

The Bee Line



Newsletter of the Maine State Beekeepers Association | mainebeekeepers.org

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Swarming, Swarm Prevention and Swarm Trapping

by Jennifer Lund

Honey bee swarms are something that every beekeeper will deal with at some point or another in their beekeeping career. I often hear beekeepers say that swarming is a sign of bad beekeeping when in fact, it is normal and often a sign of a productive and/or strong honey bee colony.

What is swarming and why does it happen?

Honey bees have both internal reproduction (the queen laying eggs) and external reproduction known as swarming. Swarming is honey bee reproduction at the colony level and is necessary for the survival of the species. When a colony swarms, the colony splits into two or more distinct colonies, growing the population of honey bees in the local environment. Genes are exchanged as the new queen in the original colony mates with drones from other colonies in the area.

Honey bee colonies tend to swarm in early spring around the time of the first good nectar flow. Several factors can lead to an increased likelihood of swarming including increased nectar and pollen availability, genetic strain of the bees, lengthening daylight, queen age, dilution or loss of queen pheromone and most importantly, brood nest congestion.

It is not solely the size or population of the hive that determines whether a hive will swarm but the number of bees in relation to the size of the hive space. So, it is not necessarily that strong colonies swarm but rather that crowded ones do. Crowding works on increasing the likelihood of swarming in two ways. First when a colony becomes overcrowded, it may be more difficult for workers to detect queen pheromone because it is spread between more individuals and therefore diluted within the hive. This pheromone prevents workers from rearing new queens, developing ovaries, and laying eggs. When this pheromone dilutes, workers begin rearing new queens.



Photo courtesy of Pixabay

Secondly, overcrowding can cause a lack of open cells for the queen to lay eggs in. As the colony grows, cells fill up with brood and food, forcing the queen to lay fertilized eggs in queen cups. Queen cups are cells that lay vertically in the hive and can be located anywhere on a frame (bottom and on the face). The larva in queen cells are fed royal jelly throughout their life and capped at around eight days. Capping of queen cells signals to the hive that it is time to swarm.

How does a colony swarm?

Queens are often too heavy to fly, so before swarming the workers reduce the amount of food they feed the queen and "run" her around the frames, causing her to lose weight and reduce egg laying. Workers reduce foraging and gorge on honey. If the beekeeper is listening carefully to the hive, the noise right before a hive swarms will increase dramatically. At the start of swarming, 50% to 70% of the workers rush out of the hive, herding the old queen to the entrance. At the entrance the old queen takes flight and lands on a nearby structure, often a tree branch or similar object. The workers follow the queen and form a cluster around her. This cluster can remain at this location for a couple of minutes up to a couple of days while scout bees are sent out to find a suitable nesting location. An individual scout returning to the cluster will promote a location she has found using the waggle dance which indicates its direction, distance, and quality to others in the cluster. Other scouts will leave the cluster to inspect the location she found. If they also find the site suitable, they will promote the site upon their return.

At the beginning, several sites may be promoted by different scouts but over time a single location gradually emerges as the favorite. Once a new nesting site is being "promoted" by the majority of scouts, the entire cluster flies to the site en masse. The parent hive is left with a third to half of the adult bee population, all the brood, and multiple queens developing in their cells. Each of these new queens is in a race to emerge first. The first queen to emerge will kill the other queen cells in the hive.

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Swarms, Swarming and Swarm Trapping (continued from page 1)

Sometimes multiple queens will emerge in succession and swarm. This is referred to as an after-swarm, or a cast swarm. Eventually one of the virgin queens will stay in the old colony and become the new queen. A few days after emerging, this virgin queen will fly out to a drone congregation area where she will mate with multiple drones. Once fully mated, the queen will return to the parent hive and begin to lay eggs.

Why do beekeepers want to prevent swarming?

When 50-70% of the adult bee population leaves the hive with a swarm, honey production can be adversely impacted. Brood rearing is interrupted while the new queen matures, mates, and begins to lay eggs which can slow down colony growth. Finally, the swarm that leaves the colony can become a nuisance if they cluster on a neighbor's property. Not everyone appreciates a tree full of bees.

How can a beekeeper prevent swarming?

There are several things you can do in an attempt to prevent swarms. It is important to be able to recognize the signs of swarm preparation in the colony before queen cells are capped. Once queen cells are capped, it is nearly impossible to stop your bees from swarming.

Providing adequate brood space and preventing overcrowding are simple, effective swarm preventative measures. During the winter months, the colony cluster typically moves from the bottom of the hive to the top of the hive as it feeds on honey. As they move up in the hive, they may vacate the boxes below leaving empty space. Often the bee cluster is reluctant to migrate downward in the hive, causing crowding and congestion in the upper parts of the colony. The solution to this dilemma is to reverse the boxes. To reverse hive

bodies, simply take the empty boxes from the bottom and insert them above where the bees are clustered. Only do this if there is no brood in the lower box. Otherwise, you will split the brood, and the bee population may not be strong enough to cluster over both areas and the unprotected brood may die. Later in the spring as the bee populations are growing, you may find that all your hive boxes are full and reversing the boxes will not work for alleviating overcrowding. This is when you should super. This is especially important to do once the first real nectar flow begins.

