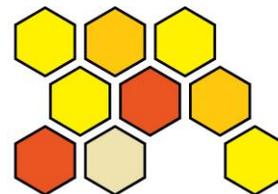


# *Apis Shrugged*

(The RIBA Newsletter)



October 2019



Photo: Emily Langlais

**F**all is my least favorite season as a beekeeper. During the spring and summer you know another nice day is right around the corner, but in the fall it feels like you're racing against the clock. Who knows when our unpredictable New England weather is going to take a turn for the worst? Those end-of-the-year tasks-feeding, final mite treatments, combining weak colonies, etc -can't be put off. For a natural procrastinator like myself, it's challenging. This time of year is when I most feel the profundity of the commitment we have made to the creatures under our care. We have a responsibility to ensure our bees are healthy, to be sure they have adequate food, and to be sure their homes are dry and protected. A bad choice at this time of year can have dire consequences; sometimes it can feel like you're rolling the dice, with survival of the colony as the stakes... But then on a sunny March day you crack the cover and see a big, healthy cluster of bees, buzzing with all the potential promise of a fruitful spring to come, and it makes the previous four or five months of uncertainty all worthwhile.

Hopefully this issue of the newsletter helps you sort out some of the questions you may have as winter rapidly approaches. The emphasis has been placed on the underlying conditions that need to be managed, rather than trying to prescribe a specific recipe for the perfect winter hive.

This will be my final newsletter as editor. I want to extend a warm welcome, and huge thank you, to Ed Szymanski, who will be taking the reins on the next issue. Ed has been a frequent contributor and his excellent photos, clear writing, and proven beekeeping expertise make him an ideal choice to bring the newsletter into 2020. His new ongoing feature "Ask Five Beekeepers" begins in this issue.

-Scott Langlais, RIBA VP

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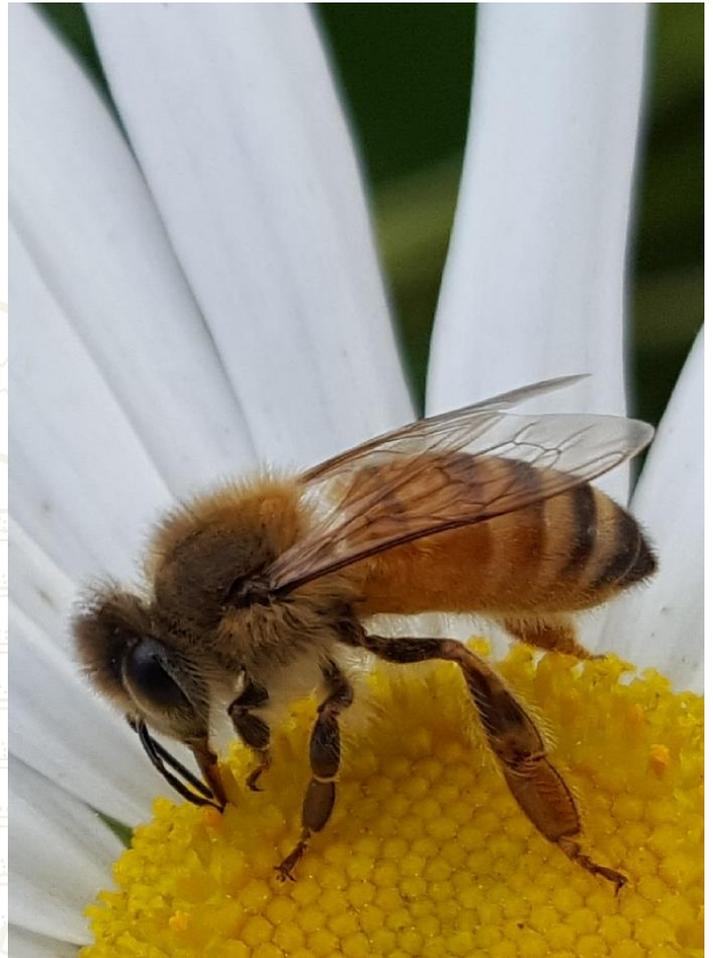
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*-Scott Langlais*

## **The RIBA LIBRARY**

*100+ Titles and growing!*

RIBA is constantly adding to its collection of beekeeping literature, comprised of the most up-to-date works on a wide variety of subjects. These books are free to borrow for any valid RI library card-holder.

The books you want can be picked up from whatever branch is most convenient for you. Simply navigate to <https://catalog.oslri.net/> to begin your search. Enter keyword “RIBA” and narrow the focus to Greenville.

Accompanying photos are by the respective authors,  
except where noted.



