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October 2018 LCBA Newsletter

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Bees in the News is on vacation this month – watch for Bonus Bee News in November!

Questions? Suggestions? Resources you'd like to share, stories you'd like to tell? Please contact LCBA

Secretary Susanne Weil: secretary@lcba.community or call 360 880 8130.

UPCOMING EVENTS

Thursday, October 11 – LCBA Monthly Meeting

Dr. Dewey Caron: Southwest WA Bee Losses & Management Practices

ROOM CHANGE – WE WILL BEE IN WALTON SCIENCE CENTER, ROOM 121



When: Social Time 6–6:30 p.m.; Talk, Q&A, 6:30-7:30; Break & Business Meeting, 7:30-8:45

Where: Centralia College – ROOM CHANGE – Walton Science Center 121, 701 W. Walnut, Centralia WA 98531

What: Color us excited, because LCBA was THE top responder to this year’s Pacific Northwest Bee Loss Survey! This means that Dewey’s data and insights will be even more relevant to us than usual, highlighting management practices that work. Bring your questions. Thank you to all our beekeepers who responded to the PNW & BIP Surveys! Short business meeting will follow.

Brushy Mountain Offers Beginning Beekeeping Classes



BEEKEEPING 101: OCTOBER 16th:

Honeybee basics: Basic biology, with emphasis on colony brood development cycles, swarm cycles, annual cycles, and the colony social structure that supports these cycles.

Beehive basics: A successful hive needs correct placement, good forage access, and a protective structure. This section focuses on these essential elements of a hive in detail. It also reviews

several types of hives and their pros and cons: Langstroth, Longhive, Warre Hives, and Kenya Topbar hives.

A fundamental element of a hive is the frames and foundation that house the bees. There is a diversity of frames (and often beekeeping philosophy associated with them). This section will discuss the alternatives and their pros and con. This includes foundation based frames, foundationless frames, topbars only, waxed foundation, plastic foundation, and wax starter strips.

BEEKEEPING 102: OCTOBER 23th

Installation: This section reviews the three ways to acquire bees: packages of bees, nucleus hives, and swarms. It reviews the pros and cons of each method.

This section also covers installation of package bees, nucleus hives, and swarms. It also discusses what to do if the installation goes wrong.

Managing the First Season: This section discusses feeding, hive inspection methods, remote hive monitoring, recognizing signs of trouble, and what to about it.

Registration: \$25 each or \$40 for both. Visit:

https://www.brushymountainbeefarm.com/Beginning-Beekeeping-101-and-102?utm_source=bronto&utm_medium=email&utm_term=Register+Today&utm_content=09/27/2018&utm_campaign=Oregon+101+%26+102+Class&bta_tid=01501951511401966672829916163052686575896799473408337089005334744562343620497503083494460303388373781636107

Thursday, November 9: LCBA Monthly Meeting

Fungi and Bee Health: Dr. Nick Naeger & Dr. Jennifer Hahn, WSU

More details in our November Newsletter, but this talk will focus on how fungi extracts can be added to bee feed to boost their resistance to Varroa mites.

Also: LCBA's elections for 2019-10 Board positions will take place at this meeting.

ROOM CHANGE – WE WILL BEE IN WALTON SCIENCE CENTER 121



**Saturday, November 17 & Saturday, January 5:
Getting Started in Beekeeping**

When: 10 a.m. to noon; Where: Centralia College, Washington Hall 103

What: Do you have friends who are interested in keeping bees, but not quite sure what's involved? Please tell them about this free orientation! LCBA beekeeping instructors Peter Glover and Susanne Weil will cover benefits of beekeeping, "bee biology 101," equipment needed, how to set up your apiary, what beekeepers do over the course of their first year, getting and managing bees, harvesting honey, parasites and diseases, & preparing for over-wintering.

This Orientation is also a preview of LCBA's Beginning Beekeeping Class ~coming this January & February (see below) - offered through Centralia College's Continuing Education Program. Questions? Call 360 880 8130; email secretary@lcba.community

December 8: LCBA's Holiday Potluck, Borst Kitchen #1:

2 pm, Mead-Making Demonstration by Cody Warren; 3 pm, Social Time; 4 pm, Dinner; 5 pm, Youth Scholarship Drawing. More details closer to the time!

6 Saturdays January 12, 19, 26, February 2, 9, 16, 9 a.m. to noon

LCBA's Beginning Beekeeping Course

For details, click <http://lewiscountybeekeepers.org/education>



"Honeybee hexagons and the myriad nest structures of bees": Did you ever wonder why honey bees build comb strictly in hexagons? Did you know that other species of bee (outside the genus Apis) build in other structures? This 2013 blog has great photos & very informative links at <https://standingoutinmyfield.wordpress.com/2013/05/15/honeybee-hexagons-and-the-myriad-nest-structures-of-bees/> Thanks to Sheri Underhill & Randy Duncan for sharing!