Colony equalization can also be used to reduce swarming. As colonies come out of winter, disease free brood and food frames can be removed from strong colonies and placed into weaker overwintered colonies or added to recently installed packages and nucs. Replacing the removed frames with empty drawn comb will give the queen more space to lay eggs.

Creating splits can be another way to relieve colony congestion. Splitting is creating an "artificial swarm." There are several ways to do splits but in general the old queen and several frames of bees, brood, honey and pollen are removed and placed into another set of equipment. The remaining parent colony is given empty drawn frames or foundation with either a new queen, queen cell, or is left to produce its own queen.



Photo courtesy of KLCB

Requeening a colony can reduce the likelihood of swarming. Young queens produce more queen pheromone, which in turn inhibits swarm preparation by workers. Ideally it is best to requeen a colony several weeks before the first nectar flow but in Maine it is often difficult to acquire queens in early spring. A good alternative is to requeen colonies in late summer when queens are readily available. The following spring, this younger queen and her increased pheromone production may help to reduce or prevent swarming.

Clipping a queen's wing could also minimize swarming because it keeps her from being able to leave with the swarm. A clipped queen may still attempt to leave with a swarm, but she will not be able to fly so the swarm will return to the nest or cluster on the ground near the entrance of the hive. These swarms should be collected and put into a new hive. Do not attempt to reintroduce the swarm back into the parent colony. They will often not accept it or the hive will swarm again shortly after the reintroduction. It should also be noted that colonies that cannot swarm because their queen is unable to fly may kill their queen in an attempt to produce one that can fly. Finally, cutting or removing queen cells can sometimes help reduce swarming. This method is time consuming, and often does not work. The idea here is to remove all queen cells every five to seven days before they are capped. Remember, the old queen leaves with the swarm just before the new queen cells are capped so it is important to remove them before any are capped. It is important to find the queen in the hive before starting to remove queen cells as she may have already left the hive with a swarm. In this case, cutting queen cells will leave you with a queenless hive. After the queen is located, every frame in the hive is systematically removed and inspected for queen cells. I recommend shaking the bees off each frame into the hive body in order to easily locate queen cells. It is important to make sure you remove every cell. If one queen cell is missed and allowed to be capped, the hive will swarm.

Swarms, Swarming and Swarm Trapping

(continued from page 3)

How do you collect a swarm?

Everyone loves free-bees! There are various methods to capture a swarm. A lot of the variation depends on the location and how easy it is to access the swarm. The easiest collections are when the swarm is located on a lower branch or in a small tree. In this case put a white sheet and nuc box or other collection container under the swarm. Vigorously shake the branch to dislodge the cluster. Your goal is to get most of the cluster with the queen into the box. You will know immediately if you get the queen because the remaining bees will start moving towards the box. You will also see bees near the opening of the box fanning the queen's pheromone. After 15-20 minutes the majority of bees will be inside the box. If all the bees leave the box and fly back up to the limb you did not get the queen into the box. Let the bees settle again on the branch and try again. If the swarm is entangled in its perch or very high above the ground, you may need to use some imaginative techniques to retrieve it. Sometimes a swarm is impossible or too dangerous to collect. It is important to be able to recognize this and walk away if necessary. It is preferential to place newly captured swarms of unknown origin in a holding yard away from your main apiary. This way the new hive can be quarantined until they are determined to be healthy, checked for mites and treated accordingly.



Photo courtesy of Matthew Allen

Can you trap swarms?

Yes! Your success will depend on providing a good nesting site for honey bees.

What scout bees look for in a home:

- The right size. Honey bees prefer a home that is 10 to 15 gallons or about the size of a single 10 frame deep box or two five frame nuc boxes stacked.
- Off the ground. Hanging hives between 12–15 feet off the ground is ideal. This gives the colony protection from both predators and dampness.
- A small entrance. Around two square inches near the bottom of the box is ideal. Traps with larger entrances are usually ignored because they will be harder for bees to defend from predators.
- Well protected from weather. The trap should be well protected from the elements. Hanging the trap with the entrance angled slightly down can help insure the trap remains dry inside.
- The smell of previous inhabitants. Installing a couple of frames of dark brood comb or rubbing the inside of the trap with propolis and beeswax can make it more attractive. There are also various “lures” that you can use to make the trap more enticing.
- Easy to find. If you hide your swarm traps, the bees will also have a hard time finding them.
- Not too close to established hives. Bees like to space themselves out in the environment so traps placed close to the existing colony will not be as attractive to scout bees as one further away. A good trap location would be anywhere from a couple hundred feet to one mile away from an existing hive.
- Food and water nearby. Scout bees start looking for new nest sites in areas where they were previously foraging for nectar and pollen. Areas with little bee food are less attractive to a swarm. Likewise, if there is no water source nearby, a swarm will ignore the trap.