## ***Winter Prep, Simplified***

**M**y original intention in this article was to write the proverbial *Final Word* on wintering. I would collect all the far-flung data and observations of the best beekeepers and scientists then distill that information down into its clearest, most concise form. Winnow away all the chaff so that what was left was truly indispensable. Not only that, but break it down by hive style and configuration so that each specific iteration of the hive is described in terms of minimum amount of bees and stores, all supported by the most reputable sources. While it might not answer every question about wintering, anything left unexplored could essentially be deemed irrelevant. It would be the last article on wintering you'd ever have to read.

*Clearly I had lost my mind.*

The task I had assigned myself didn't just exceed the scope of *my* experience and abilities, it was most likely literally impossible. The specifics of how to best overwinter bees are among the top perennial confusions among new beekeepers. It can be challenging to give unrestricted recommendations because there is so much variation in both hive style (Langstroth, top bar, Warre, AZ, etc.), as well as configuration (number of boxes). Even in our own modest home apiary we have successfully overwintered: double deeps, single deeps, double deeps with a medium, triple deeps, single 5 frame nucs, and 5-over-5 frame nucs. The options beyond that list are legion, each with its own advocates and opponents. Many of the recommendations I found lacked a strong sense of context, or accurate descriptions. Some trusted sources seemed to contradict other, equally trusted, sources. The more research I did, the more I realized nearly any configuration a beekeeper can think of can probably be made to work. It's not so much about prescribed quantities, weights, and minimums, as it is about achieving the proper balance of what goes in the box. People desperately want specifics, but there's no magic amount of honey that will keep your bees alive through the winter if their health has been ignored, or if there are too few bees to form an effective cluster.

So let's start with what is universally important. There are two aspects of the hive that are of paramount concern:

1. A strong population of healthy winter bees
2. Ample food stored in the proper place

Other conditions need to be managed as well, but if these first two requirements are met, the rest can almost be approached as an afterthought.

### **Healthy Winter Bees**

*"Don't focus on the box, focus on the bees." –Dr Meghan Milbrath*

The importance of so-called "winter bees" (the technical term is *diutinus*) cannot be overstated. These are not merely bees that happen to be alive at a certain time of year; they have specific physiological differences from the bees born earlier in the season. Among their adaptations, winter bees have enlarged fat bodies, an organ that is akin to the human liver. Fat body serves a host of critical functions: longevity, immune response, pesticide detoxification, temperature regulation, and more. Perhaps most notably, it is where *vitellogenin* is made and stored. This substance serves as a reserve protein source when brood rearing resumes in winter, when pollen may be in short supply or inaccessible due to cold. High levels of vitellogenin are what specifically allow winter bees to live for several months in the winter cluster, as opposed to the +/-6-week lifespan a worker may experience during the summer. Randy Oliver calls vitellogenin "the Fountain of Youth for honey bees."

Our winter bees are being reared at a dangerous time. As fall approaches, mite populations are peaking. Drones are evicted from the hive, and varroa are making the switch from drones to workers as hosts just as winter bee production begins. These are the bees that will make up your winter cluster and they need to survive our long, cold New England winter. It is imperative that they be as healthy and varroa-free as possible, but they are invaded by varroa just as their production is ramping up. Beyond the viruses that they vector (probably the most severe overarching threat), recent research shows that varroa feed on fat bodies, not hemolymph, as previously thought. Accordingly, the consequences of unchecked varroa to our developing and adult winter bees should be obvious: reduced lifespan, reduced ability to feed brood, reduced ability to regulate temperature and a myriad of other health problems.

Dr Sam Ramsey reminds us "the amount of fat body a bee emerges with is the maximum amount she will ever have," so we need to protect our winter bees *before* they are infected by varroa, not merely treat them at an arbitrary later date. The timing here is key—a late fall mite treatment may kill a tremendous amount of varroa, but if those same mites have been feasting on your winter bees for weeks unchecked, the bees are already compromised and may not be healthy enough to survive till spring. Check your mite counts regularly and treat promptly when thresholds indicate it.



*Mite damaged bees in a winter deadout.*



The final aspect of hive health that I want to mention is the presence of a young, healthy queen. I include her here, rather than as a separate bullet point, because no hive can truly be said to be “healthy,” in my opinion, if there is a queen problem. A failing queen over the winter would clearly be catastrophic, so it makes sense to take preventative measures in advance of a potential issue. Colonies with an older queen, even if she is still productive, may benefit from queen replacement. A young well-mated queen will provide a needed boost in brood production at a critical time of year, as well as potentially being less likely to swarm in the spring to come. Dan Conlon, President of the Russian Queen Breeders Association, recommends requeening in August, not in fall as many others do. His reasoning is that a queen’s relatedness to her offspring enhances winter survival, so requeening earlier allows the new queen to stock the hive with more of her own daughters before the cluster forms.

