

An Oxalic Acid Tale

Looking back in my emails, I think that I ordered my first bees in 2009. I read *Beekeeping for Dummies* initially: package installation, diseases to watch for – nosema. I have had varied success, harvested honey a few years and lost a lot of bees along the way. (If ever there was an incompetent, but persistent beekeeper, it is me; I could write that book!)

I had attended organic farming conferences and started hearing about varroa mites and a lot of comb cell size and bee gestation time versus varroa life cycle theories. I tried many variations of allowing the bees to draw their own comb (many YouTube videos watched). At this point I have sworn off ever going foundationless and even cross wire all frames now; more than once dropping an entire comb out of the frame in the bee yard doing inspections and having a comb disintegrate when transporting a hive have left me thinking this is a bad idea.

I got two packages of bees in the spring of 2021, installed them. Things seemed to be going well. Even got honey from one of the hives. The other hive had been weak. I had sort of checked them in September and then went to look at them in November and both hives were dead.

Come January 2022, I was convinced that I must just be getting bad bees. I called up David Bailey, explained my history and asked if he knew where one could get good bees. David is a saint, he asked had I ever treated the hives for varroa. I quietly said no. David suggested that I probably had reasonable bee keeping skills (in hindsight, this would be a generous assessment) but that varroa had become a huge issue. He suggested that I sign up for his class that had just started.

Randall Austin taught a few of the classes. I still vividly remember his lecture on the top three hive issues: starvation, queen issues and varroa mites (thinking back on my history, I am pretty sure I hit all three of these). Randall's lecture covering testing and treating for varroa mites was a moment of enlightenment. He gave a pointer to a great resource on every facet of varroa mite testing and treatment, the Honey Bee Health Coalition (<https://honeybeehealthcoalition.org/>).

I got two packages and a nuc from David in the spring of 2022 and did many things much differently than I had previously. I think that I had a better understanding of what it meant to be a beekeeper versus a bee watcher, as the saying goes. I treated for mites in late summer and mid fall. I had three strong hives with food resources and low mites going into winter.

Come December, I knew was a great time to treat a brood less hive with Oxalic Acid. I purchased one of those vaporizers that attach to a battery and some OA. I watched a few YouTube videos and thought I was set to go. I treated successfully right after Christmas and then decided to do one more treatment in mid-January.

At this point, I am going to cut and paste from emails what I learned across the next several days:

What I learned today

The flashpoint of wood is 572-degree F, the flashpoint of beeswax is 400-degree F, the flashpoint of a plastic frame is 396-degree F. Steel glows red at 900-degree F.

So why would someone think that a heating iron for OA connected to a battery with no temperature control and stuck in a hive is a good idea?

The other things that I learned is that once plastic is burning, it is not easy to put out.

When I helped a fellow beekeeper with his hives, we noticed his dead hive had scorching on the bottoms of his brood chamber frames and smoke damage up into the hive. Was that what led to the die out?

I googled and others have had hive fires due to the irons. I think the plastic frame is particularly vulnerable given its lower flashpoint. It is amazing this vaporizing product is still on the market and this method is promoted as a good approach. I saw some fancy vaporizers at the Hive Life conference that apparently wouldn't have you putting something hot in the hive. I am also going to read more about the dribble method.

Just thought I would share. It is a sick, sick feeling to see a hive destroyed this way.

What I learned today - part 2

I did some googling, and I am not alone in OA vaporizer fires.

[oa vaporizer hive fire - Google Search](#). Interesting that this has not made it into common wisdom or even any products warnings. Again, I think anything that is 400 deg or uncontrolled, going into a hive with plastic frames is bad mojo. It seems like so many of these devices are designed by garage inventors. I do think OA vaporizing with some of the devices that are out there are safe.

I thought I would go up this morning and grab the hive ware out of the field, give me something to do cleaning it up the next few days. I walked to the bee yard and immediately noticed what I thought was scavenging going on with the deep that caught fire. You can see the extensive damage in the photo below. The plastic frames came in the nuc that I bought last spring. The number of dead bees I saw initially was tremendous.

