

SOARING CAPITAL BEEKEEPERS

02/20/20 MEETING 7:00PM AT MARANANTHA BIBLE CHAPEL

The sign-in sheet made the rounds and President Lenny Boulas presided over our second meeting for 2020. We had some guests, who were welcomed. Most people have paid their \$10.00 dues for 2020.

Lenny mentioned the upcoming Greater New York Bee Conference to be held March 21st in Geneva, NY. Several members are planning on attending and there may be an opportunity to carpool. The conference is bringing in Vermont beekeeper Michael Palmer to talk about Queen Rearing. He was a guest speaker at the conference several years ago, and was both informative and entertaining. This is also an opportunity to hear from other beekeepers as well as interact with several suppliers who attend.

Lenny also handed out an informational sheet on using Integrated Pest Management (IPM) to deal with varroa mites. This sheet talked about 4 main areas: Cultural Controls; Mechanical Controls; Biorational Acaricides and Synthetic Acaricides. Basically, look at utilizing multiple methods to help keep mites in check and colonies healthy. Include the monitoring of mite levels to determine if/what types of methods to use and if those methods have been successful.

Most members were having continued good overwintering with generally minimal losses so far. This may well be in part due to the more widespread practice of varroa control last year, a very good fall flow that provided good honey and pollen stores going into winter, and the abundance of cleansing flight opportunities so far this winter probably have been helpful as well. Bears have taken a toll on some member's hives. Don't get too over-confident though, as often the highest winter losses occur in March and sometimes April. It is especially important to watch for starvation for large colonies that ramp up brood rearing early, as this consumes a large amount of stores. If you are overwintering in a single deep, and the weather does not allow for bringing in new stores, the bees can starve. Consider feeding if necessary. There has been a report of a colony that did not have 10 full frames of capped honey in their single deep going into winter and they ended up starving in February, despite having been given some winter patties. Starvation was determined to be the cause as there was a large number of bees (covering over 7 frames) and zero honey left.

At the time of the writing of these minutes, the first pollen of the season has been seen coming in. Some colonies near the Holding Point swamp were bringing in Skunk Cabbage pollen (very pale yellow) on March 1, 2020. There were multiple reports of pollen coming in, very likely also Skunk Cabbage, on March 2. The 2020 active season is upon us!

The main program for the meeting was a presentation on queen rearing by Scott Tompkins, Peter Meybaum and Ed Wolfe. This presentation expanded upon and offered some additional options to the main technique discussed last month of removing the queen and some resources (maybe two frames with brood and bees, plus at least one frame with stores and bees) and making a nuc – either on a new hive stand in the same apiary, or moving the nuc to a new location. The parent colony location then raises new queens while it still has almost all of the resources. Doing this around/slightly before the time when the bees would normally swarm helps increase the chances for success.

Some basic questions to consider when trying to raise queens started us off.

Why consider raising queens?

Getting a queen when you need one during the season can be time consuming and cost money – not only for the queen, but also for the shipping. You can also likely get queens of as good or better quality if you raise them yourself. It can be a fun and/or frustrating process to raise some queens, but you will certainly learn a lot. Having a nuc available with a young queen in your apiary might be a better alternative than having to order one in when you need it.

What are the conditions under which bees will raise queens?

Renni helpfully started us off with the answer of after the beekeeper kills the queen. This seemed like it referred to the situation of accidentally killing the queen, which if you keep bees long enough, you will likely accomplish as well. It can also apply to the situation of the beekeeper intentionally killing the queen. Bees without a queen, but with the resources to raise new queens, including fertilized eggs (future potential workers or queens), and/or very young worker larva, will try to raise a replacement queen. This impulse is called the “emergency” impulse and would likely only occur quite rarely in “wild” colonies. We as beekeepers are the main cause of healthy mated/laying queen deaths. The “emergency” cells created are built over existing worker cells, and are usually moderate in number. One can often see how larva in worker cells were “flooded out” of their cells with royal jelly and the cells turned downward. They can sometimes appear stubby. The “emergency” impulse is the motivation behind the main technique method we discussed last meeting and many other methods as well.

A second queen rearing impulse is something we likely experience each spring – “Swarming”. Queens raised under this impulse are often some of the best. Conditions are usually close to ideal with a large bee population and lots of incoming pollen and nectar. The mother queen lays fertilized eggs directly into queen cups and they are destined to become queens from the moment they are laid – and perhaps more importantly are feed to become queens from the moment they hatch. There are often 8-20+ swarm cells in a colony. They are often at the periphery of the brood nest. The cells are often large and well developed. Utilizing swarm cells for increase is often easy and yields good results.

The third impulse under which bees raise queens, and perhaps the one that beekeepers may notice the least, is the “supercedure” impulse. This is the situation when the mother queen is failing/not performing up to standard. She will lay directly in a limited number of queen cups – often 1-4, which tend to be located more centrally in the brood nest. Supercedure queens are also often of excellent quantity, but few in number. Sometimes a supercedure process results in a two-queen situation where the mother queen persists for some time along side her daughter. Supercedure can easily be missed by beekeepers, but fortunately the bees seem to know what they are doing, so don’t just automatically cut out any queen cells you see – try to understand what is going on first.