Notes from September 13th LCBA Monthly Meeting



Above left, Dan Maughan as “the Bee Chef”; right, Jeanne Reichert preparing moisture boxes.

Dan Maughan: Fall Management for Winter Bee Survival

LCBA’s Community Outreach Coordinator, Dan Maughan, shared ideas about how to keep your bees healthy in winter. Last year, Dan noted, 47 % of commercial hives died; Dan himself had significant losses that made him feel sick. Some losses were due to weather; some to luck – or lack of it. The experience made him re-examine his practices to evaluate what works.

Bees have 3 basic needs in winter: first, bees need to be kept dry and out of the wind. Since bees have to replace the heat in the hive if there is a lot of wind, wrapping hives in winter can help bees survive; if it’s a wet climate, like ours, we need to place a cover over the hive to help cut down on moisture within (a corrugated plastic political sign will provide cover so bees can do cleansing flights when winter temperatures allow).

Second, bees have a far better chance to survive if we keep them disease-free, especially mite-free, to the best of our ability: more on this below.

Third, bees need to be well fed. Bees can take a lot of cold – they heat the cluster around the queen, not the entire hive. When they get wet, though, they get into a cycle of condensation in the hive. When that happens, the bees use up their hard-won honey supply just trying to keep each other dry, so they run out of food, and starve.

Shelter Options: Dan showed a photo of his bee shed and bee barn (see below). He noted that the lower end of his shed is too low for a tall guy! His barn gets a little sun in winter, and that benefits the bees on the front of his pallets, who face the light: these bees were healthier coming out of winter. However, the bees on the back of the pallets don’t get much light and don’t go out for cleansing flights: as a result, in early spring, they are weaker hives. Steve Howard asked what way colonies in Dan’s bee shed *should* face: Dan said southeast: with his shed, southeast-oriented hives get several hours of sun in front and in back at different times of the day. The ideal scenario would be hives set straight south with rays coming in from west and east. If he were looking at a single row of hives (not on pallets), Dan would aim them southeast so that they get out earlier and work more, leading to more resources and healthier hives.



Above left, one of Dan's covered bee sheds; right, Dan's "Bee Barn"

All told, Dan's bees spent 75 days under shelter last winter. He had to put 70 of his hives in his bee barn, but since he had several hundred colonies, he had to find other places, with mixed results. For example, he found that the bees he kept in a cow barn had a higher incidence of Nosema; Dan wonders if the cow manure the hives stood upon caused an issue.

Moisture Control: Dan also noted that he did not take time to put his moisture boards on his "barn bees" last year: he thinks that contributed to the higher rate of Nosema. Therefore, this year, all his bees will get moisture boards. Phil Wilson recalled a beekeeper discussing moving hives into an open building, but the beekeeper had to move them back outside because there was not enough air flow to move condensation. Despite the cold, those bees did better in the open.

It's also important to keep hives off the ground so that the coldest, wettest air doesn't get into the hive. Dan keeps his hive about four feet off the ground.

Moisture control boxes: Dan passed around a commercial, premade moisture control box from Shastina Woodworks, with holes where the beekeeper can insert jars of syrup. The boxes are finished in a resin. They cost \$33 apiece, and the vendor told Dan that if the club wanted a bulk order, he could give a price break. Here is what this design looks like:



Shastina Woodworks' approach is relatively new: Dan thinks that the moisture control box which Kevin Reichert has covered in his over-wintering presentations works very well: those

who wish to view a slideshow of how Kevin makes these moisture control boxes can visit LCBA's website: http://lewiscountybeekeepers.org/education/fall_management_issues. Gillian Davis asked whether using sugar water in winter is just adding moisture: isn't a candy board better? Dan noted that he wanted to show this new design as a novelty.

Moisture Boards: Dan showed the moisture board, which is made of compressed, porous material. You can get the material at home depot, called sound board, but don't get stuff with tar, use tar free. Mann lake sells them for \$6.95 a pop. Dan doesn't think they are as effective as a moisture control box, but it does help. The boards are reusable if they don't get too wet. Dan passed a sample moisture board around. Walt asked if the board was kept dry by the telescoping cover; Dan said not for his bees, because he uses migratory covers. Dan puts his moisture board on top of the inner cover and there is just enough space for ventilation. Finally, Dan noted that air flow through a hive should be like air flow in a chimney: it needs to breathe in with the good air out with the bad.