I looked briefly at the medium and thought that I saw scavenging too. I realized that I had forgotten my phone to take pictures and went back into the house to get it. I was just going to leave the hive bodies assuming the other hives were benefitting from them still.

When I came back out with the phone and snapped the photo of the medium it dawned on me that I was seeing clustering, not scavenging. See picture below. I had assumed the queen was dead since the fire was dead center the brood chamber. I had assumed the few remaining bees would scatter, hopefully drift to the other hives. But somehow, they appear to have clustered in the open hive since the fire last Friday.

At that point I went to the garage to get the bottom board, candy board, quilt box and lid. I put the hive back together. I have no idea if the queen managed to escape to the upper chamber and survived when I yanked the hive apart to get to the bottom deep. But the will of the hive to maintain a cluster all this time amazed me. I have no idea what will happen to this hive, but it appears they might be survivors. I hope I can sort how to keep them around.

The deep that caught fire!?!?



The medium with the cluster!!



What I learned today - part 3

As I drive to the farm outside of Henderson, I am almost always sorting through what I think are the priorities and rehearse the bee yard activities. My top concern was whether the burned hive was queen right. My bet was no. I had been thinking that I could take a frame from one of the strong hives with eggs and get them replacing their queen. After visiting a fellow beekeeper apiary yesterday, I was worried whether there would be enough drone yet. We saw very few adult drones in his three hives, lots of drone cells. I was pondering if I should wait at least a week. Got to the farm and was still not exactly sure what the day would hold.

As we came through Henderson, it was too early to pick up lunch, so I decided that I would open the medium from the burned hive to see what the state was. Then grab some lunch and launch into the bee work after lunch.

Lots of bees flying from the two strong hives and movement from the survivor hive. Lightly smoked it and worked my way into the cluster. I was amazed. Capped worker bee brood and larva visible. I decided that I wasn't going to disturb it more, so put it back together.

While driving and pondering on the lunch pick up, I decided that I pull 1-2 frames with nurse bees and a honey frame to add to the survivor hive. I went through the other two hives and found one frame that looked like it had a mostly eggs at this point (the queen was on the adjacent frame). I pulled out that frame and one of honey. I finished working the two hives, they were doing great, lot of honey, brood, pollen. I added the brood frame to the survivor hive right next to the brood area and then stuck in the honey frame. Closed it up. A miracle!

I will check it out next week and see if I need to add another frame of brood. I need for them to build up and I will get a deep on there. There is still some fire damage to the comb in the medium. It will be interesting to see if they repair it.

Conclusions

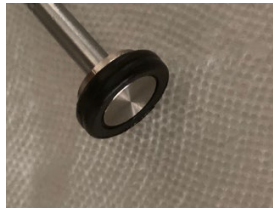
The hive is still alive and slowly recovering. It is a project to see how strong I can make them. I am pretty sure I am going to add more brood frames and nurse bees from my other hives as my next step.

Chris Hagwood had frequently encouraged me to look at the dribble method for OA application. I went to the Honey Bee coalition site and found a great video. I did a bit more googling and I found someone using this syringe gun that is adjustable to deliver 5 ml streams per squeeze. Its product name is Producer's Pride Ideal Pro-Shot II,



I found one at Tractor Supply. I have shared my story with David Bailey and shown the syringe to David Bailey. I believe that he is going to start sourcing this.

I have used it on several swarms that I have caught this season. The first time I used it I found that the screw that holds the rubber washer was not tightened down enough to compress the washer in the syringe body. If you get one, examine the screw shown below to make sure it is tightened and try it first on some water.



I am really pleased how this works and would highly recommend this approach to hobbyist beekeepers. Pick a warm day in December for a winter treatment (50 degrees is probably fine) and give the hive several quick squirts in between the brood chamber frames. And avoid a hive fire disaster!

Tony Gaddis
Wake County Beekeeper