

STAHLMAN BEEKEEPING

NOTES FOR 2023

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Varroa destructor

This is truly a good name for this pest. It destroys hives of bees.



I remember a statement by Dr. Jim Tew a number of years ago that went something like this: “Think of the size of the mite to a honeybee something like you walking around with a watermelon on your back.”

I find this a difficult topic to write about. I have read articles, attended conferences and listened to talks about Varroa mites. They arrived in my bee yards most likely prior to 1990. First there was Tracheal mites and then something called *Varroa Jacobsoni*. I decided to check back in my old Bee Culture Magazines to see if there is anything I missed over the last 20 years or so. I selected the year 2001 to see what articles were written about Varroa mites. It turns out quite a few by authors I highly respect. There is an article by Sue Cobey “The Varroa Species Complex – Identifying Varroa destructor and New Strategies of Control.” It offers hope that the solution around the corner with sustainable solutions through selective breeding. An excellent article by Jeffrey W. Harris and John R. Harbo laid out attempts of selective breeding in an article “Natural & Suppressed Reproduction of Varroa” in the May issue. The following conclusion to the article had this to say: “Based on our studies and that of others, we are confident that honey bees will become resistant to Varroa mites. SMR (Suppression of Mite Reproduction) is only one of the possible mechanisms that can help our bees become Varroa-resistant. Our plan is to insert Varroa-resistant traits into our honey bees so the bees will need fewer chemical treatments to control mites. **Eventually they will need none.**”

Here it is 2023 and I am still treating for Varroa mites. Some progress has been made on finding hygienic bees somewhat resistant to Varroa but the 2nd generation queens from that stock usually do not have the resistance.

Thus, there is no subject that is more confusing to me than all the hype on Survivor queens. As a beekeeper, I have found it necessary to buy expensive products sold to control Varroa mites and the results are questionable. I am

IMPORTANT POINTS

Varroa mites are no doubt the greatest threat to honeybees worldwide.

According to the Pest of Honey Bees section of The Beekeeper’s Handbook by Sammataro and Avitabile “There is credible evidence that the Varroa mite was introduced into the United States by a beekeeper who returned from Europe with bees that had mites attached to them.”

First discovered in Florida in 1986, they spread rapidly across the U.S. Today, they are found in every state.

The Varroa mite is the major factor in the death of honeybee colonies!

It is known as:

Varroa destructor

“It takes 10 average sized pollen loads to produce one worker bee.” And One pound of pollen is necessary to produce one pound of bees.

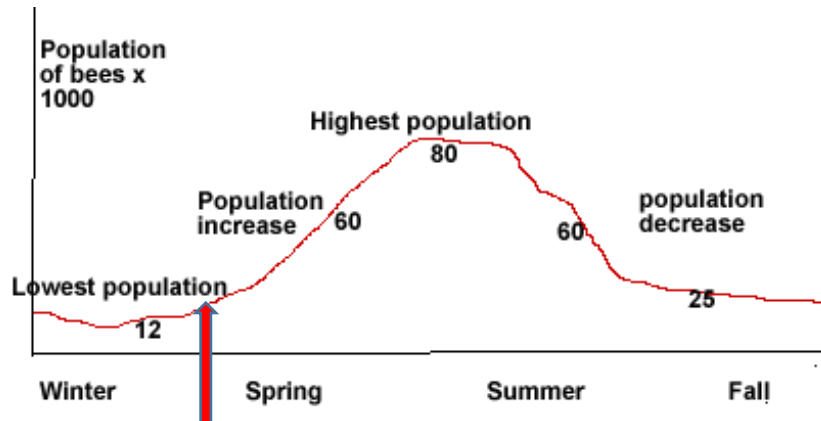
Todd, Frank E. 1941. Pollen and Nectar Studies. Gleanings Bee Culture. 69: 14

F.E Todd worked in field research for USDA, ARS until 1968. I think these numbers are close to being valid.

not in a position to tell anyone – what product or queen to buy! I have found a reliable queen breeder to buy queens from – still I have to buy chemical products to treat for mites.

I am focused on switching from one product to another each year. This year I will be trying Apiguard® because several of the students I mentored used it with great success. One has to read labels on the products to use them correctly.

Most hives will have Varroa mites. This graph shows the typical growth of bee population during a bee year.



