The Bee Line

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When Temperatures Soar: Tools For Optimizing Hive Ventilation

by Thom Norgang

Temperature regulation within the hive is a continuous challenge for the colony during the summer months. Bees need constant temperatures of 93^0 - 97^0 F and humidity levels of 50-60% to raise their brood and promote the overall fitness of the colony. Studies have shown that anything outside of this optimal range will prevent healthy brood rearing.

The challenge for our bees is they need to maintain these very precise conditions for brood rearing in one part of the hive, while at the same time they are also trying to reduce the water content in nectar stored in other parts of the hive (a dehumidification process). If cooling for brood rearing is required they utilize a water evaporation system that unfortunately increases hive humidity; all of this is happening within the same enclosed space. To deal with this complex juggling act they have only two tools, their wings and water.

As beekeepers the question becomes whether we can do anything to assist the colony in accomplishing these goals? Two pieces of hive equipment, the screened inner cover and the slatted rack, seem to often come up in beekeeping articles. Like most beekeepers, I am a bit skeptical of the need for additional equipment and tend to stick with what has worked for me in the past, however I also like to experiment from time to time to see for myself if there is indeed room for improvement. First let me say that I believe both of these items are optional hive management tools with an emphasis on the word 'optional'! From talking to other beekeepers I have found that people either love them or have no interest in them. Commercial beekeepers never use them so obviously they must be a 'nice to have but not a need to have' piece of equipment. As the saying goes, 'all beekeeping is local', meaning what works for one beekeeper in their apiary may not seem useful to you with your hives.

On that note I will share with you my experiences and observations based on the occasions when I have used each of these items.

The Screened Inner Cover

The screened inner cover is exactly what its name implies. Not to be confused with the screened bottom board which is at the bottom of the hive, the screened inner cover is a replacement for the traditional solid inner cover that has an oval hole in the center. It is basically a wooden rectangle covered with 1/8" hardware screen (bees cannot pass through it) and has side shims that raise the telescoping cover to allow hot air to exit the top of the hive.

A simple screened inner cover
Photo courtesy of Thom Norgang

For me, screened inner covers seem to be effective in increasing hive ventilation in the hottest months of summer, which is when I find a use for them. Normally bees are very good at controlling the temperature and humidity within their hives as they have been doing this for millions of years! However, when we have extremely hot weather hives can be forced to use every tactic at their disposal; fanning, bearding, shifting foragers to water collection, etc. and they still may struggle to maintain the temperature and humidity levels critical to raising healthy brood. Installing screened inner covers is extremely simple. When the temperatures become excessive or I see bearding I just swap my standard inner covers with screened ones. It immediately reduces fanning at the entrance and usually eliminates bearding. Some beekeepers will say they just prop up the telescoping cover with a few shims for extra ventilation but hot weather is often accompanied by decreasing nectar flows and robbing. With the screened inner cover you have ventilation but no access by robber bees, wasps, etc. When you lift the telescoping cover for a hive inspection there will usually be a layer of bees under the screen

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President's Message

How great is it to finally open your hives for the first time after seven or eight months and seeing all the little bee faces staring up at you? I'm one of those cautious people who wait until we get a few warm, sunny days in a row to do the first in-depth inspections. By that time a lot of of my fellow beekeepers have already split their hives, but there's more than one way to do just about anything that involves honey bees. Take syrup feeding for example. I've tried pretty much everything: top feeders, frame feeders, ziplock baggies, screened pails, 5 lb mason jars with punctured caps, game bird drinkers, Boardman feeders (inside hive). I tend to use all but the first two types, which are gathering cobwebs in my shed...but I may give them another chance at some point. For winter feeding there are candy boards, candy cakes/bricks, HFCS, "winter patties" (not to be confused with pollen patties), fondant and granulated sugar. There isn't just one right way, although some folks may insist you're doing it the wrong if it's not their way. When I started keeping bees I was advised to use screened bottom boards – they were being hailed as a good way to reduce the mite population. Then a longtime local beekeeper told me they shouldn't be used in cold climates like Maine and I did eventually switch to solid boards. Still, a lot of people keep them under their hives here and don't seem to have any problems getting through winter. Bees can handle cold conditions. Several years ago on a frigid January night some AWOL cows knocked over one of my hives and the two deep boxes got separated. The farmer noticed it the following afternoon and called me, but I was about 40 miles away and couldn't get there until it was dark. I threw a heavy dog blanket over the open hive. It snowed heavily for the next 24 hours and I was sure the bees had perished. But by the time I finally got the hive back into position they were doing fine and went on to be a very productive colony that summer.

