

Agroecology Commons Beekeeping Journal

January 3, 2023

Cleaned the bottom of the hive in the lemon girls, saw the queen on a brood frame towards the south side of the hive. Removed one frame of wax with honey and a little bit of mold to the north side. We added more pillow fill. The pillow fill was pretty dry. There was moisture on the interior walls of the hive mostly in the back corner. We consulted Paula who noted that some mold is typical and that the bees will most likely take care of it and clean it up in the spring. We put the inner lid below the pillow box. Both Warré and Rose looked relatively dry. The Warre and rose had slight moisture around the walls of the hive, especially in the back. Paula suggested that we put a popsicle stick under the entrance of the robbing screens, and that we most likely could take off the screens bc there's so much eucalyptus.

December 23th, 2023

Brooke came and raised 2x4s behind the hive in order to help them drain out more.

December 21, 2023

Brooke removed the apivar from the Rose and Lemon hives. There was a lot of water at the bottom of the lemon hive Brooke soaked it up with a towel. There appeared to be mold on some of the wax. The queen and eggs were found in the lemon hive.

November 15,2023

Alexa added one strip of apavar to the rose, and lemon hives. Will need to come out in 6 weeks which is the 27th of December. Did not do sugar roll for ware because it was a cooler day.

October 27, 2023

Notes from call Paula:

Apivar is gentle on the queen it's gentle on the bees unlike formic and tymol no temperature restrictions, tymol makes your honey taste weird. If we lose our queen the hive is going to die. Drones are such a low count this time of year. Tends to be all female all winter if we are in a colder area. Even if they don't stop completely it's much less drones meaning there might not be enough seamen. It is a synthetic and you must go back in 6 weeks to remove it. If you don't the mites could become resistant to it. Too much of a risk this time of year to use Formic.

Kumquat

- Took out apivar
- Did not see queen
- Saw eggs
- Honey on every frame
- Added pollen patty
- Did not sugar roll
- Looked most robust and healthiest we have seen this colony

Lemon

- Honey on top, not every frame but a good amount
- Did not see eggs but saw queen
- Capped brood
- Capped honey
- Added pollen patty
- Did sugar roll, saw 7 mites (7 divided $300 \times 100 = 2.3\%$ mite count)
- One queen cup

Rose:

- Added pollen patty
- Did not see queen
- Saw eggs
- Sugar roll mite count 6 (6- $300 \times 100 = 2\%$ mite count)
- Replaced sugar syrup half the container - they drank all that was from weeks ago
- More honey was in their frames than last time

Sep 28, 2023

Alexa swapped out a mostly bare frame other than the wax screen from the Rose hive with a frame we borrowed from Paula that has sugar water in it. We made syrup with three cups of organic cane sugar and 1.5 cups of water on the stove, then added it to the frame container. The sugar water syrup filled up the frame less than half, so we may need to give them more sugar water after we observe how much they seem to need!

Sept. 14th, 2023

Paula came to visit the hives with us and we checked all three hives. The Kumquat girls were small and had not filled the bottom box. We did find the queen though. They will most likely need to be fed for the winter. We did a sugar roll test on the kumquat girls and found 7 mites. We treated them with Apivar. We will need to remove this in 6 weeks on Oct. 26th. The Lemon bees are doing well, we found eggs and did not do a mite check. We are still uncertain if the formic acid killed the queen or if the bees swarmed. Either way we are queen right again. We reduced the lemon bees to two boxes and consolidated their honey. We decided to not to give them more oxalic acid because they had three strips before and a brood break with the new

queen. We did a sugar roll test on the Rose bees and found 2 mites. We decided to add one more strip of oxalic acid. We gave each hive a pollen patty. And moved a super frame of honey into the rose bees from the lemon bees hive to support with feeding. Currently, the rose bees do not have enough honey to get them through the winter.

Sept. 6, 2023

We checked both the Lemon and Rose Hives. The Rose bees did not seem to grow substantially we did find the queen though. She is a smaller-sized queen. In the Lemon hive we found the queen but she is most likely a virgin and we didn't find any eggs. The guard bees were quite aggressive afterward and stung Derek.