*A homemade swarm trap.
Photo courtesy of Thomas Norgang*

There are some other helpful hints to consider when trapping for swarms. You will be climbing up and down ladders with them, so make sure your traps are lightweight. They should also be easy to hang and remove. You do not want to have to use loud tools or jostle the trap too much to remove it when it is full of bees. You should also make them easy to inspect for signs of inhabitants from the ground and you should check them regularly. The new swarm could outgrow the trap quickly and re-swarm. Also, once the new colony starts building comb, they are harder to install into new equipment. Along the same lines, if you use frames with comb in your traps, it will make it easier to install that new hive into your existing equipment. Two great resources to learn more about how bees make decisions and what they look for in a home are Tom Seeley's books “Honey Bee Democracy” and “The Lives of Bees.”



Photo courtesy of Thomas Norgang

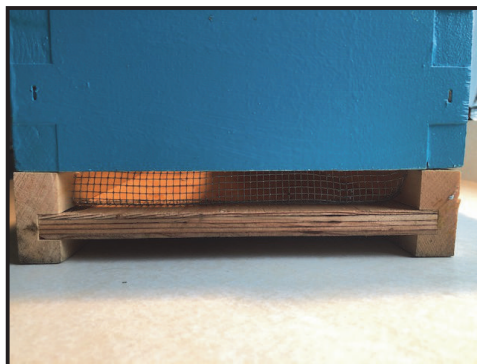
Tips and Tricks

by Jason Peters

Using a Quiet Box

One of the easiest ways to prevent damaging or rolling your queen during inspections is to remove the frame that she is on and place it in a quiet box.

We recommend using a four or five frame nuc box with the entrance screened closed to provide ventilation and the bottom board fastened to the box with screws so that it doesn't come apart during use. We also suggest adding a taller rail to your bottom board to give more space below the frames to avoid trapping or rolling your queen if she happens to be underneath that frame. We prefer to use an eight ounce cotton canvas cover on our quiet box as it is both pliable and breathable, however a standard cover will work just as well.



*A screen placed in the entrance.
Photo courtesy of Jason Peters*

How to use a quiet box:

Take this box with you to do your inspections. Once you find your queen, carefully move the frame with the queen and attending bees over to your quiet box. Place the top cover on and make sure that the box is placed in the shade. If it is hot out, you can provide a sponge or paper towel soaked in water on the bottom board to provide a water source. You can now go about your normal inspection routine without fear of harming your queen as she is safely secured in your quiet box.

Once you are done with your inspection, leave a frame or two out of the brood nest where the frame with your queen came from. Carefully retrieve the frame from the quiet box, verify that the queen is on it and place the frame back into its original position in the hive. Carefully snug up the adjoining frames so as not to crush or roll your queen. If there are bees left in the quiet box, you can shake them out either over or in front of the original hive. Close up the hive and go on to the next one...



*Quiet box canvas cover.
Photo courtesy of Jason Peters*

Note: If you get into the habit of trying to find your queen and moving her during your inspections, you will become much more proficient at spotting queens thus reducing your chances of accidentally adding her to those important alcohol washes!



The Eastern Apicultural Society annual Short Course and Conference, scheduled August 3-7, 2020 at the University of Maine in Orono, has been cancelled due to the COVID-19 pandemic. The difficult decision was made after carefully weighing input from EAS State Directors, the University of Maine and CDC guidelines. EAS sincerely appreciates all the hard work done by the Maine 2020 committee to plan for an outstanding conference and thanks the many beekeepers who volunteered to work during the week.

Master Beekeeper certification exams will not be held this year. Beekeepers who applied for the certification exams will not have to reapply next year. For questions related to Master Beekeeper certification, please email: secretary@easternapiculture.org.

Keeping Time

by Michael Donihue

I want to tip my beekeeping veil to a reader of my previous column who pointed out a mistake I made in my thinking about carbon sequestration and honey. Among my final reflections on the carbon choices we make, I suggested that the process of carbon sequestration might apply to the honey I consumed provided it wound up buried in the soil as waste. However, this isn't true. The carbon in honey is sequestered as long as it isn't consumed; either by humans, bears, skunks, or whatever happens to raid our hives. The process of consuming honey releases its carbon content back into the atmosphere through exhaled CO₂ and the eventual decomposing of our solid waste. The carbon content of honey consumed may be released at different rates, but it returns to the atmosphere nonetheless.

A more accurate way to explain what I was thinking is that here in our apiary as we consider the carbon choices we make in a systemic way – enveloping my family, our home, our forest and our honey bees in an imaginary ecosystem, we try to be conscious of how we might reduce our carbon emissions. In this context, by eating our own honey instead of importing refined sugar 'from away' we reduce our contribution to Maine's carbon footprint by decreasing the amount of sugar carbon emissions in our personal ecosystem. My thanks to a fellow beekeeper and the editor of The Bee Line for the opportunity to correct my mistake and clarify this point.

