Stahlman beekeeping notes for 2021

Issue # 37 Part II Varroa Mites

I would like to mention a point about beekeeping that I may not have made clear in previous issues. Hives with high mite counts should not only be treated but the queens in those hives should be considered for replacement. It may be a good practice to requeen with queens from VHS stock in late summer when VHS queens are still available.

I was asked about what "VHS" means. (Varroa Sensitive Hygienic Bees)

- **VHS is an additive trait (This means that the worker honey bee can detect and remove bee pupae that are infested by the Varroa mite)**
- **Basically, selection of bees (queens from hives that display the trait of hygienic behavior –a gene that can be passed to the next generation by only that queen's daughters mating with drones that come from hives that share the same gene).**
- **Thus, Artificial Insemination has come to play an important role in creating lines of bees that carry this trait.**
- **Each beekeeper is supplying drones for queens to mate with in their local beekeeping area. Maybe you never thought of supplying drones to neighbor hives but one important fact remains – a virgin queen leaves a hive to mate. She emits a pheromone that attracts drones – all of them available in the area.**
- **A queen may mate with 20 drones. If a VHS queen mates with non-carrying VHS drones, the likely result is that the virgin queen will not carry the same resistance to mites that her mother does.**

Thus, it is important for all of us to requeen with VHS or other lines . Second generation virgin queens from VHS stock will seldom be as good as stock from those who specialize in controlled mating of the queens they sell.

To understand the complex topic of bee breeding I would like to guide you to:

The Purdue University Extension Web site : Protecting Pollinators: Biology and Control of Varroa Mites in Bee Hives (purdue.edu) The site allows you to download a pdf. File Biology and Control of Varroa Mites in Bee Hives. I have a lot of respect for the work done by Dr. Greg Hunt in developing the 'Ankle Biters' and the success of his program in promoting better queen stock.

Ask "where a bee supplier selling queens" is getting queens. Check comments in bee blogs for the reputation of individuals selling queens.

I would also like to recommend a visit to the 2 C's and Bee web site. This site carries a lot of important information regarding Varroa mites. www.ccbee.org

An important note:

The VSH trait is completely different from the Ankle Biters. VSH makes the bees aware of the fact there is varroa under the caps of the larva and they actively remove it or uncap the cell which disrupts the varroa's development process.

With Ankle Biters, the bees actively turn into seek and destroy missions. They find varroa and actually bite the legs on the varroa off and keep it from climbing back onto another bee. This is an inherited trait. In fact, in my search, I found that scientist have identified up to six traits that are involved in honey bee hygienic behavior.

Another interesting article can be found in Scientific Reports under an article published in May 2015 "Antennae hold a key to Varroa-Sensitive hygiene behaviour in honey bees."

This study studied the mechanisms of Varroa mite behavior and traits that could be identified that bees use to combat Varroa mites.

I think most beekeepers would be comfortable with some of the resistant stock: Russian, SMR, VSH, MN Hygienic, Purdue "Ankle-Biter" stock. If you find a special breeder, share that breeder's information with other beekeepers.

Other Products for sale to control Varroa Mites

I can say that two products I have listed (Apistan – fluvalinate) and (CheckMite + Coumaphos) have been around for some time and mite resistance of the Varroa mite have made them less effective unless they have not been used for several years. Note that at least one state in the U.S. does not recommend either for control of mites). There may be more!

CHECKMITE + STRIPS - Varroa Mite Treatment

I am including Checkmite + strips in this list even though I would no longer use it except -- it is the only product approved to treat for Small Hive Beetles inside the hive!

Its active ingredient is coumaphos (Organophosphate insecticides (OPI)) which is a synthetic organic thiophosphate, organochlorine compound, and organophosphate acetylcholinesterase inhibitor used as a pesticide. Exposure occurs by inhalation, ingestion,

or contact. It has been found that low-level OPI exposure may cause metabolic dysregulations. The dictionary definition:

dysregulations (plural noun)

1. **abnormality or impairment in the regulation of a metabolic, physiological, or psychological process.**
   "family dysfunction may contribute to emotional dysregulation" · "the phenomenon of narcolepsy can be understood in terms of a dysregulation of rapid eye movement sleep"

This product should be handled with care – gloves, long sleeve shirt, and protect eyes.
Varroa Treatment is most effective when brood rearing is lowest

- **The only product approved to treat for SHB inside the hive.**
- **Use 1 strip for every 5 frames of bees. Recommended 2 per Hive.**
- **Remove strips after 42-45 days**
- **Treat all infested colonies within the bee yard.**
- **Treat spring and fall.**
- **Do not use when honey supers are on hives.**

HopGuard® II & III

Hop Guard is a unique miticide derived from hop compounds, and provides a safe and easy-to-use alternative to traditional harsh chemicals. It is considered a food-grade product. (Potassium Salt of Hop Beta Acids)

- **It can be used during a honey flow.**
- **It is not temperature dependent.**
- **Use 1 strip per 5 frames covered with bees.**
- **Remove after 30 days**
- **3 applications recommended per year – no more than three.**
- **Treat spring and fall but summer treat if needed.**
- **It is recommended that gloves be used when handling strip but it is considered a food grade product.**

This is a product that I have not used. It is rather new. If any of you have used it, I would appreciate some feedback on what you experienced with it.

ApiGuard **Apiguard is a slow release gel that ensures correct dosage of its active ingredient, thymol. Thymol is a naturally occurring substance derived from the plant thyme.**

- **It is sold in aluminum trays (2 trays will treat one standard colony).**

- It is also sold in 3 kg tubs and 25 g sachets.
- It is easy to place in a hive – vapor from the gel is given off and does not disturb the bees as the fumigants discussed last week do.
- Bees enter the tray to remove the gel—a cleaning behavior that distribute the gel throughout the hive as the bees move through the hive. The gel sticks to bees body hairs.

Api Life Var - considered another soft mite treatment (Thymol, eucalyptol, Camphor & menthol) -- 74% thymol + the other ingredients..

- This product can be used in a temperature range of 65 to 95 ° F .
- It is used as a wafer with treatments at 7-10 day intervals.
- A 10 pack will treat approximately 6 colonies. It is also sold in 100 packs.
- Apply during the coolest time of the day either in the early morning or evening.
- Close up screened bottom boards and reduce entrance openings.
- Wear gloves is using it.
- It is a bit expensive (a 10 pack was listed for $69.95)
- Read label on the package.

Oxalic Acid (I used oxalic acid to treat my bees over 10 years ago). At that time is was not registered for use on bee hives but was in common use in Europe. It is sold in paint stores as wood bleach. However, today it is available from bee suppliers as crystals. It can be used in several different ways – as a dribble or as vaporizer fumes when little or no brood is present in a hive. It is one of the most cost effective ways to treat for mites.

There are many utube video's available to show how to apply oxalic acid.

Oxalic acid is an organic acid . Its name comes from the fact that early investigators isolated oxalic acid from flowering plants of the genus Oxalis, commonly known as wood-sorrels.

- Do not use when honey supers are on the hives.
- Oxalic acid in its pure form is very dangerous. It is toxic and corrosive and should be carefully handled. When mixing the powdered acid with water, always wear latex gloves to protect your skin.