

The Bee Line



Newsletter of the Maine State Beekeepers Association | www.mainebeekeepers.org

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Keep Your Bees Out of Trouble

by Erin MacGregor-Forbes, Master Beekeeper

I am sure a few of you beekeepers attend the Fryeburg Fair. If you do and you happen to walk by a trashcan or a lemonade stand, you probably notice many honey bees (and I mean a dozen or so) are at any given trash can, lemonade stand, or powdered sugar spill (fried dough stand). I've been to the fair and seen all those bees and thought to myself, "if I weren't a beekeeper, I'd be freaking out over this!"

Fortunately I haven't actually *seen* anyone freaking out over the bees foraging for anything they can find at the Fair. That doesn't mean it doesn't happen, just that I haven't seen it.

The fact of the matter is that the week of the Fryeburg Fair is just about the time we generally have our first frost here in Southern Maine. And with the frost comes the shutdown of nectar and pollen. Many years, we then have a warm spell after the first frost and the bees can fly, but find nothing in the "field." And this leads me to the point of this article: In the absence of nectar and pollen, our bees start foraging for alternative sources of carbs and protein. Bees pick up sand, sawdust, birdseed, etc., to bring home to the hive. They find these things in the birdfeeders of our neighbors, a silage pile at a nearby farm, or maybe in soda in some cans in a recycling bin on a neighbor's back porch. The bees hone right in on whatever they find and then fly back to the hive and tell their sisters.

Pretty soon you have a neighbor's back porch "abuzz" with activity around the kindling box (or birdfeeder, or recycling bin).

Most of you know that I live in "the city." It is really important that we urban and suburban beekeepers work extra hard to keep our bees out of the paths of our neighbors, as it only takes one complaining neighbor to create a Bee Ordinance. So I open-feed "pollen substitute" in the fall after the flow shuts off. I don't do this to provide protein to my hives (it does to some extent, but isn't significant). I feed to give my bees something productive to do in my own yard. The point is to keep the bees busy and happy foraging at home, not at the neighbor's house.

My recipe and strategy are as follows: I take a 5-gallon bucket with a lid and cut the lid about one-third of the way up. I then snap that third of the lid onto the bucket. I put my "pollen substitute" into the bucket and set it out in the yard on its side so the lid acts as a gate (otherwise the bee's wing action will blow all of the "pollen" out of the bucket).

The first day, I bait the bucket with about a teaspoon of honey drizzled on the rim of the bucket. The bees are attracted by the honey smell and then eventually clue in to the "pollen." In my home yard it takes my bees about 30 minutes to find and remove all of the honey on the rim and then move on to the "pollen" in the bucket. I do not recommend open-feeding sugar syrup, as the bees fight over syrup. I have never seen any conflict at my open pollen feeding stations. Place your stations a good distance

from the hive (as far away as you can get on a city lot and still have the buckets somewhat protected—there will be a lot of activity).

I bring the buckets out in the morning and set them in the same spot every day. At night, I bring them into the house to prevent dew from building up and moistening the remaining powder. In the morning, I re-fill and set out again.

For open-feeding "pollen substitute," my mixture is **4-parts soybean flour to 1-part brewer's yeast**. I sift the mix together and put about 2 cups into the bucket every day while the bees are flying. As time goes on and the days get shorter and colder, they will take less and less. This is normal and to be expected.

You could also feed commercial pollen substitute if you'd like. Just sift it to break up the clumps.

This is a great way of keeping your bees entertained in your home yard. At the very least, if your bees do cause a problem for the neighbors, you can say you did absolutely everything possible to keep them busy. ■



Notice "pollen" blown out of the completely open bucket—the 1/3-cut lid (see inset) prevents this.

From the Editor

Greetings from the new editor of *The Bee Line*. When I saw my first issue of this informative publication, I immediately wondered whether I could help with it. The timing of my interest was perfect, as Erin Forbes was considering giving up the post. You, my fellow beekeepers (Will and I only joined your ranks in May, and now have two hives), might not give this straightforward chain of events any particular significance. But I do.

I have never volunteered my time for an ongoing project such as this, gratis. So why this one? I believe it is the inevitable effect of a still-unfolding story, that of bees in my life. They began as a kernel in Will's imagination, became more insistent after a conversation with an enthusiastic new beekeeper (Kiya Smith), and solidified as we placed our bee order with Erin in February. As we read feverishly in anticipation of their arrival, I was struck by details surrounding their social structure—summed-up by the phrase, “the good of the many out-weighs the good of the one.” Even if that *one* happens to be their own queen! Fascinated by their physical structure, their physiology—so beautifully tailored over the millennia to perform all of the necessary tasks of the hive, as well as the Earth's flora. And finally, amazed by their communication structure—full of intricate methods of voting and transmission of information.