### **Winter Food Stores**

*“For the small, backyard beekeeper, like myself, I believe the best option is to leave an over-supply of honey in the hive after the nectar flow is over in the fall.” (Connor 167)*

Colony starvation is a legitimate threat over winter. Unlike many other insects, honey bees do not go into a state of diapause (what we might think of as hibernation) during the cold months. In the northeast, floral sources are absent for the most part between November and February, but food is still a necessity; honey for the carbs needed to convert muscular activity into heat, and pollen for the protein needed to make brood food once egg production resumes around the time of the winter solstice. Hives should be checked for adequate food stores around the end of the fall flow and fed as necessary. I look for about a 3:1 ratio of frames of honey to frames of bees in a double deep hive, about 2:1 in a 5-over-5 frame nuc or single deep. Emergency (or insurance) feed may also be added later to light hives if required. Distant outyards, or locations that may become inaccessible in the winter, should err on the side of caution when stores are being assessed, since opportunities for emergency/supplemental feeding will be limited. Backyard hives, on the other hand, can easily have emergency feed added.

WHERE a resource is in the hive is just as important as HOW MUCH of that resource is present. Honey, pollen, drawn comb, and the bees themselves are the “resources” we are concerned with here; they need to be present in the proper ratio to each other, as well as located in the optimal physical location within the hive. We have probably all seen deadouts where a cluster of bees starved, while full frames of honey were only inches out of reach. For vertically oriented hives, a typical configuration going into the winter will have the cluster of bees in the bottom of the hive, surrounded by honey/pollen on the sides and directly above. Frames can be rearranged in the fall

if, for instance, brood frames were directly adjacent to the outer wall of the hive, or brood frames were in the top box with full honey frames below. The cluster will move up over the course of the winter, eating as it goes. If temperatures allow, the cluster may be able to disperse enough to access honey that would otherwise not be within easy reach, moving laterally rather than strictly up/down. This can have unintended consequences; when temperatures fall again and the cluster reforms, it may find itself stranded in a location with very limited resources. If honey isn't located directly above the new location, emergency feed placed above the cluster can mean the difference between life and death.

### ***Insulation, Hive Wraps, & Other Home Improvement Projects***

*“Colonies can survive very well without elaborate wintering preparations by the beekeeper as long as the bees are protected from winter winds and they are able to vent excess moisture.” (Caron 213)*

Ok, so you have a healthy population of bees and ample stores, now what? Essentially: keep them dry and keep them out of the wind. How you do that is a matter of personal preference and will probably have more to do with what you were originally taught rather than what is best. “Some conditions continue simply because *that is how it is done.*” (Ibid) And that's not necessarily a bad thing, if it works.

In reality, most of the questions on overwintering that pop up year after year tend to focus on minutiae of minimal consequence: whether to wrap hives, whether screened bottoms should be closed, how to insulate, whether the notch in the inner cover should face up or down. For the most part, I think these details are relatively unimportant. The briefest survey of successful beekeepers will demonstrate that almost any of these extraneous precautions can be discarded, or adhered to, with little if any impact on winter survival. Honey bees have a tremendous ability to regulate temperatures within the hive. During the summer this is often seen in the form of bearding, or fanning at the hive entrance--methods to reduce the temperature inside the hive. In the winter, clustering is the primary strategy used to manage cold temperatures. It must be noted that clustering bees are not attempting to heat the entire inside of the hive box; rather they are heating the cluster itself (and any brood that happens to exist within its interior). The cluster begins loosely forming when outside temperatures drop to around 55F and it contracts as the outside temperature falls. This reduces the overall surface area of the cluster, mitigating heat loss through thermal radiation as well as convection. Heat loss from the cluster does warm the air around it, as well as the hive's walls and ceiling (Seeley 224-227), but this is an unintentional side effect of heating the cluster itself.

There are two final points of winter preparation that I do recommend. The first is a mouseguard. I have seen many hives, especially in outyards, severely damaged by mice. They ruin valuable comb and the mess is a pain



*Mouse damaged combs. Photo: Emily Langlais*

to clean up. Mouseguards can be purchased inexpensively or homemade any number of ways; hardware cloth with 1/2" mesh will work. Of course, it is critical to install your mouseguards BEFORE the mice move into the hive; otherwise you are just preventing the mice from being able to leave!

The second item of additional winter equipment that I invariably use is a piece of Homasote board under the outer cover. Many people assume this is for insulation, but its R-value is really quite low (though better than wood alone); in actuality its primary purpose is absorption of condensed moisture before it drips back down onto the cluster. As the bees consume honey in order to produce the heat needed to maintain the winter cluster, they produce a substantial amount of airborne moisture. For every 10 lbs of honey consumed, a full gallon of water vapor is generated (Curie 632). Homasote works great for soaking up this excess moisture before it condenses on the cold ceiling of the hive and rains back down on the bees. It's also cheap, easy to work with, and reusable year after year. An upper entrance will also aid in venting excess moisture, as well as allowing for cleansing flights if the bottom entrance becomes completely iced over.

