

## Alfalfa Leafcutter Bee Excluder-Beetle Trap

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Reclaiming alfalfa leafcutter bees from man-made nesting materials that become severely infested by predator beetles is a real problem. Keeping heavily infested nests is definitely uneconomical, yet, these almost always contain a sufficient number of bees to justify the cost and effort to save them.

The combination bee excluder-beetle trap described in this Current Information Series is relatively easy to construct and doesn't cost much for materials. This trap is designed so: 1. bees can exit, but not reenter, and, 2. beetles are killed upon emerging.

### HOW THE TRAP WORKS

The trap attaches to a light-tight enclosure containing the nests. This enclosure can be a specially constructed box such as described later in this publication, or it can be a trailer or room. The two essentials are that it be light-tight and that it be large enough to hold the infested nests.

The trap itself contains two walls of clear glass: an inner wall to help guide the bees toward the exit, and an outer wall that keeps them from reentering the trap.

As the leafcutter bees and beetles emerge from the nests, they move toward the light coming through the excluder-trap. Much of the floor of the excluder-trap is a nylon netting with approximately 1/8 inch mesh. The nylon netting is attached to the outside surface of the 1/4 inch flooring.

The inner glass wall fits tightly to the top and sides. Its bottom edge is even with the floor. Therefore, the only way the bees and beetles can exit is across the nylon netting. Bees walk or fly over the netting toward the outside light with no difficulty. On the other hand, beetles have not

been observed to walk more than one inch over the netting without falling through. Those beetles that fly have the habit upon striking the glass of folding their wings and dropping down and through the netting.

Nylon is stressed for the netting material rather than cotton or other material. Beetles cannot get a firm grasp on the nonporous, monofilament nylon strands, while they can easily move over other materials.

The beetles fall from the nylon netting into a trap box. The trap box should have a thin layer of DDT (50% WP is best) spread over the bottom. DDT is recommended because it does not give off volatile fumes that might adversely affect the bees passing across the nylon netting above.

After passing across the nylon netting, the bees proceed toward the outer glass wall. Here they encounter the curved metal trough (see plan views). A piece of cloth or burlap (not shown in the plans) should be fastened to the outside edge of the trough and the material hung inside the trough. The edge of the material should come only to the bottom of the curve. This gives the bees a rough surface to walk up and out of the trough.

However, should a bee try to return it cannot move up the inner steep metal surface not covered by the cloth or burlap.

### OTHER POINTS OF INTEREST

All interior cracks and joints of the enclosure containing the infested nests should be caulked to prevent exit other than through the excluder-trap.

Infested nests should be placed in the enclosures only after an incubation period of 17 to 19

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days at 85° F. If the bees have not been incubated, but are placed in the enclosure directly from overwintering storage, many parasites, other than beetles, will emerge and contaminate the new nests provided.

The enclosures containing infested nests should be placed in or near fields where the bees will be working. If possible, keep direct sun's rays from shining on the enclosure. Temperatures can often build up inside that will kill un-emerged bees.

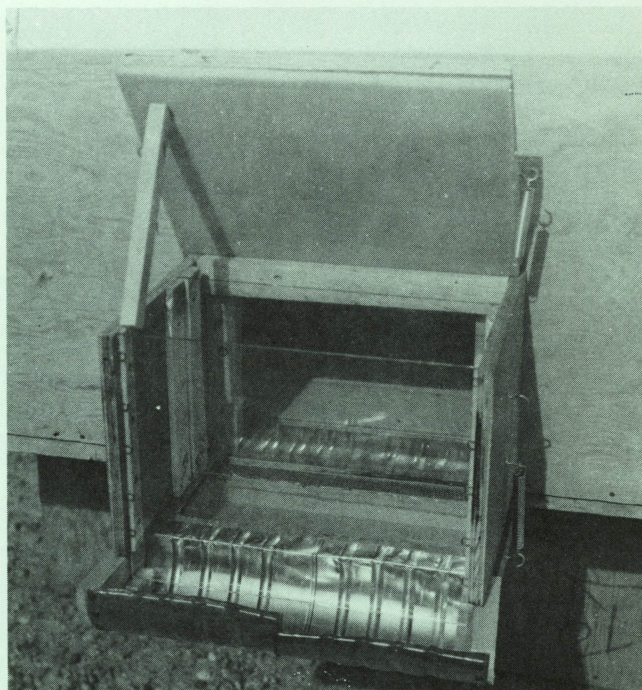
Adequate new nests should be provided in field stations nearby.

After all bees have emerged through the excluder-trap from the enclosure, the infested nests should be burned to destroy all remaining beetles.