Four months in, the largest amount of time Will and I have spent beekeeping is in wondering: Why are the bees doing that? Are we doing the right thing? What are we seeing here? We try to get inside their little fuzzy heads to understand their instincts, so that we may better understand what we observe. Fascinating, all of it, also providing plenty of food for thought regarding my own existence: How do I function on my own and how am I a part of a larger whole, like it or not? What do I have to offer the greater good? What have others offered me? All unexpected contemplation brought to my doorstep by these little creatures.

For now, something I have to offer is this issue of *The Bee Line*—with many thanks going to the beekeepers who shared their experiences and insights herein so that we may all become better-informed caretakers of our charges.

Over-and-Out,
Lori Harley



A brief tour of Will's and my little two-hive bee yard!



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President's Comments by Roy Cronkhite

Hello everyone. I hope that your bees survived through the wet period and produced enough honey for them and you. Like our Maine winters, this local weather has a way of separating strong from weak colonies.

It's September and just as students went back to school, the Board of Directors met to discuss various issues.

Thank you to Erin Forbes for having taken over the editor position from me and working hard to publish quality issues of *The Bee Line*. Welcome to Lori Harley from Portland, a graphic designer who has volunteered to be our new newsletter editor. Please contribute by writing articles and snippets, and sending them to Lori so she has lots of valuable content to put in each issue. Her email address is thebeeline@maine.rr.com.

The annual meeting is scheduled for Saturday, March 27, 2010, at the Calumet Club in Augusta. As of this writing, it looks as though York County will be the host chapter. There has been some talk about possibly asking Sagadahoc to join in as co-hosts.

The librarian says that there is a renewed interest in signing items out of the library. These are mostly DVDs. She also mentioned that items are *not* being returned to the library, so I will insist that you please send library items back to Carol in a timely fashion.

A communication committee has been formed to collect news and information and then coordinate where and how it is presented. For years the newsletter has been the primary tool to spread the news. In recent years we responded to the advancement of technology, creating a website that is a leading source of information for our members and the rest of the world. That's right—around the world. Our new goal is to use our collective minds to determine how best to present the news, and with which methods of transport. The committee members are as follows: Lori Harley, Editor; Larry Peiffer, Webmaster; Noli Santos; David Israel; and myself, Roy Cronkhite, as chairperson.

As always, you may contact me with any questions. Roy Cronkhite, roycronk@roadrunner.com or home phone 897-4043. ◆



Sunken, Perforated Cappings

by Erin MacGregor-Forbes, Master Beekeeper

Some of you beekeepers read the title above and immediately have an idea of what this article is about. You have a pit of dread that just formed in your stomach and an immediate feeling of empathy for whomever this article is about.

Many more of you readers have no idea what I am talking about and are confused by the tone of the above paragraph. It is you beekeepers that I really want to talk to in this article.

Let me clarify.

The first sign of American Foulbrood, the number-one most contagious bacterial disease of honeybees is “sunken, perforated cappings.” I found these signs in two colonies, in separate yards, this past late August. These symptoms progress into dissolving larvae which turn a tan/brown color, eventually becoming the color of coffee ice cream and “roping” out of the cell if a toothpick is inserted and then slowly pulled out. The dissolving larvae then deteriorate to look more like thick coffee (translucent but dark brown) and then they form a scale at the bottom of the cell which by that point is comprised of tens of thousands of foulbrood spores. This dark-to-black scale lies on the bottom of the cell (as per gravity, not against the foundation) and is akin to the residue left in the bottom of a muffin pan. If you can see the clear angle of the corners of the bottom of the cell, there is no scale. If it looks like there is some gunk down there, like in the bottom of the muffin pan, look again and check with your toothpick. AFB scale is difficult to scrape off. The spores are carried around by the nurse bees who try to remove the scale from the cell—the disease is spread as the bees move from cleaning cells to feeding larvae. When the colony eventually succumbs to the disease, the bees die out, leaving the infected comb and honey with the unremovable scales to be robbed by nearby colonies (or a swarm might move into the hive) and the spores

are then spread and activated again, ringing a death knell for the next colony.

There is also a smell associated with American Foulbrood. Some apiary inspectors say they can recognize it just walking through a bee yard. I hope I never become that familiar with it. The best description I’ve heard comes from Cindy Bee, Master Beekeeper and 2006 Georgia Beekeeper of the Year, who describes the smell as “rancid dog food.” The important thing is that all beekeepers should pay particular note of what their colonies smell like—what the “normal” smells are (and they do change through the year). If you smell something different, be on alert. Use extreme caution. Be aware of where you put your hands and your tools and wash them with alcohol or bleach water before inspecting another colony (pay mind to hand hold on smoker bellows—that needs cleaning too!). That said, if you list “smell” as a way of diagnosing AFB on the Master Beekeeper exam, you will fail that question, as smell is *not* a reliable determining factor. The colonies that I found had no discernible odor to me.

To be clear, sunken or perforated cappings can also be caused by a number of bee diseases/viruses, most not so dire. The key to diagnosing AFB is in pulling the larvae out with a toothpick—if they are pearly white, they are fine. If they are white with a little yellow spot, they are fine. If they are turning tan or brown and they rope out of the cell, they are *not* fine. And if they rope out and snap back like an elastic band, you need to call somebody immediately, as you risk the rapid spread of disease throughout your own apiary and beyond.