I've learned to keep an open mind and be flexible. After listening to Bill Hesbach's MSBA webinar presentation on condensing hives back in November I did some additional reading and decided to take a leap out of my comfort zone. Instead of homasote boards, all eight of my hives got a sheet of R5 foam insulation cut to fit within the inner cover rim, and a taped-over upper entrance. All are robust except for one whose late-season queen seems to be running low on eggs. In every case the bees had built a lot of comb up through the candy board screens right into the inner cover hole, which hasn't happened before. I'm wondering if it was because there was more warmth in the space which allowed them to produce all that wax, or maybe I just should have removed the candy board sooner so they could have been putting that wax to better use in a super.

The 2022 MSBA Annual Meeting is being planned as an in-person event in the Augusta area in October. It will be hosted by Kennebec Beekeepers Association, a very active and enthusiastic group. As in the past there will be great speakers, a raffle auction, lunch, best tasting honey contest and hopefully several vendors. We'll also present a Beekeeper of the Year award among others. Stay tuned for updates!

MSBA owes a big thanks to the Maine companies and organizations who've generously sponsored our webinar series: Jason Peters and the Maine Bee Company for Landi Simone in March; Maine Bee Wellness for Karen Thurlow in April. This has allowed us to bring more great speakers to our members' Zoom screens. If you or your company is interested in sponsoring an upcoming webinar or an annual meeting speaker please contact me at president@mainebeekeepers.org.

Judith Stanton

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WEBINARS

June 20th 7 pm ***"Organic Varroa Control"*** with Tom Nolan of NOD Apiary Products. Tom will focus his presentation on Formic Pro and Mite Away Quick Strips (MAQS) used in the control of varroa. Ample time will be provided for questions and discussion regarding mite treatments.

July 18th 7 pm David T. Peck, PhD, Director of Research and Education at Betterbee will be our guest presenter. Topic to be determined

August 30th 7 pm ***"Sustainability"*** with Geoff MacLean. Let's have sustainable apiaries. Do you want to stop buying packages or nucs every spring? Let's discuss how you can do a May split and then make up and overwinter a couple of June nucs with your own bees instead.

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When Temperatures Soar...

fanning, pulling hot air up and away from the frames below them. I leave them on during the hot weather and always remove them well before fall.

Screened inner covers are readily available for purchase from most of the bee equipment suppliers or if you are a DIY person, here is a link to an excellent free set of plans for making your own:

https://www.honeybeesuite.com/wp-content/uploads/2017/08/SCREENED-INNER-COVER.pdf

The Slatted Rack

A slatted rack (sometimes called a brood rack or bovard rack) is a specially constructed spacer placed between the bottom board (screened or solid) and the lowest brood box. It has the same outside dimensions as a standard Langstroth hive; ten slats that run in the same direction as the frames in the brood box, with space between each one, with a four inch wide board that runs parallel to the front of the hive.

Top side (faces brood box)
Photo courtesy of Thom Norgang

Lower side (above bottom board)
Photo courtesy of Thom Norgang

Slatted racks are installed and utilized year round. The theory is that in the summer a slatted rack gives the adult bees a place to gather inside the hive without crowding the brood area. Also, the extra space makes fanning easier and more efficient, which can improve ventilation and promote curing of your honey. During the rest of the year the four inch wide board that runs above and parallel with the hive entrance reduces cold air drafts in the lower brood box. Proponents say this encourages the queen to lay in the lower part of the frames allowing for a more efficient use of the brood box and possibly reducing the need to rotate brood boxes in the spring.

Pros and Cons with Final Thoughts

I tried slatted racks on several of my hives for about a year but finally stopped using them. When I left the slatted racks on year round I could not see any dramatic difference in the brood nest area position in the spring or any real benefit. As far as reducing bearding I can't say that the slatted rack made much of a difference. Ultimately I found the slatted rack to have several disadvantages that, for me, out weighed any possible advantage. They were an extra piece of equipment that was an added expense to a hive and they made it a bit taller and heavier. The four inch board possibly decreased hive entrance drafts but I felt that it also accumulated a lot of debris above it. It seemed to me that this 'shelf' may interfere with the effectiveness of the screened bottom board below it by preventing mites that dropped from passing through to the screened bottom board. One of my biggest disappointments was that although the spacing between the surface of each slat and the bottom of the frame above it starts out as our normal 3/8 inch 'bee space', it seemed that (bees being bees) they were occasionally inclined to ignore the book and build burr or bridge comb between this space which created a mess when you tried to inspect the lower box frames. Also, keep in mind that if you want to try eight frame medium boxes or you use nine frame spacing you have to buy a specific slatted rack to match those box configurations.

I did like and continue to use the screened inner covers in hot weather. They are not expensive to buy or are very simple to make, easy to install quickly, and they seem to provide a noticeable benefit. Are they necessary? Probably not but while bees are very efficient at fanning and collecting water for cooling, this activity requires a great deal of energy and resources which often occurs during times of diminished nectar flows. A little temporary assistance in hive ventilation may reduce the stress on the colony, which could be a good thing.

