

CONSTRUCTION AND USE OF TRAPS FOR MONITORING NUT CURULIO, *Conotrachelus hickoriae*

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Introduction:

The presence of pecan insects can vary considerably from orchard to orchard, as can the degree of infestation. This is particularly true for the nut curculio, *Conotrachelus hickoriae* Schoof. Emergence patterns can be affected by things such as rainfall patterns, temperature, crop load, and orchard floor management. The presence or absence of this insect in orchards and variations in emergence patterns from year-to-year necessitates the need for regular monitoring of curculio activity by the individual grower.

Two types of traps, the wire cone trap and the pyramid trap, can be used by growers to monitor the seasonal activity of nut curculio. Both traps are easy to construct and relatively inexpensive.

Trap Construction and Placement:



Figure 1. Wire cone trap.

Wire Cone Trap (Fig. 1). The wire cone trap is composed of a base or bottom cone and a top cone to which a collecting container is attached. Both base and top cones are constructed of 1/16 inch mesh window screen wire (Figs. 2a, 2b). A 2 X 2 in., hinged, clear plastic box was attached to the top cone and served as the collection container. The boll weevil trap top assembly can be also used as a top and collecting container (see pyramid trap construction below). Spacers made of 1/4 in. diameter wooden dowels were attached to the inside of each top cone to allow nut curculios moving up the outside of the trap passage into the top cone and into the collecting container (Fig. 2b).

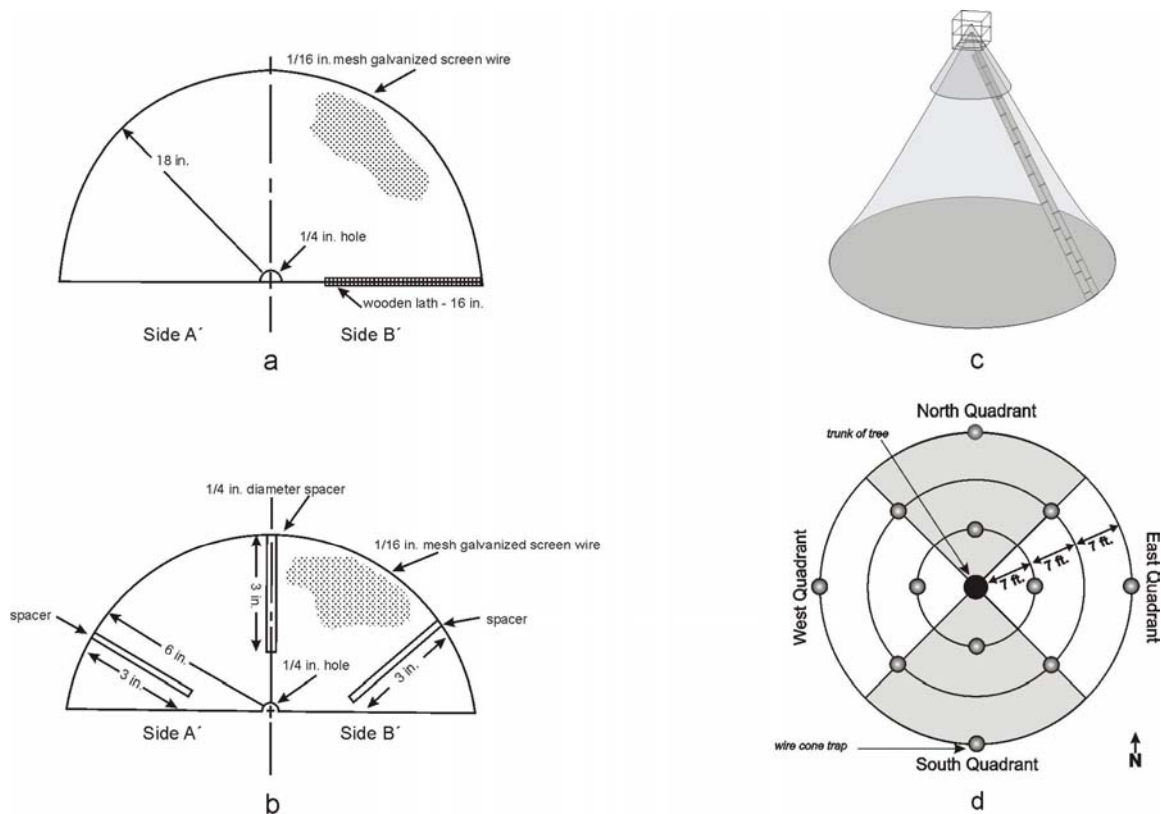


Figure 2. Schematic diagrams of the bottom cone (a), top cone (b), completed trap assembly (c), and placement of traps under the tree (d).

For the bottom cone, the screen wire is cut into a semi-circle having a radius of 18 inches. To form the cone, sides A and B are folded over, overlapped, and stapled to a piece of wooden lath 16 inches in length. The top cone is formed in the same way, except that the overlapping edges are stapled to each other rather than to a wooden lath.