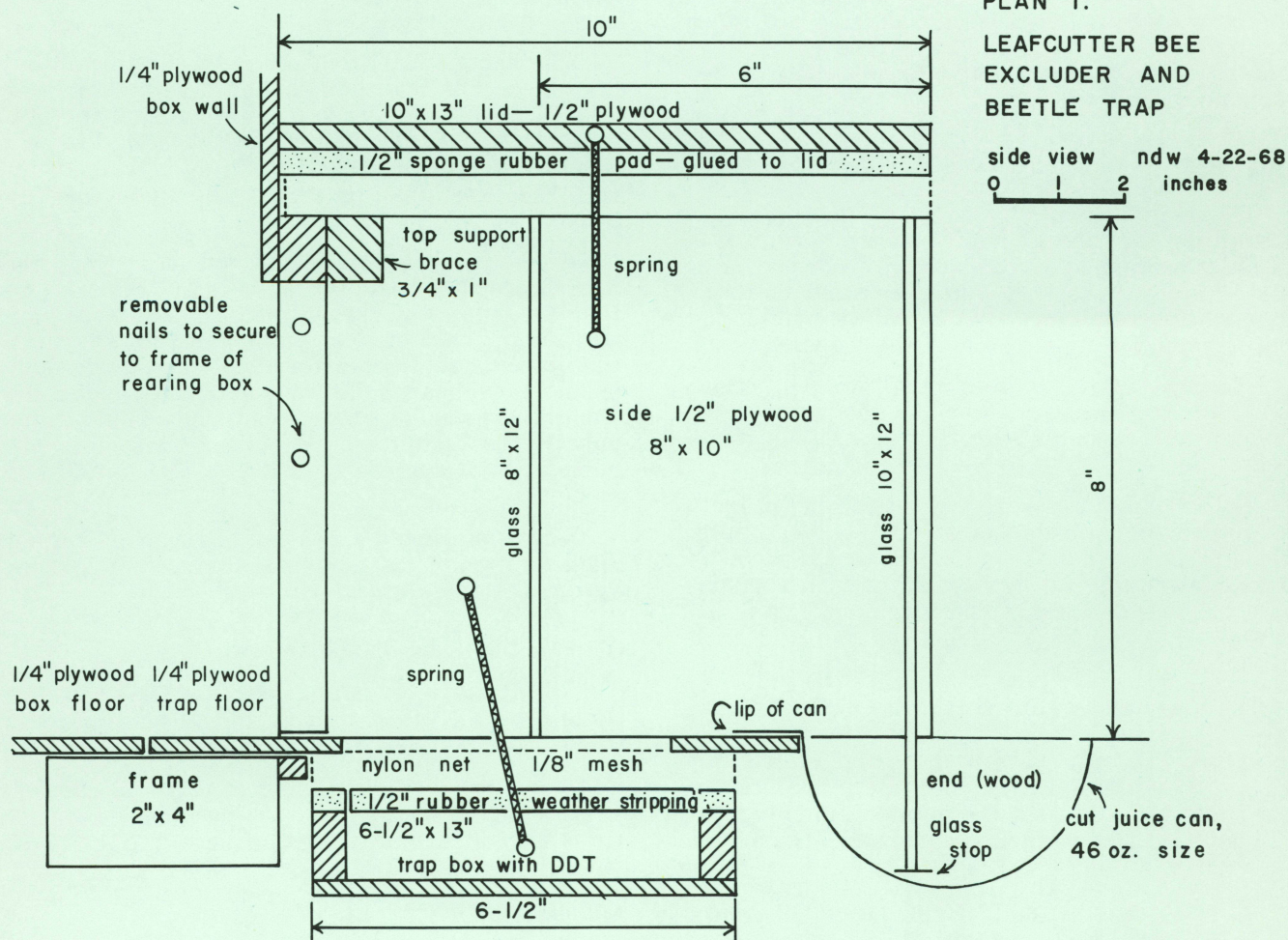
## CONSTRUCTION DETAILS

As noted in the top and side view of the bee excluder-beetle trap plans, the inner glass wall fits snugly inside the trap. Sponge rubber glued to the top (which acts as a lid) provides the pressure for a snug fit. Springs as indicated in the side view of the plans hold this removable lid down tightly.

The floor is constructed of 1/4 inch plywood and is nailed and/or glued to the under edges of the sides. The sides are constructed of 1/2 inch plywood.



This closeup of the bee excluder-beetle trap shows how the metal trough is attached to the front of the excluder-trap. The trough also is reflected in the glass. A piece of cloth or burlap is attached to the front edge of the trough to provide a means for bees to climb out of the trough.





The opening for the beetle trap in the floor should approximate the size indicated in the top view of the plans. Nylon netting of approximately 1/8 inch mesh is glued and/or tacked to the **underneath** side of the floor.