American Foulbrood is the scourge of honeybees. AFB treatment generally requires burning the infected colony. So now I’ll elaborate on that a little further.

You will need to close-up the colony late at night or early in the morning while all the bees are in the hive. (If you move the colony in the daytime, returning foragers would drift to other colonies with their infected honey stomachs full and infect the colony they drift into). You then kill the colony

with an aerosol insecticide by closing up all the entrances and the inner cover hole with screening (small enough gauge to trap the bees, but large enough to provide air flow), moving them away from your other colonies to avoid exposing those next-door colonies to the chemical, and spraying them. Tony Jadcak recommended doing this on the tailgate of my pickup. “Drive down to the end of the field and then spray them there. Then get in the truck and drive home. Don’t stand and listen to the bees.” It will make your heart hurt he told me. Yup, it did. “Be sure to do that in the early morning or night time when all the bees are at home to minimize drifting to nearby colonies.” I followed his directions exactly.

Meanwhile, back at home or wherever you are going to do the burning, you have to dig a pit ±3’ deep. You will dump the comb and equipment in and set it on fire. This should be done at night if you have bees around. You do not want your neighborhood bees getting into the honey from the affected colony. Burn to ash and then cover with the dirt reserved from digging the hole. Yes, you could save the boxes, bottom board, inner and outer cover by scorching them “like marshmallow, not charcoal.” But to be honest, I just couldn’t do that. I couldn’t handle the risk and anxiety of thinking that my scorch job might not have been good enough. American Foulbrood doesn’t mess around. The spores have been documented to be viable for 70+ years. I am way too much of a worrier to allow my mind to think I could have missed “just that one tiny spot.” I’d be obsessing and fretting about that for years and years. So I chose to burn the bees and their entire home.

I would easily pay the \$70 each in equipment for bottom, box and top, not to have to burn my colonies. I’d probably pay ten times that. Maybe more. But there was nothing else that I could do, so I burned those pieces with them, as they are only wood and at this point I’m burning my bees. There is also a piece of me that thinks of my bees as I do my other pets—and that piece says my bees belong inside a hive. They live in the hive and they’ll die in the hive and

they'll go to honeybee heaven with their box, top and bottom with them. Anything else would be really scary.

And fortunately for me, none of the other colonies in either of the two apiary locations (or any of my other locations) showed any signs of the disease.

Tony Jadczak came through and checked every frame of brood in every colony. He was fantastic. Nine-and-a-half hours of straight colony inspections—we looked at over seventy colonies. Lucky for me, the two colonies I'd identified as AFB infected were the only two that were.



I am now treating every colony in the yards with infected colonies with Terramycin in case there may have been some drift from the infected colony prior to my removal. Terramycin kills the active bacteria—so long as the bacteria is not allowed to become vegetative (scale), it can be eliminated with antibiotic use.

So nature has taught me another lesson. I will never again look at another frame of brood without specifically looking for the signs of AFB. This experience has honed my sight on this disease and its symptoms. I hope that you might benefit from my descriptions. And most importantly, if you find signs of disease in your colony that fit the description of AFB (or you are not sure), contact your beekeeping mentor, your local Master Beekeeper, or Tony Jadczak. Reduce your entrances, and seek help.

The epitaph to the right is adapted from a poem written by Lord Byron concerning his Newfoundland Dog. I have always found it fitting and comforting when putting down a pet (I have two Newfies myself), but it is particularly fitting in the case of the honeybee colony. ■



CLOCKWISE FROM LEFT: Testing for AFB by inserting and slowly removing a toothpick from a sample cell; incinerating contaminated bees and hive furniture; the destroyed hive's headstone.

Epitaph to a Honeybee Colony

Near this Spot
Are deposited the Remains of a Family
Whose members possessed Beauty without Vanity
Strength without Insolence
Courage without Ferocity
And all the virtues of Man without his Vices
This praise which would be unmeaning Flattery
if inscribed over human Ashes
is but a just tribute to the Memory of
Some of the Hardest Workers who ever Graced this Earth,
A Colony of Honeybees
Born in Maine, Spring 2009
And destroyed in September, for fear of spreading disease
that the Bees could never Conquer.
Though they would do their Best to Try.

SARE Grant Colony Update 9/22/09

by Erin MacGregor-Forbes, Master Beekeeper

Like all Maine colonies, the SARE grant colony project is heading towards Fall. In my last update, I talked about our progress through July and gave first data points regarding mite counts obtained through various methods for the colonies in the Biddeford yard. In this article, I will continue to focus on the Biddeford yard and discuss what has been happening in August and September.

First, I'd like to talk a bit about my management of and reporting on the colonies. We've had an incredible amount of swarming and superseding, primarily during the first part of the year due to the rain in June/July and associated congestion. This has complicated management of the yard and also created two additional categories of colonies for final reporting—"swarmed overwintered queen" and "swarmed package queen." Queen origin is a major part of our project and unfortunately, we were not always able to control who ended up heading our colonies. But we're working with what we've got, and there's not much we can do to change the weather or the way the bees react to it.