The email exchange I had with this beekeeper, combined with the fact that our lives are consumed with all things COVID-19 these days, led me to recall another

lesson I learned from a beekeeping mistake I made several years ago. It was related to my practice at that time of leaving wet supers and cappings from the honey I extracted out in the open for our bees to 'clean up' for me. It made me feel good to see them enjoying easy access to their honey. Melting the wax cappings was also much easier after this 'gleaning' of the harvest. I thought that I was doing our honey bees a favor by providing them with an end of season source of healthy food to add to their winter stores. It was Tony Jadczyk, Maine's former state apiarist, who taught me the error of my ways in a post-mortem inspection of my hives the following spring. I've also heard Jennifer Lund reinforce the lesson I learned in presentations she has made for the beekeeping club I mentor.

Tony has an international reputation for his depth of knowledge and expertise on honey bee diseases and he, like Jennifer, is a good instructor. What he taught me back then was that not only was I feeding our bees but I was also providing a smorgasbord to any *Apis mellifera* that happened to be within two to three miles of my wheelbarrow buffet. Regardless of how healthy the bees in our apiary were, I was inviting all sorts of problems in the form of varroa mites and the spread of contagious viruses and other diseases that resulted in the collapse of my hives that year.

As I was thinking about my lesson in honey bee virus prevention, I decided to find out more about the types of viruses our bees have to contend with. The first thing I did was to explore whether honey bees can get coronaviruses. The answer to this question seems to be no, there's no scientific evidence of coronaviruses of any sort ever infecting *Apis mellifera*. However, there are reportedly almost two dozen other viruses that honey bees can suffer from. The most common viruses affecting honey bees in Maine seem to be the Deformed Wing Virus (DWV) and the Acute Bee Paralysis Virus (ABPV). It turns out that both viruses share an interesting characteristic and multiple

strategies for control with what is officially known as the SARS-CoV-2 coronavirus that we're currently suffering through.

Deformed Wing Virus is the one I hear most about and seems to be common in Maine. DWV infects the honey bee in its larval stage and often reduces a bee's life span to just a few days. Its most obvious symptoms are visible to the naked eye and include deformed wings and shortened abdomens. There is also research suggesting that DWV negatively affects honey bee memory and other cognitive functions.



Photo courtesy of Wikimedia Commons

One of the ways that Acute Bee Paralysis Virus can be transmitted is in larval jelly fed by asymptomatic infected adult bees to the developing larva (sound familiar?). Pupae infected with ABPV usually die before emerging from the cell, which makes diagnosing the disease very difficult. Adult bees infected with ABPV are often not able to fly and exhibit symptoms that include shivering bodies or trembling wings as they crawl in clusters along the ground or up plant stems. Infected adults typically die within a day or two.

Both DWV and ABPV often infect the strongest hives in an apiary and can cause an abrupt loss of adult workers resulting in the complete collapse of a colony or leaving just a few bees with the queen on unattended comb. What makes diagnosing a viral infection so difficult for the beekeeping hobbyist is that similar characteristics can be observed in colonies suffering from nosema, tracheal mites, or some form of exposure to chemicals or pesticides.



Now for the interesting part related to the coronavirus pandemic. COVID-19 is a “host-shifting” virus, meaning that it somehow managed to “jump” from one animal species to another. It turns out that this isn’t all that common because an animal’s immune system tends to develop some resistance to pathogens they commonly come in contact with.

Occasionally, however, like in the case of SARS-CoV-2, a virus will jump to another “host” that hasn’t experienced it before and rapid infections ensue with disastrous consequences.

Varroa destructor is a host-shifting parasite. It jumped from the Asian honey bee, *Apis cerana*, to *Apis mellifera* sometime after the two species were co-mingled over a century ago. Varroa mites turn out to be the primary transmission ‘vector’ for DWV and ABPV. Field studies have shown that nearly 100% of honey bees in colonies that are heavily infected with varroa have DWV, sometimes without obvious symptoms.

It also turns out that ABPV is not easily spread from one adult honey bee to another, or in the jelly left to feed capped larvae, in sufficient levels to cause widespread harm. However, it only takes a little bit of the virus transmitted via the bite of a varroa mite to cause an outbreak with catastrophic effects on a colony.

For a variety of reasons honey bees in the U.S. haven’t (yet) developed effective defenses to varroa mites which explains why the impact of this parasite, and the pathogens they carry, has been so cataclysmic for hobbyists and commercial beekeepers alike. The recommendations for helping prevent the spread of honey bee viruses sound a bit like the daily briefings we’ve become used to from our favorite directors of State Centers for Disease Control:

The honey bee equivalent to “wash your hands” is to invest in hygienic queens that have been bred for genetic behavioral characteristics sometimes found in bees

living in regions of the world that have coexisted with varroa for longer than ours have in this country. Hygienic bees reportedly are able to detect varroa-infested brood and remove it from the colony before the next generation of mites mature.

There is a lot that has been written lately about “social distancing” your hives by spreading them apart, sometimes by as much as 50 feet. While almost impossible for most commercial beekeepers, the idea is to limit the amount of “drift” and the accompanying likelihood of spreading disease among hives. If you can’t spread your colonies apart, then anti-robbing screens or distinctive patterns on the front of your hives can help your honey bees keep on the right flight path home from their foraging excursions.

