

The Small Hive Beetle

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Susquehanna Valley

September 16, 2008

www.thebeeyard.org





family Nitidulidae, most of which are scavengers or sap beetle

Adult Lifespan: ~6 months

Eggs are laid in irregular masses, in cracks and crevices of a hive
Hatch in 2-3 days into white larvae, which grow 10-11mm

Timing of the life cycle varies with respect to temperature and other factors.



1 mm

UGA5310062



UGA1265060



Eggs hatch in 2-3 days into white larvae, which grow 10 to 11mm in length.

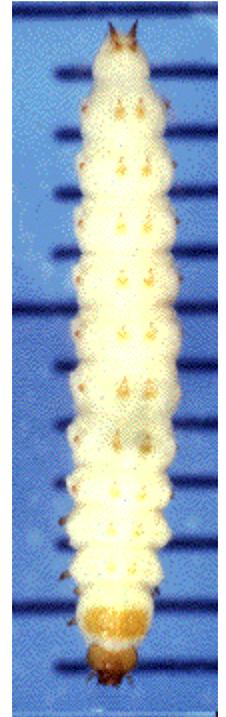
Larvae feed on pollen and wax, but will also eat honey, bee eggs, and bee larvae. and pollen, damaging the comb. They mature in 10 to 16 days

When ready to pupate, the larvae leave the hive and burrow in the ground.
Prefer sandy soils.

Pupation takes 3-4 weeks
Newly emerged adults seek a new hive and mate.

They are good flyers – fly up to five miles. They easily spread to other colonies.

4 or 5 generations per year. No reproduction in winter.





the delicious life

Native to Africa; first identified in Florida in 1998

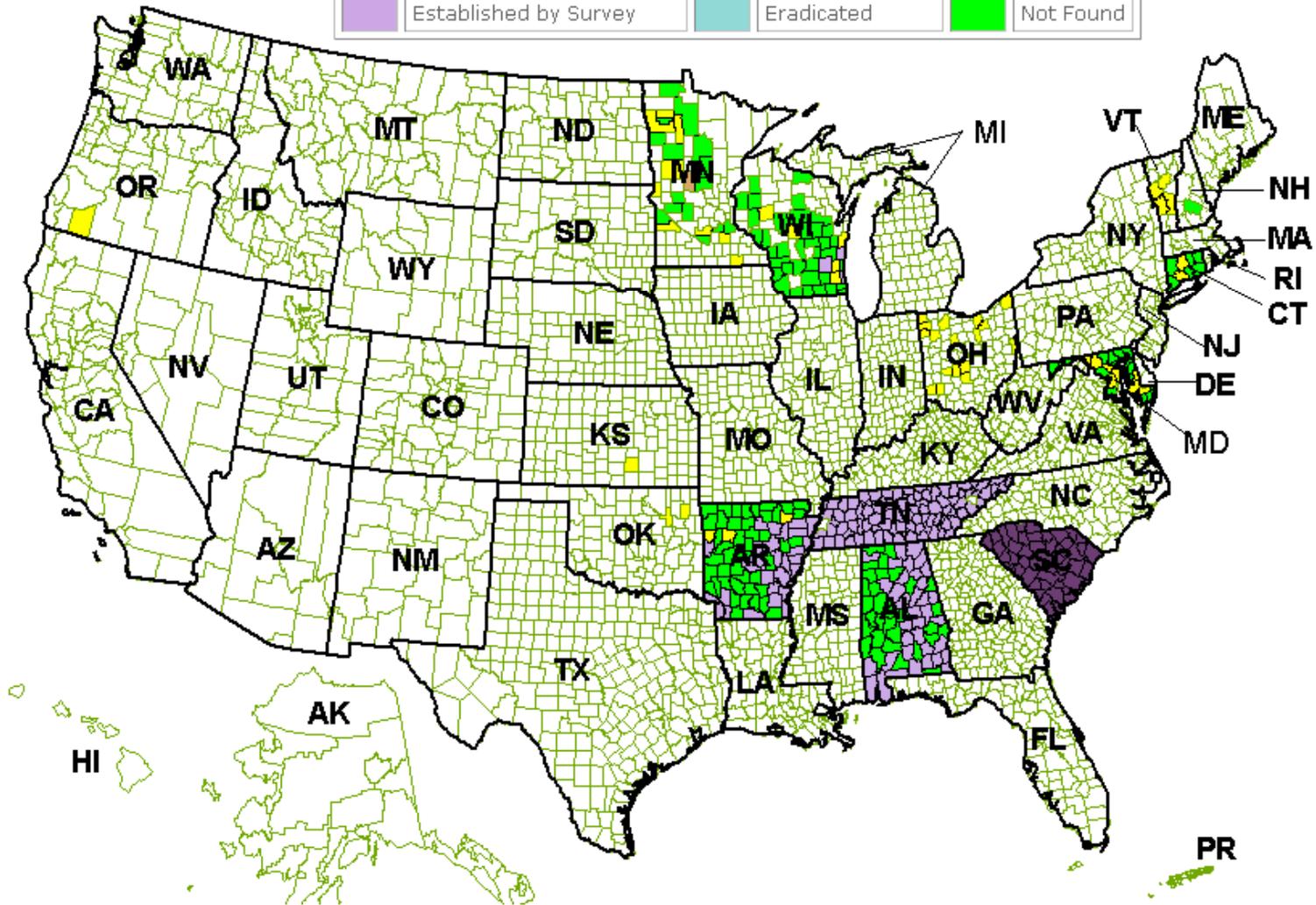
Adults feed on fruits, such as cantaloupe; possibly imported in this manner