So, for me, the screened inner covers get used each summer but the slatted racks, for now, sit in storage.

Trends in Hive Losses, Varroa Monitoring and Control

by Jennifer Lund

For the past five seasons, beekeepers have reported their losses and management practices via an online survey administered by the Maine Apiary Program. This data has been important for identifying trends, recognizing when and how losses occur, and determining where to focus education/outreach activities. A summary of the yearly surveys can be found on the Maine State Apiary webpage and have been reported in past issues of the MSBA Bee Line. This report is a more in depth look at some of the trends over time for losses, varroa monitoring, and varroa control.

Over the past five beekeeping seasons between 172 and 388 beekeepers, representing between 1,122 and 2,688 hives, responded to the online beekeeper management survey. Average yearly losses ranged from 35.8% during the 2019/2020 season to 45.2% during the 2018/2019 beekeeping season (Table 1).

	Number of Responses	Number of Hives	Overall Loss (%)
2016/2017	172	1,122	45.0
2017/2018	212	1,156	43.4
2018/2019	360	1,915	45.2
2019/2020	312	1,875	35.8
2020/2021	388	2,688	43.9

Table 1: Number of beekeeper responses, the number of hives managed by beekeepers who responded, and the overall percent hive loss by beekeeping season.

The counties with the average highest losses from 2016-2021 were Aroostook (65.3%), Washington (59.3%), Androscoggin (53.5%), and Cumberland (47.7%). The counties with the lowest average losses between 2016-2021 were Hancock (25.9%), Piscataquis (28.7%), Waldo (32.6%), and Franklin (33.9%) (Table 2).

	2016/2017		2017/2018		2018/2019		2019/2020		2020/2021		2016-2021	
County	N	Loss (%)	N	Loss (%)	N	Loss (%)	N	Loss (%)	N	Loss (%)	Summer Loss (%)	Winter Loss (%)
Androscoggin	7	52.7	9	26.4	13	88.7	11	23.7	12	64.9	3.7	49.7
Aroostook	1	100	5	72.7	7	77.6	4	62.1	9	40.5	17.3	48.0
Cumberland	57	47.8	57	40.9	94	54.6	72	37.5	86	57.7	9.4	38.3
Franklin	4	43.5	3	16.0	4	71.4	6	39.4	6	29.2	8.2	25.7
Hancock	9	50.1	9	24.6	16	25.9	19	32.8	21	16.7	3.0	22.9
Kennebec	13	53.9	19	43.8	26	30.4	31	38.6	39	41.6	7.4	31.2
Knox	3	3.0	12	38.9	20	38.2	20	50.0	25	53.6	13.4	32.2
Lincoln	2	75.0	11	46.2	34	26.2	22	23.0	36	46.4	6.0	28.2
Oxford	7	69.0	11	48.7	21	52.2	19	30.1	15	52.6	6.1	40.5
Penobscot	22	63.8	22	53.4	36	31.0	29	33.9	33	32.4	8.0	28.7
Piscataquis	1	50.0	1	0	4	44.4	4	19.0	10	32.6	4.3	24.5
Sagadahoc	6	62.5	9	50.0	10	27.7	10	35.6	16	50.8	10.3	30.8
Somerset	5	85.0	2	100	13	36.4	9	46.7	12	35.7	4.5	38.1
Waldo	8	65.2	9	21.9	15	23.9	17	41.5	18	46.3	8.6	24.0
Washington	1	94.1	5	89.7	9	60.0	3	22.2	9	36.2	11.5	47.8
York	26	64.7	28	47.9	38	38.6	36	54.2	40	52.6	9.1	38.2

Table 2: Hive losses by county.

Varroa mites and their associated viruses were the number one reported cause of winter hive mortality in 2016/2017 (29.7%), 2018/2019 (26.7%), 2019/2020 (25.6%) and 2020/2021 (32.2%). It was the second reported cause in the 2017/2018 survey (21.7%).

On average, those beekeepers not monitoring for varroa experienced higher average losses than those that did monitor (43.7-59.9% vs 33.5-44.6%). Beekeepers using alcohol washes as their monitoring method experienced lower losses than those using other methods of monitoring (28.0-39.0% vs 39.1-51.8%). Other monitoring methods include counting bottom board drops, sugar shake, drone brood inspection, visual inspection, etc. (Table 3).

	No Varroa Monitoring		Varroa Monitoring		Alcohol Roll		Other Monitoring Method
Year	n	%	n	%	n	%	n
2016/2017	77	45.8	95	44.6	19	39.0	76
2017/2018	74	59.9	136	38.8	40	28.0	96
2018/2019	119	47.1	236	44.6	112	38.0	124
2019/2020	83	43.7	230	33.5	111	32.7	201
2020/2021	85	57.0	303	42.3	179	38.7	124

Table 3: Average losses experienced by beekeepers using different methods to monitor for varroa mites.

