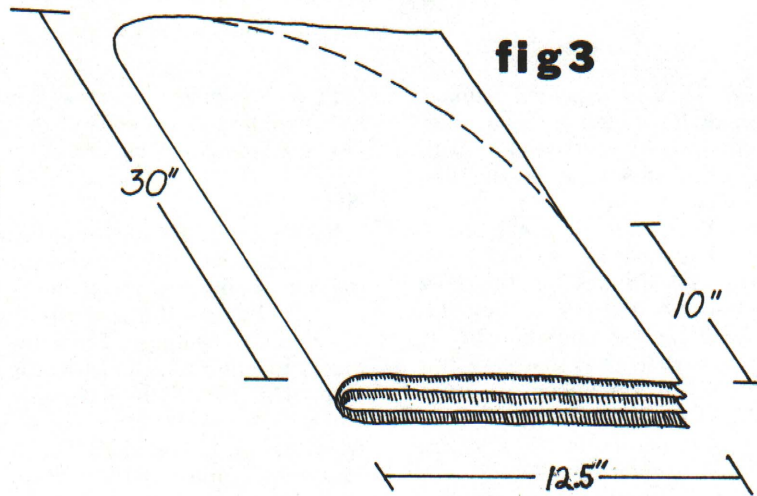


fig 3

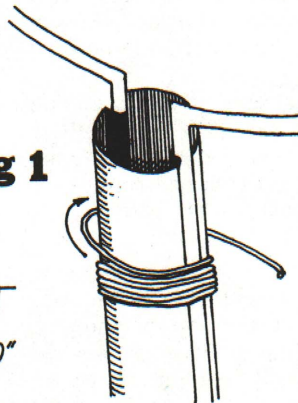


fig 1

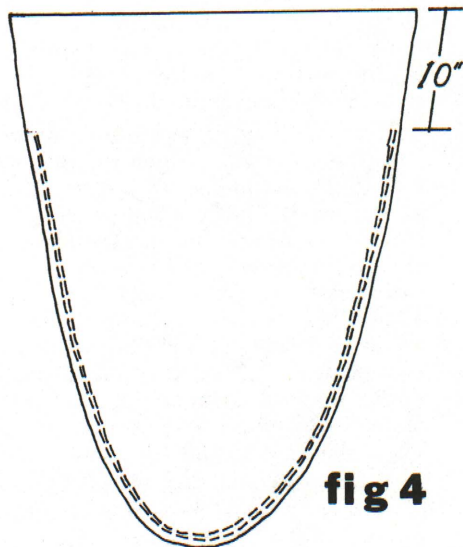


fig 4



fig 5