Above, a Mann Lake moisture board on top of a hive box.

Slider Boards: to insert, or not to insert? Austin Nelson asked whether the bees are better off in winter with the bottom slider boards in or out? Bob and Gottfried said that they keep theirs open. Walt Wilson noted that you have to evaluate where the wind is coming from and adapt. If there was substantial wind, he would keep the sliders to help the bees retain heat. Phil noted that bees propolize to help manage the air flow. One could also put sliders partway in.

Wrapping in Tar Paper? Dan said that last winter, he and Rick looked at some hives using the FLIR infrared phone app and saw a lot of heat near the handles. Also, Dan noted that heat will sail through a box with a lot of knots; a knotless box will hold heat better. Dan asked who wraps in tar paper. Steve said that he did it one year, but thought it was a waste of time. He just tapes the seams of his hive boxes with duct tape. Bob Harris noted that heat also contributes to condensation: a few years ago, some beekeepers Bob knew tried to wrap their bees, but lost all their colonies because the heat was trapped and thus, condensation increased. Gottfried said that a few years ago, he wrapped three hives with tar paper but did not wrap three others: there was no difference. Mel Gregorich said that he does it only where there is a real wind problem. Walt uses garden tops and silver insulation: he came through winter fine. Harold Mullins uses the shavings on top of a screen inside a shallow super, gets ventilation, and has not lost a hive. Cody said his bee colonies are configured in an L shape, and only the colonies facing due south get wrapped; the others are sheltered. Dan commented that you have to look at your situation and adapt.

To Treat or Not To Treat? Dan said that although many beekeepers wish to be "organic," treating for mites is now imperative to help bees survive winter. Bees used to flourish in the wild

before Varroa mites entered the U.S.: now, though, it has gotten harder to find a feral bee population that has survived for many years - because of mites. Dan now does prophylactic treatment, assuming that mites are parasitizing his bees.

What to treat with? For treating mites, Dan prefers Apivar. He also uses oxalic and formic acid, and has used Hopguard and thymol: he likes to rotate treatment to prevent the mites developing resistance. Every treatment, to one degree or another, has been poisonous to bees: treatment has even killed queens in some hives. However, all treatments do help manage mites; Apivar in particular is about 1000 times more toxic to mites than bees, kind of like chemotherapy. He put the active ingredient into an oil, and that made it cheap: but Dan also noticed a lot of dead bees. Was the cure worse than the disease? Dan is not sure, but when his apiary suffered a 27% death loss, he had treated with Apivar; in 2017, when Dan had significantly more losses, he had used Amitraz. This year, he is buying Apivar.



Above left, Dan's hives on Amitraz in 2017; right, hives with Apivar in 2018.

What about oxalic acid: Gary Kalich asked why not use oxalic acid – Dan said it seemed to kill his bees, though Dan acknowledged that he might have used too much, since he filled his burner fairly full. On the other hand, oxalic acid allows you to treat in winter as “a kind of mop-up medicine.” With no brood present, the beekeeper can treat and get phoretic mites. However, Dan thinks that treating three weeks in a row oxalic acid is too hard on the bees: he has tried treating at that rate, and bees died. Sandy Moore noted that the package calls for a ¼ teaspoon dose.

Cody Warren brought a jar of wood bleach that he uses for oxalic acid treatment. He uses an insect fogger that runs off propane. The mix is 100 mm of grain alcohol or Everclear, plus 25 grams of wood bleach: this yields enough to treat about 25 hives. During the first week of September, October, and November – that's three treatments, but not administered as close together as the oxalic acid directions say. In summer, Cody uses straight mineral oil in a fogger, along with a few drops of wintergreen oil. Phil noted that Kevin would say that fogging is not approved, but do we care if it helps the bees? Dan noted that there are safety concerns with all of these treatments, and that it's important to follow package directions scrupulously.

Nosema: With Fumagilin-b no longer available, how can beekeepers treat/prevent Nosema? Dan suggested trying probiotics or vitamins, but the best approach is prevention: keep your hives dry and stress free.

Foulbrood: Terra-Pro is the medicine that Dan used to treat foulbrood when he thought he might have it in a couple of hives. Some thought that that hive had parasitic mite syndrome instead, so Dan is looking forward to asking Dewey Caron at our October 11 meeting. Peter Glover said that he has a test kit for American Foulbrood and another for European Foulbrood: Dan will check with him. Dan further noted that keeping equipment clean and relatively new helps keep bees disease-free. It's not a good idea to hold onto really old stuff – you'll get rid of a lot of germs by getting rid of old, contaminated woodenware and foundation. Also, if you find that bees die in same box year after year, it may be best to get rid of that box.