A shallow, removable box makes up the trap container. Be sure it is large enough to fit completely around the net covered opening in the floor. As noted before, this box contains a layer of insecticide that kills the beetles. Springs hold this box snugly against the bottom of the excluder-trap.

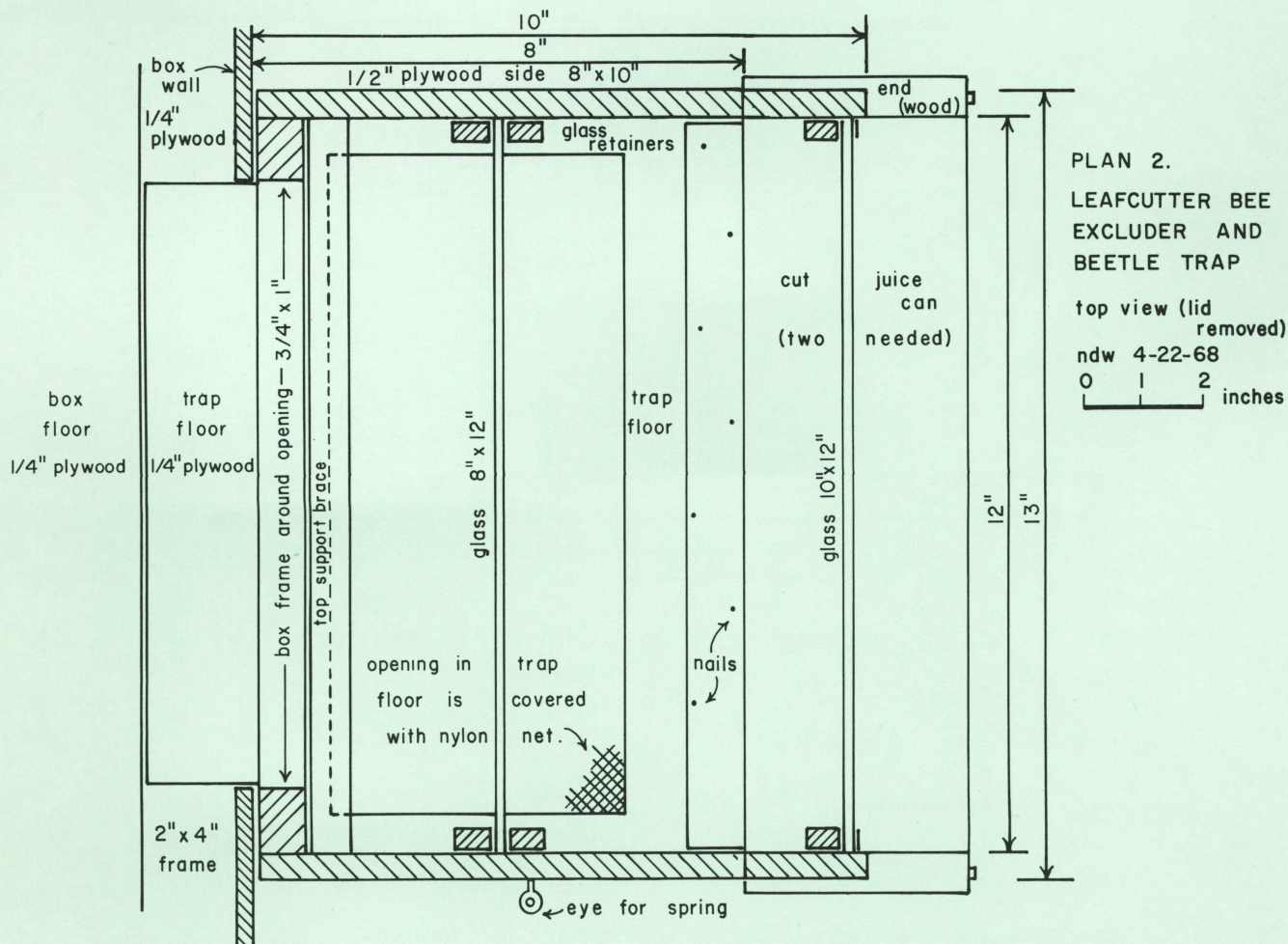
A 46-ounce juice can cut lengthwise works very well for the metal trough located at the exit of the excluder-trap. As the side view of the plans shows, the outer glass wall is larger than the inner glass wall and its lower edge extends below the floor. The metal trough is attached so that only 1/4 inch clearance remains between the bottom edge of the glass and the bottom of the trough.

A REMINDER . . . although the plans don't show it, a piece of cloth or burlap should be attached to the outer edge of the trough and the material hung inside the trough. The dimensions of this material should be such that the edge inside the trough is near the bottom of the trough but should not obstruct the 1/4 inch clearance area in any way.