....

After my initial conception of this article came down to reality, I strove to consciously limit the amount of numbers that I included here. Successful wintering isn't a laundry list of weights and measures. Healthy bees, enough food located in the right place, and a dry hive are the basic concepts we need to manage. It really doesn't need to be any more complicated than that.

-Scott Langlais

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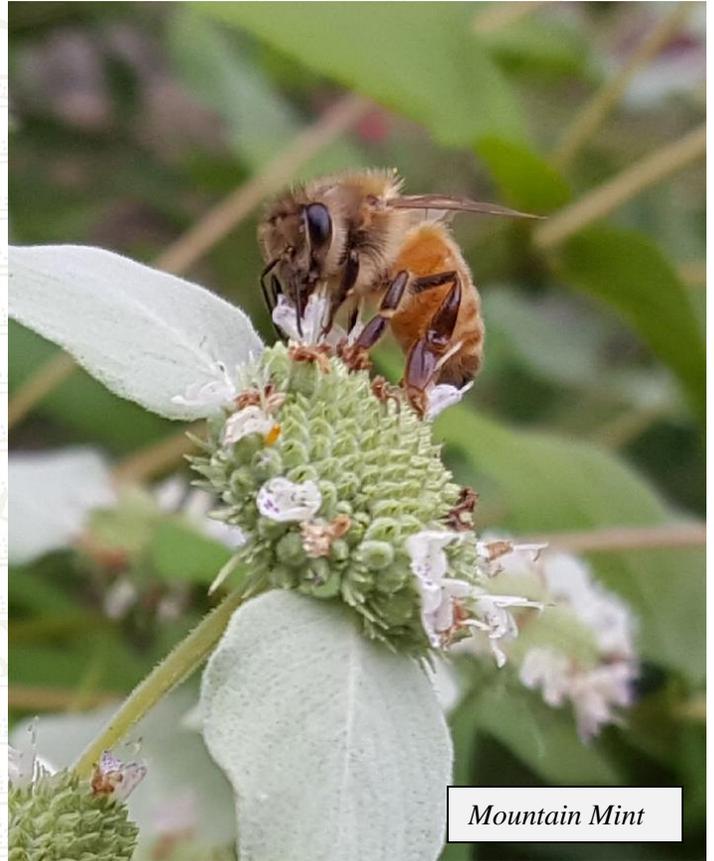
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## ***Beekeeper's Almanac***

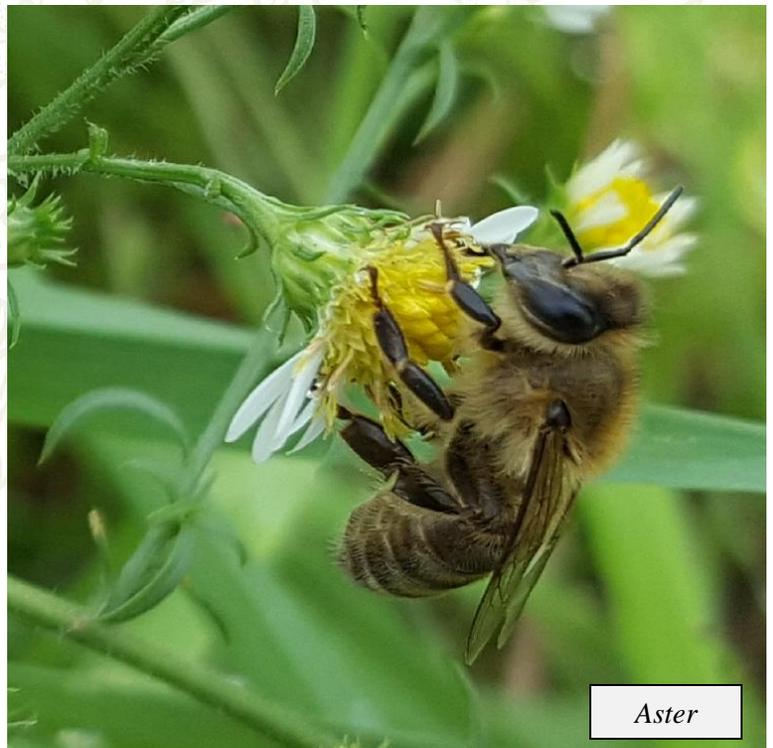
This has been a banner year for honey harvests, with many beekeepers requiring multiple extractions to keep up with strong flows. Even first year keepers with new packages have produced surplus honey in respectable quantities. By late July, goldenrod was blooming in profusion in many locations, contributing to late season flows. Other blooming flowers included joe pye weed, purple loosestrife, mountain mint, meadowsweet, jewel weed, smartweed and more. Early August saw the beginning of one of the most anticipated local blooms—clethra, aka sweet pepperbush. Oregano and mint were extremely attractive to honey bees starting approximately the first week of August. Late August, another potentially important nectar source, Japanese knotweed, started appearing in Johnston, with boneset and sedum around 8/29. Asters begin popping up in scattered patches late in August but were quite widespread by 9/11 north of Worcester and down to Providence. As October begins, goldenrod, smartweed, knotweed, and mountain mint are mostly done. The RIBA



