

# Rebooting An Aging Beekeeper

## Beekeeping things are changing all over?

### No computer lecture

Straight up, this is no computer lecture. I use the parts of my computer, the web, my digital camera, streaming video and software packages that I need to use – and not one thing more. For instance, I am a beekeeper who frequently needs digital photos of bees, but clearly I am not an experienced photographer who uses bees as a photo subject.

When I shut down my laptop computer, it will frequently tell me not to turn my computer off because it is upgrading operating files. Sometimes it takes quite a while. Though I can rarely tell the difference in the function of my computer, I always have the feeling that somehow my computer is current and up-to-date. In a way, this rebooting process has been happening to experienced beekeepers. Years ago, we knew the proper way to keep bees (as it were, our bee operating system), but beekeeping things changed dramatically and we needed an operating system upgrade – ergo a hard reboot with file upgrades. In this fanciful comparison, in short order, the older experienced beekeeper would be updated to a current, modern beekeeper.

This upgraded beekeeper would then be fully aware that queens no longer live two to five years, but now live hardly a year. This upgraded beekeeper could only dream of the years when a 14% Winter loss was significant compared to the more common 40-50% Winter loss today. But on the other side, pollination rental fees are higher than anyone could have ever imagined and today there are new beekeepers everywhere. All of the old bee books, old training materials, and old video tapes are now collectibles describing a time that is nearly gone, but hold on . . . at this time, beekeeping is experiencing a truly revolutionary change. The pollinating honey bee – the most underappreciated agricultural worker of all – is now much more appreciated and accepted as being critical. Beekeeping

is clearly undergoing a major systems upgrade, and it's an upgrade event that is still in progress.

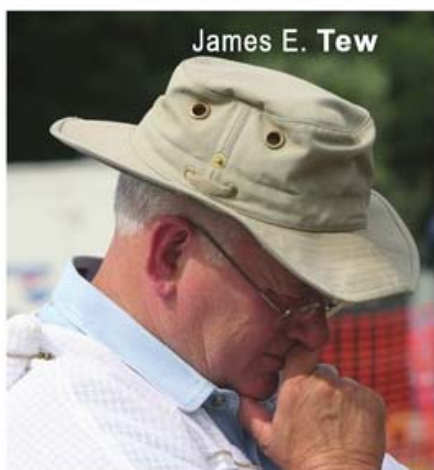
### Rebooting our approach to Varroa control

If you can't stand the answer, then don't ask the question. One of my daughters taught me that tenet. While on a short car ride many years ago, I abruptly asked my daughter if she smoked. Without hesitating, she answered that she did. I was not prepared for the wrong answer to be rendered so quickly. I was unable to respond intelligently so I didn't respond at all. I don't remember why I even asked the question and then I didn't know what to do with the answer. *(Just so you know, she has long since quit – I think. I no longer ask.)*

Just a couple of years ago, I did the abrupt question thing again and once again was caught unawares. In Alabama, I was addressing the group at the state meeting when I suddenly asked what the group of about 250 participants used to control *Varroa*. I was still smarting from my losses to *Varroa* during August (2012) so I was all over wanting to know what the group consensus for control would be. I wasn't truly using crowdsourcing, but it was close. After only getting a few responses, the group began to grow comfortable enough to admit that they were not using anything – absolutely nothing. *Okay, Jim, now what.* Just a few months ago Figure 1 shows what my package bees looked like when I tried doing nothing for just nine months.

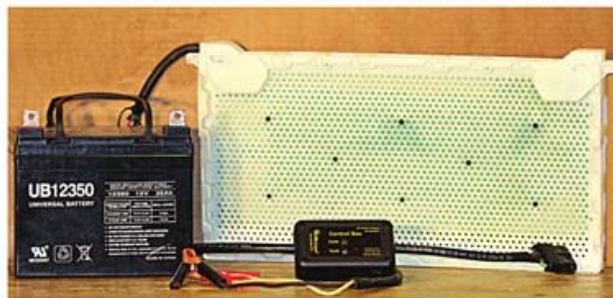
Since that initial meeting where I was first shocked, I have been to other meetings far outside the southern U.S. where other beekeepers admitted they, too, were doing nothing to control *Varroa*. What are your thoughts on this phenomenon? Does doing *nothing* to keep *varroa* populations reduced represent an increasing proportion of our industry? Commonly, several beekeepers will volunteer that they have not used anything for as long as five years. Like my daughter's response, I don't know what to do with this answer. When I am visiting with bee groups, I will continue to ask how many people are not using any mite control materials. I don't know what to do with this information.

It was only five to 10 years ago, that our industry was begging our best scientists to come up with some kind of



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MiteZapper.

BEE CULTURE

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effective *Varroa* control. Now, seemingly, it is not an issue for some beekeepers. What happened? Due to the serious monetary loss that I suffered and the public admission that I had been hit by a major varroa collapse, I must tell you that I cannot go with the “nothing” approach for a while. But alternatively, it would be nonsensical for me to recommend that a beekeeper who has healthy colonies should be treating for something that is not present. Maybe we are in the middle of a reboot on this subject.

#### My preliminary experience using the MiteZapper® frame

This specialized frame is an alternative to traditional mite control programs and due to my concerns about my mite level, I have been giving them a serious try. This device is soundly constructed and somewhat enjoyable to use. Since drone brood can be parasitized by *Varroa* as much as eight to 12 times more than *Varroa* parasitizes worker brood, it can be used as a trap crop for *Varroa* mites. One of my old bee management bee-operating files that has been upgraded is that *Varroa* is here to stay. Populations may wax and wane, but *Varroa* seems to be here for the long haul. In the early years of mite predation, we thought we could eradicate them. *Varroa* won.