I also "semi-disqualified" the #16 colony from the group, due to high viral load. By this I mean that I treated this one colony differently than all of the others. I did not remove them from the group or segregate them from the yard, I simply assisted them in a way that I did not assist the remaining colonies. For this reason, they will be segregated in reporting, as they had advantageous beekeeper intervention that the other colonies did not receive.

In late June I contacted our State Apiarist Tony Jadczyk regarding a brood disease I felt I was seeing in the #16 colony that I could not diagnose. I sent photos but Tony wasn't able to make it to check the yard until late July due to weather and time



Master Beekeeper Rick Cooper inspecting the Biddeford SARE yard.

constraints. When Tony did come check, he diagnosed the colony as having "snot brood" which he suggested is most likely viral (Cashmere Bee Virus?). The colony was visibly weakening with each inspection I made. As of July 28 there were still six frames of undrawn foundation in the second box and the brood pattern was becoming increasingly spotty. Understanding that antibiotics will not help cure a viral condition, I decided to do the only thing I could think of to help the colony—remove all nutritional stress. So I started feeding the bees.

After Tony Jadczyk's inspection visit, I started feeding (July 28) and continued feeding for 2 weeks, totaling 3.5 gallons sugar, plus one large 1 lb. pollen-substitute patty. As of my most recent inspection, the colony has fully bounced back and I have seen no sign of "snot brood" or other brood problems in the colony since late August. All ten frames in the upper box are now drawn and they have ample stores for winter. #16 appears to be recovering and is certainly way ahead of where they would have been without the feed assistance. Left to fend for themselves as the other SARE colonies were, I have no

doubt that this colony would not have made it through the fall. As it is, I feel they now have a good chance to make it through the winter.

As for the SARE yard in general, of course there is the subject of honey! Several of the colonies actually did make some surplus. The details are graphed at right. Our minimum wintering setup here in Maine is typically two deep hive bodies. For those colonies that also made honey in supers, we are wintering in two deeps, plus one medium box. We feel the additional medium of honey will help avoid the need for late winter/early spring feeding and hopefully reduce our mortality rates. A couple of colonies made and stored even more than that first super, and that is what we harvested. We estimate the one medium super of honey we left on each hive as 35 lbs. Total harvest for the Biddeford yard was 282.9 lbs.; total honey production, including the honey left on producing hives, was 492.9 lbs.

I began preparing to treat for Varroa in early September. I inserted Vaseline-coated bottom boards in all of the colonies and left them in for four days (September 6 - 10).

I counted mites on the afternoon of the 10th and found extremely high mite loads in several of the colonies (#15 dropped an astounding 933 mites in 4 days!). None of the colonies were anywhere close to a non-treating level. I also did a follow-up 24-hour mite count September 10 - 11; this count was following a daytime inspection of all of the colonies where smoke was used. After work on 9/11, I installed the first treatment of Apilife Var. I installed the second treatment on 9/18 and plan to install the third treatment of wafers on 9/28.

The graph below shows the initial four-day natural mite fall counts (the colonies were not disturbed or smoked during these four days), and the 24-hour mite count September 10 - 11. It also shows my overview assessment of population and strength, as well as the number of honey supers on prior to treating.

After much discussion, Larry and I have decided that we will use Fumagillin antibiotic in the colonies prophylactically this fall. It is important that we treat all of our colonies as similarly as possible and that we follow

recommended management practices for our area. Considering the stress that all colonies went through early in the summer and the high levels of mites and other pathogens in several of the colonies, we feel it is important to give our bees all of the tools available to stay healthy, and that includes the antibiotic Fumagillin to combat Nosema.

So once the nectar flow has shut off due to hard frost, each colony will be given one gallon of 2 : 1 Sugar Syrup with Fumagillin. Considering the extraordinary fall flow in our area and the current levels of backfilling in the colonies, I am not sure that they will all take the medicated syrup, but we will try to get them to take and store it.

In June, July and August, I did a lot of my work with the SARE colonies in the evenings after work. I could just barely get through a quick inspection of all the colonies between 5 and 7PM or so, when the bees would be just “done” with having me fooling around in their home. Now, on September 23rd, I’m lucky if I can inspect one or two after work. The bees don’t have

patience for me at 5PM anymore. They are settling in for the evening starting around 4:15PM. In the last several weeks they’ve also begun ejecting drones—both adults and drone larvae. Every morning there are quite a few dead drones (and workers as well) on the landing boards. So I’m relegated to day-time inspections on the weekends, or quick checks of one or two during my lunch. The season is winding down for all of us. Our plan is to not wrap the colonies, and instead rely on the dark-colored paint we used from the outset to give that extra solar gain the bees will need in the late spring. We will install homasote insulation/moisture absorbent boards between the inner and telescoping covers in all of the colonies.