*Mountain Mint*



*Boneset (Eupatorium)*



*Aster*

hive scale in Johnston showed a minor late flow starting around Sept 3 and peaking around Sept 12, adding approximately 10 lbs of weight in that period, then falling off and remaining generally steady the last few weeks. Reports of dearth/robbing are widespread, but bees are still calm in Johnston on 10/14 (both yards).

October will see winter management taking center stage. Supers are off and hives will be checked for stores. Light hives with strong populations of healthy, varroa-free bees can be fed 2:1 syrup to bring them up to winter strength. Be careful about adding Honey B Healthy or other scented feed additives this time of year as it can attract robbers. Hives with weak populations, but otherwise healthy bees, are probably best combined with another healthy hive, rather than trying to limp the “runt” through till spring. Emergency feed (or insurance feed if you prefer the term) in the form of dry cane sugar, fondant, or homemade candy should go directly over the top bars where the cluster can easily access it, NOT above an inner cover. A 2” shim is useful for such feeding. Syrup should not be fed when temperatures are too cold for bees to fly.



Continue to monitor mite levels while weather allows for full hive inspections. Strong, mite-free colonies are still at risk of reinfection late in the year as untreated hives crash and disperse varroa to neighboring colonies through robbing and drifting bees. Keep temperature restrictions of treatments in mind if a late fall/early winter treatment is required; MAQs, Formic Pro, and Apiguard for instance require warmer temperatures to be effective. An oxalic acid dribble can have excellent results during broodless periods and is not temperature dependent. Consult the Honey Bee Health Coalition’s extremely useful website for further guidance:

<https://honeybeehealthcoalition.org/varroa/>



*Wrapping hives in tar paper, winter 2018 - Photo: Emily Langlais*

## **ASK 5 BEEKEEPERS.....**

**W**e all have heard the saying “ask five beekeepers a question and you’ll get five (or six) different answers.” Well, this month we’ll begin a new regular feature in which I’ll ask five beekeepers for a one (or two; you know beekeepers) paragraph answer to a timely beekeeping question. The results should prove to be interesting and informative.

This month, I asked Sara Michaud, Keith Salisbury, Scott Langlais, Cindy Holt, and myself: “What is your winter insulation and moisture control strategy?”

**Sara Michaud:** Our hives will be mostly overwintered stacked bottom to top with a screened bottom board with insert and mouse guard/reducer in place, a deep, a medium, a shim with a 3/8” hole and a prepared sugar block, Homasote (some have a routed groove as an extra entrance or vent), a ½” or 1” piece of foam insulation and the outer cover. The upper entrance will serve as a point of ventilation as the moist warm air rises in the hive. The insulation under the outer cover serves to keep the outside cold temperatures from causing the warm moist air that rises from condensing and dripping back down on the bees. The sugar block and Homasote will absorb the moisture that is not expelled through the upper vents. As we peek at the sugar block during the winter we are also assessing the Homasote board for moisture. If the board feels moist to the touch we will replace it with a dry board.

If time permits, they will all get wrapped with tar paper. If they aren’t wrapped with tar paper, most likely the seams will get duct tape as the propolis seal will be broken upon our last inspection potentially creating a drafty area. The tar paper wrap will serve as a wind block across the seams between the boxes. The black surface will absorb the warmth of the sun during the day. The hives

are south facing resulting in warmer entrances. In the past, the majority of our colonies were found clustered toward the front, south facing entrance during the coldest time period usually in February.

**Scott Langlais:** We don't use any insulation to overwinter our hives. Each hive and nuc has the inner cover replaced by a piece of Homasote board to absorb condensation and prevent it from dripping back down on the cluster. The Homasote has a notch cut in the front of it so that the bees can use it as a top entrance, and to provide ventilation. A friend kindly gifted us some black tar paper a couple of years ago, so we have also been using that as a winter wrap.