Those beekeepers that treated for varroa mites experienced lower losses (34.7-43.9%) than those that did not treat (71.9-77.6%) (Table 4).

Strategies to control varroa mites are often broken up into two categories: prevention and intervention. Prevention measures primarily rely on disrupting the mite lifecycle which slows mite population growth. These methods are not intended to eliminate all mites in a hive but can maintain mite populations at low levels. Prevention methods include drone brood sacrifice, brood interruption, using screened bottom boards, etc. Intervention methods are used when mite infestations have reached treatment level/threshold and include all registered miticide treatments.

Beekeepers that used both preventative and intervention control methods experienced lower losses (32.3-40.6%) than those that used only preventative (41.2-86.7%) or only intervention methods (35.5-47.0%) (Table 4).

	Treated for Varroa		Did not Treat for Varroa		Prevention Only		Intervention Only		Prevention and Intervention
Year	n	%	n	%	n	%	n	%	n
2016/2017	137	40.3	30	76.2	5	81.5	99	39.1	38
2017/2018	187	41.6	25	77.6	3	83.3	140	42.3	44
2018/2019	314	43.9	35	76.3	7	86.7	227	47.0	87
2019/2020	291	34.7	21	71.9	11	41.2	189	35.5	90
2020/2021	346	42.6	42	74.0	6	54.5	247	43.8	90

Table 4: Losses experienced by beekeepers using different varroa management strategies.

October 15, 2022

MAINE STATE BEEKEEPERS ASSOCIATION ANNUAL MEETING

The MSBA Annual Meeting will be returning to an in-person format this year!!! Watch for details concerning program, speakers, the ever popular raffle auction and honey tasting contest.

Sponsored by Kennebec Beekeepers Association, this years' event has all the makings of a spectacular educational experience that you won't want to miss!!

Getting Ready For Spring: A Hands On Workshop

by Beth Goodwin

About 20 York County beekeepers turned out on March 21st for our first in-person gathering in over two years. Highlights included 'bee talk', announcements, questions, snacks, and examining dead outs. Lynne Lincourt, Lynne Gobeil and Joe Barbari led discussion of the hive autopsies. In the first photo, Lynne and Lynne are looking for the queen and any evidence of deformed wing virus.

In the second photo, Joe has a frame with some capped honey and a small cluster of bees. Based on our observations, both colonies likely failed due to problems with excess moisture. Everyone agreed this workshop was very informative and it was great to 'bee' together again.

Photos courtesy of Beth Goodwin

Making Overwintered Nucs

by Erin MacGregor-Forbes

This article was developed based on the materials from the hands-on “making overwintering nucs” workshop that Erin taught through Cumberland County Cooperative Extension. Use of divided hive bodies is the most economical way of creating nucs and utilizing equipment most beekeepers have on hand (traditional bottom boards and covers are used). Nuc creation and management methods can easily be adapted to utilize traditional nucleus colony equipment in whatever configuration you have on hand.

The goal of making summer nucs for overwintering is to provide a strategy for New England beekeepers to obtain locally raised increase/replacement colonies in the early spring. Due to climactic conditions, it is not feasible to raise and mate northern queens in the early spring months in New England. It is for this reason that we raise our queens in the spring and summer of the previous year and support them with a small (nucleus) colony through the winter. The following spring these overwintered nucleus colonies are used by beekeepers to replace deadout colonies, increase colony numbers, or provide income to the beekeeper by offering these nucleus colonies for sale.

The queens

While summer nucleus colonies can be started with commercially raised queens from the south, it is preferable to head these colonies with northern raised queens for several reasons.

First, and foremost, it is vitally important that as beekeepers we support our locally available resources for bees and queens and promote ways for New England beekeepers to maintain their beekeeping operations in a profitable and sustainable manner.

Northern raised queens are the daughters of queens who have headed colonies that have survived winters in New England. These daughters of the surviving colonies should exhibit many of the characteristics of their mothers, therefore enhancing their ability to survive in our environment. Northern raised queens are produced in small “back yard” to mid-sized boutique beekeeping operations. Queens raised under these conditions are generally fed a more natural diet, less medicated, and better mated and therefore hopefully longer lived than commercially raised queens from the south or west.

Backyard or boutique raised queens generally spend a longer period in their mating nucs, allowing the beekeeper additional time to assess laying pattern. The longer period in mating nucs also allows the queen to fully develop physically, ensuring that she is producing the full complement of pheromones prior to caging and shipping. Locally raised queens spend less time in transit from their mating/holding colony to your own colony. The longer the queen spends outside of a colony, the more her reproductive organs become stressed and actually atrophy. Shorter traveling time reduces this stress on the queens.

