

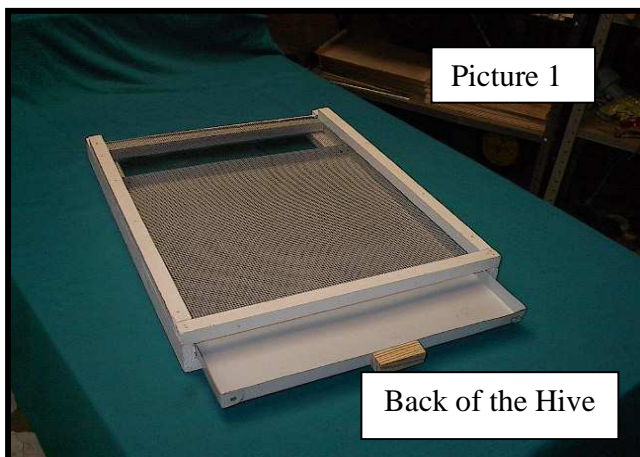
A NEW HIVE BEETLE TRAP

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The only good thing that can be said about small hive beetles is they are easy to see. You don't have to use sticky boards or a magnifying glass to find them. If you have hive beetles, you will see them running on the frames, the cover, the bottom board, and the combs. We have the misfortune in southeast Arkansas to be in an area heavy infestation. Some members of our Beekeeper's Association have lost hives because of the beetles.

We tried chemicals and a ground drench, but these had little effect on the beetle population. We then tried every trap on the market. All the traps caught beetles – some caught more than others. All the traps we tried left a lot of beetles in the hive and most traps were hard to deal with for one reason or another. Small traps that fit inside the hive require opening the hive to clean them and they need to be cleaned often. The West trap worked best, but the bees have to be smoked because the trap is inserted at the front of the hive and I always spilled oil getting it out.

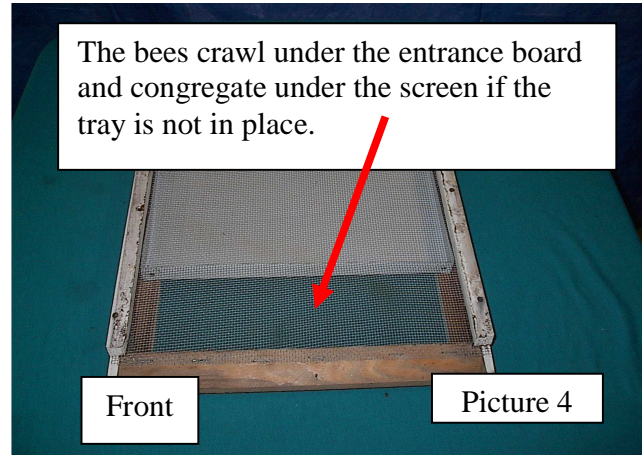
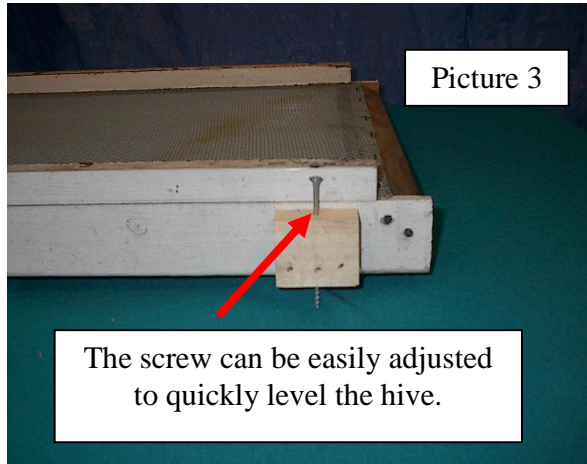
Since traps seemed to work better than chemicals, I began trying to develop a new trap that would be effective and not too hard for someone with stiff, clumsy fingers to deal with. It took quite a few prototypes, but I finally have a design that practically eliminates hive beetles and requires very little care. When we inspect our hives now, we rarely see any beetles. The few beetles we see probably fly into the hives from the surrounding area. We just finished the design early this year and made enough traps for all the members of our association. You can see from Picture 1, the trap is simple – an oil tray under a screened bottom board. The tray is inserted at the back of the hive. No attractant is needed. The bees will chase the beetles into the oil!



