

The Bee Line



Newsletter of the Maine State Beekeepers Association | mainebeekeepers.org

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Equalizing Colonies

by Jane Dunstan

Equalizing is a key colony management strategy which should be in all of our tool boxes. Whether you have two colonies or forty, there are always a few that are WAY too large as well as WAY too weak/small throughout the apiary. If you are seeking to create more colonies in your apiary, you may choose to split and create additional colonies rather than equalize. However, if you prefer not to add more to your existing numbers then the challenge is to reduce the burden of large colonies by supplementing weaker ones. While it is not quite like a Robin Hood maneuver, it is close. The inequality of resources exist in all apiaries and equalizing is a method to address this occurrence.



Let's talk about the two extremes of colonies in your apiary: those that are bursting at the seams and those that have marginal numbers of bees. Large colonies are those that when you stand away and simply observe them, the activity stands apart from their neighbors. Bees are darting in and out like Grand Central Station,

sometimes having to wait before entering at the landing board which is already covered with bees bringing in pollen and nectar. When lifting the telescoping cover, bees are pouring out of the inner cover hole. Upon removing the inner cover, frames are covered with wall to wall bees with little discernible woodenware in sight. As you begin your inspection, you find a continuation of what you have already observed simply looking into the colony from above. Frames of capped brood, eggs and larva are covered with more nurse bees than you can count. In some areas of the frames, it appears as though there are two layers of bees that move in a wavelike motion across the frame. With any slight movement of the frame as you hold it over the hive, piles of bees fall from the frame. There is a paucity of cells that are not already filled with pollen, nectar, eggs or larvae. The queen traverses the frames searching for open space. While small queen cups are present and vacant, there is no telling when the colony will tip the scales and become OVERLY congested which will trigger a cascade of events, namely eggs deposited in the queen cups which will then develop into mature queen cells.

When you find that you have a hive that fits this description, it is truly time to do something: either split the colony or equalize.

Small, weak colonies are those that lack content and momentum. These colonies have small numbers of nurse bees and field bees. The queen may be marginal, laying inadequate numbers of bees. A supercedure may have occurred and it resulted in an unusually long time for the

virgin queen to get up to speed. That span of time from when the virgin queen is born to when she is laying well can be lengthy without new emerging brood. With summer bees living about 30 days or less, the population of the colony dwindles rapidly. Weather patterns (extended periods of rain or lack thereof) may have impacted available resources. When you perform your inspections, there are numerous empty frames with few bees on them. The list of reasons as to why your colonies may be small and weak is endless but the reality is that it would be helpful to boost them with additional worker bees and an unborn workforce.

Several factors are important to consider:

- the donor colony you are using to remove frames from should be free of disease. You do not want to take bees and woodenware from a source that is showing evidence of disease or has a high varroa/viral load
- take only the number of frames that the colony can afford to relinquish. The loss of frames should not be so significant in number as to affect the wellbeing of the donating colony
- it is preferable to equalize in the spring and summer. When fall arrives, it is more beneficial to combine
- continued surveillance and evaluation of both colonies are necessary. Did the smaller/weaker colony rebound with the addition of frames? Did the donor utilize the extra space created in a positive fashion?

The act of equalizing is simply fun and easy to do. You will need an extra deep or medium hive body or a nuc box and a wheelbarrow if there is a distance between the donor colony and the recipient. I use a

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Upcoming Board Meetings: Aug 20 & Sept 17 (7-9pm)*

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*Open to all MSBA members for discussion with voting to be done by current BOD members only. Meetings generally held at the Viles Arboretum, 153 Hospital Street, Augusta or via conference call. Please contact a board member for details.



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Print Ads and Content

The Bee Line requests and welcomes member contributions! Please contact the Editor with your comments, photos, calendar events and articles to be considered for inclusion. **The Bee Line** gives advertisers exposure to over 400 readers.

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Provide ad copy/ad to the Editor (High Quality PDF with fonts embedded; call for spec sheet).

Online Ads

The MSBA website attracts interest throughout Maine and beyond. Ads appear at the bottom of the home page and cost \$60 for one year.

WEB AD SIZE: 260 px x 303 px

Existing Bee Line newsletter ads shrink perfectly to fit website dimensions.

*Please provide a URL if you wish to have your ad linked.

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Equalizing Hives

black sled that works like a charm (even without snow) when I have a distance to travel with the donor frames on uneven terrain where a wheelbarrow would not be an option. You will have already assessed your colonies knowing which ones are booming and which ones are in need.

1. Start with your large donor colony. Begin in the top brood box and evaluate each frame, looking for a frame or two of mostly capped brood, and two or three frames with eggs and larva along with capped brood. I typically remove no more than four to five frames from one colony. As you find frames that you would like to donate, check for the presence of the queen before moving them to your nuc box or hive body while you continue to evaluate frames. Once your donor frames have been removed, reposition the remaining brood frames to the center of the hive body where you will flank them with frames of drawn comb from your small hive (which you will obtain).

2. Cover the nuc box or whatever you have used to contain the donor frames of bees with an inner cover and transport them to your smaller/weaker colony.

3. Approach your small colony in the same manner. Remove empty frames and place the four to five frames from your donor colony in the center of the recipient brood box, rearranging existing frames as needed.

4. Return to your donor colony and flank the existing frames of brood with empty frames, preferably of drawn comb which you have just obtained.