Reported Status of Small Hive Beetle - *Aethina tumida*

Display Date: 09/16/2008

Last Survey: 09/08/2008

This map represents survey data over the last three years.





Extreme Case of SHB



When small hive beetles invade a beehive, they bring in a yeast that grows on the pollen. “As the yeast grows and ferments, it releases compounds that mimic honey bee alarm pheromones and are highly attractive to other beetles,” says Teal. “This sets off a cascading effect. When the beetle population gets too high, the bees have no choice but to abandon the hive, leaving beekeepers without honey and their bee colonies



Adult SHB are
attracted to a hive
via scent

Studies have shown
larger numbers of
beetles in hives
that have been
recently opened by
the beekeeper



Larvae poop causes honey and pollen fermentation, creating slime.
The scent has been described as “decaying orange”

In extreme cases, the fermented honey runs out of the hive
entrance

Queens may stop laying and the workers may leave the colony if
the poop-slime levels are too high.

Adult beetles are attracted by the slime scent.

Treatments for SHB

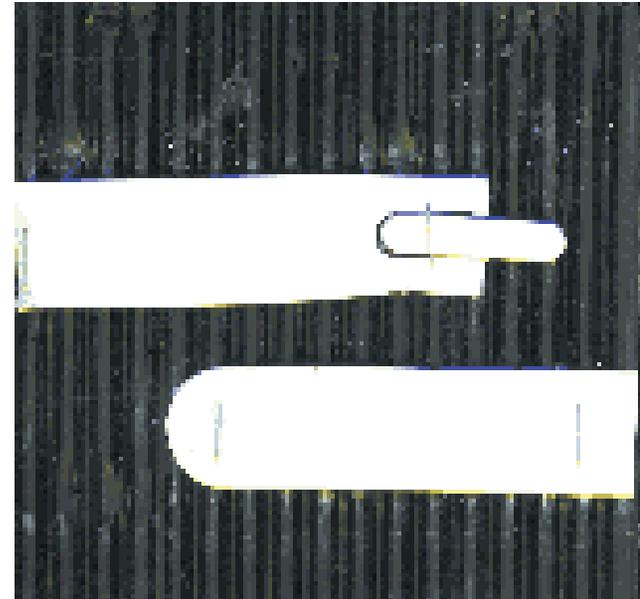


Using Checkmite strips to treat SHB



Step 1: Remove the honey supers to avoid contamination of stuff that you want to eat later.