Honey bees can’t “self-quarantine” but a responsible beekeeper will be on the lookout for diseases or other anomalies in the behavior of their bees and effectively quarantine a hive by removing it from an apiary for treatment. We can also mitigate the impact of a viral outbreak by avoiding the combination of untreated weak colonies or using frames from dead-outs or hives that you suspect may have suffered from a viral infection related to a varroa mite bomb.

As we’ve all heard from our mentors, class instructors, and state apiarists (and no doubt healthcare professionals in our future as well)...regular testing and treatment for mites will help control the spread of disease in our colonies. We need to do this not just for the health of our apiary, but also because of the beekeeper who might be providing a buffet of wet supers and cappings next door.

As for the mess left over from my honey extraction efforts each year, I now place wet supers directly back on the hives they came from, above the inner cover, until they’ve been cleaned out. I suppose I can think of this as a form of “contact tracing” as I can now be a bit more certain about the identity of the bees that are coming in contact with

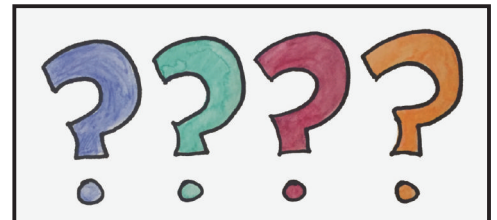
each other as they build up their food stores. I’m also planning on making some anti-robbing screens and using them to help our bees keep out unwanted (and possibly virus infected) visitors. As to the cappings, I now put the entire mess in a DIY solar melter and separate out the honey from the wax for an early spring or late winter feeding.

For more information:

“Host Shifts and Honey Bees – Lessons from COVID-19” at <https://entomology.ces.ncsu.edu/2020/04/host-shifts-and-honey-bees-lessons-from-covid-19/>

“Honey Bee Viruses, The Deadly Varroa Mite Associates” at <https://bee-health.extension.org/honey-bee-viruses-the-deadly-varroa-mite-associates/>

“Honey Bee Diseases” a fact sheet recently updated by our Maine State Apiarist available at <https://www.maine.gov/dacf/php/apiary/documents/factsheets/diseases.pdf>



Your questions are needed!!
The new column "Ask A Master Beekeeper" needs questions from the membership. This is a trial column. If questions are not submitted, the column will be discontinued. Please consider emailing questions you would like the master beekeepers to address. Thank you!
rmllamas1@gmail.com



Ask A Master Beekeeper...

What are several good summer management techniques that you utilize on a regular basis?

Thinking ahead is good. Keeping bee biology and beekeeper goals in mind is important. In the summer there are two major events coming up: winter and the late summer flow. Healthy colonies headed by young (less than three winters) queens with adequate stores are what is required for overwintering success. To get there and collect surplus honey in the late summer flow, I need to test mite numbers in July and treat as necessary before the winter bees start developing. I use a treatment that won't interfere with late summer honey collection. Feeding starts as the honey supers come off right around the time of the first frost. *Andrew Dewey, Master Beekeeper*

I "artificial swarm" all of my full sized overwintered colonies every year. This involves removing the queen and a few frames of brood right at the time when the colony is preparing to swarm (mid-May to July 4th). Once I see that the colony has started rearing queen cells, I remove the queen and two frames of capped brood (or mostly capped, definitely not mostly open brood) and put those in a nuc box with a frame of food and a couple frames of drawn comb or foundation. I also shake in one or two frames of nurse bees. This is the artificial swarm. The artificial swarm can be kept in the same yard (watch for drift back to the old colony site, you may need to shake in extra nurse bees to support the brood early in the season).

Meanwhile, the parent colony is now queenless like they would be if they had swarmed on their own, and they complete the cycle of rearing a new queen. Often there will be multiple queens being raised, and you can remove some of those into mating nucleus colonies if you would like to have a few extra queens. Alternatively you can just let the colony go through the process on their own, or you can reduce the number of queen cells down to one if you want to eliminate the possibility of after swarming.

This queenless period helps the colony clean up brood issues if there are any, breaks the brood cycle and slows varroa mite reproduction, ensuring that colonies are headed by new queens every year. This colony will be overpopulated because they were preparing to swarm on their own. Supers should be added immediately. If you have drawn comb, add two or three supers. *Erin MacGregor-Forbes, Master Beekeeper*

Along the coast, there have been years where colonies became nectar bound for extended periods of time. Despite adding frames of empty drawn comb, extra honey supers and rearranging the frames, queens were superceded because there was little or no room to lay eggs. What are some early interventions to help prevent that from occurring as well as interventions in the midst of a strong and extended nectar flow?

It sounds like you are doing all the right things; you need to do them before the bees decide the lack of brood is the queen's fault and replacing her is a good idea. Once a charged supercedure cell is in place, short of beekeeper intervention, supercedure is likely to happen. This is a situation when anticipation instead of reaction pays dividends. *Andrew Dewey, Master Beekeeper*

What are your thoughts on making midsummer splits? What should your considerations be in making them? Do you overwinter them as nucs or are they overwintered in a single box?