I can't demonstrate that it has increased our success, but since I already have it, I use it. In theory, it should prevent the bees from having to work quite so hard to maintain a minimum temperature within the cluster. A side benefit is reducing drafts between boxes that don't fit perfectly tightly after many years of scraping and prying apart. Inserts are replaced in screened bottom boards and mouseguards installed at hive entrances. We also keep a two-inch shim on all hives and nucs (directly under the Homasote) so that emergency feed can be added as necessary. That's our winter hive prep in a nutshell.

**Cindy Holt:** First one must take a shim and place on top of the hive, add dry sugar or sugar bricks. On top of that you must place the virgin wool of a black ram sacrificed by the light of....

Oops, wrong article.

For winter as far as insulation, tar paper wrapped around all hives and fastened with bungee cords. I will do this after Thanksgiving, by New Year's but that depends on the weather. I have a few yards that are difficult to get to once it snows, so that will happen earlier; probably right after Thanksgiving. City hives perhaps later but it depends on how cold it is. I won't wrap if it's too warm.

I will add a shim and sugar bricks. I'm opting for bricks instead of dry sugar as I can move the bricks around so the cluster can easily reach the sugar. In addition, the bricks are easily and neatly removed when I do my oxalic acid dribble treatments (by Winter Solstice and perhaps in January). On top of that I add a layer of duck canvas, which helps with moisture. Inner cover over that so I don't end up with a bunch of inner covers hanging around. I have a few insulating tops, a few Vivaldi boards and a few pieces of Homasote which I will use. (If using Homasote, that goes under the inner cover, over the duck) I like the sugar bricks and duck canvas layers to help absorb moisture. In my outyards I will provide an upper entrance in case of deep snow. In my city hives, I will vent with the inner cover opening but will prevent bee traffic with screen as I do not use upper

entrances in the city. Warre hives have quilt boxes. Under the quilt box goes a shim, sugar bricks and some duck.

**Keith Salisbury:** I do not insulate my colonies. I do not believe it is necessary. What I believe is needed is protection from winds that might steal heat away from the cluster. The box does a pretty good job of that.

For moisture control I've always pitched the hive slightly forward to make sure that any rain or snow melt that gets inside has a pathway out of the bottom of the hive. I do think that I have gone overboard in the past with ventilation. I'm going to be addressing that this winter. I'll still have a pathway for moisture to leave the hive, but I won't be quite as aggressive.

**Ed Szymanski:** We feel that windbreak and ventilation for moisture control are more necessary than actual insulation. We wrap the hives with a thick black plastic (it's easier to work with than tar paper) for wind protection and morning solar heat gain. Bottom board inserts in, mouse guard with four 3/8" holes on each side of the entrance open, rest screened. We have 5/8" ventilation holes in the brood boxes; these stay open, except in extreme cold or stormy/windy conditions, they get plugged with a silicone cork. On top, we have a feeding shim with ventilation hole/upper entrance, inner cover notch up, and a piece of foam insulation fit tightly inside the outer cover to prevent condensation of rising moisture.

If you'd like to be a respondent for future questions, email me at [lunariafarm@outlook.com](mailto:lunariafarm@outlook.com). I don't have a lot of RIBA email addresses at this point.

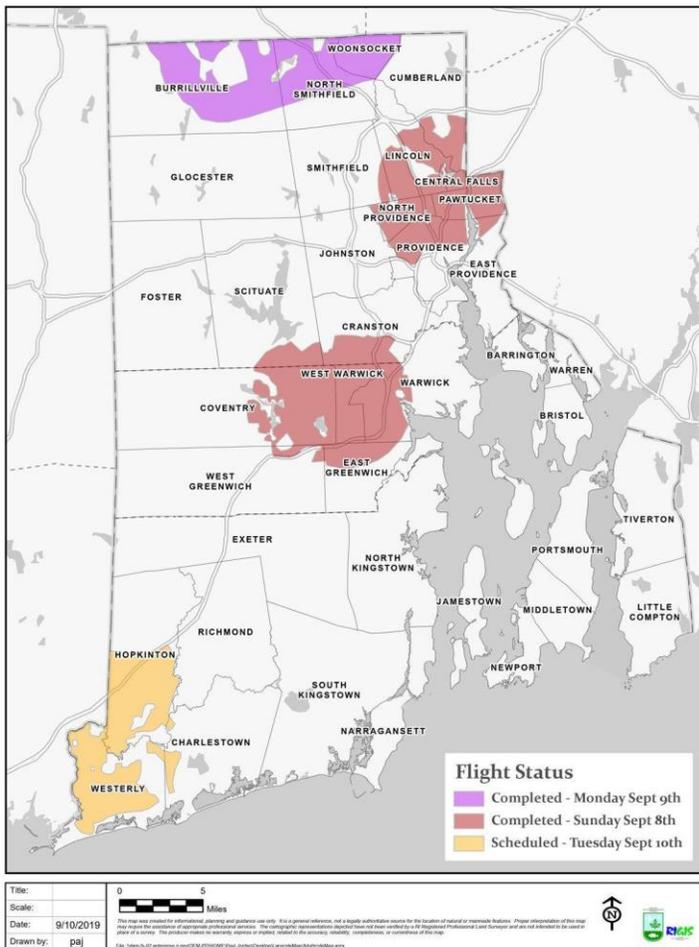
-Ed Szymanski

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## ***Mosquito Spraying and the Risk to Honey Bees***