Timing

Summer nucs are generally made in New England from mid-late June until mid-late July, depending on seasonal weather conditions. Nucs made early will need to be monitored for building up too fast (remove brood to reduce congestion and shrink colony size or expand nuc boxes by adding additional space). Nucs made late will need to be fed and possibly given stores in order to allow them to adequately prepare for winter.

Equipment

The nucleus colonies can be made into your own five frame equipment and then transferred to a divided box for wintering once the fall flow has ended and the bees have begun to cluster. This transfer is best done in the late morning or at mid day on a day which is warm enough for the bees to move around inside the box but not warm enough for substantial flight (daytime temps in the 40’s – low 50’s).

Phoro courtesy of Erin MacGregor-Forbes

Making the nucleus colonies

Our goal is to create a colony that will spend the remainder of the summer and fall building up to fill the five frame nuc box with bees and stores for winter. It is important to not make the colonies too strong, as they can quickly outgrow their space and swarm. Early in the season (mid-June) I make my overwintered nucs with one good frame of mostly capped brood, one frame of nectar and pollen or honey and pollen, one frame of “space” (drawn comb with worker size cells and few resources) and two frames of foundation.

Later in the season (July) I increase both the amount of bees/brood and resources, meaning one and a half to two frames of brood, one full frame of resources and one frame with about 50% resources, 50% available laying space, and one frame of foundation. The last nucs of the year will be made with all drawn comb, no foundation (end of first week of August at the latest).

It is best to leave the nuc queenless for a period prior to installing the queen. 24 hours is generally recommended for

requeening colonies, but in making nucs, I tend to leave the colonies queenless for a much shorter period, usually one to two hours. In general, I make up my nucs one after another, and then I return and add the caged queens starting with the first nuc I made up. (Research has shown that bees will recognize queenless status and begin changing behavior in approximately one half hour).

Install the queen between the brood and the resources so she will be directly in contact with the cluster of bees and the area where they are accessing food. Our queens are in wooden cages so it may be necessary to either crush the comb in an area to make room for the cage or to remove a frame of foundation until the queen is released from the cage. In the case of removing a frame (and therefore violating bee space with the queen cage) be sure to return to the colony within 48 hours to remove the queen cage and any burr comb built by the bees. Once the queen is released and the cage is removed, check briefly for eggs to ensure that the queen is laying, and leave your nuc alone for at least two weeks. The brood you put in the nuc when you set it up will be hatching and the new brood being laid by the queen will not quite be of hatching age after two weeks (you will however need to monitor the feeder, if you are feeding).

Managing Your Nucleus Colonies

It is best not to micromanage your nucs. That being said, nucleus colonies are generally less defensive than full sized colonies (less guard bees) and easier to work than full sized colonies (less bees per frame and less frames to look through), making them an excellent learning resource for the intermediate level beekeeper.

Feeding can be accomplished with jar feeders (in the event only one side needs feed, place something solid over the second nuc's inner cover hole to prevent the bees from accessing the space above). Use an empty medium or deep box to create space for the jars and replace the telescoping cover above.

You do need to monitor your nuc's build-up through the summer and fall. If the nuc becomes crowded, remove a frame of brood and replace it with a frame of mostly space or resources. I generally like to see my nucs with two full honey walls, one on each side and a small football sized cluster of bees and space on three frames totally surrounded by honey as they get ready for winter (September 20th). You can feed your nucs through the hole in the inner cover with a jar that totally covers the hole (in divided hive boxes with two nucs do not allow the two colonies to cross over into each other's space) but all feeding should be done by October 15th.

You can also super your nucs and allow them to continue to grow (preferably with drawn comb) or if you have a strong nuc late in the season that doesn't have much stored honey, you can super them with a medium or deep of honey.

Wintering the Nucs

I start packing my nucs above parent colonies for winter on November 1 with the goal that all will be up and ready for winter by the end of Thanksgiving weekend. Try to move colonies within yards on a nice day when the temperatures allow the bees to move within the box and maybe fly a little, but when the immediately following forecast will keep the bees in the box (rain or cold).

The divided hive box configuration is designed to be used with a solid bottom below – this can be the inner cover of the parent hive with the inner cover hole blocked on both sides by duct tape and the inner cover turned so the notch is down, or this could be the homasote insulation board of the parent colony in the event that homasote is used. The idea is that you will place your divided box with the two overwintering nucleus colonies on top of a larger parent colony above the inner cover or homasote and under the telescoping cover. This reduces the need for additional equipment, raises the nucs up out of the snow, and provides some heat gain from the colony below.

Your nucleus colonies above will prevent you from being able to check the parent colony below until spring when you remove the nucs. I suggest leaving "extra" stores on the parent colony, meaning two deeps plus one medium or the equivalent with your equipment configurations (four or five medium boxes, if in all mediums).

Cover the entire box with a traditional telescoping cover.

