



Mite Load

Varies across season,
typically increases toward fall

Varies across colonies and yards

Varies across years

Thresholds

Determine what is an acceptable level of the pest for your bees

(This is the basis for IPM – a decision making process)

More on this in a minute...

Monitoring Varroa Populations

- On brood
- worker
- drone



- On bees
- ether roll
- powdered sugar
- alcohol wash



- In colony

VARROA IN DRONE BROOD



ETHER ROLL

Quick and Dirty Sampling Method:

- 300 (an inch or so) nurse bees in jar
- Shot of ether
- Shake & roll jar
- Examine sides of jar for dislodged mites.



Ether Roll

Collect Bees in jar, spray ether starting fluid



Shake, roll jar and look for mites
on the inside of the jar



Sticky boards



VARROA STICKY BOARD



IPM Economic Threshold?

- Used to recommend chemical treatment at levels of 3-4/300 in springtime, or 10-12/300 in late summer
- Now, with better understanding of virus associations, the threshold is ... less meaningful.
- There is no “safe” / tolerable population

Apiguard

- Thymol-based chemical treatment
- Works well as long as temperatures are within range.



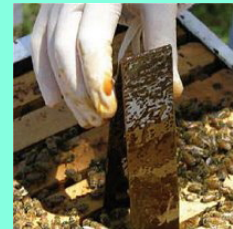
MiteAway Quick Strips (MAQS)

- May be a little “hot”.
- Temperature sensitive.



Hopguard

- Mann Lake Product
- Seems very “gentle” on bees – no noticeable effects
- Mixed reviews, though most reports are positive.
- Multiple treatments are likely necessary.



ApiVar

- New product last year in US
- Works very well
- Amitraz-based

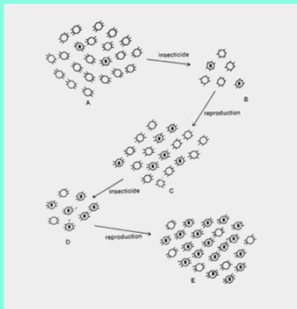


ApiVar

- Be aware of fallen strips - they won't do any good...
- Note the "hanger" holes in the new strip design -- to use a nail or toothpick



Why a "Silver Bullet" is Never the Best Strategy



Resistant mites increase with each generation.

Selection pressure
Sub-optimal exposure

Not Recommended

- Relatively Ineffective to Completely Ineffective



AFB

Sunken, perforated cappings

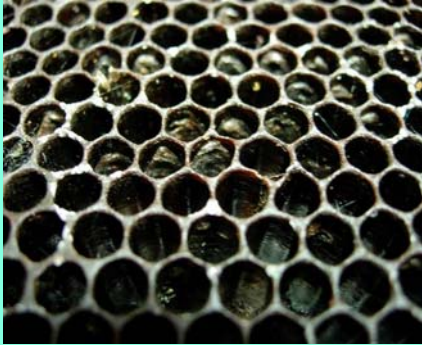


AFB

ROPINESS



AFB
SCALE



AFB

**“Shot brood” pattern
Black Scales**



AFB

**No good treatment exists – other than
destruction of combs / hive**

Early detection is best “prevention”.

Antibiotics – Terramycin & Tylan

Several issues including resistant AFB and hive product
contamination

SMALL HIVE BEETLE



Checking for SMB



**Hive body on
upside down
outercover.**

**Beetles may
then be seen
“scurrying” on
cover under box.**

Photo: OSU Wooster Bee Lab

IN HIVE DAMAGE



Small Hive Beetle: In-Hive Control

Keep strong, healthy colonies

Be thoughtful regarding chemical treatments for SMB

Remove deadouts from apiary

SHB: Honey House Effects



Photo: Dr. Keith Delaplane



Photo: Alex Ebert

SHB: Stored Equipment Effects

Use similar control as for Wax Moths

Store only "dry" combs

Exposure to light and ventilation

Fumigation – Para-moth or similar compound

Freezing

Cold storage



CHALKBROOD



CHALKBROOD



CHALKBROOD

Management:

Re-queen with resistant / hygienic stock

Take care to not spread spores between hives

Move hives to less damp location

Apiguard

WAX MOTH



WAX MOTH DAMAGE



WAX MOTHS

Management, Prevention:
Strong, healthy colonies

Mostly a “stored equipment” issue
Freezing
Fumigation – PDB (Paramoth)

CULLING OLDER COMB

- Replace combs with fresh foundation every 3 – 5 years.
 - Not the whole hive at once, but a “rotation” of 2 or 3 frames from each hive body each year

Dramatically reduces the buildup of disease spores, chemicals, etc within the hive.

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