Using Checkmite strips to treat SHB



Step 2: Prepare some cardboard squares (5" x 5") by removing the paper from one side, or use commercially available plastic squares (\$0.35 from Mann Lake).

Using Checkmite strips to treat SHB



Step 3: Cut the checkmite strips in half and staple them to the cardboard squares.

Using Checkmite strips to treat SHB



Beetles will crawl in here, contact the pesticide
and die (die, die, DIE!)

Using Checkmite strips to treat SHB



Step 4: Place the squares face-down near the center of the bottom board. Check for dead beetles in a week. Leave in for at least 42 but no more than 45 days. Replace honey supers 14 days after removal.

Hive Beetle Traps: Bee Swatter Brushy Mountain (\$2)



Insert Checkmite strip
in slots

Slide swatter into hive
through the front
entrance

Beetles enter and
contact the strip



Soil Drench

Y-Tex Gardstar® 40% EC Livestock and Premise Insecticide

Approved for Hive Beetle Use around the colony

Cut the grass first.. Then thoroughly wet the area 18-24” around the infested hive. Apply after the bees are asleep (this is toxic to the bees)

Or.. Apply to area 24-48 hours before installing a hive



Cost:

~ \$17 for 4oz

~\$80 for 1qt

Manufacturer's Instructions:

9-12ml per gallon of water

Apply until surface is wet

1 gallon to 750-1000 square feet

Beecare.com's Instructions:

5ml per gallon water

1 gal will treat 6 hives

Drench area 18-24" wide in
front of the hive.

Soil drench seems like a bad idea...

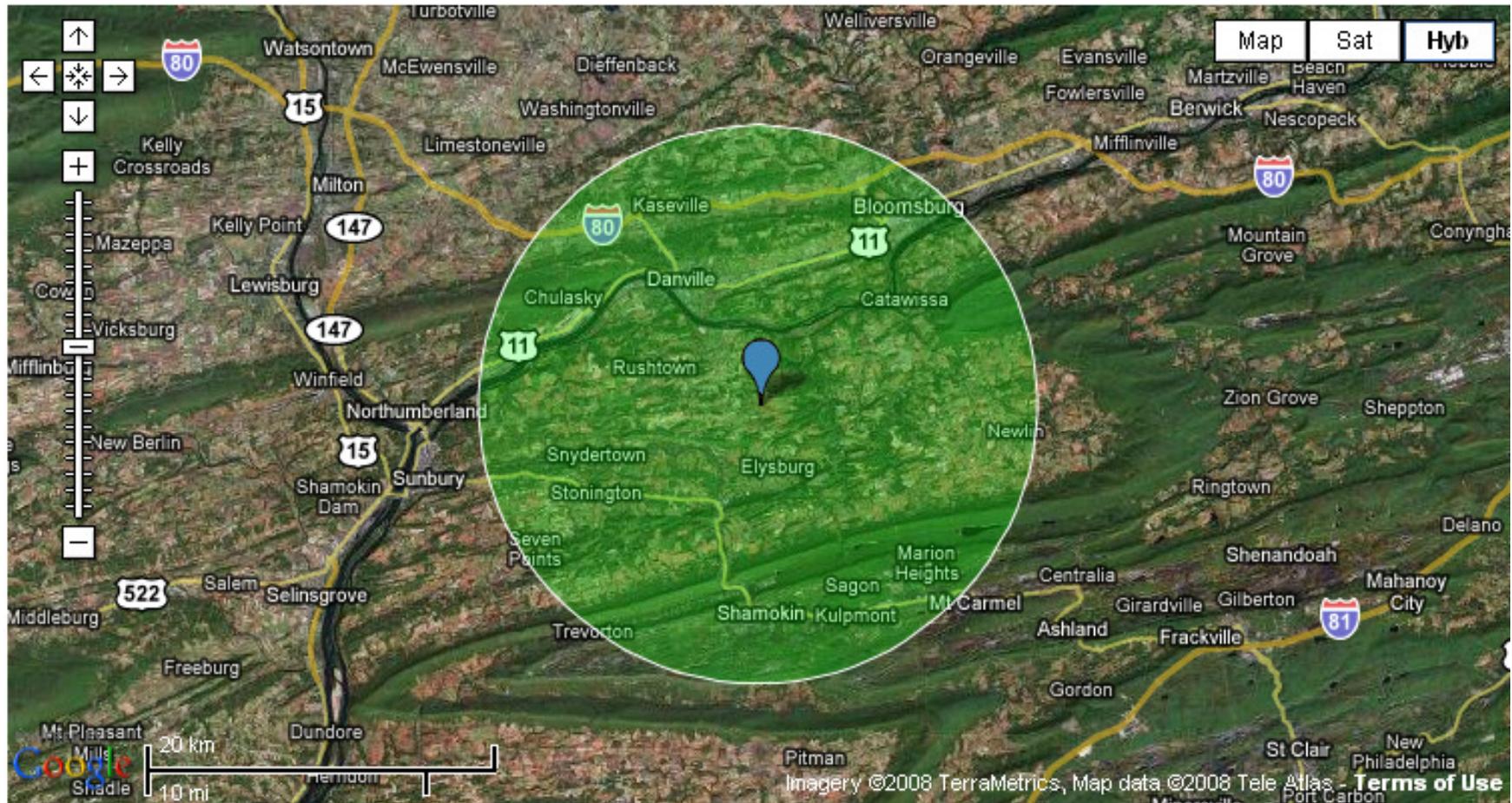
- >> Kills Honeybees – must be applied after the bees go to bed. Must be careful to avoid contamination of flowers in the area.
- >> Beetles can fly up to ten miles in search of a hive.. Have you treated every hive in a 10mi radius?