We have also put in all of the Screened Bottom Board inserts as part of our mite treatment strategy (keeps the fumes in the hive) and we will leave the inserts in until spring (except for checking the colonies).

I am starting to miss my bees already. 🐝

Colony	Mite Info/Population/Honey Supers				Honey Production	
	9/6 - 9/10/09	9/11/09	9/10/09	9/10/09	9/6 - 9/10/09	9/10/09
	96-hour Natural Mite Fall	24-hour Mite Count	Population Assessment	Number of Supers	Honey Harvest (lbs.)	Honey Left on Colonies (lbs.)
14	133	17	low	1 - empty	0	-
15	953	310	very high - virus!	4	104.7	35
16	178	58	low	0	0	-
17	266	112	high	4 - 1 empty	74.8	35
18	97	16	low - weak	0	0	-
19	226	76	moderate	2	34.2	35
20	34	4	low - new queen	0	0	-
21	240	106	high - strong	3	69.2	35
22	129	71	moderate	1	0	35
23	448	86	moderate	2	0	35
					282.9 + 210 =	492.9 lbs.

Over-Wintering Preparations in Maine: Inspector's Comments

by Tony Jadcak, Maine Apiarist

What a summer! In case you missed it, the summer of 2009 featured weeks of relentless rain, drizzle, clouds and cool temperatures during the months of June and July when honey and hay crops are normally produced. Unfortunately, even on the rare day when it wasn't raining and the sun appeared for a few hours, temperatures were too cool for nectar secretion from important honey plants such as clover and raspberry. To make matters worse, the weather conditions contributed to excessive swarming during the rainy months and also during August and September when the rain stopped and the honey flow finally materialized.

Beekeepers in southern Maine and along the coast fared better than many beekeepers located in central and northern areas of the state. Plants such as purple loosestrife, jewel weed, goldenrod and bamboo had both excellent nectar production and great weather for the bees to make a honey crop. Hives in central and northern areas produced a late clover (red) and goldenrod honey crop that provided bees with sufficient stores for wintering purposes and also a respectable surplus. There wasn't a bumper honey crop in 2009, but the disastrous situation facing bees and beekeepers in mid-summer turned for the better. For the most part, hives are in pretty good shape this fall and have good prospects for wintering success, provided they have sufficient bee populations, are disease-free, are headed by vigorous queens, and have Varroa mites in check.

By now, most beekeepers have removed their honey supers and have commenced supplemental feeding where needed and

applied Varroa mite treatment. At this time of year, the bee cluster and remaining brood should be situated in the central part of the lower hive body with a frame or two of honey flanking the cluster in the lower box. The upper hive body should be full of honey.

Fall Feeding

Hives light on honey stores need supplemental feed in the form of sugar syrup and/or additional honey obtained from another disease-free colony. If it is necessary to feed sugar syrup, the addition of Fumagillin is highly recommended, given the prevalence of Nosema found in surveys conducted in 2007 and 2008. Read the Fumagillin label for proper dosing and remember that *Fumagillin rapidly degrades in light*. Fall sugar syrup is mixed heavy (2 sugar : 1 water), which is more "honey-like" than syrup fed in spring (1 sugar : 1 water). It is best to feed the syrup above the

Helpful Syrup Chart, pg 14

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colony via gallon jars or plastic feed buckets inverted over the inner cover escape hole where bees can consume it day and night when temperatures permit. The boardman feeders are the least efficient means to feed hives, especially in cool temperatures and when antibiotics are being administered. Try to have all supplemental feeding complete by mid-October so the bees have time to invert the sugar and remove excess moisture.

Varroa Treatment

In our area, fall is the best time to treat colonies for Varroa. It is at this time that the Varroa are most vulnerable to treatment since the majority of them are on adult bees due to the reduction/cessation of brood-rearing. In addition, a fall treatment usually ensures that a mite treatment will *not* be necessary during the following spring or summer when brood rearing is highest and hives are stacked with honey supers. My advice is to *treat hives during fall* even if the Varroa populations aren't currently at

damaging levels because if you don't, the infestation levels will be critical the following summer when treatment has limitations.

Unfortunately, there is no "silver bullet" or "wooden stake" for these vampire mites. Beekeepers must pick their poison or a biomechanical summer mite management strategy for adequate Varroa suppression. There are currently five pesticides registered for Varroa control and all have limitations. For example, the plastic strip formulations (Apistan & Checkmite) have limited efficacy due to mite resistance to the active ingredients (fluvalinate & coumaphos). Fortunately, this summer several beekeepers reported excellent control with Apistan after several years of using rotational miticides. The only way to know if your mites have reverted susceptibility to Apistan or Checkmite is to treat and check mite detection boards 1-3 days post treatment. If mites fall by the hundreds or thousands in this short period, it works. At present, beekeepers are

getting good Varroa control with Mite-AwayII (formic acid pad), Apilife Var (thymol, eucalyptol, camphor, menthol wafer) and Apiguard (thymol gel) provided they are used according to label and ambient temperatures fall within the acceptable treatment range.