You can check your nucleus colonies briefly in winter on the occasional 50 degree day we find in late January. The best way to feed your colony is to add an additional box (super or deep) of honey if they need it. You can add a full frame of honey on a warm sunny day but this is more disruptive than adding honey above.

Check your colonies again in late spring and feed if necessary. If the weather is warming (April), syrup can be fed, or dry sugar can be fed in March if they need feed at that time and you have no honey.

Surviving overwintered nucleus colonies are some of the best organized, most motivated colonies I've ever seen. Unpack them from the parent colonies between April 1 and April 15 and move them into full sized equipment as soon as incoming nectar becomes available in your area (dandelion bloom start – generally early May).

Photo courtesy of Erin MacGregor-Forbes

EAS 2022

by Janet Anker

Registration is now open for the Eastern Apicultural Society (EAS) 2022 Short Course and Conference, ***Beeing Social, Again***. It is taking place August 1 – 5 at Ithaca College in Ithaca, NY. If you have never been to an EAS conference, it is great fun and a non-stop stream of information about anything and everything relating to honey bees. You will want to be in two or three different places at the same time to absorb it all.

The short course which offers learning experiences from beginners to advanced runs Monday through Wednesday followed by the main conference on Wednesday through Friday. Two special courses, microscopy and queen rearing will be offered. The conference features presentations by well-known names in beekeeping, including Michael Palmer, Dr. David Tarpy, Emma Walters, Dr. Stephen Pernal and Dr. Tom Seeley.

Whether you attend the short course, main conference or a combination of both, you have the freedom to bounce back and forth between the different tracks (beginner, intermediate and advanced) based upon your interest. There is a diversity of topics and a wonderful balance of classroom lectures, hands on opportunities in the apiary or in a lab setting. It is an enticing smorgasbord of educational offerings!

Subjects covered during the conference run the gamut from bee skills, bee health, hive products to apitherapy. There is an on-site apiary, which according to rumor, is where all the cool kids hang out. Bring your best bottle of honey or frame of comb honey to enter into the honey show. There are also categories for beeswax blocks and candles, mead and photography. Sign up for a field trip to the Cornell Botanical Gardens or Kutik's Everything Bees, where there is also a BBQ on Wednesday evening. This is a wonderful opportunity to visit a commercial beekeeper involved in queen rearing, nuc production, pollination and harvesting of honey. There are always lots of vendors, ready to demonstrate and sell the latest gadgets. Sometimes you can get a good bargain on the last day if they don't want to pack up everything and bring it back with them. A virtual online auction will be held prior to the conference in addition to silent auctions during the conference and a live auction on Thursday evening.

The schedule for the week as well as information about accommodations and online registration are available on the EAS conference web page. You must be a member of EAS to attend. For more information please visit https://easternapiculture.org/conference/eas-2022/

Since these are the times we live in, I want to acknowledge that there is no reference to Covid-19 considerations in the conference materials. Monitor the Ithaca College website and the New York State CDC for what to expect in terms of requirements and precautions. Ultimately, we must each decide for ourselves whether or not we feel safe attending.

Remember to register your apiaries by June 15th!

It is a requirement under the Title 7 MSRA, section 2701 to register your apiary with the Maine Department of Agriculture, Conservation and Forestry (DACF). Registration is valid for a twelve-month period expiring in mid-June. If you previously registered your apiaries, you will receive a renewal form by mail. If you have not previously registered your hives, forms can be downloaded from the DACF apiary website (www.maine.gov/dacf/php/apiary). Besides being the law, it is important for beekeepers to register their apiaries with the State of Maine for several reasons.

Disease Management: American Foulbrood is extremely long-lived and contagious. It can rapidly spread from hive to hive. If a positive case is found in the state, all the surrounding registered beekeepers are notified. A notification alerts a beekeeper to be extra vigilant about checking their hives for signs of the disease and allows them to request an inspection by a trained inspector. If your apiary is not registered, you will not be contacted.

Pesticide Applications: There are rare occasions when pesticides must be applied aerially to control mosquitoes or other public health pests. The Maine State plan for public health emergencies includes consideration for pollinators and contains language that directs the applicator to contact beekeepers in the area so they can take the proper precautions to protect hives. If you are not registered, you may not be contacted.

Inspections: If your hives are registered with the DACF you can request an inspection of your apiary by a trained apiary inspector.

Outreach and Education: Registered beekeepers who provide their email address will be included on important updates regarding pests/diseases and educational opportunities.

Tips and Tricks

by Jason Peters

Nuc Introduction Boards

Nuc Introduction boards are used to easily unite nucleus colonies with colonies in standard 8 or 10 frame Langstroth hives. This piece of equipment (usually constructed of plywood with the center cut-out to match the size of a nuc) can simplify the induction of queenright nucs into queenless colonies to correct issues such as queenlessness, laying workers and failing queens, while minimizing the chances of rejection of the new queen and boosting the original colony.