Nurse bees are attentive to their brood and will be unphased by the relocation. They will quickly assimilate with their new colony sisters without skipping a beat. The workers will assume the roles which need to be performed either assisting with foraging or continuing with nurse bee functions. With the birth of those new bees comes an increased work force for that colony.

As fall approaches, colonies which are small in numbers and have few honey stores should be evaluated for combining with a larger colony. Small, weak colonies combined with small weak colonies = a larger weak colony. Best practice would suggest combining smaller/weaker colonies with larger colonies. The goal for entering fall and winter months is with large populations of healthy winter bees to maintain a large cluster, a minimal to nonexistent varroa load and ample food reserves for overwintering.

In summary, equalizing in spring and summer is an excellent management strategy to strengthen small/weak colonies while relieving congestion and inordinate numbers of bees which may contribute to the urge to swarm in those large colonies. Once you begin to evaluate your apiary in this framework, you will be amazed at how easily the incorporation of this technique becomes.



Upcoming Webinars in August and September

MSBA continues to host its webinar series in late summer and fall, and is free to all members. Email alerts will be sent prior to the events with details and links to access the webinars. This is an excellent opportunity for you to take advantage of educational offerings online while we respect and adhere to social distancing guidelines.

August 6, 2020 at 7:00 pm "What You Should Be Doing Now: Summer/Fall Edition"

Jennifer Lund, Maine State Apiarist will discuss when and how to combine weak hives, determine whether you have enough winter stores, deal with mites, mitigate robbing and so much more!

September 2020 Date/Time TBD "Honey Extraction: Tips and Tools to Get the Job Done"

Our presenter will discuss methods, equipment and tricks for removing honey from the hive, optimal conditions for harvesting and storage and more. You won't want to miss this!

MSBA VIRTUAL ANNUAL MEETING

OCTOBER 17, 2020

The MSBA Annual Meeting will be taking place this year on October 17th in a different format. We will be gathering ONLINE to conduct a business meeting, listen to Jennifer report on the "State of the State", elect new officers for the 2020/2021 year and listen to presentations from Jon Zawislak, Dr. Meghan Milbrath and the 2020 National Honey Queen.

Virtual meetings are very easy to navigate. You will be sent a link prior to the event which you simply click on to enter the meeting. You will be able to attend from the safety of your own home or your club may be able to secure a large facility where with masking and social distancing, you may watch together. The projected time frame is from 9:00 am until 12:00 pm however more specific details will be made available in the October/November Bee Line.

The following nationally known speakers will be joining us for two separate presentations with a question and answer period built in.

Jon Zawislak is the apiculture specialist for the University of Arkansas System Division of Agriculture. He has worked and played with honey bees since 1998, and is equally at home in the bee yard, the laboratory or the classroom. Each year he presents lectures, workshops and short courses for new and experienced beekeepers throughout Arkansas and beyond. His teaching emphasizes the biology and behavior of bees as the cornerstones of keeping them productive and healthy. He also spreads the word about the importance of pollinators to the non-beekeeping public. Jon has a background in botany and entomology, and is a certified Master Beekeeper through the Eastern Apicultural

Society. He and his family operate Walnut Valley Honey Farm in Little Rock, AK (walnutvalleyhoney.com) producing products from the hive and supplying pollinators for area community gardens.

Dr. Meghan Milbrath began working bees over 25 years ago, and now owns and manages The Sand Hill Apiary, a small livestock and queen rearing operation in Munith, Michigan. She studied biology at St. Olaf College in Northfield, MN, and received degrees in public health from Tulane University and the University of Michigan, where she focused on environmental health sciences and disease transmission risk. Meghan worked as a postdoctoral research associate at Michigan State University, studying nosema disease, and is currently an assistant professor in the Department of Entomology at MSU, where she does honey bee and pollinator research and extension. She is also the coordinator of the Michigan Pollinator Initiative. Meghan is active in multiple beekeeping organizations, writes for numerous beekeeping journals, and speaks about bees all over the country. She currently runs the Northern Bee Network, a directory and resource site dedicated to supporting queen producers.

Mary Reisinger, the 2020 American Honey Queen, will discuss how she reached the public with messages of how honey bees are superheroes to agriculture and how honey has powerful purposes beyond the kitchen.

Mary is a senior at the University of Texas at Dallas, studying speech-language pathology, is an active volunteer in the Collin County Beekeepers Association and currently tends six hives.



Jon Zawislak



Dr. Meghan Milbrath



Mary Reisinger

Tips and Tricks

by Jason Peters

Dummy Boards

One of the most valuable pieces of equipment that we use in our operation is what we call a "Dummy Board."



Photo courtesy of Jason Peters



Photo courtesy of Jason Peters

These boards are similar in design to follower boards but sit flush with the top and bottom edges of the box which makes them "bee tight." We utilize these in our operation to limit the amount of space that smaller colonies can occupy in ten frame equipment. In the spring, limiting the amount of space that the bees occupy to help them build up faster can prevent issues like chilled brood and chalkbrood. Once the colony starts growing, we simply move the dummy boards over and give them an extra frame or two to work on until it's time to remove the boards altogether.

This saves us a lot of time and work having to transfer growing colonies from smaller boxes to full size equipment. Dummy boards are also very valuable when overwintering smaller colonies. We often run out of nuc boxes to overwinter nucs in so we simply add one or two dummy boards inside of a full size hive body to limit them to a certain number of frames.