August 16, 2023

We entered both the Lemon and Rose hives to treat with oxalic acid strips. In the lemon hive we added 2 strips resting on top of the deep and one resting on top of the bars of the second super. In the rose hive we placed one strip on toothpicks and lowered in near the brood but towards the edge of the box. In the lemon hive we seem to not have a queen. We found capped brood but no larvae or eggs. We found 2 queen cells that were capped though.

August 7, 2023

Both lemon and rose hives had formic acid pads removed. A sugar roll test was conducted (on both hives) and the lemon bees had a mite count of 4, the rose bees had a mite count of 1. Paula recommends adding a small pad of oxalic acid to each hive, this will help to maintain the low mite count. Treatment lasts 80 days and she is making us some extra pads next week when she makes a batch. The rose bees still have not filled their deep box with 10 frames, we spotted their queen. The lemon bees had almost filled their honey super. We added another super in between the deep and existing super, 8 frames had foundation, and 2 were foundationless. We could not find the queen in the lemon bees and there were twelve queen cups. We did not see any brood in the queen cells. Paula thinks that it is likely that the queen is in the hive considering the different stages of larvae we saw and that none of the queen cups were drawn out and long. In general, she recommended that we don't fright about them building queen cups that its relatively normal, sometimes they just like to build them. When we add the oxalic acid pad we should check again for the queen. What we saw along the edges of the formic acid pads is for sure propolis.

July 27, 2023

Both the lemon bees and rose bees received their second treatment of formic acid. Leah agreed to put the hive reducers back on this Sunday. The rose bees had about 4 frames of undrawn comb so no need to add an extra box yet.

July 18, 2023

Both Rose and Lemon hives were treated with formic acid strips (1 each on top of each brood boxes). A bottom board was added to the Rose hive and both hive reducers were removed in

each hive. Hive reducers should be placed back after 3 days of treatment to reduce robbing. The second formic acid treatment should happen in 10 days.

July 12, 2023

Brooke entered hives with Paula. Lemon bees are queen right again. They are drawing crazy come because the top box is a weird size. Should replace this box at some point. We found a high mite count of 12 and should treat with formic acid when the heat drops. We need 3 consecutive days of temperatures below 85 to be able to treat them. Put in one strip for 10 days and then put in the second strip for 10 days. The rose bees were moved from the nuc box to the hive. The hive doesn't have a solid bottom board. The queen was laying eggs. These bees had a strange brood-laying pattern and also had uncapped quite a few brood. Also did a sugar roll test and they should be treated for mites with formic acid. The Kumquat girls looked good. The population was reduced because the queen has not started to lay. We placed a small strip of oxalic acid into the hive to reduce the chances of mites and support hive health. Bees had started to draw comb on 3 frames.

Notes from Paula:

Lemon:

Mites 12 or 13, $4\% = 12/300 \times 100 = 4\%$. The treatment threshold is 2-3 %. This is based on the Honey Bee Health Coalition recs.

<https://honeybeehealthcoalition.org>

<https://honeybeehealthcoalition.org/program/hive-management/>

Based on the size of the colony I recommend using Formic Pro in the 2-step treatment process. (If they were a larger colony I would recommend the 2 strips at once approach.) Buy 2 treatments from biofuel and you can use one strip each on your two larger colonies. Apply after this heat over the weekend. As long as daytime temps are under 85 you should be good. Be sure to read all the product info before treating. When you open the package be sure to be wearing gloves and don't breathe it in. It is quite noxious. It is hard on the bees, but it's like pruning a tree. Seems harsh at first but they come back stronger. It is organic but not gentle. Remember that 80% of the mites are under the brood cappings reproducing, and formic acid is the ONLY treatment that can penetrate the brood cappings. It is naturally present in the hive and does not contaminate honey, and no resistance has developed in 30 years. It is a good option. I hate treating, but I know it is a necessary evil to keep my bees from dying a miserable death. I tell them that it is medicine day. I am attaching a few articles re: the Live and Let Die approach (and why it is bad for bees) as well as why one should treat all bees in the bee yard at the same time. Please note in Darwinian Beekeeping the text which explains why you shouldn't just let them die with a "survival of the fittest" mentality.