Wrapping

After supplemental feeding and Varroa control is complete, beekeepers should consider the use of commercial or home-made winter wraps and most important, a means to control excessive hive moisture.

If you choose to

winter hives via wrapping, it should be done during mid-late October through November.

One easy and inexpensive hive wrap is 15# tarpaper. Roll-out and cut a 78" to 80" length of tarpaper and then cut it in half length-wise. That way, two hives get wrapped per cut. Pick a sunny and relatively warm day so the tarpaper folds and doesn't crack or tear. Start at the back of the hive and align the white line (that was near the center of the tar paper) with the rim of the inner cover so the tarpaper is square on the hive. Affix the tarpaper with three or more 3/8- or 5/16-inch staples at the bottom of each side of the hive so bees can't crawl under the tarpaper. If auger holes are drilled into the hive bodies, make sure the holes are punched out and four staples are inserted around the hole, again so bees aren't trapped between the tarpaper and hive body.

Moisture Control

Perhaps the most important factor for successful wintering of bees in the north concerns moisture. **Excessive moisture contributes to winter hive mortality and promotes dysentery.** Moisture problems arise due to condensation of water vapor on the inner and outer covers due to the temperature gradient. When water droplets form on the bottom of the inner cover, they eventually drip on the bees—this contributes to freezing and can't be tolerated. Therefore, the bees are forced to consume the water droplets, which in turn cause dysentery. There are several ways to combat the moisture issue. Many beekeepers use Styrofoam which acts as insulation, preventing the formation of water droplets. Other moisture-control strategies include the shaving-box method where a super full of wood shavings, insulation or crumpled newspaper is placed above the colony. The bottom of the shaving box has burlap, screen or a queen excluder to keep the materials in the box. Other moisture control strategies include: fiber board (known as insulation board, white painted board, sound board, ten test, natural KV board) which resembles ceiling tile and is made of cellulose without

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OVERWINTERING...CONTINUED FROM PG 9

the perforations, and newspaper. The advantage of fiber board and newspaper is the fact that these materials act as a sponge and the water is available to the bees when they need water vs. randomly dripping on the cluster in frigid temperatures. The fiber board is situated above the inner cover (summer position, flat side down) after the hive is wrapped with two strips of lathe placed at the front and rear on top of the fiber board. The telescoping cover is then

placed above the board and lathe. Finally, newspaper (yes, the whole newspaper) provides excellent moisture control when placed between the outer and inner covers. Like the fiber board, the newspaper acts as a sponge to contain the excess moisture.

In Conclusion

Given our summer weather, Maine beekeepers and their bees are in pretty good shape headed for winter. Beekeepers who

paid attention to hive management basics should fare well this coming winter provided the bees are queen-right, diseases and mites are kept in check, adequate stores are available, and the hives are protected from the elements and free of excessive moisture. The only other factor regarding wintering success concerns timely cleansing flights during the winter, which brings us back to the weather! ■

Master Beekeeper Program

by Brian W. Howard

On August 22, 2009, I and 25 other beekeepers from across the Northeast met at Betterbee, Inc. in Greenwich, NY to attend the Fall Apprentice Level Course workshop in Cornell University's Master Beekeeper Program. The Spring Apprentice workshop was presented in April and is a prerequisite to the fall workshop.

The fall program is to provide insight into the summer, fall, and winter goals of beekeeping management and was conducted by Nicholas W. Calderone, Associate Professor of Entomology at Cornell. Doctor Calderone holds a Doctorate in Entomology/Apiculture from Ohio State University. Dr. Calderone wears other hats in addition to his Cornell status. He is a Research Entomologist with the USDA-ARS Bee Research Lab and has been a beekeeper since 1972.

Cornell's Dyce Laboratory is located in Ithaca, NY—the Master Beekeeping Courses are also given there, but the Betterbee location saves a

little travel for attendees coming from the New England states. New England roads are scenic, but somewhat slow across the North Country. Betterbee is also a supplier to the beekeeping industry, so the location provides an opportunity to pick up needed supplies, thus saving the cost of freight on those items.

The morning session was devoted to the workshop manual and dealt with pest and pathogen management, getting the supers ready for removal, choosing combs for extraction, and methods of getting the bees out of the supers. The morning session finished up with getting colonies ready for winter. Lunch was of the bring-your-own variety, although beverages were provided.

The afternoon session began as the group assembled with their veils in Betterbee's bee yard to choose supers and combs for

extraction, and to look for any disease in the colonies opened. Smokers and hive tools were provided. Some chalk brood was found in one of the colonies.

After selecting enough frames to fill four or five supers, it was back to the kitchen where Betterbee's Justin Steven had already set-up uncapping and extracting equipment for extracting honey from the selected frames. Uncapping was done into the usual tub, utilizing a cross-member with a nail to hold the frame. Extracting was done using the Deluxe Compact Extractor that several bee suppliers, including Betterbee, offer. This extractor holds two deep, or four medium or small frames. The beauty of this extractor lies in the integrated filter and bottling tank that is built right into the unit. This unit is *not* motorized and no motor can be added—it is a hand-crank machine. The hand-crank feature was not a problem with twenty-five willing pairs of hands to turn the crank. We all had a crack at uncapping and extracting.