One added benefit to this particular set-up for the winter is that we can place additional insulation on the outside of the dummy boards to take up any empty space. If putting two hives side by side, we add the boards toward the outside and have the colonies share the wall in the middle.



Photo courtesy of Jason Peters

A new version of the "Integrated Pest Management (IPM) for Varroa Mites" brochure is available for download at:

<https://www.northeastipm.org/ipm-in-action/publications/varroa-mite-ipm-brochure/>

If you have trouble accessing or printing the brochure, please reach out to Jennifer Lund (jennifer.lund@maine.gov or 207-287-7562) to receive a paper copy by mail.

SAMPLE REGULARLY (EVERY MONTH!)

Alcohol wash
The most accurate way to determine Varroa levels in your hives

MATERIALS

1) 1/2 gallon jar
2) 70% isopropyl alcohol
3) 1/2 cup bleach
4) 1/2 cup white vinegar
5) 1/2 cup dish soap
6) 1/2 cup rubbing alcohol (70-90%)
7) 1/2 cup water

10 STEPS

- 1) Pour alcohol into jar, set materials in easy reach
- 2) Fill a frame of open brood. Check that the queen is not on frame!
- 3) Shake adult bees from frame into dishpan. Scoop to cup (most) bees and pour into jar.
- 4) Shake remaining bees from bin into colony.
- 5) Seal solid lid on jar and shake for 3-2 min.
- 6) Let jar sit for 1-2 minutes.
- 7) Replace solid lid with mesh lid.
- 8) Shake jar contents into empty dishpan.
- 9) Count the total # mites. If there are 12, it is time to apply a chemical treatment (see inside of brochure).
- 10) Record bees and mites. Wash all materials; can reuse alcohol.

→ email jess@maine.gov for a free kit!

KNOW YOUR PEST

Meet the **Varroa mite...**

The Varroa Mite, Varroa destructor, is an external parasite that feeds on honey bee adults and brood. They weaken bees and transmit viruses.

Unmonitored and unmanaged infestations of varroa mites will result in colony death.

COMMON SIGNS OF MITE DAMAGE:

- Open or damaged pupal cells
- Crawled-down pupae
- Emerging adult bees with deformed or missing wings

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IPM | USDA | MDAR | UMass Extension

Integrated Pest Management (IPM) for Varroa mites

IPM is a decades old farm strategy for mitigating pests while minimizing chemical use. Experts now recommend IPM for Varroa.

Rather than relying on a "silver bullet", good IPM incorporates **multiple practices** throughout the season, based on **pest levels** and **pest biology**.

IPM PRINCIPLES:

- **KNOW YOUR PEST**
- **PREVENT** your pests up using non-chemical practices
- **SAMPLE REGULARLY** to track pest population levels
- **INTERVENE** with practices when populations reach damaging thresholds (use products to prevent pest resistance)

The pamphlet will help you to use IPM principles to manage Varroa mites.

Keeping Time

by Michael Donihue

Despite a world that is anything but normal, keeping bees in 2020 is turning out to be pretty typical in our apiary. That's not to say there's nothing to worry about. Beekeepers always have something to worry about. However, this year I am less concerned about the weather, a dearth, or 'Murder Hornets' and am worried instead about the health of one of our queens. Queen health turns out to be a pretty common worry for a lot of hobby beekeepers.

First a quick update on the weather here in our Central Maine apiary. Unlike 2019 when we had six inches of rain in June and then a sudden arrival of summer with lots of heat and humidity accompanying strong nectar flows in early July, this year saw almost no rain until the very end of June. May was cool this year but temperatures the following month were closer to normal. 2020 is also shaping up to look a lot like 2018 in terms of total Growing Degree Day units. Dandelion blossoms blanketed our lawn at the beginning of May followed in succession by flowers on our plum, pear and apple trees two weeks later. The milkweed also blossomed on schedule at the very end of June just as the first bloom of the white clover was beginning to wane.

One of the nucs we purchased this year arrived ornery. It was a bright sunny day at the beginning of May when I opened the box and the bees came out like a tornado,

chasing me and my wife into the barn as I lit my smoker. Two weeks later as a result of this colony regularly bearding, a honey super was added. There wasn't anything unusual about this nuc in terms of its size. The queen was of Carniolan descent just like ones I've purchased in past years. As I noted above, the sources of nectar this year were pretty much as expected but this was the most aggressive nuc I've ever had.

Long-time beekeepers won't be surprised when I say that a week later I found that the hive had swarmed. In just about a week's time there were both supercedure cells and a half dozen swarm cells but no sign of a queen or eggs.

At this point I often lose patience and go out and purchase another queen. This past winter however, I joined Knox-Lincoln County Beekeepers and took their very good winter beekeeping course and learned once again about the life cycle of the queen. Now I know that newly hatched queens are really hard to find, but try as we might neither my wife (who's a great queen finder) nor I could find any evidence of a queen. No eggs, no uncapped brood, but lots of bees and plenty of nectar and capped honey.

My "go-to" book when I'm worried about something in our apiary is an old copy of "The ABC and XYZ of Bee Culture" that my parents gave me when I began keeping bees more than three decades ago. The authors had lots to say about queens and their first days of life as well as some interesting advice for a beekeeper in my situation.