Mid-summer splits are not something that I do, primarily paying attention to the old saying, you either make bees or honey and I like the strong flavored honey. However, I am seeing more people being successful taking single 10 frame deeps through a Maine winter. This past winter (mild as it was for Maine), I brought through a 10 frame deep single and a six over six nuc in Lyson EPS (Encapsulated Polystyrene) equipment. I would suppose how late you make up nucs for overwintering is going to depend upon your queen source, the health of the bees you are expecting to overwinter, and your willingness to feed. *Andrew Dewey, Master Beekeeper*

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Laying Workers

by Jane Dunstan

Who are they and why do they create such havoc in a hive?

For those of you who know me, you recall that my mantra has always been "find that queen!" What has been an unspoken assumption in that charge is "find the eggs and larvae as well." The significance of both statements is that when a hive becomes queenless, brood production ceases. The hive recognizes that it is queenless and displays a desperate attempt at survival, which results in worker bees laying unfertilized eggs (drones). Over time, the hive numbers dwindle as a result of a decreasing population.

In a queen right colony (a colony which has a queen present) the queen pheromone permeates the hive signaling to all members of the hive "keep calm all is well." The other pheromone in operation is the open brood pheromone which suppresses maturation of worker bee ovaries and the laying behavior of worker bees. Hence, a hive that has lost a queen, becomes at risk of developing into a laying worker hive.

In the midst of a frantic and disorganized hive without a queen, workers undergo physiological changes. While workers have reproductive organs, their activity is normally suppressed. It is estimated that 10-12% of laying workers develop ovaries when both brood and queen pheromones diminish within the hive during an extended period of queenlessness. Therefore, it is not simply one laying worker but rather hundreds of laying workers in the hive, depositing multiple eggs on the cell walls, over packed pollen and in cells containing nectar. These worker bees intend to produce worker larvae and deposit their

eggs in a regular sized cell. Since the egg is unfertilized and subsequently develops into a drone, the drone larvae is too large for the worker cell. In order to accommodate the enlarging drone larvae, the workers now have to draw out the cell which becomes taller than a regular cell, giving a bumpy appearance on the surface of the frame. The unfortunate reality is that a laying worker hive will simply diminish to a handful of bees with no opportunity at all to correct the situation.



While the tendency of the beekeeper would be to simply buy another queen and release her into that hive, that action would prove to be futile and result in the death of a healthy queen. Laying worker hives BELIEVE they are queenright because workers are laying eggs. They will perceive that new, innocent queen that you are attempting to introduce as unnecessary to their colony and kill her. They do not recognize there is a problem with their hive nor do they believe they are in need of a queen.

Are there EARLY signs that your hive is heading down this slippery slope? Yes there are. Early signs implies that you are in your hive on a regular basis and documenting what you observed so you have a means to compare findings from one inspection to the next.



Multiple eggs in cells.
Photo courtesy of Zack Robitaille

Findings of concern and significance:

- Absence of the queen who had been seen previously.
- Interrupted or spotty brood pattern
- Laying workers lay unfertilized eggs anywhere and everywhere. These eggs lack the normal brood pheromone and workers will remove eggs and clean the cells creating open spots for laying workers to deposit eggs resulting in a spotty brood pattern
- Absence of eggs or larvae
- Multiple eggs in a cell deposited in unusual positions (side of cell, off center or flat on bottom of the cell). The elongated abdomen of the queen allows her to place an egg directly in the center of cell, standing on end. Laying workers have short abdomens and are physically unable to place the egg in the center of the cell. Multiple eggs can also be observed in cells containing pollen, larvae, on woodenware of the frame, etc.
- Drone brood in worker cells result in shorter, dwarf-like drones.

Solutions. This is where it gets tough.

After reviewing several books and articles as well as talking with others who have had laying worker hives and had the good fortune of correcting a bad situation, these are the solutions that are offered.

Combine the laying worker hive with a strong, queenright colony. Move the laying worker hive to the location of the queenright colony and separate the two boxes with newspaper. Place the laying worker hive **ON THE BOTTOM** and the queenright colony **ON THE TOP**. Create only one entrance at the bottom of the hive.

In an article from the American Bee Journal: "Foolproof Requeening" by Buddy Marterre, MD with a sidebar entitled "Laying Worker Colonies and Their Management," he writes "The best way to manage this situation is to combine this colony with a queenright colony using the newspaper method. Move the laying worker hive to the



strong one's location and place the **STRONG** queenright colony **ON TOP** of the laying worker colony with 2 sheets of newspaper in between them. Make sure the newly combined hive is located where the strong hive used to be. Provide the combined hive with only a lower entrance so that the upper foragers have to traverse the lower weak hive after they chew away the newspaper. The queen will move down and take over the old lower broodnest in time. A few weeks later, after the queen has moved down into the old broodnest, you can split out a portion of the combined colony to "recreate" your old colony just as if you were creating a nuc in the double brood method. You can then either have the nuc raise their own queen or provide them with a purchased queen."¹

The other possible solution is to use a queen introduction frame that houses the actual queen cage. An example of this design can be found below made by Matthew Mank, a member of KLCB. This allows the queen to be in the laying worker hive without the risk of being killed by the bees. As her pheromone permeates the hive, it is the hope that the hive will be more accepting of her at time of release.