With only one day to cover such a broad subject, something has to get short shrift, but all in all, this workshop is worth the effort to get there. I found that from Maine, it is a little bit much to drive either one way or the other *and* attend the workshop—in one day. With multiple drivers to spell each other though, there wouldn't be any difficulty in reaching this worthwhile program.

Program information can be found at www.masterbeekeeper.org. ■



Dr. Calderone explains fume board operation.



THE BACKYARD BEEKEEPER: What a Difference a Year Makes by Matt Scott

Last year was a record for me and this year was wet, wet, wet—and for the 137 years on record, it was the wettest with 27-plus inches of rain for May, June, July and August. Southern Maine was the wettest, with Northern Maine being spared. Lots of late blight for tomatoes and potatoes took place on farms where it had never before occurred. Farmers struggled with their hay crops and most only had one cutting. Well, we “bee farmers” too—I talked to Tony Jadczyk and he saw a number of beekeepers who struggled with the rain.

So what does this all mean? Good question, for which I do not have the answer. Is it all part of climate change and global warming, or is a one-season weather phenomenon? Speculation on my part, but record-keeping does tell me something: based on Great Northern records of snowfall, we seem to be in a 10-year wet cycle of rain and

snow. The past three winters have seen significant snowfall and cold. Our wildlife experts who also keep lots of records for the deer wintering-area stations show how these past three winters have restricted deer movement and mobility in the deer yards, resulting in management rules to limit the doe harvest due to winter losses.

What does this have to do with beekeepers? I believe quite a lot, as we have seen our bees being restricted due to rain. That means confinement and the use of stores to feed the many mouths still being born, whether the bees get out to forage or not. Hive confinement can lead to lots of things, such as mite development, spreading to bees that normally would fly off with mites and reduce hive contamination. These periods of confinement mean no nectar collecting by the field foragers, resulting in no surplus honey for us beekeepers.

Now there may be some of you who escaped some of the rain, but I doubt very many of you enjoyed this wet spring and summer. My bees, only five colonies, did not do well. Last year I quoted to you all that I had a record crop for me, and this year, based on my last measure this week as I finished extraction, resulted in 31 pounds per hive. That is an average year for this area, but I have had years with 20 pounds per hive, so I guess I should not complain about the crop I did get.

I hope we all do better next year, but the weather prediction for this winter is more snow. Good luck as I am preparing my hives for winter—treating all for mites, and planning to wrap them in October. Have a great winter!



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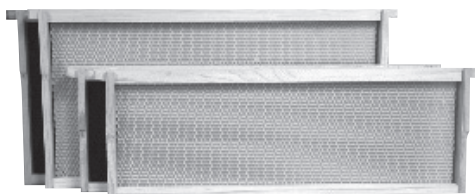
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The Virtues of a Well-Chosen Paint Color

by Erin MacGregor-Forbes, Master Beekeeper

The key to its solar gain is the dark color of tar paper. If your hives are painted in dark colors (navy, dark green, brown, etc.), you will attain the solar gain *via the paint alone*.

White hives are for Georgia! In Maine, rich colors are fine. Down south, they have months on end when the bees are needing to *cool* the hives, and the white helps with that. Up here, if the temps hit 90° for 7 or 10 days, it is unusual. And the bees can handle that easily—even with dark-colored hives, especially if they are on screened bottom boards and so can ventilate the hive freely. White hives are for areas where the 90s last from June to August.

Up here we need our bees to have the benefit of solar gain most of the time. Bees need 80° to manipulate and secrete wax properly, to cap the last of the honey in the supers. There are not a lot of 80° days in the Maine year.

And as for wind, there is no need to duct tape or otherwise seal up cracks, as that's what God made propolis for. (Okay, so *bees* make the propolis, but you know what I mean...) As long as you aren't breaking your boxes apart constantly in the fall, the bees will have the propolis project going just fine to seal up the cracks in the sides.

So my advice is this: if your hives are light in color, wrap—and next year, give them a nice coat of dark paint. But, if your hives are already dark in color, don't worry about wrapping.

Do also focus on getting some homasote or other moisture-absorbing material up between the inner and outer covers (do that for light-colored hives too, after wrapping with tar paper).

Screened bottom boards now in place for treating with Apilife Var or Formic can be left in the hive for the rest of the winter.

Keep your bees DRY—they do a fine job of keeping themselves warm pretty much on their own, as long as we aren't working against them by painting their hives white.

A Closer Look at Winter Wrapping

by Larry Peiffer

The winter wrap debate seems to continue even after much research and testing has been done on its behalf. The Canadians have put a number of different types of winter wraps to the test. The benefits have been great for most wraps, although one has fared much better than the others.