In eight of my colonies, I am presently using MiteZapper frames<sup>1</sup>. I have absolutely no financial interest in this product so my comments are more-or-less objective. I only hope that these devices can reduce *Varroa* populations without needlessly disrupting the colony. I have found that the MiteZapper frame is readily accepted by the bees and drone comb is quickly constructed during a strong flow. I have not tried feeding syrup to stimulate drone comb construction when no flow is on.

The zapper frame should be in the brood box. I have mine four frames in from the side in the second brood box. The frame has an internal grid capable of being heated by electrical power from an external 12-volt battery. A vehicle battery or a portable battery (12v 35 Ah) can be used to supply the power. The frame should be heated about every 18-23 days. I have set a reminder on my calendar for me to “zap” my colonies about every 19 days. About four-five treatment cycles should be enough to get through the drone production season. The colony being electrically treated seems oblivious to the procedure. There is no increased aggression or any other outward indication that the frame has been heated.

The treatment procedure is simple. On the specified day, I take my battery and the control box to the hive. The electrical connection from the frame exits at the back of my hives. The hive body required a small modification. The electrical fittings are similar to the fittings used on utility trailers. The wire and the connectors are heavy duty and snap together securely. Upon snapping together, a red and green light comes on in the control box and if the connections are good and the battery is capable, the red light goes off and a blinking green light remains. Once the green light glows steady, the process is complete. Depending on the battery, it takes about six to eight minutes. If I have become distracted and am not on time to disconnect the battery, no harm done. The control box shuts down

<sup>1</sup><https://www.mitezapper.com/>

<sup>2</sup>I don't know if this is an indication of hygienic behavior but it looks like it would be.



An abrupt *Varroa* infestation, 2012

the electrical flow from the battery.

Most colonies show no effects for a day or two, though I do have one colony that begins to clear the drone brood almost immediately<sup>2</sup>. However, most colonies can take as much as two days before going into full dead drone brood removal. Some of the sacrificed drones are partially consumed by the workers while larva and prepupa are drained of body fluids. But the colonies are kept clean. All of these drone body parts are deposited outside. The ground in front of the colony will be littered with drone corpses for a few days, but they will quickly decompose.

#### A few points about the Zapper frame . . .

If you are raising queens, you will probably want to develop another strategy rather than killing most of your drones. If drones are required, don't use the zap cycle and let the drones emerge normally. Importantly, the special zapper frame leaves an undamaged band of drones along the bottom of the frame. A healthy colony will require about 600 drones to meet the colony's specialized pheromone need within the colony. However, keep in mind that full drone frames can encourage increased *Varroa* populations. So far, I like the simplicity of these frames. I will give another report after I assay the mite load at the end of Summer.

#### Landscape bees

In past articles, I have said that much could be learned from a colony just by looking at the entrance activity and the compost pile in front of the colony. As I



Worker bee removing dead drones.



*A worker bee with a tough job in front of the hive.*



*Flying worker bee on left is trying to fly away with a grass blade.*

began using the MiteZapper frames, I spent more time monitoring entrance activity as I watched for signs that my bees were removing the dead drones. I noticed, primarily on just one colony, that a group of five to 10 bees were very diligently tugging at grass blades or picking up small pieces of leaf litter or bee parts and flying away. These were not the same bees as the housecleaning bees that drop to the ground while struggling with the corpse of one of their fallen comrades. Those housecleaning bees were out there, too, but there was the small group of bees that seemed to be cleaning the area in front of the hive – very dedicatedly. Look at the figure I have presented.

Occasionally, one of these bees would take on a grass blade with its mandibles as though it would be able to pull the grass shoot – roots and all – from the ground. Of course, it couldn't but over time, either the grass began to show damage or the grass naturally died back. The area was significantly clean. I had planned to post a short YouTube clip, but skunks began harassing the colonies at night and they wallowed the area out. If I had posted that video, some of you would write to tell me that it was just skunks doing it. Nope, I have several pictures and a small video clip showing these bees with the odd work assignment.

#### The hive's compost pile

I have no scientific basis for writing this, but I suspect the compost pile in front of our hives is an artifact of our current hive design that puts the entrance so near the ground. I have never seen dead bees and hive litter dumped at the base of a bee tree. We have all seen a housecleaning bee carrying a dead bee from the hive that would drop to the ground in front of the colony and struggle to become airborne with weight equal to its own. It's tough. The grounded bee is trying to lift its own weight (the dead bee) from the ground. I have an observation hive that has an entrance four feet from the ground. On several occasions, I have seen a cleaning bee carrying another bee that would exit the observation hive, drop about two feet under the heavy load, struggle to gain altitude and literally fly out of sight with the load (approximately 75 yards). Why so much energy expenditure? Just fly about ten feet and bombs away, but no, no. These dedicated bees must literally fly out of sight. I don't know how far

they went before they dropped their load.

#### Remember the skunk?

Remember the skunk I referenced above? I am suspicious that the hive entrance near the ground and the resultant compost pile would be attractive to skunks and raccoons. Are cleaning bees, in general, trying to keep the front of the hive clear for pathological reasons or to mask the colony entrance from vermin – or both? If I ever have time and energy, I intend to position the entrance above the second deep with a clean-out drawer underneath the hive. This would raise the entrance about three feet. But possibly, could the returning foragers need to pass through the brood nest to determine brood needs – so would putting the entrance above the brood nest upset their pathway. Or would it? I don't know. I'll get back to you later. I need to stop now. My computer needs to update some important operating files. **BC**

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