"Virgin queens when first emerged, are sometimes nearly as large as a fertile queen, but they gradually decrease in size until when three or four days old, they look so small and insignificant that a novice is disgusted with their appearance and, if hasty, pronounce them useless. For the first week of their lives they crawl about much as an ordinary young worker does, and it is often very difficult, if not almost impossible to find them unless an amount of time is taken that is more than a busy apiarist can well afford to spare. It is a waste of time to look for them. It is better to insert a frame having some unsealed larvae just hatched from the egg. If no [queen] cells are started one can decide the queen is there without looking further...Unsealed brood in a hive is a great safeguard against accidents of all sorts (p. 548, 34th edition).

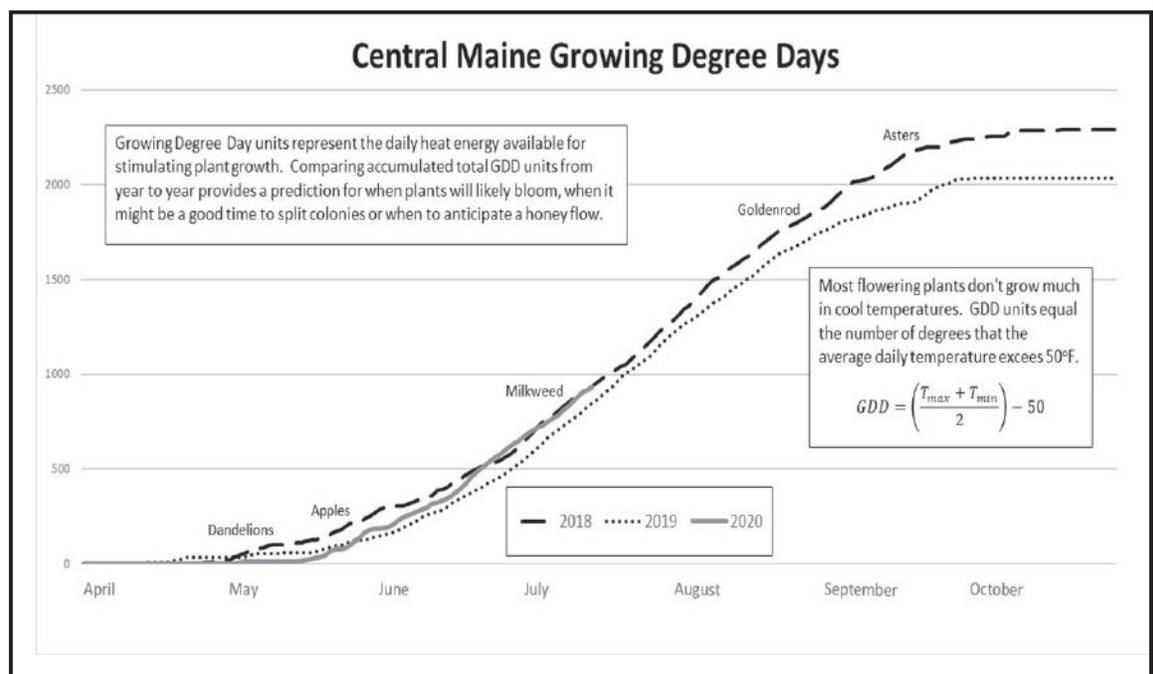


Photo courtesy of Michael Donihue

Checking my notes from the KLCB course, I recalled that once a queen returns from her mating flight it can take AT LEAST three or four days before she begins to lay. During this time she's still small and insignificant as before, running and hiding whenever the hive is opened. Just hours before laying her first egg her body size increases dramatically and she becomes much more 'regal' and sedate as she goes about the business of populating the colony.

The amount of time that a hive is queenless depends on what happened to the queen initially. If the nuc did not have a viable queen (which might explain why it was so ornery) then it took several days for them to build the one or two supercedure cells we saw and then up to two more weeks for the queen to start laying. If the hive became overcrowded and decided to swarm then there's still over a two week window without any egg laying.

I really like the advice of putting in a frame of open larvae, but didn't have any available in our apiary. In the end, I decided that my nuc both superceded and probably swarmed so I went and purchased a new queen...just because I was worried and wanted to make this colony queen-right.

Of course I always worry about varroa mites and now is the time to get serious about checking all of the hives in our apiary for mites. I will end with a plug for a very good webinar I recently zoomed into featuring Randy Oliver and his latest varroa mite research. There aren't many researchers better than Randy Oliver when it comes to reporting on the current state of varroa mite treatments and his website and this webinar are well worth your time. The coronavirus pandemic has made isopropyl alcohol hard to find and in this webinar hosted by the New York Bee Wellness group, Dr. Oliver shares some early results from his recent field trials of several alternatives to isopropyl alcohol for doing a mite count. Spoiler alert: windshield wiper antifreeze doesn't work as well as Dawn dish soap.

You'll find Randy Oliver's webinar at <https://www.youtube.com/watch?v=zXjDSD92ILs> and his web site is located at <http://scientificbeekeeping.com/>



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EFFECTIVE MANAGEMENT & MEDICATIONS FOR HONEY BEE HEALTH IN THE U.S.

Please note that these controls and medications must be applied according to the labels, and in some cases, a Veterinary Feed Directive is required. If you are using ingredients or formulations that are not listed on the label, there's good reason why applying could be illegal and harmful to yourself and your bees.