Picture 2 shows the beetle kill in 24 hours in one hive in mid April, 2008. This trap will practically wipe out the beetle population in a few weeks. The half dozen bees in the picture flew into the oil as we were filling the tray. You may want to clean the trap weekly for a while if you have a lot of beetles. It's no disaster if you don't have time to clean the tray – it's under the hive.

INSTALLATION

The hive has to be leveled before the trap can be installed. Picture 3 shows the 'hive leveler' that I use. A really heavy hive would probably need something more substantial, but so far this has worked OK for hives with up to 3 deep supers. I put one on each corner.

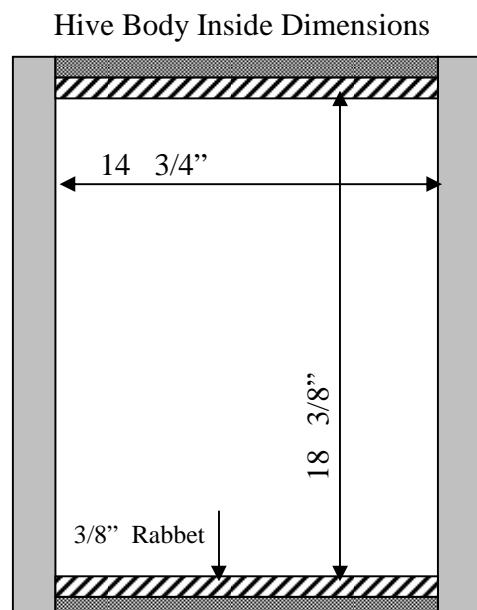
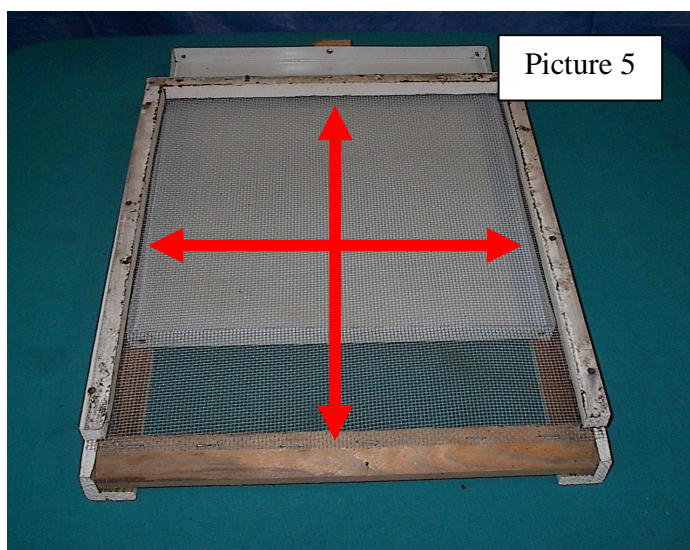


Something else I've discovered is that the tray needs to be fully inserted BEFORE you put the hive bodies and supers on the hive. For whatever reason, honey bees crawl under the screen and are either mashed when the tray is inserted or fall into the oil. Picture 4 shows where the bees congregate. This is not a real problem, you just have to remember to keep the tray in the slot.

After the hive is assembled and the bees have settled down a little, have the oil ready, pull the tray out 4" or 5" and fill the tray about half full. The sooner you push the tray back in, the fewer bees will get into the oil. Either vegetable oil or mineral oil can be used. I have found I can get used cooking oil at any of the local stores that cook every day. Restaurants and convenience stores are happy to give you jugs of oil that is already filtered – for free! It's a little brown, but it works just fine. If you want to do Varroa mite counts, use clean new oil or Vaseline.