Warning - Pesticides In Use
All contact with the portion of the treated property upon which the pesticide application has taken place must be avoided.



Pesticide PCP#: _____
Common Name: _____
Trade Name: _____
Date Used: _____
Contact Phone#: _____
Company Name: _____
(If commercially applied)



Ten miles, as the beetle flies, from Eric's beeyard



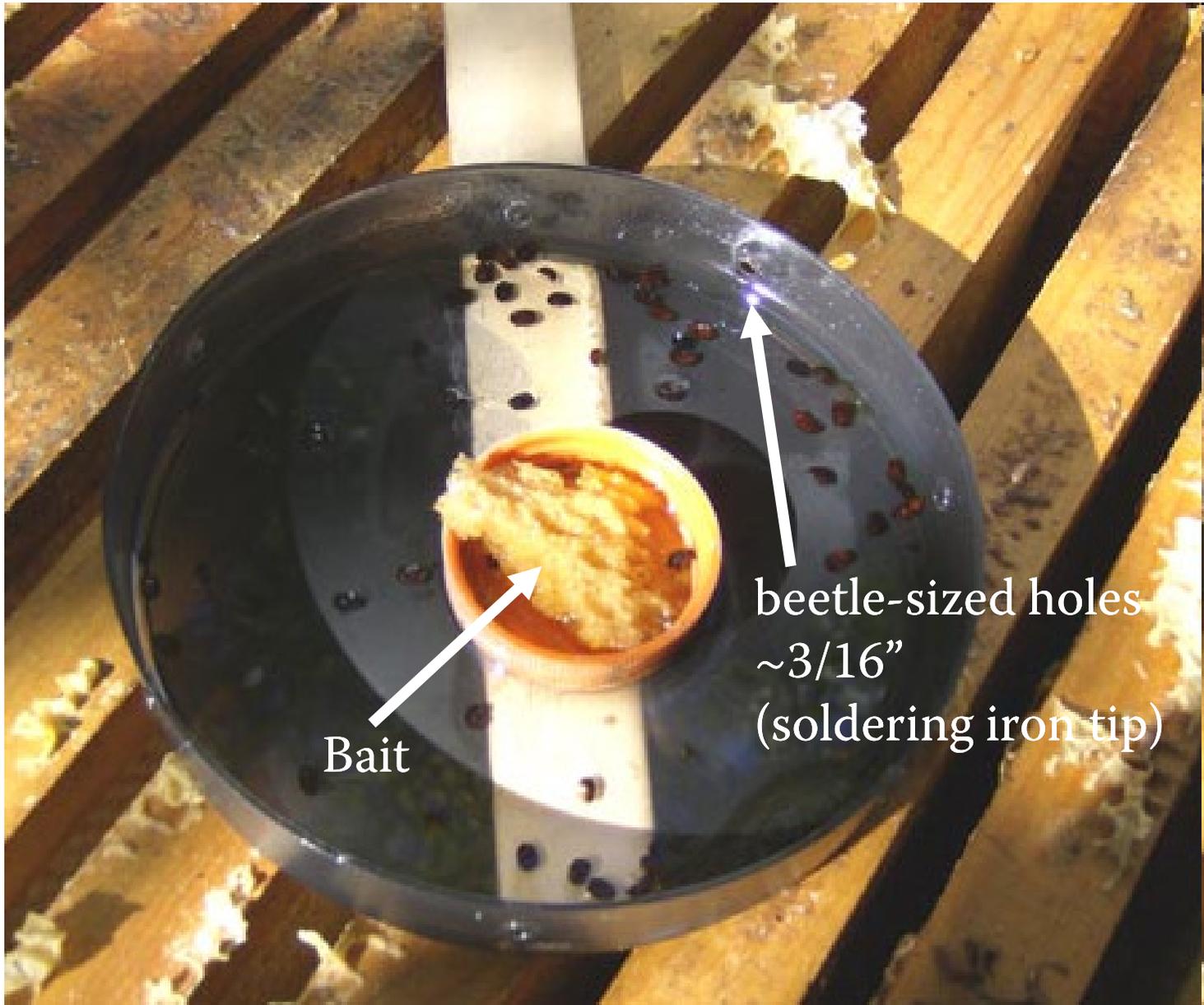
No pesticides, please...

Trapping the SHB

Lure: 1/2 cup Apple Cider vinegar
1/4 cup sugar, 1 cup water, 1 ripe banana peel, cut up finely,
combined and allowed to ferment

Trap Container.

Any small flat container, approx 1/2 to 1 inch deep, complete with press-on lid. About 1/2 way up the side drill a series of holes around the perimeter in through which the beetles will enter. In the center of the container place a large bottle cap to hold the lure liquid.