*Queen introduction cage.
Photo courtesy of Matthew Mank*

I had the occasion to use this cage with one of my mentees' packages that became queenless. Prior to placing the protective cage with the new queen in it, the owner removed all frames from the hive and replaced them with new foundation, thus removing any cells with multiple eggs and any hint of either open brood or laying worker pheromones. The cage was placed directly in the center of the hive. When checked at day four, the queen had not been released from her queen cage. At day

six she still remained caged with her workers. I removed the entire introduction frame out of the hive and pryed the staples up to reach the cage. I bore a hole in the sugar candy but was not content with that. Attempting to carefully remove the queen cage wire mesh, I lifted the mesh a tad too high releasing the queen. My mentee and I watched in horror as she flew away, up over the house....those six days for naught! The following day I returned to consider the next intervention, and while checking the hive, found that the queen had indeed **RETURNED** and was walking around the frames like she had been there all her life.

The third option is to systematically add open worker brood to the hive perhaps every five to six days. When the open brood pheromones have become dominant and the bees begin to develop supercedure cells, this is the most likely time to introduce a caged queen if desired, or simply allow the bees to raise their own queen.



References:

- ¹Marterre, Buddy. (March 2009). Foolproof Requeening. American Bee Journal. 149. 227-231.
[Marinbees.com](http://marinbees.com)
<https://www.beverlybees.com/laying-workers/>
<https://www.honeybeesuite.com/how-to-fix-a-laying-worker-hive/>
<http://www.bushfarms.com/beeslayingworkers.htm>
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Straight to Summer

by Rick Cooper

I do not believe we are going to have a spring this year. I know that there may have been a colder spring on record and perhaps even a wetter one but I have to say this has been unusual. Not long ago while giving a talk, I was asked if I ever changed my "holiday" schedule of managing hives. I answered that I rarely do that but this year is one of those years. I still have wraps on some of my hives in the middle of May but we had snow last weekend. Go figure.

I am as confused as everyone else when we have a year like this. What is the summer going to be like? The last time we had a spring like this we had no spring nectar flow. The locust trees, the blackberry bushes and the blueberry plants were so shocked they were not able to produce nectar and the plant flowers fell off quickly after opening. I assume that flowers falling off quickly like that means they did not get pollinated and likely didn't produce fruit or seeds for the season. That year I know there was not a blackberry to be found. I am in great hopes this year is not like that. At least this year, because it has been so wet and cold, the flower buds haven't started opening yet.

The real benefit to all this cold weather is that the bees haven't built up as strongly as in warmer springs. It also means that I have been feeding my bees more sugar than I normally do. What will all this mean once summer sets in still remains a mystery. Perhaps the swarms will come later but still come. Maybe this will be a "no" swarm year. I will still watch my bees most closely around the first of June this year instead of the first of May. I do hate to lose a swarm. I know that the swarm season this year is more than likely to be different in almost every way.

The supers on my hives will go on in another week to 10 days (this is May 14th). I will give the brood nest a good check before I super up but it is my guess at this time that I will not see any signs of swarming. None of us actually know the total answer to swarming, but it is believed the biggest cause is brood nest congestion. The queen needs space to lay eggs and there needs to be the scent (pheromone) of young brood in the brood nest. The storage of honey or pollen in the brood area can change that scent to cause the bees to develop that swarming instinct. By the way, a really busy hive that has suddenly reduced its foraging activity, while others are still foraging heavily, could be making preparations for swarming so watch your front entrances and check the hive if you think you need to.



Photo courtesy of Michael Risk of Risk Apiaries

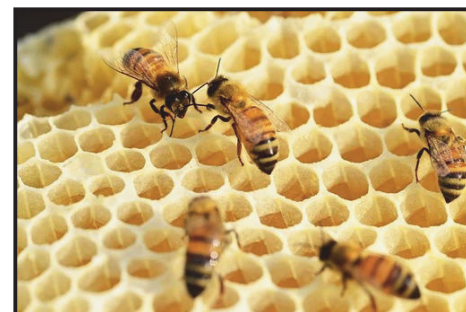
I would encourage all of you to watch your bees closely this early summer. I know mite checks when you have three or four supers on is more difficult so at least do a sugar roll or alcohol wash just before the supers get so heavy it becomes a task put off too long. Medicate this spring if you get mite counts in the treatment window. I am going to dig out some of my Imirie shims and put them back into use this summer. They are rims that just provide an entrance between honey supers so the bees don't have to traffic completely through a hive to store nectar in cells. I am hoping that this will prevent the bees from storing too much honey in the brood chambers and becoming honey bound. I have observed that the package bees we are getting now like to

store honey in the brood chambers rather than filling the honey supers like we think they should. I know bees have been here for a couple million years and have their own plan but I do think the package bee industry has "trained" the bees to live in just two boxes. Again this is not scientific research but more a feeling I get from years of keeping and observing the honeybee.

