



Construction of Ant Bait Stations

San Luis Obispo & Santa Barbara Counties

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The following instructions and diagrams are for the simplest version of a liquid ant bait station that has been developed by the University of California for use in agricultural settings such as vineyards or orchards. This design has received EPA approval for use with the liquid ant baits which are in the process of being registered; other types of bait stations, some of which are commercially available, are also currently approved for this use. This information is intended for persons who are considering building their own bait stations, for use with the commercial liquid ant baits as they become registered.

The construction of this station is fairly simple, and can be accomplished without special tools. The station consists of three main parts: an outer protective housing, an inner bait bottle, and a dispensing mechanism that controls the delivery of the liquid bait from the bottle. The version described here uses pea gravel placed on the bottom of the protective housing as a dispensing media for the liquid bait; other versions of the station may employ additional feeding surfaces on the gravel, or use dispenser caps attached to the bait bottles themselves, rather than the pea gravel; these other versions are not described in this document.

If you plan to build bait stations following these plans, it is suggested that you experiment by building and operating a small number initially to become familiar with their construction and requirements for operation. Keep in mind, before investing heavily in these homemade bait stations, that in the near future improved commercial designs will likely become available that may be more convenient and efficient to use than these homemade devices.

This document only describes the procedures for constructing and operating the bait stations themselves. For information on bait products, using the stations in the field, and the current registration status and availability of liquid ant baits and associated ant control information, consult your local Cooperative Extension and Agricultural Commissioner's offices.

Parts list for one bait station:

- One 10.5-inch length of 6-inch diameter PVC sewer pipe
- Two 6-inch styrene sewer caps
- One 3-quart plastic bottle (the dimensions listed are for a juice bottle sold at Smart & Final stores; if a different bottle is used, the dimensions may have to be modified; see note p. 2)
- Approximately 1 cup of clean pea gravel (1/4" to 3/8" diameter)



Figure 1. Bait station placed at base of a vine trunk. It is tied to the stake to prevent it from falling or being knocked over. It must remain vertical to work properly.

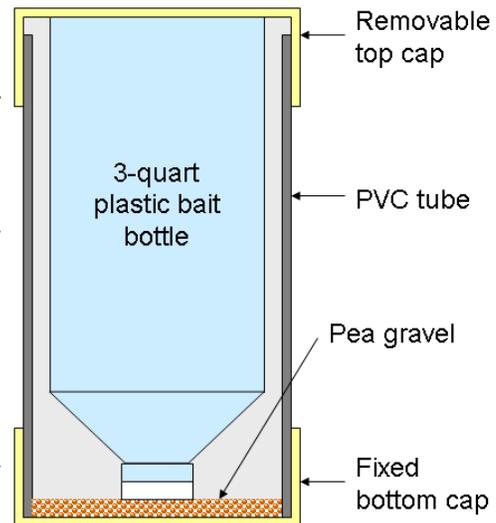


Figure 2. A cross-section view of the bait station housing and inner plastic bait bottle. The pea gravel media is kept saturated by the liquid bait released from the bottle.

Assembly instructions:

- 1) Cut the PVC pipe into 10.5 inch lengths. The material is fairly soft and easily cut with a sharp hand saw, but it can be a challenge to cut the material squarely by hand (and the pipe is too large to be easily cut by typical electric saws). If one needs to make many pieces, a simple wooden miter box can be constructed to help speed the process of making the cuts squarely; see Fig. 3 below.