To use the wire cone traps to monitor nut curculio first select trees at least five trees in the orchard that have a history of nut curculio infestation. Because of the uneven distribution of the emerging curculios under the trees, twelve traps should be used per tree. The traps should be arranged in three concentric circles consisting of four traps per circle, and the middle ring of traps should be offset 45 ° from the inner and outer rings. Place the three rings of traps at 7, 14, and 21 feet from the trunk (Fig 2d). Once the traps are in place, put dirt around the perimeter of each trap to anchor the trap and to provide a seal to prevent the trapped insects from escaping. The traps should be checked at least three times per week.

Pyramid Trap (Fig 5). The pyramid trap, which was designed by Lewis W. Tedders (Tedders and Wood, 1994) for monitoring pecan weevil, is a simple trap designed to imitate the color and shape of a pecan tree trunk. Because the nut curculio has similar habits to the pecan weevil, this trap is also effective in trapping nut curculio adults as they emerge from the soil.



Figure 5. Pyramid trap.

The trap can be made from either $\frac{1}{4}$ inch to $\frac{1}{2}$ inch sheet of 4 ft. X 8 ft. plywood or chip-board. Masonite can be used, but it is prone to warping and is not as durable. Figure 6 is a schematic diagram showing how to mark the plywood to make the cuts necessary to form the panels of the trap. The end pieces can be joined together to form an additional panel. In half of the pieces, a 24 inch cut is made from the bottom upward, while in the other half of the pieces a 24 inch cut is made from the top downward. These cuts allow the two halves of the traps to be joined together to form the pyramid. The traps are painted using flat black paint to mimic the color of the tree trunk. Attached to the top of the trap is a boll weevil trap assembly. These assemblies can be purchased from Technical Precision Plastics, Inc. (call 919-563-9292 for ordering and current pricing information). The assembly is attached to the trap top by gently pushing it down onto the trap. The top of the trap must be cut in such away to allow for the assembly to fit. A full size pattern that can be used to make the appropriate cuts to the top of the trap can be found at the end of this article.

Again, select trees known to have a history of nut curculio infestation, and place four traps under each tree. The traps should be placed approximately 20 ft. out from the trunk and 90° apart from each other. Whitewash the tree trunks so that the traps, and not the tree, is attractive to the weevils. Commercial whitewash can be purchased, or diluted white latex paint can be applied to the tree trunks. Traps should be checked at least three times per week.