American Foulbrood Controls:

Highly recommended to burn the hive(s) if showing heavy infections as antibiotics are not effective against spores and will only mask the symptoms.

- **Oxytetracycline.** Terramycin® and Tetra-Bee Mix® are product names and these products require a Veterinary Feed Directive or prescription
- **Tylosin.** Can be difficult to find and requires a Veterinary Feed Directive or prescription (note that this control is difficult to find)
- **Lincomycin.** Requires a Veterinary Feed Directive or prescription. (note that this control is difficult to find)

European Foulbrood Medications:

- **Oxytetracycline.** Terramycin® and Tetra-Bee Mix® are product names and these products require a Veterinary Feed Directive or prescription.

Nosema:

- **Fumidil-B®.** Does not require a Veterinary Feed Directive or prescription. (Note: just came back on the market in 2019).

Small Hive Beetles:

- **Checkmite+® (coumaphos).** Checkmite+® the product name and it can be difficult to find in bee supply stores. Does not require a Veterinary Feed Directive, but extreme caution should be used in applying this product.
- **GardStar® (permethrin).** Approved for use as a soil drench.

Tracheal Mites Treatment:

- **Mite-A-Thol® (menthol).** Does not require a Veterinary Feed Directive or prescription.

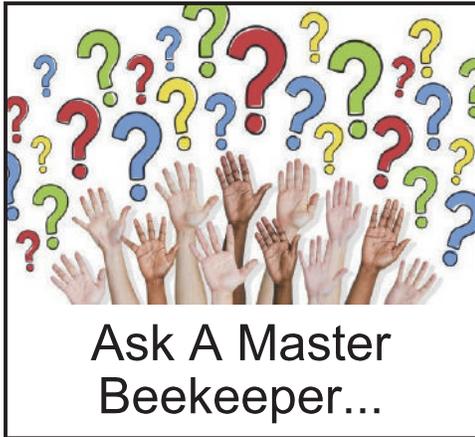
Varroa Mites Treatment:

The products that are approved for varroa mite control do not require a Veterinary Feed Directive, but they do require close reading of the labels for the appropriate season, temperature, and dosage.

- **Apiguard® (thymol)**
- **Apivar® (amitraz)**
- **Formic Pro™ (formic acid)**
- **Hopguard® II, (hops beta acids)**
- **ApiLife Var® (thymol and essential oils)**
- **Mite-Away® Quick Strips, (formic acid)**
- **Oxalic acid**

Wax Moth:

- **Para-Moth® (paradichlorobenzene).** Does not require a Veterinary Feed Directive.
- **B402 Certain™ (bacillus thuringiensis).** A biological larvicide



I have a colony that was pretty defensive last summer so I requeened in early September with a purchased queen, who they accepted (located and killed the mean old queen). Both times I have opened this hive so far the bees have been even worse. The colony is very strong, bringing in nectar and pollen and has plenty of room (four mediums and a shallow super). Mites shouldn't be a problem, as the adjacent hives tested very low a few days ago (OA treatment in December). What can I do to change this unpleasant temperament and keep these bees from being a risk to people who live nearby?

I think I might be a bit discouraged if I went through all this and still had that mean old hive. I do believe that the defense gene does rest with the queen and a second requeening would be in order. Honestly, in the past I have wished a bad winter on hives like this.

Rick Cooper, Master Beekeeper

Split the hives and re-queen both. You weaken the nasty hives by splitting and re-queening should reduce the defensive behavior. With that said, check for external causes like skunks, who can make them ugly. Also, mite test all your hives, not just the adjacent ones.

Peter Richardson, Master Beekeeper

Two things: Make sure there is nothing bothering the colony (like skunks) that are causing them to be ultra defensive. If you are sure nothing is going on, re-queen again. You could try swapping colony position with another colony, which would help determine if the problem is with the colony or if something is happening in that location. *Andrew Dewey, Master Beekeeper*

My hive is pollen bound! The bees have placed beautifully colored pollen in so many of the frames that there is limited brood space. I thought I could simply rearrange those frames by placing them in outer positions but there are simply too many frames packed with pollen.

This is a harder question to answer than one might think. All the manipulations in a hive that is pollen bound depends on what other materials you have available. Dealing with multiple hives one can steal pollen frames and supplement other hives that are more abundant in brood and honey and simply swap frames. If all the hives in your operation are honey bound then removing frames of pollen and replacing them with drawn comb is an option. If you do not have drawn comb then use frames of foundation. The real question here is why did you get pollen bound to begin with. "Good" queens lay enough eggs so that frames should not fill with pollen. The question now becomes was there a replacement, swarm or supercedure of your old queen so that the foragers brought in more pollen when there was no egg laying going on? Is your queen not laying enough eggs to fill the empty cells quickly enough? The variables are endless. *Rick Cooper, Master Beekeeper*

Add drawn comb frames if you have them. If not, add foundation and feed.

Peter Richardson, Master Beekeeper

Replace the pollen bound frames with empty comb or foundation. In a month or so you can put the pollen back in time for winter bee production. Think about a pollen trap for next year.

Andrew Dewey, Master Beekeeper

I began with package bees and they are building out frames on one side of the hive only. Despite rearranging frames to encourage build up, the bees continue to favor one end of the hive. What else can I do to encourage more equal building out of the frames?