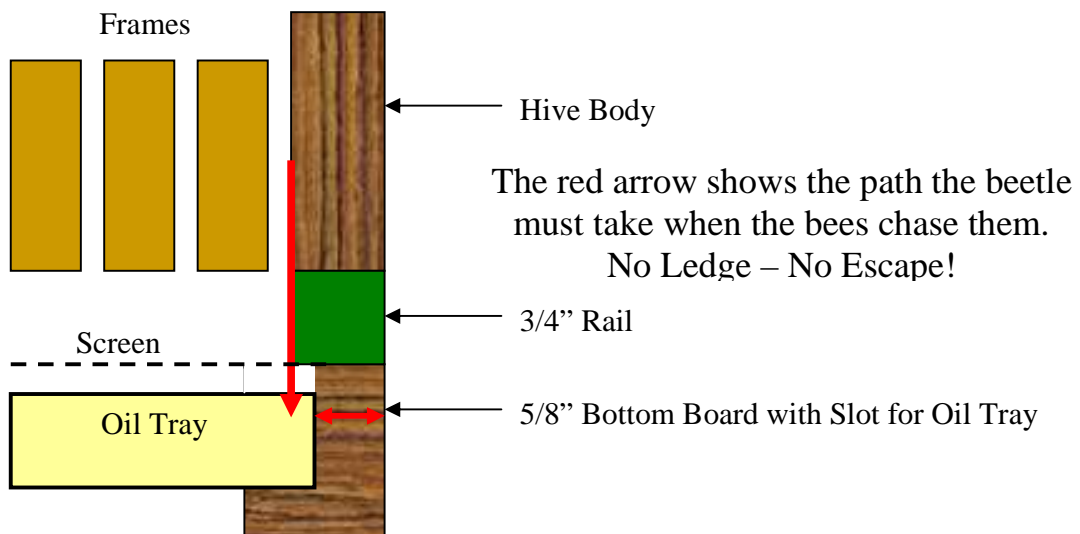
Here are some 'Secret' details in the design that makes this trap so effective.

1. The bottom screen and the oil tray must be full width and length of the hive body.



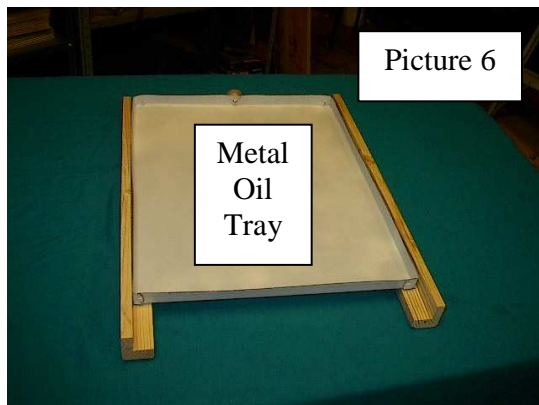
It took a while to discover this. In most screened bottom boards, the screen is attached to a ledge extending *inside* the hive body width. I have seen beetles running on that ledge and I have seen a lot of beetle eggs on that ledge. I finally realized I needed to eliminate that ledge! Notice in Picture 5 that the screen goes all the way across the hive body. I use 1/8" hardware cloth for the screen and staple it to the bottom board before attaching the edge rails.

The diagram looks toward the end of the hive showing the ends of the frames for illustration. This shows the vertical edge of the bottom board is 5/8" thick. This allows room for the oil tray to be wider than the bottom screen.