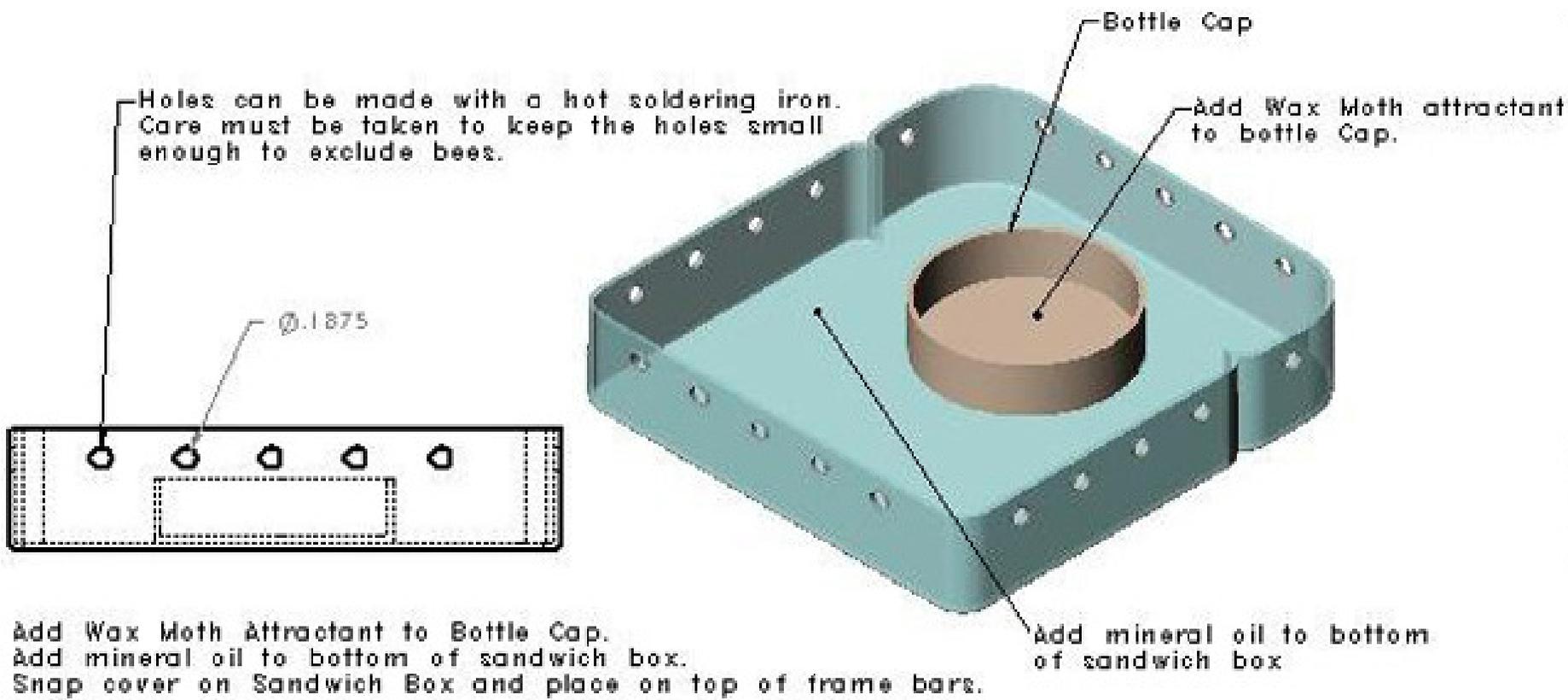


Bait

beetle-sized holes
~3/16"
(soldering iron tip)

Sandwich-box SHB Trap





Holes can be made with a hot soldering iron. Care must be taken to keep the holes small enough to exclude bees.

@.1875

Bottle Cap

Add Wax Moth attractant to bottle Cap.

Add mineral oil to bottom of sandwich box

Add Wax Moth Attractant to Bottle Cap.
 Add mineral oil to bottom of sandwich box.
 Snap cover on Sandwich Box and place on top of frame bars.

Hive Beetle Traps: Dadant (\$12)



Grate w/SHB sized holes

Vegetable Oil Tray

Spacer

Bottom Board

Hive Beetle Traps: Brusy Mountain (\$13)

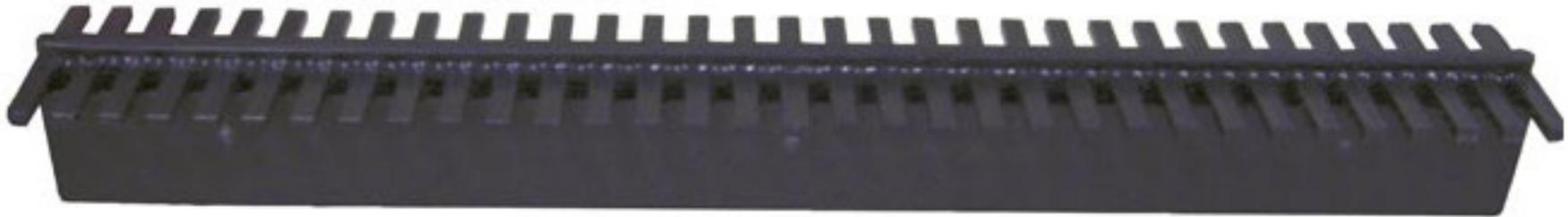


Hive Beetle Traps: Hood (Clemson University) Brushy Mountain (\$4)