Keep moving worked frames to the side the bees are not favoring. Slowly and steadily the bees will begin to work all the frames as more and more brood is raised. Turning the box around is another method. Look for a location where the sun favors both sides of the hive and slowly move your hive to that location. There is a reason they won't work the other side of the hive but remember the bees will never leave their brood so as long as you are moving brood the bees will stay with the frames.

Rick Cooper, Master Beekeeper

It's possible that one side of the hive is exposed to wind more than the other. Add a wind break. Try "checker boarding" the frames, alternating drawn comb with undrawn foundation.

Peter Richardson, Master Beekeeper

Make sure the hive is level. If the hive is being fed, try a frame feeder on the outer most position of the side they are not building on.

Andrew Dewey, Master Beekeeper

Please jot down your questions for our master beekeepers and email them to rmlamas1@gmail.com



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MSBA History Part I

by Matt Scott

Maine is steeped in early beekeeping history. There was some difficulty overwintering bees, and American Foulbrood was very prevalent. Beekeeping publications appeared in 1883 by Lizzie Cotton of West Gorham, in 1884 by Stephen Whitcom of Farmington, and O.B. Griffin of Caribou in 1918. Keep in mind that the Langstroth hive was not invented until 1852. It was not well accepted by all. Lizzie Cotton claimed her hive was better (<https://digitalcommons.library.umaine.edu/mainehistory/274/>). Now we know the rest of the story, as Langstroth prevailed.



Photo courtesy of Matt Scott

It takes a long time for "Mainers" to accept change and tradition is difficult to break. In 1936 Dr. Charles Dirks published the first University of Maine extension service bulletin on Maine

beekeeping. Shortly after this time the R.B. Swan family of Brewer became the largest commercial beekeeping operation in Maine, eventually with three generations of beekeepers. Today the R. B. Swan & Son label still stands in Albion under Lincoln Sennett's ownership.

Formation of the Maine Beekeepers Association (MBA) was created during the late 1940s with a number of chapters, notably the Penquis Chapter (Penobscot and Piscataquis Counties). Again these

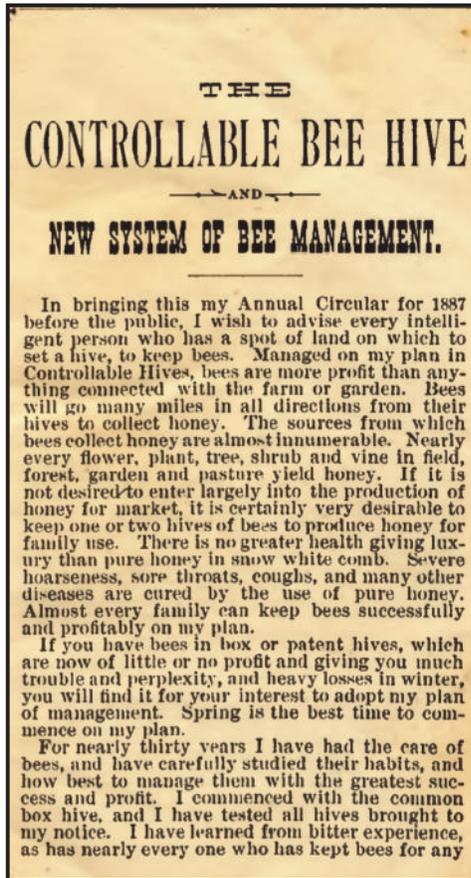


Photo courtesy of Matt Scott

groups enjoyed the support of the Swan family. Both Harold and Hilda played important roles of stewardship in those years. The MBA was not a failure in total but neither was it effective as it became more of a social gathering, not doing much for the state's beekeeping industry. Change was about to take place again in the history of Maine beekeeping.

Pollination of apples, blueberries, and squash became very important during the 1950s and 1960s with research being conducted by University of Maine under the leadership of Dr. Leo Boulanger. Here again the Swan family played a key role, becoming the first commercial pollinators in Maine. At this time Maine was being impacted with foulbrood just as it was in other parts of the country. Sulfathiazole had been replaced with Terramycin, with new label changes and methods of treatment. Some beekeepers were at a loss on medicating their bees. Issues were

mounting and there was a need for beekeepers to become involved with the Maine Department of Agriculture to help set new policy for the beekeeping industry, especially if pollination and disease control were to be solved. In 1975 the Maine Legislature made the honey bee the official State Insect, so this laid the foundation for a major change. Hilda Swan's testimony made a big impression on the Legislative Committee for Agriculture. She was asked by the Committee Chair why the honey bee and this proposed legislation was so important for passage? Hilda replied, "because honey bees are the Angels of Agriculture"! The Committee did not ask another question and responded by a unanimous vote of YES!