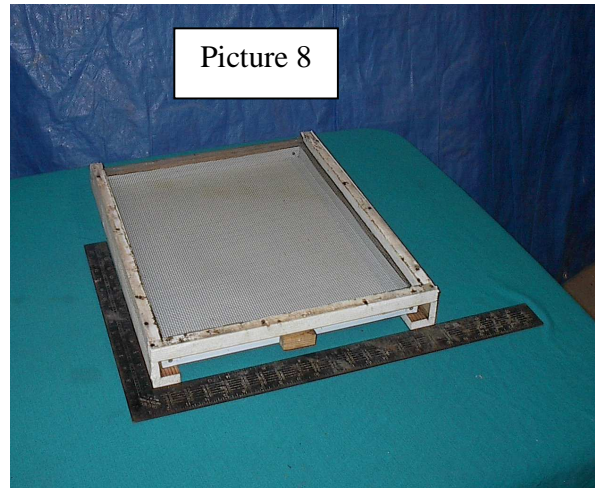
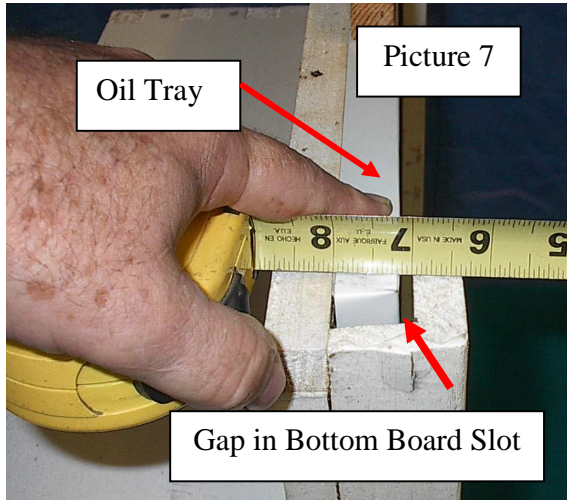
Without a ledge, beetles trying to hide on the outside parts of the hive and on the inside wall of the hive body will fall directly into the oil. Especially if they are being chased by the bees. Hot Dog! Dead beetles!

The inside dimensions of the oil tray must be the same as the inside dimensions of a hive body. I actually make the trays 1/8" larger – 14 7/8" X **18 1/2"**. I currently make the edges of the pan 3/4", but I'm considering making the tray 1" deep. That would allow the hive to be slightly off level without spilling oil when the tray is half full.



The pictures in this article show metal oil trays. By the time this article is published, I hope to have plastic trays. Metal works fine, but it's time consuming and a bit meticulous. Hopefully, I can get the plastic process working and reduce the time and expense of making the metal trays.

2. Next, the slot and the oil tray must match perfectly to keep bees out of the oil. I killed a lot of bees before I realized the slot must be no more than 1/16" bigger than the tray. Bees are not supposed to get through a 1/8" opening, but The gap between the oil tray and the bottom board in Picture 7 is too big. I'm sure the problem was less than perfect woodwork, but reducing the tolerance solved the problem.



3. Picture 8 shows the oil tray and the slot in the bottom board must both be square. Otherwise, the tray won't fit the slot or the bottom won't fit the hive body. Needing near perfect sizing and squaring means you have to be pretty meticulous when building this trap.
4. The tray needs to be made of metal or plastic. This may not be critical, but I consider it important. We made several oil trays out of wood and wall board material. Some of them worked OK, some of them leaked and most of them swelled in wet weather so they were hard to remove. It was a whole new project to develop a homemade metal brake for the trays shown in this article.

Right now, these traps are too expensive to sell because of the time and labor involved. Hopefully, I can get the patent process finished and set up a mass production system so the 'Freeman Beetle Trap' will be available to everyone. Maybe I've given enough information in this article for people to build their own traps until we can get our shop up and running.

I would like to test the trap in other parts of the country. I CAN ONLY DO THIS WITH A FEW TRAPS! CALL OR E-MAIL BEFORE SENDING ANY MONEY!! If you live in an area of high beetle infestation, have a digital camera and are willing to report on the performance of the trap, I'd like to send out a 5 of these traps for \$12 shipping. I'd like to get opinions and suggestions from other beekeepers.