**T**his summer has seen several cases of eastern equine encephalitis (EEE) in RI, including at least one death. This is a dangerous disease that is transmitted by mosquitoes and affects humans as well as non-human mammals. As a result, the state has conducted two rounds of targeted aerial pesticide application as of this writing. The first round occurred between Sept 8 and 10 and included the following communities: Burrillville, North Smithfield, Woonsocket, Lincoln, Central Falls, Pawtucket, North Providence, Providence, Lincoln, Smithfield, Warwick, West Warwick, Cranston, Coventry, East Greenwich, Hopkinton, Westerly, and Charlestown. The second round of spraying occurred starting Sept 25, focusing on these locations: West Warwick, Cranston, East Greenwich, Charleston, Westerly, Hopkinton, Coventry, and West Greenwich.

The product being used, *Anvil 10+10*, is a synthetic pyrethroid (Sumithrin) that is considered highly effective against adult mosquitoes. As it was applied by airplane over wide sections of RI, beekeeper angst was high regarding potential impact on our hives (to say nothing of children, pets, and other wildlife). State Bee Inspector Jim Lawson was a guest at our Sept 8 General Meeting and answered many questions from the audience, as well as offering tips to mitigate potential exposure to hives located within the spraying area. The product was applied at night when most honey bees could be



expected to be inside the hive, and it degrades rapidly in sunlight. It has been used in the past by several states, including MA, without apparent dramatic effects on honey bees. While pesticides always carry some degree of risk, these targeted applications seem to have been carried out with due caution, at least as far as impact on local honey bee colonies.

From the DEM press release:

**If I am a beekeeper, should I take special precautions to protect the bees before or after aerial spraying?**

*We do not anticipate negative impacts on honey bee colonies since the aerial spraying will take place at night. If bees are congregating outside the hive box(es), consider applying a cover to the hive entrance or over the entire hive box(es) using a loose, wet cloth (burlap, sheet, etc.) to prevent bees from exiting, thus not allowing for direct contact during the application. If miticides have been applied and there is concern about ventilation during covering, consider adding an additional empty box on*

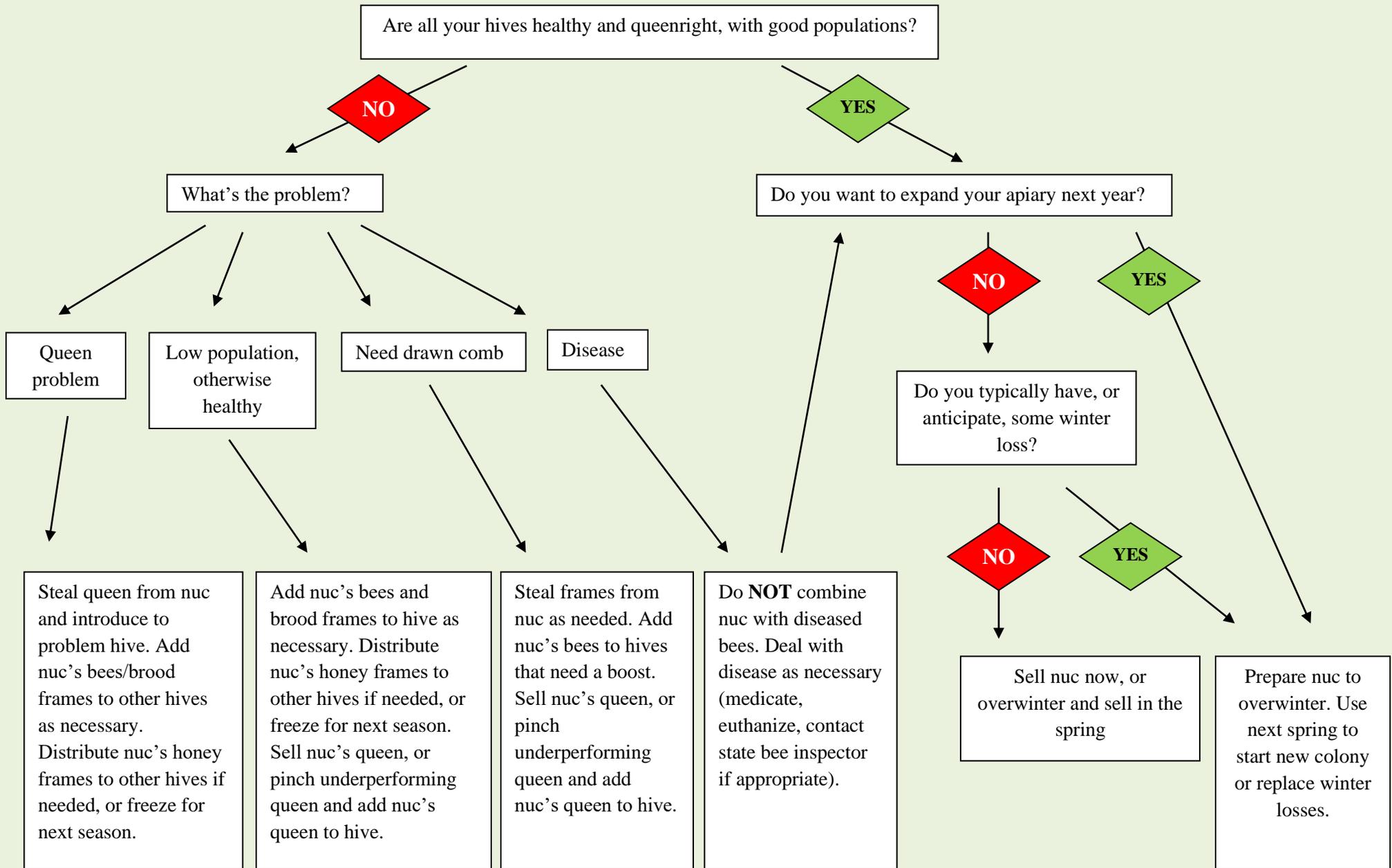
*top to increase ventilation within the hive during the application. Remove covers and additional boxes placed on hives as soon as possible the morning following application. The product being applied has a very short half-life (one day) and breaks down rapidly in sunlight. Officials have conducted monitoring of honey bee hives during similar past aerial application and has not witnessed any negative effects on honey bees from the use of this product.*