The wraps that were dark in color raised the temperature in the hive on sunny days, allowing the bees to expand their cluster. When the outside wrap warms up, the heat loss is cut down in proportion. That in turn raises the internal temperature or makes it so the bees can conserve their honey in making their own heat. This has also been researched and tested with heat probes throughout hives in the winter. The inside temperature in the corners of the hive vary greatly from where the cluster is. When the hive warms or bakes in the sun, it allows the bees to go further away from the cluster to get more honey. They get the honey and bring it back to the cluster to feed one another and the winter brood. In some cases it allowed the bees to relocate the entire cluster. That could mean survival for some hives.

The myth about the bees being tricked by the warmer inside temperatures was also addressed and researched. It was found that the bees go to the entrances and check the outside temperature before they leave the hive. This experience could be compared to yourself sticking your foot into the ocean before you jump in. The bee has many sensing body hairs that detect temperature, air current, etc. It was also discovered that the bees found dead outside

of the hive left because they knew their time was up, not because they were caught in a colder outdoors than they had expected.

Several wrap types studied were waterproof, adding water and snow protection to the hive. They were also found to be superior to those that allowed air and moisture to pass through them. These same wraps also acted as added windbreaks. It was also found that these wraps provided an additional vapor barrier that helped ward-off moisture from the hive.

A concern found for using solid insulation systems (such as styro-foam) in conjunction with wraps was when the hive temperature dropped. The bees used larger amounts of honey in trying to raise the temperature. This was because the insulation worked against the bees, keeping the hive cool instead of allowing them to warm it. The bees had more mass to heat up to get the interior warmed.

The original experiment by the Canadians consisted of five different wraps. The one that was consistently best in all tested categories was felt tarpaper. One piece, 78" to 80" and cut down the middle, will cover two hives. The cost amounts to approximately \$1.50 per two hives. One of the original researchers now points out that he has used the felt tarpaper ever since the tests were conducted 18 years ago and hasn't lost a hive since. So, it's an inexpensive investment for the added protection that it gives your hives.

Sources:

Tony Jadcak at the York County Open Hive Session, Sept. 12, 2002; also presented in his EAS Short Course given in 2002, "Winters don't get much worse than those in Maine."

Wintering Practices Effects, from Medhat E. Nasr, Ph.D., IPM development reports to the Apiculture and Pollination Sub-Committee of the Ontario Horticultural Crops Research and Services Committee (OHCRC) of the Ontario Agricultural Services Coordinating Committee, 1991 and 2000.

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	1 lb. (2 cups) sugar : 1 pint water 8.5 lbs. sugar : 1 gallon water	2 lbs. (4 cups) sugar : 1 pint water 17 lbs. sugar : 1 gallon water
Dissolving Sugar in Water	The larger amounts can be mixed in smaller portions, as the <i>water</i> needs to be heated on the stove to dissolve this much sugar in that much water. Heat your water <i>before</i> you add your sugar. DO NOT OVER-HEAT THE SUGAR, THUS CARAMELIZING THE SUGAR AND CAUSING DYSENTERY IN YOUR BEES!	

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Jan 20 – Apr 21, 2010

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(registration: 6PM on first night)

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Instructor: Master Beekeeper, Erin MacGregor-Forbes

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BUZZINGS

Submit all announcements and news at least 15 days prior to publication date (see page 3).

Topsfield Fair, Topsfield, MA

Oct 2 – 12, 2009

Highlight: the beekeeping building is open every day!

FMI: www.topsfieldfair.org

Western Maine Beekeepers Annual Christmas Party

December 1, 2009

New Hampshire Beekeepers Fall Meeting*

Oct 10, 2009, 9AM – 3PM

The Moles Hill Theater

\$20/member (\$30/non-member), includes lunch

*Reservations needed.

The NHBA is pleased to announce that Kirsten and Michael Traynor will be speaking to the association.

Kirsten is a regular contributor to *American Bee Journal* and is currently writing a series of articles for *ABJ* aimed at new beekeepers.

Michael is a commercial and fine art photographer and has amazing bee photos, also published in *ABJ*. Michael will be sharing Tips and Tricks for aspiring Bee Photographers.

Kirsten will present 2 topics:

- German Hive Rotation: The use of splits to minimize varroa, maximize honey production and ensure winter survival.
- Bee Breeding

We also hope to have Erin Forbes join us again to update us on her SARE grant project and give us a review of the recent EAS meeting in NY.

York County Beekeepers Monthly Meetings

2nd Monday of each month, 6:30 – 8:30PM

Note: due to the increase in club size, we will now meet in the Sanford Jr. High School Library, which is right next to the Middle School (where we had been meeting) with three-times as much parking.

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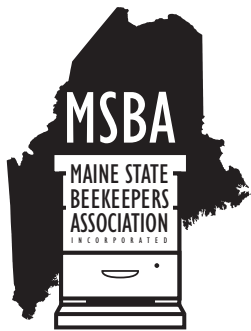
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