I am in the computer room on a beautiful spring morning thinking we have turned a corner. Hopefully I will have this article off to the editor before I head out for daily activities. I am going out tomorrow to finish unwrapping hives and what I find tomorrow won't make this article.

I just saw the 10 day weather forecast. The world of beekeeping is going to change very quickly in the next couple of weeks. Please keep an eye on your hives and I am wishing you the best of luck this season. Hopefully I will see many of you in September at Bees 'N' Me when we start our extracting operation.

P.S. I did visit my hives yesterday as planned. The weather was ok but a bit cooler and windier than I would have preferred. I lost two hives this last winter and I am happy about that. Most of the remaining hives were just about normal for the last of April but behind where they should be for May 14th. I did have four hives that are booming and have already moved to egg laying in the bottom box. In seven to ten days I can split those hives. The one outstanding thing I did notice was that all the sugar is gone and there is almost no nectar or honey in the hives. I think it is time to toss a gallon of sugar syrup at the bees.





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MSBA Offers More For Members with New Website and Wild Apricot

by Judith Stanton

As MSBA's membership continues to grow, the board of directors has been working on ways to improve and expand communications. In addition to the Bee Line Newsletter and Facebook page, the organization implemented a new membership management system last year and recently launched a new website. The "face" of MSBA now has a format that allows for more intuitive navigation and the opportunity for members to interact with the site. Its mobile version comes with improved readability with the option to register and safely pay for events online.

If you haven't taken advantage of the website's many resources, go to mainebeekeepers.org and have a look. You will find an abundance of information:

Latest news and reminders:

- A comprehensive list of Maine suppliers of equipment
- Where to buy local queens and honey bees
- Best management practices for beekeepers in Maine
- A compilation of Bee Schools throughout the state published at the beginning of each year
- Locate and contact an affiliate chapter near you
- An archive of practical "how-to" articles and videos
- Links to MSBA webinar recordings
- Contact information for MSBA board members and chapter representatives
- A list of speakers who are willing to give presentations to local clubs, organizations and schools.
- Register and pay for MSBA events
- Shop for MSBA merchandise in the online store



The software program Wild Apricot is designed to help small associations and nonprofits manage membership, events and other facets of operation. It's a great vehicle that helps us stay up to date and cuts down on previously laborious record keeping. As more and more people seek to save time by doing transactions online – signing up for or renewing membership has now become a seamless process. For those who prefer pen and paper, a printable form is still available on the website or on the last page of the newsletter. All members are entered in to a Wild Apricot database which automatically generates confirmations and reminders at renewal time. We also utilize it to send mass emails about events such as the Annual Meeting, members-only webinars and other significant matters. (There is an option for members to opt out of these communications.)

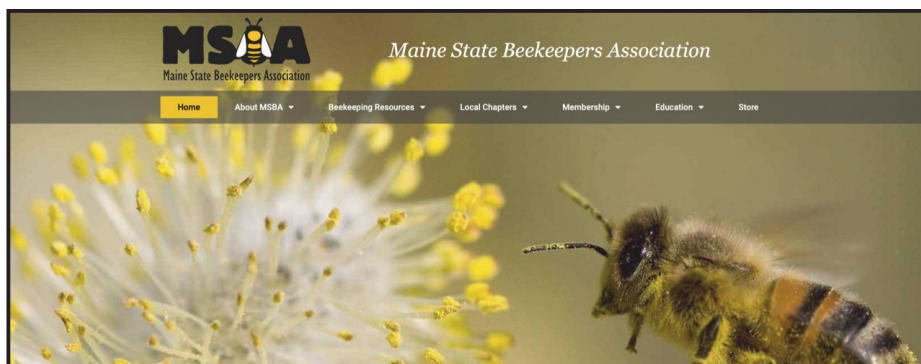
Members may also manage their profile and renew their own membership by signing up for a Wild Apricot account at wildapricot.com. They can securely update their own contact information, register for

events and pay membership dues on a computer or from a mobile device. Current and recent back issues of The Bee Line newsletter are available only to members in the Membership section of the website, with older issues being uploaded soon.

To do this, first go to the Membership pull-down menu on the top bar and choose Members Only Log In. Once you are logged in you'll be able to access the current and past issues of The Bee Line newsletters, pay your dues, or buy an MSBA baseball cap in the store. If you have any difficulties please contact Membership Director Keith Kettelhut at membership@mainebeekeepers.org or 207-240-2595. You may find it helpful to download the Wild Apricot app for both desktop and mobile devices.

In addition to the new website and streamlined communications via Wild Apricot, the MSBA board has also introduced a webinar series this year. These timely online events include a visual component of Power Point and other presentations, with Q&A sessions held at the end of each session. Beginning in February with "EAS Honey Show Primer" by a certified honey show judge and "What You Should be Doing Now: Spring Edition" by State Apiarist Jen Lund in March, the series will continue with an overview of making splits and an as-yet-to-be-announced topic in the fall.

We hope the new website, webinars and improved means of communication will meet the needs of our members for years to come!



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