**Will aerial spraying affect bees, beehives, apiaries?**

*Our neighboring state of Massachusetts used this same pesticide supplied by the same company, in the same concentration and flown by the same planes, and there have been no reports of any adverse effects on apiaries in Massachusetts – including apiaries that failed to cover their hives. The fact that the application to control mosquitoes will occur during overnight hours should minimize the effect on bees and other beneficial insects that do not fly at night.*

*Although the pesticide has a long track record of being safe for mammals and birds in the treatment area, some non-target beneficial invertebrates, such as bees, may be harmed if no precautions are taken. DEM recommends that bee keepers cover hives at night with a loosely fit dampened sheet or burlap, and that the sheet or burlap is removed before the hive becomes active the next morning.*

## Winter's Coming, What Should I Do With My Nucs?



## **Upcoming Events**

**Oct. 27th 12:00pm - 4:00pm**

### ***2019 RIBA FALL BANQUET***

Radisson Airport Hotel, 2081 Post Rd, Warwick, RI 02886

Speaker: Dr Keith S. Delaplane, MBE; Professor Entomology at University of Georgia

Topics: "The Honey Bee Superorganism & What it Means for Beekeepers" and "Polyandry: The Overlooked Ingredient in Bee Breeding"

*Jennifer Bristol is collecting donations for the auction; you contact her if you would like to donate an item. Her email is [jbristolconsulting@gmail.com](mailto:jbristolconsulting@gmail.com).*

**Nov. 16th 8am - 4:30pm**

### ***MassBee Fall Meeting***

VFW Hall, 123 Holliston Street, Medway, MA 02053

Speakers: Dr Larry Connor, Steve Repasky

**Nov. 17th 2:00pm - 4:00pm**

### ***RIBA November General Membership Meeting & Election of Officers***

Coventry Community Center, 1277 Main St, Coventry, RI 02816

Speaker: Dr Larry Connor, Wicwas Press

Topic: The Secret lives of Drones

*Refreshments welcomed and appreciated*

**Nov. 23th 8:00am - 5:00pm**

### ***SNEBA (Southern New England Beekeepers Assembly)***

Groton Inn and Suites, 99 Gold Star Highway, Groton, CT 06340

Speakers: Dr Kim Skyrn, Dr David Tarpy, Dr Larry Connor

**Dec. 8th 2:00pm - 4:00pm**

### ***RIBA December General Membership Meeting & Holiday Market Place***

Coventry Community Center, 1277 Main St, Coventry, RI 02816

Holiday Market Place & Honey Judging

*Refreshments welcomed and appreciated.*

*See [ribeekeeper.org](http://ribeekeeper.org) for rules of honey show (forthcoming).*