Apple Cider Vinegar is used as bait
Place in #1 or #10 position in brood box

Hive Beetle Traps: AJs Beetle Eater (\$5, Dadant)



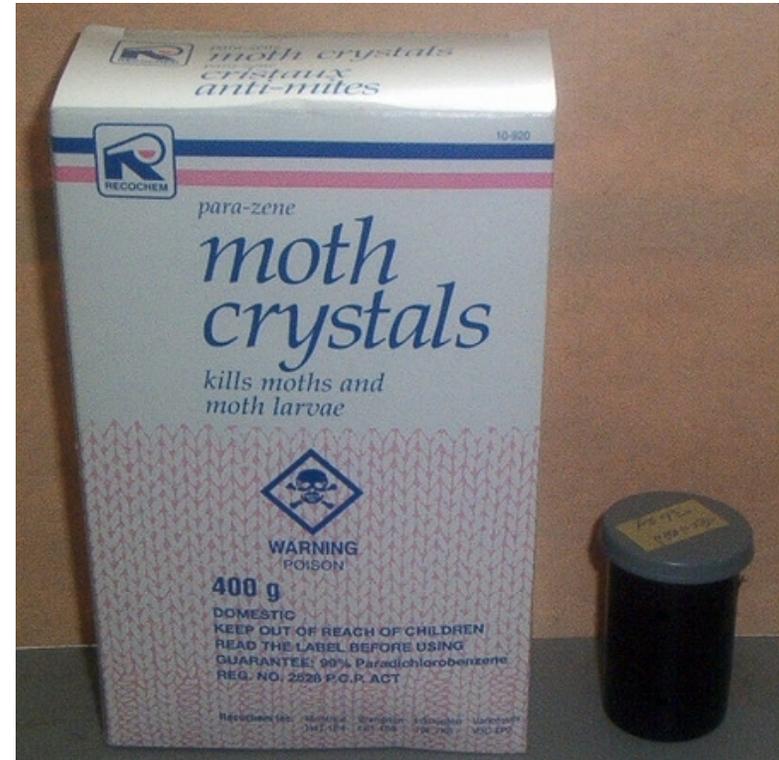
Fill with oil and place
between top bars.

Hive Beetle Traps: Beettra (\$15 AU - \$12 US)



“Killing Agents” include oil, soapy water, lime, etc. Lime is preferred – dehydrates and kills beetles.

3/16” slots cut in bottom board over tray.



SHB will readily invade stored equipment – think wax moths..

Paradichlorobenzene (moth crystals) is effective for protecting equipment during storage.



References and Further Reading...

- <http://everest.ento.vt.edu/~fell/apiculture/hivebeetle/index.html>
- http://maarec.psu.edu/pdfs/Small_Hive_Beetle_-_PMP.pdf
- <http://www.clemson.edu/newsroom/articles/2007/may/hoodbeetletrap.php5>
- <http://www.ars.usda.gov/is/AR/archive/nov07/beetle1107.htm>
- http://www.beeworks.com/informationcentre/small_hive_beetle.html
- http://www.sare.org/reporting/report_viewer.asp?pn=OS04-022
- <http://www.cals.ncsu.edu/entomology/apiculture/PDF%20files/2.05.pdf>
- <http://www.wasba.org/SHB.pdf>
- <http://www.fcla.edu/FlaEnt/fe90p404.pdf>
- <http://www.y-tex.com/pdfs/GardStar40.PDF>
- http://pr-rp.pmra-arla.gc.ca/PR_SOL/pr_web.ve1?p_ukid=3874
- <http://edis.ifas.ufl.edu/pdffiles/AA/AA25700.pdf>