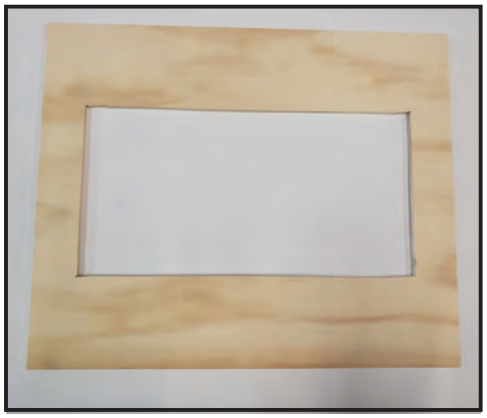


Photo courtesy of Jason Peters

How they work: Place a sheet of newspaper over the top brood chamber of your hive and then place the nuc introduction board on top of the newspaper.

Photo courtesy of Jason Peters

Your nuc will fit over the center cut-out and the bees will chew through the newspaper and will gradually combine with the colony below. After a few days the frames from the nuc can be moved down into the full-size hive.

Photo courtesy of Jason Peters

Spring and Summer Checklist

- Register your colonies by June 15th
- Add honey supers in anticipation of spring honey flow
- Perform swarm management: equalize hives and/or create nucs or splits
- Monitor for increase in varroa by using alcohol washes and other IPM methods
- Treat hives immediately if varroa mite numbers are at or above threshold
- Maintain fresh water availability
- Monitor colonies on a regular basis
- Try your hand at making overwintered nucs
- Volunteer to mentor a new beekeeper
- Evaluate queen performance and brood pattern
- Replace older queens in anticipation of the upcoming fall and winter seasons
- Be mindful of local climate and whether you are entering a dearth
- Watch for congestion in your frames due to pollen, eggs or nectar
- Remove damaged, older dark frames or those less than ideal and replace with new foundation or drawn comb
- Beware of uninvited guests i.e., skunks who may annoy hives during the evening
- Evaluate for food stress in the event of stretches of poor weather or conditions which prevent bees from foraging on a regular basis
- Enjoy these glorious summer months!

Ask A Master Beekeeper...

What do you consider to be the most critical aspect of summer colony management?

Regular inspections for health (which includes pest infestations) and EFB scouting as far as a disease in particular. *Andrew Dewey, Master Beekeeper*

Treatment for varroa mites, followed closely by routine monitoring for mites, followed closely by post-treatment assessment of mite levels. *Phil Gaven, Master Beekeeper*

At this time I would say mite management. I don't think we do enough as a group to watch the mite loads in our hives. I know I lost a couple of hives late last fall because by the time I medicated it was already too late. *Rick Cooper, Master Beekeeper*

Aside from demonstrating a great laying pattern, what other characteristics make a truly great queen?

Disease resistance, overwintering ability, surplus honey production, low swarming inclination, quiet on the comb and temperament (not nasty). I'd like to see mite resistance as well. *Andrew Dewey, Master Beekeeper*

If a colony isn't gentle, even a great laying pattern won't make a "great" queen. Aggressive bees are not just a problem for the beekeeper, but for everyone in the area who needs a virgin queen to mate. If I had time and tools, I would select queens for hygienic behavior. Since I don't, I buy hygienic queens and breed their daughters. I also like colonies that gather lots of propolis. *Phil Gaven, Master Beekeeper*

Two traits I look for in a really great queen are honey production and gentleness. Of course a great laying queen usually produces enough bees to have a good honey harvest. I know from experience that "mean" bees usually produce more honey because we have a tendency to leave that hive alone. A trait I wish we could do better with is having large colonies that don't swarm. *Rick Cooper, Master Beekeeper*

How do you contribute to the health of your bees in the summer months?

It can be hard to find a balance between regular inspections and 'get out of the way to let the bees do what they are supposed to do', but I find if one is not in their hives regularly, various health issues (i.e.,mites) can easily get away from you. I try to inspect at least monthly, but I don't panic until about six weeks. If climatically we are in a dry spell, I make certain water is available for the bees in the apiary. Otherwise, there are plenty of vernal pools in my area. I plant so as to eliminate summer foraging dearths as much as possible. This is very much a work in progress and involves a great deal of wandering around watching bees forage. *Andrew Dewey, Master Beekeeper*

If a colony is lagging, I'll throw in a frame of brood from a booming hive. Vigorous colonies and a program of mite mitigation solve most other problems. *Phil Gaven, Master Beekeeper*

I do watch my mite loads. Other than that I am not big on helping the bees out. No Honey B Healthy or other health products for my bees. I have been known to requeen bees that are not doing well in July and sometimes, but rarely, I will toss some sugar syrup and fumadil at a weak hive. *Rick Cooper, Master Beekeeper*