Photo courtesy of Matt Scott

In view of all the above a small group of beekeepers held an organizational meeting at the Androscoggin County Extension Service Office coordinated by Bill Nolet, Bill Rich and yours truly. Fred Hale was among some of the attendees at this very significant meeting. We wanted to create a new organization with political recognition for future Maine Legislatures. Members present from the old MBA agreed, and the old treasury was to be transferred to the



Maine State Beekeepers Association, Inc. (MSBA) without any discourse. This meeting was held on July 22, 1976 where our origin was formed with the signatories of the 21 persons present. Those present were: Matthew Scott, Paul Szott, Roger Marshall, William Jordon, Gilbert Levesque, William Nolet, Harold Swan, Paul Wilson, Leroy Harlow, Francis Wood, Stephen Turner, Arthur Christie, Joyce Rich, Fred Hale, Bill Rich, Peter Gordon, Stan Brown, Helen Brown, Hilda Swan, Ann Pacquin and Kay Scott. We elected a slate of officers: Bill Rich, President; Peter Gordon, Vice President; Joyce Rich, Secretary; Paul Wilson, Treasurer; Matt Scott, Program Chair, Bill Rich, Display Chair and Bill Nolet, Publicity and Newsletter Chair. We had all persons present make signatories to the original charter and documents. We submitted all the legal paperwork to the Secretary of State to be incorporated as a nonprofit corporation under Maine law. On January 13, 1977, our first Annual Meeting of the MSBA, Inc. was held at the Augusta Civic Center in concert with the Maine

Agricultural Trades Show. We have held the same display booth at the same location for 44 years. We sought that location to capture the traffic, coming and going.



Kay Scott and Wayne Dowat the Ag Show. Photo courtesy of Matt Scott

At this first meeting we focused on the program and mission of the MSBA. After being registered as a non-profit under Maine law, Paul Wilson submitted a request to the Internal Revenue Service on April 24, 1977 for MSBA to become a 501©3 status and we received approval from the IRS on October 3, 1977. We have maintained that status since 1977. Our purpose then and today remains the same, "...for the scientific advancement, education, and protection of

its membership and its affiliate associations or chapters". Also since the honey bee was accepted and passed by the Maine Legislature in 1975 as the official state insect, it became part of this organization's objective to protect its beneficial use to the State of Maine.

We were off and running! This history will be continued with the next chapter, Part II in future Bee Line editions. I thank Bill Truesdell and Joe Rankin for encouraging this historical report. Hopefully it will be well received for the record.



Bob Hoch, Ann Paquin and Matt Scott Photo courtesy of Matt Scott



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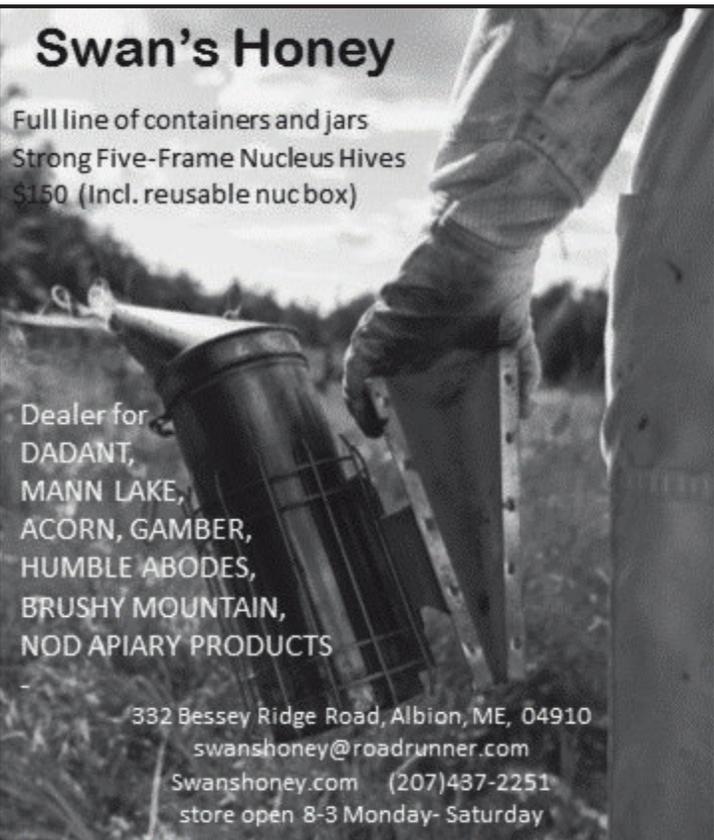


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Virgin Queens

by Jane Dunstan

Virgin queens...they are the strangest little things! When you conjure up an image of a virgin queen, you may think they would look like a mated queen in terms of size, description and behavior...just smaller. That could not be further from the truth.

Virgin queens are such a scrappy bunch. Not only are they smaller than a mated queen, they are rather pathetic in appearance. The most obvious characteristic that sets a virgin queen apart from EVERYONE in the colony is that triangular abdomen. While a mated queen has a long, beautifully tapered, solidly colored abdomen, a virgin queen has a short, often dark, triangular abdomen...so short that the wings almost cover it in length. As a result of this squat, oddly shaped abdomen, they traverse the frames quickly, pushing others out of the way. They have a fierce instinct to find and kill their competitors, any existing capped queen cells and other rival virgin queens which may have emerged. Their behavior on the frame is frenzied, disorganized and impulsive as well as unpredictable which is why spotting and keeping them in sight is such a challenge. Virgin queens are also very vocal and will emit a "piping sound" to let other virgin queens know they are in the vicinity. This YouTube clip captures the piping sound as well as tracks her movements on the frame:
<https://www.youtube.com/watch?v=AYecvVhkpKI>

Newly emerged virgin queens are ignored by workers in the hive. With their underdeveloped ovaries and their short abdomen they don't look, act or smell like a real queen. During the first week of their life, much time is spent eating to gain weight to increase their stamina and size.