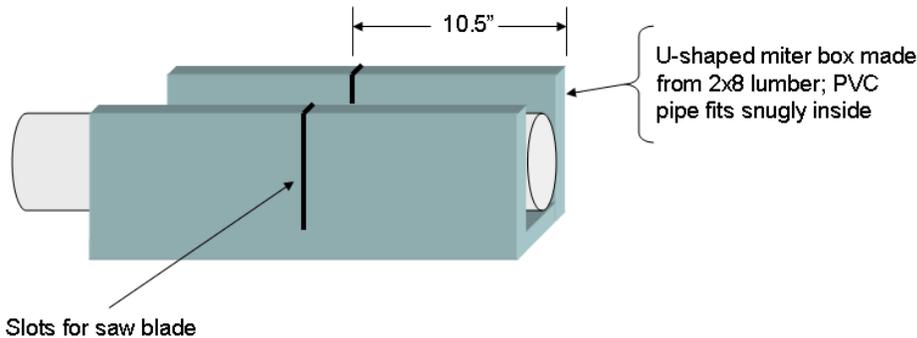


Figure 3. Homemade wooden miter box used to cut PVC pipe. The slot accommodates the blade of a carpenter's hand saw, and helps guide the cut squarely.

- 2) Using a hand saw or a hand-held electric jigsaw, cut two slits in the top end of the PVC tube. Each slit should be about 4 inches long. Space the slits on opposite sides of the pipe. The slits must be wide enough for ants to fit through. The slits accomplish two things: they serve as the entry/exit for the ants, and they prevent the top cap from becoming stuck on the PVC tube (Fig. 4).
- 3) Press the bottom styrene cap onto the end of the PVC pipe opposite of the end with the slits. The pieces will probably fit together very tightly without needing any glue, but they can be glued if necessary.
- 4) Press the top styrene cap into place, and make sure that it can be removed by hand without difficulty; if too tight, cut the slits a little longer (Fig. 5).
- 5) Remove the top styrene cap, and place the clean pea gravel inside the housing; it should form an even layer about 1/2" deep on the bottom.
- 6) Remove any food labels from the bottle.
- 7) Put proper warning and pesticide labels on the bottle and housing (Fig. 6).
- 8) Drill a 3/8" hole through the center of the plastic bottle cap; this creates a small exit hole for the bait solution, minimizing spillage when the bottle is installed in the housing.
- 9) Install the housing in the field; secure it vertically to a stake with wires or ties.
- 10) Fill the clean bottle with bait solution, and place the bottle cap with drilled hole onto the bottle. To place the filled bottle into the housing, in a quick motion invert the bottle upside down and insert it down into the housing, such that the bottle cap contacts the pea gravel (make sure that the housing's top styrene cap is off before beginning this operation!). Do this quickly, as solution will begin to flow out of the bottle once it is inverted. The bait solution will flow out to fill the voids in the gravel layer, rising to the level of the bottle cap opening. If one needs to transport full bait bottles to the field, then have some additional non-drilled bottle caps available to seal the bottles securely while in transit.
- 11) The bait solution will automatically flow out of the bottle as the level in the gravel media drops in response to ant feeding. When empty, the bottle can be removed and replaced with a full bottle. The housing and gravel may need to be cleaned between bottle replacements.

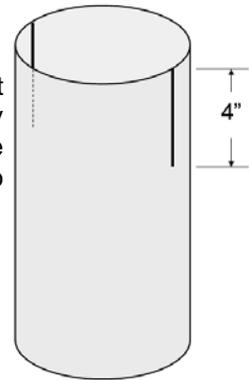


Figure 4. Two, 4" long slits sawn into one end of the PVC pipe.

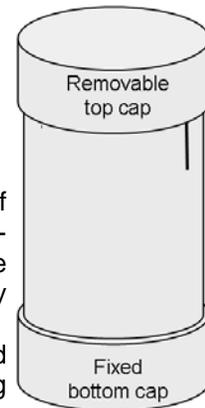


Figure 5. The removable top cap and fixed bottom caps shown installed.



Figure 6. Prepared bottle. Note pesticide labels, and the hole drilled in the bottle cap.

Note on bottles:

A typical plastic soda or drinking water bottle will NOT work properly in this bait station. They are not rigid enough, and will collapse (buckle inwards), allowing the solution to flow out unchecked. Be sure to use a heavy-weight, rigid plastic bottle that does not deform.