Finding The Queen

by Jane Dunstan

They can be tricky to find! Some queens seem unphased by your presence and simply go about their business with a bold beauty that jumps off the frame. Others are runners and fly across the surface disappearing from sight and avoid you like the plague. Their coloration can be deceptive and queens may appear to be camouflaged on the comb while others stick out like a sore thumb. The following suggestions are offered to maximize your opportunity of finding her majesty with greater ease:

-Know what your queen looks like (is she blond, black, reddish or striped?)
-Queens have a distinctive elongated abdomen, golden legs and hairless back
-Avoid using smoke if at all possible
-When holding up a frame to view, position your back to the sun; sunny days are preferable over cloudy ones
-Visit the hive midday when many of the foragers are out and there are fewer bees
-Visually divide the frame into four quadrants and scan each section methodically after completing a generalized sweeping glance over the entire frame
-Look at the edges and bottom of the frame; places where she is apt to tuck into
-Queens move differently than all the other bees; look for a dissimilar motion
-Sometimes she is surrounded by her retinue (queens court) and other times bees advance before her
-Her goal may be to hide and she will avoid light and open areas; look at corners with breaks in the comb that offer an escape route to the other side of the frame
-There may be times when she is partially obscured by other bees; learn to recognize parts of her in isolation
-Queens are looking for places to lay eggs and often are found on comb with open cells vs capped brood

VARROA: FIGHT THE MITE

by Jane Dunstan

The article submitted by our state apiarist, Jennifer Lund, which examines the trends over the past five years highlights the fact that varroa mites were the number one cause of hive mortality in four out of five years. As we continue to look at the components of the FIGHT THE MITE philosophy, in this issue we will examine:

Treat mites at the right time with the right product.

> "When you treat is just as important as if you treat." Dr. Samuel Ramsey

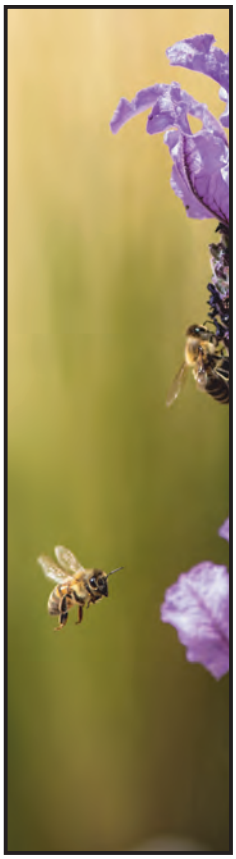
With the pioneering work that Dr. Ramsey has done along with others, we now know the exact mechanism by which honey bees are affected by varroa. The mites which hide under the abdominal plates bite through the exoskeleton of the bee, feed on vast amounts of fat body tissue which plays a vital role in the bees' immunity, longevity, ability to synthesize and store nutrients and protein, and regulate water use and temperature. While they feed upon, chew and macerate this tissue, they are also responsible for vectoring viruses which are easily spread to other bees within the hive. This assault on your bees also occurs while the bees are in their larval and pupal stages which handicaps and disables them before they even emerge from the cell cappings.

With this backdrop, let's examine timing of treatment and miticide used. The greater the population of bees within your colony that have been parasitized both while in the cell developing and as adults, the greater the impact on colony health and survivability. Timing of treatment needs to target both developing bees and adult bees at critical times in the life of the colony. For instance, winter bees who begin developing in August need to be born into a healthy environment, not a habitat with a heavy mite load. Perform alcohol washes on a consistent basis to evaluate what your thresholds are so you can intervene in a TIMELY fashion. Waiting until fall to treat a hive which needed intervention in July (unknown to beekeeper because alcohol washes were not done) runs the risk of being too little, too late.

The other part of this equation is determining which miticide to use. There are numerous considerations in choosing an appropriate miticide and the Varroa Management Decision Tool found at cantilever-instruction.com will be an asset to you. This is a simple algorithm which walks you through the process of making an educated decision based on colony population (peak, decreasing, increasing or dormant), whether there are honey supers on the hive, whether brood is present and the possible choices of miticides based on your responses to the above elements in the decision making process.

Each miticide has a data sheet that identifies mode of action, conditions for use, restrictions, both advantages and disadvantages as well as important considerations for use. In addition, videos are present which demonstrate the correct application of the miticide.

Make no bones about it. We are mite managers. Most of what we do as beekeepers is manage mites. We test, we anticipate, we act on information which we collect about the health of our colonies. We have numerous tools in our tool box, yet mites remain the number one cause of colony mortality as reported by beekeepers in the state. The words of Dr. Ramsey resonate in my head...Timing is everything.



Maine State Beekeepers Association

THE BEE LINE | Newsletter of the MSBA

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