Virgin queens produce a unique fecal pheromone which they squirt on aggressive worker bees or other virgin queens during a squabble or altercation. The unfortunate recipients of the spray/squirt retreat to groom themselves leaving the virgin queen alone. What a novel thought! After about five days in the colony, a virgin queen will begin taking short flights lasting about 30 minutes each over the course of a day or two which help to orient her to the location of her colony. When the time has come to prepare for mating flights, the social dynamics in the hive changes. Worker bees who previously ignored her will now surround her in a queen's court. The virgin queen will then depart for her mating flights which last only about 18 to 20 minutes in length. The number of mating flights a virgin queen takes is dependent upon how quickly she collects enough sperm for storage in her oviducts. Once the oviducts are filled, sperm will migrate to the spermatheca, which is simply a large storage area for sperm; like a sperm bank. Returning to her colony is wrought with great risk, especially if hives are lined up in long rows all facing the same direction. A premature dip into a neighboring hive rather than her own will result in immediate balling of the queen and subsequent death. In an effort to avoid that



Photo courtesy of Jason Peters

Although several resources make reference to virgin queens laying within three days from the time they return to the colony, my personal experience has reflected something very differently. Let's review an average time table of what you may observe:

-Observation of an open queen cell.
 (Three days as an egg, five to six days in the larval stage and seven days in the

capped pupal stage for a total of 16 days.) Unless you actually saw the virgin queen emerge from the cell, you have no idea when she exited.

- Five days development in the colony
- Two days of orientation flights
- One to two days of mating flights depending upon weather and drone availability
- Allow for **ten to fourteen days plus** before looking for eggs and larva in the cells.

Many variables affect a timetable, weather being the most common and how many flights are needed to the DCA (drone congregating areas) for successful mating.

There has been more than one occasion when I was ready to throw my hands up in the air because after 20+ days there was no evidence of eggs or larva or her for that matter. Yet waiting those extra few days was a wise maneuver. When I returned to do one more check a week later, there she was with evidence of eggs and larva everywhere. They take SO long to mature. I was WAY TOO IMPATIENT.

This unproductive time in the colony can cause us anxiety. Colony numbers drop, there is uncertainty whether the virgin queen will be a productive queen and invariably, this all occurs during a hot spell when bees are less than welcoming to the beekeeper. The other temptation is to requeen with a caged queen. Don't do it unless you are at 30 days without evidence of eggs or larva and the hive is clearly acting queenless. If I had a penny for every conversation I had with someone who requeened only to have their new queen killed, I would have a hunk of change in my mason jar.

Use your observational skills before doing anything rash:

- are the workers bringing in pollen?
- have they saved space for her to lay?
- is the colony quiet and accepting of your visit?
- ask for a second pair of eyes to confirm her presence or lack thereof

from occurring, bees will produce the Nasonov pheromone to mark the entrance to the colony.

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MSBA Call For Nominations

The Nominating Committee for the MSBA Board of Directors is currently accepting nominations for the following positions for the 2020/2021 term of office:

President
 Vice President
 Secretary
 Treasurer
 Membership Coordinator
 2 At-Large Board of Director Positions

Except for the at-large board positions (term of three years) executive board positions are held for a term of one year. If YOU or someone you know has interest in applying for any one of these positions, please contact members of the nominating committee immediately. A slate of officers will be prepared 60 days in advance of the annual meeting to be held this year on October 17, 2020.

Nominating committee members:

Jason Peters, cuttingedgelandinc@yahoo.com
 Bob Foster, kayakon@roadrunner.com 656-2193
 Dave LeGloahec, diegloah47@gwi.net 514-7564

Requirements are to actively participate in monthly BOD meetings which are now virtual (WebEx) and to bring ideas and enthusiasm for ways in which to meet the needs of beekeepers in the state of Maine!

Late Summer/Early Fall Colony Management Tips

Summer is soon to be another season past as autumn peaks around the corner. It is always helpful to shift gears and be especially mindful of management techniques which will assist in having healthy, overwintered colonies.

- Perform alcohol washes and treat according to thresholds
- Mid August is the beginning of winter bee emergence
Provide a healthy, varroa free environment for them
- Assess quality of queen performance and evaluate need for requeening
- Determine presence or absence of hive congestion
Equalize colonies and/or redistribute frames to provide for additional usable comb space
- Evaluate colonies for possible combination in the fall
Small weak colonies at end of summer would benefit from being combined with large, robust colonies for an optimum overwintering experience
- Assess strength of population: is it booming or struggling
- Reduce entrances by third week of September
- Find those mouse guards. By end of August or beginning of September, mice and shrews are searching for warm, safe, dark environments for winter
- Be watchful for signs of robbing. Avoid lengthy time spent in your colonies during August. Food sources are often limited and in no time you will find your colony under attack. Take a few moments and create robbing screens to apply to the front face of the hive
- Continue to provide clean fresh water
- Monitor for food resources. Are frames heavy laden with an arc of honey surrounding the brood nest or are frames light with little food
- Remove honey supers first of September to give colonies ample time to build up additional stores if needed
- Offer supplemental feeding if necessary in the form of 2:1 sugar syrup for colonies low on food stores
- Evaluate for mites once again in the fall and treat based on threshold. Mite bombs occur which can devastate a colony
- Reevaluate your management protocols. Honestly determine what worked and what did not



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