10. Refrain from treating colonies for Varroa. WARNING: This last

*the suggestion should only be adopted if you can do so carefully, as part of a program of extremely diligent beekeeping. If you pursue treatment-free beekeeping without close attention to your colonies, then you will create a situation in your apiary in which natural selection is favoring virulent Varroa mites, not Varroa-resistant bees. To help natural selection favor Varroa-resistant bees, you will need to monitor closely the mite levels in all your colonies and kill those whose mite populations are skyrocketing long before these colonies can collapse. By preemptively killing your Varroa-susceptible colonies, you will accomplish two important things: 1) you will eliminate your colonies that lack Varroa resistance and 2) you will prevent the mite bomb phenomenon of mites spreading en masse to your other colonies. If you don't perform these preemptive killings, then even your most resistant colonies could become overrun with mites and die, which means that there will be no natural selection for mite resistance in your apiary. Failure to perform preemptive killings can also spread virulent mites to your neighbors; colonies and even to the wild colonies in your area that are slowly evolving resistance on their own. If you are not willing to kill your mite-susceptible colonies, **then you will need to treat them and requeen them with a queen of mite-resistant stock.***

For the weird box with the burr comb underneath: I'm sure there are several ways to handle it, but I think if it were me I would put an empty box between the two that are currently there. I would put the inner cover on top of the new box, and put the box with the weird comb on top of that, then the outer cover. The bees SHOULD relocate the honey on the messy frames down below the inner cover. Then when they are done you can take the weird box away.

Rose: Mites 2 but likely not accurate as the jar was full of melted sugar. Based on the way the colony LOOKED (uncapped/bald pupae) I would say you definitely have a higher mite load than that. Given that you should treat them both anyway,(see attached article) I would just go ahead and do it before they get into trouble. Again, one strip on the top bars 10 days apart.

For both colonies, it is imperative that you check them a week or two AFTER the second 10 day treatment is complete to be sure the mite count is less than 2%. It doesn't always do the job and you need to be sure it was effective. Be prepared with Oxalic acid sponges to apply when you do your post treatment mite check. Again, OA sponges will not reduce a high mite count, but they generally do a good job keeping a low mite count low. For details on how to make the OA sponges go to Scientificbeekeeping.com.

Attached are the recipes for OA. Note the differences between the DRIBBLE, which you would want to do only once when there is minimal brood, say 3 weeks after a split or on a new swarm, vs. the shop towel/sponge recipe.

Dribble: <http://scientificbeekeeping.com/oxalic-acid-treatment-table/>

**Shop towels/sponges:

<http://scientificbeekeeping.com/extended-release-oxalic-acid-progress-report-2019/>

The blue shop towels only hold 18 grams. The sponges hold a lot more OA and glycerin. When he used the sponges he did 40 grams per sponge and got good results on 90% of his colonies tested.

Add equal weights of Oxalic Acid Dihydrate and vegetable glycerin into a saucepan, Place over heat and stir constantly to dissolve the acid crystals completely, being careful not to exceed a temperature of 160°F (71°C) (above which the solution will start to form bubbles).

To the heated solution, add precut cellulose towels, sponges, chipboard strips, or similar carrier matrix to absorb the solution. Then allow the carrier to drip dry.

Apply not more than 50 g [[8]] oxalic acid dihydrate in saturated carrier to the lower brood box. The towels, sponges, or strips can be laid across, or hung over the top bars. The treatment must be separated by at least one chamber from any honey to be extracted.

Full efficacy is not obtained until roughly 40 days. The application may be repeated once per season.

I have used the blue shop towels in the past. Currently, these sponges seem to be in fashion so I'm giving them a try. I cut each one into 3 strips and used 3 strips on each hive. Jury is still out.

https://www.amazon.com/dp/B07BFBYC9Z/ref=cm_sw_r_em_apai_TomfFbSH7JN0N

For Kumquat, she is too little for anything as harsh as formic. I think the OA sponge should be sufficient for her for now. They will almost certainly need intervention by September though.