Queen rearing has some basic steps/milestones. One is to get very young larva from fertilized eggs into queen cups. A second milestone is to produce ripe queen cells or just emerged virgin queens, and the final hurdle is to get mated laying queens. There are myriad ways to achieve these results. Some work well for hobby beekeepers and some work well for operations that produce hundreds of queens per day.

Scott talked about a method that he has used successfully over the years. It is a variation on the method discussed last month. Scott often over-winters with a deep and either a shallow or a medium. Basically,

he allows the bees to build up in the two boxes a little longer in the spring. He then moves the shallow or medium, with the queen, to a new stand and allows the parent colony location to raise replacement queens. One could also do this if one overwintered in a single deep, by adding a second deep (or a medium or shallow super) early in the spring, and allowing the bees to build up in both first. Just make sure that the parent/original location has eggs/very young larva. It is also helpful if they have the eggs/young larva in fairly new comb, as this makes it easier for the bees to tear down the worker cell walls and build up a queen cell around the worker larva. If one only had older/darker comb, one could carefully destroy the cell walls around several just hatched eggs to assist the bees in their effort.

Peter demonstrated a technique to make this split without having to find the queen. Once the bees are strong with brood and bees in two boxes, remove the top box. You will also need a queen excluder, plus the new bottom board, inner and outer cover. A spare empty box is also helpful. If you can't find the queen, proceed to shake the bees off of the frames in the top box that has been set aside into the bottom box. Once a frame is beeless, or at least the queen is not on it, place it in the spare empty box. Proceed to shake off all of the frames from the top box. Ensure that at least a couple of frames after shaking have eggs/young larva in some relatively new comb. Now place the queen excluder over the bottom box. You now know the bottom box has the queen. Place the box with frames without the bees on top of the queen excluder and close up the hive. Come back in several hours, or the next day, and set the top box off onto a separate bottom board. Bees will have moved up through the excluder to take care of the brood. Now move the bottom box with the bottom board to a new location – it contains the queen. Place the former top box on the new bottom board in the original location. You have achieved the same configuration as if you were able to find the queen. The old foragers will return to the original hive location boosting its population and they will have the resources to raise new queens.

Scott also talked about potentially marking your queens with either the standard queen marking colors, or just with a color that works well for you. He also mentioned some of the different ways to catch queens.

Ed talked about one of the queen rearing systems that he has used (Nicot). There are others including EZI and Jenter. They all involve trying to get very young worker larva (potential future queens) of a known age in an easily transferrable state. Ed brought in his Nicot system. It includes a "lay cage" where the mother queen is confined for several hours to overnight. She will lay fertilized eggs into what she "thinks" are worker cells. These eggs, once they hatch, are transferred to the vertical, cell opening facing down, orientation typical of queen cells. Several variations can then be employed to get the bees to treat these very young larva such that they are raised as queens. The goal of all of the systems is to produce ripe (ready to emerge) queen cells.

The "grafting" technique pioneered by Syracuse, NY native G.M. Doolittle in the late 1800's was also mentioned. He got his very young larva from fertilized eggs by transferring, or "grafting" them from worker cells. He used a goose-quill toothpick. Today people use various grafting tools including plastic, metal, wooden toothpicks, and very fine paint brushes. He also made his own wax queen cups by dipping a shaped wooden dowel into some just melted wax – multiple times. His book "Scientific Queen-Rearing" has been reprinted. I think he was an excellent writer and keen observer of bees, who can still teach us much today. Today many people use plastic queen cups instead of the wax ones. Variations on his grafting technique are the basis for much of today's commercial queen rearing.

We didn't have time to discuss the "Miller-Method" from another beekeeping legend, Dr. C.C. Miller. It is a relatively easy, low cost technique to raise several queen cells which a small-scale beekeeper might consider trying.

Once one has the very young worker larva in queen cups, usually either the "emergency" or "supercedure" impulse is used to get the bees to produce ripe queen cells. This is a whole other program.

What does one do with these ripe queen cells?

A virgin queen will emerge from these ripe queen cells. She will need to mate fairly quickly or she will never be more than an unmated drone layer. I have found it easier to introduce a ripe queen cell into a nuc, than to deal with all but the very youngest of virgin queens. Having the nuc queenless overnight seems to help with acceptance of ripe queen cells. Carefully manage the entrance size of any nuc so that it can defend itself. More details on these nucs hopefully will be part of a later program.

Queen rearing can be a challenging and specialized aspect of beekeeping, especially if one is producing large quantities of queens. It will require careful attention to details and timing to be successful. Utilizing natural queen cells, or producing a few queens/nucs for your own use, can be challenging as well as very rewarding, and I encourage every beekeeper who is interested to give it a try.

There are some excellent queen rearing resources available, including a class on queen rearing that has been offered at Dyce Lab in Ithaca (Cornel University).

A couple books to consider besides "Scientific Queen-Rearing" include:

"Contemporary Queen Rearing" by Harry H. Laidlaw, Jr.. Comprehensive Classic! B & W Photos.

"Queen Rearing Essentials" by Lawrence John Conner. More recent book with lots of color pictures.

Respectfully Submitted,

Peter Meybaum,

Secretary

The next meeting will be held on March 19th at 7:00PM at Maranatha Bible Church.