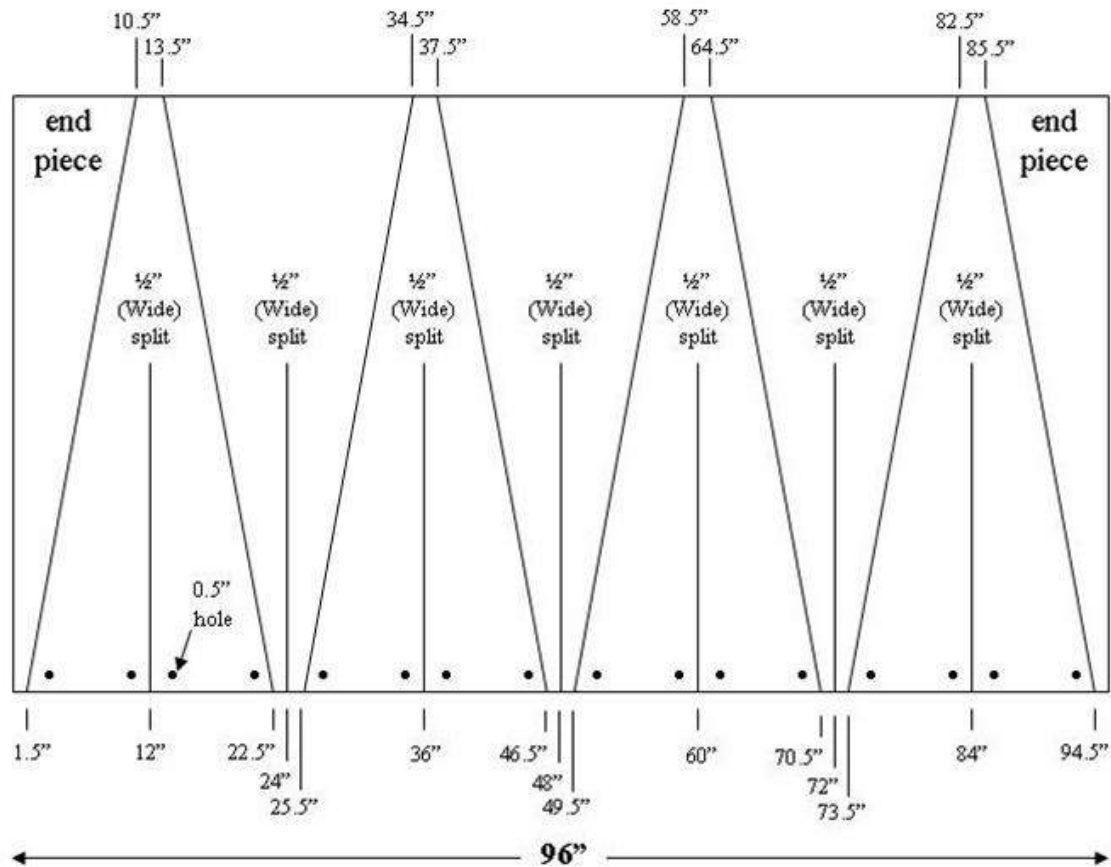
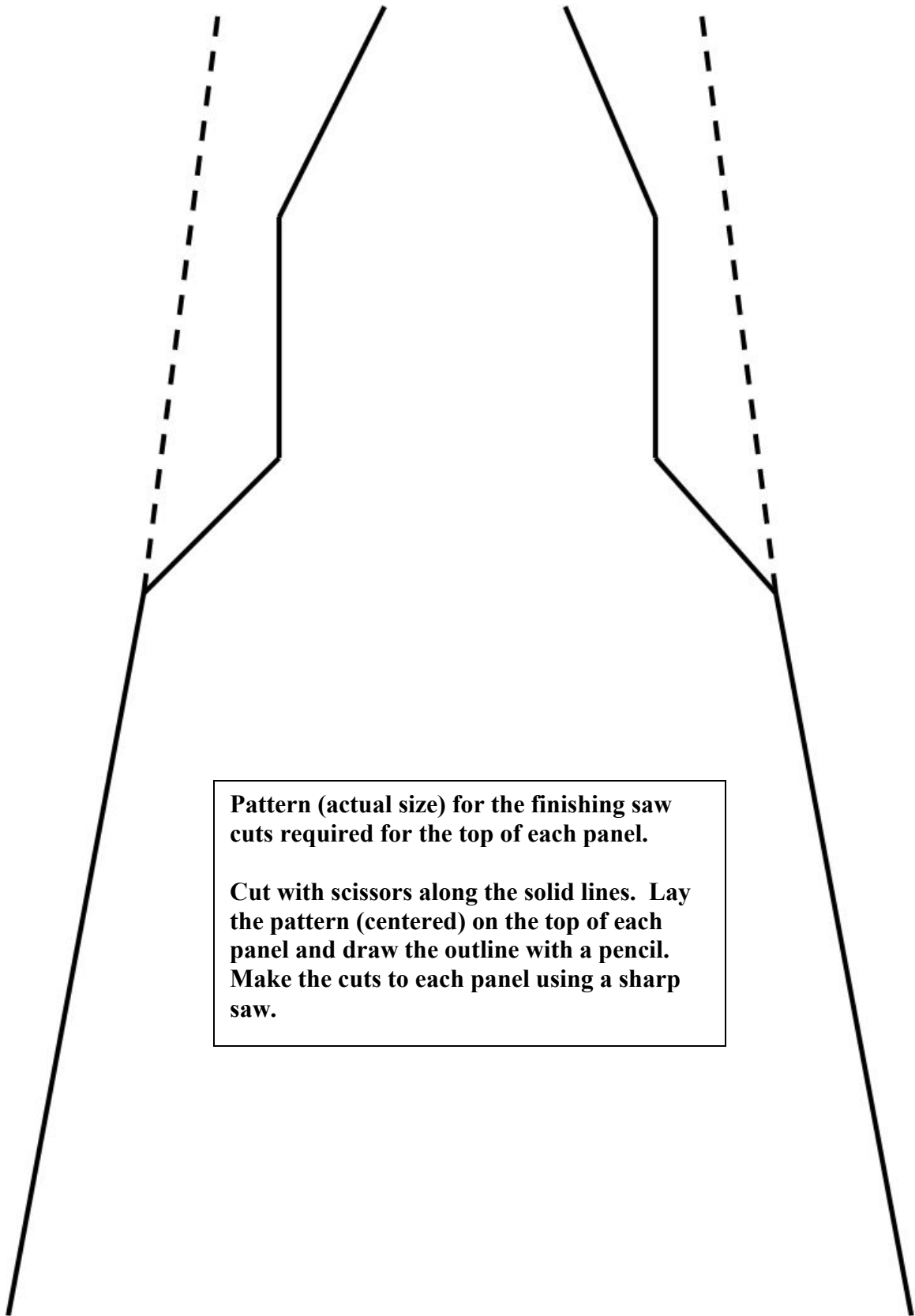


Figure 6. Schematic diagram showing the markings used to make the cuts on a 4 ft. X 8 ft. sheet of plywood, chipboard, or masonite. For correct measurements, measure from left to right. The two end pieces can be spliced together from the bottom or top side by gluing a 3 in. X 24 in. piece of plywood, chipboard, or masonite. Each sheet of plywood will yield four traps.

References Cited.

Tedders, W. L. and B. W. Wood. 1994. A new technique for monitoring pecan weevil emergence (Coleoptera: Curculionidae). J. Entomol. Sci. 29 (1): 18-30.



Pattern (actual size) for the finishing saw cuts required for the top of each panel.

Cut with scissors along the solid lines. Lay the pattern (centered) on the top of each panel and draw the outline with a pencil. Make the cuts to each panel using a sharp saw.