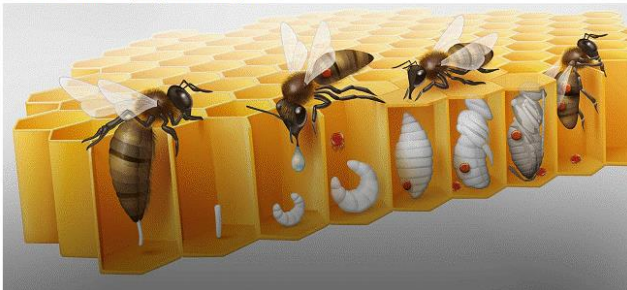
We are here now! The time to check for mites is now! Brood can be found in hives – from hives north and south. In the Raleigh area we have some hives ready to split. Mite reproduction begins when the bees start raising brood.

Beekeepers that don't treat or manage bees to keep Varroa mite populations down are keeping bees with their hands tied behind their back. I have seen many beekeepers become disappointed and quit when their bees die.

The facts are:

- We have not found a sure means of getting rid of the mite problem.
- Research and breeding efforts are still underway.
- Varroa mites are the #1 killer of honeybees.
- The high hopes of 20 years ago have not been reached!
- They exist in every state of the United States and the world.
- One single mother mite is often referred as the foundress mite

Credit: Picture from Bayer @ researchbayer.com



Did you know that one foundress mite in a month can create 21 or more adult female Varroa mites if mites are raised in drone cells? Each daughter mite of those 21 female mites could reach a population of something like 200+ female reproducing mites in another month. That is what one foundress mite can do!

How does this affect the bees in a hive?

- Shortened life span for most adult bees (Diana Sammataro indicates this could reduce the life span by (34-68%).
- External damage to young emerging bees (chewed wings, legs, and stunted growth). (The Varroa mites are feeding on the fat bodies of larvae and adult bees).



Female mites on one larvae. This is only the beginning of this bees life. No wonder hives seem to die before the winter season arrives or the bees die before new bees replace them. Life is shortened and bees are weaker.

Below is a facebook posting by Remus Moldovan of a damaged bee with a Varroa mite attached to its abdomen.

There is nothing supercharged about a hive with bees looking like this. There must be some thought given to the morale of the bees in a colony affected with Varroa mites.



Important point: Queen breeders are attempting to find bees that bite mites legs, detect Varroa mites in cells, and display hygenic behavior. In some cases we are seeing some success in breeding ressessive genetic characteristics into some of our bees. Thus, beekeepers can select for those bees that have some resistance to Varroa mites. And we have introduced bees into the United States from Eastern



Russia that seem to have an adapted genetic resistance to Varroa mites.

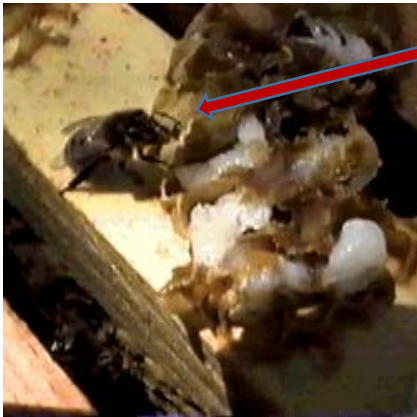
See the mite?

Follow to see what happens to it:

The picture below is an enlargement of this photo. I caught this action on a visit to my beeyard sometime in the mid 1990's.



Do you see the Varroa mite? And the bee!



The honey bee almost has it !



The worker honey bee attacks it!



And finally, this mite is history.

Wouldn't it be great if all our bees reacted to mites this way!

After 20+ years we are still working on getting the genetic material from this very hygienic bee into

our current bee stock. The reason why? Most of our queens are produced by open mating to a large population of drones that do not carry the recessive gene necessary to bring out this characteristic.

Recessive Gene Definition from the Biology Dictionary on line --

A recessive gene is a gene whose effects are masked in the presence of a dominant gene. Every organism that has DNA packed into chromosomes has two alleles, or forms of a gene, for each gene: one inherited from their mother, and one inherited from their father. A recessive gene is only expressed when an organism has two recessive alleles for that gene. This is also known as being homozygous recessive. If an organism has one dominant and one recessive allele, it will show the dominant trait.