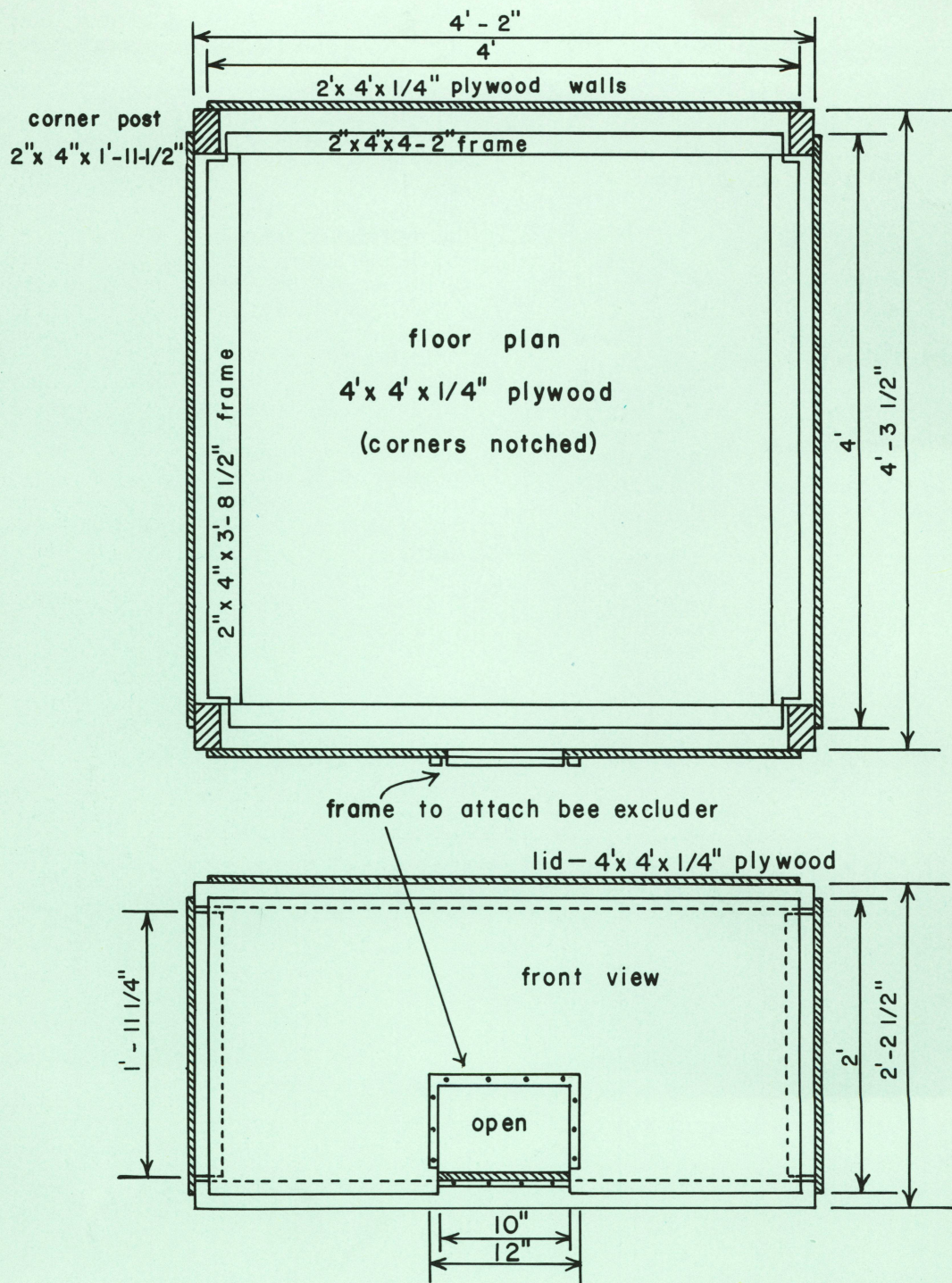
As noted in the side view, removable nails or screws should be used to secure the excluder-trap to the enclosure containing the infested nests.

Construction details also are shown for a small box enclosure designed to hold infested bee nests. An enclosure built to these dimensions will hold 40 nesting boards 4" x 6" x 48" or 56 nesting boards 3" x 6" x 48". This enclosure requires 40 linear feet of 2 x 4's and two sheets of 1/4" x 4' x 8' exterior grade plywood.

NOTE: All sheets of plywood are nailed to the outside of the framework with the exception of the floor. This piece calls for each corner to be notched so it can be nailed to the inside of the frame.







PLAN 3. BASIC REARING BOX TO WHICH LEAFCUTTER BEE EXCLUDER IS ATTACHED

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 0 1/2 inch