Winter Feeding: how much do bees really need? Most beginning beekeeping classes teach that bees need two deeps' worth of brood and food to get through winter. When Dan first heard that, it sounded to him like an enormous amount of food. It made him wonder: how much do the bees really need? Dan doesn't think that a hive must have 200 pounds of food: 80 pounds is a good goal. He talked with commercial beekeepers whose hives weighed 95 pounds; they prefer to have them at 100 pounds. Of that weight, some is woodenware and some is bees; 35 pounds of honey seems to be enough for Dan's bees to over-winter. He also supplements their food with syrup and winter patties containing pollen in fall and winter. Asked how many frames, Dan says 20 frames of honey is good.

Sugar Water – Think Weight When You Mix, Not Volume! When you feed bees sugar water, it's the sugar that they want; they have a hard time dealing with the water in winter. For this reason, Dan measures by weight, not volume. He uses a 2:1 solution in fall.

How much honey does a hive eat in winter, and when? Dan said that bees will eat three gallons of honey, plus or minus a gallon: it depends on how many bees are in the colony. It also depends on whether the bees are taking care of young or not; if not, then they use up less food and energy. Harold at Beeline Apiaries has sugar on sale right now for 35 cents a pound.

What is considered a cold snap – how do you know when to stop feeding syrup? Steve said that around mid-October, it starts to get really cold: you'll know because the bees stop taking syrup. Austin said that he experimented with adding – and not adding – essential oils to sugar water to see what the bees liked. He found that they drank the syrup faster if essential oils had been added. Another member asked when to start feeding a 2:1 mix: Dan said that he's been feeding 2:1 since he took off his supers. Dan added: be sure not to caramelize when you make the syrup because that can kill bees.

Hard sugar candy: Steve added that we should not feed syrup in winter since the bees won't fan it down – that costs them too much energy. Steve makes candy boards of hard sugar candy and feeds that to his bees through the winter months: he puts on a new candy board every three weeks or so. He noted that even with a good honey supply, bees will go up and form a ball, and if it is cold, they will not break cluster to go to the food on the next door frame, but if the candy board is on top of frames, they can get to it. He got a one box hive through winter that way. There are recipes for hard sugar candy and no-boil sugar on our website: see the URL noted above for making moisture control boxes. Also, members are welcome to come to our October 6 workshop, where Cody will demonstrate both methods. Also, Kevin and Cody have a video titled Candy Boards 101 that shows from scratch how to make the hard sugar candy: it is on the club's

Youtube channel and will be posted on the Fall and Winter Management links under Education on the club website. Walt Wilson used Lauri Miller's mmo-boil recipe for sugar candy: he reported that it takes several days to dry and harden, and never gets really hard.

Do bees need protein in winter? Yes and no. They need less protein when they are not raising brood. However, they do need protein to be strong. Mites suck bees' hemolymph, and a kind of anemia results: they have a harder time synthesizing proteins. It's good to give pollen supplement, Gottfried noted, but don't give too much, or it will stimulate brood rearing in winter, which you don't want. Dan gives his bees a winter patty mix that has some pollen (see the URL above for this recipe). In spring, though, beekeepers should definitely supplement pollen to help bees build up and get a strong colony ready for the nectar flow.

Yellowjackets: Steve noted that many pre-made traps come with pheromones: the pheromone packets cost \$5 or 6. Instead, Steve uses hummingbird feed soaked on a cotton ball placed in the center of the traps and it really works. You have to replace the cotton ball every four days, or it dries out.

Everyone thanked Dan for leading a very informative discussion!

September Business Meeting Notes

Honey Judging Contest: We began the meeting by unveiling the honey submitted for our 2018 judging, which was done by Peter Glover and Dan Maughan. Your scribe apologizes that her photos did not come out for this newsletter! However, here are the winners, who received certificates with honeycomb borders. Congratulations to all!

2018 Honey Judging Contest Results

Best in Show: Bob Harris

Blue Ribbon Certificates:

Lisa Aldrich; Kenzie & John Anderson

Red Ribbon Certificates:

Jan Bueuchler & Kay Brown; Pamela Daudet; Caleb Smith

Treasurer's Report: Treasurer Rick Battin reported that our savings account is up 13 cents to \$5,001.53; our Youth Scholarship fund is \$ 2,216.46; our checking account is \$2,216.40. The most recent check was \$294.32 to Secretary Susanne Weil for January-June clerical expenses, of which \$156.74 was printing for our beginning beekeeping class.

Youth Scholarship Program: LCBA's board brought a suggestion to the membership: should we have a junior youth scholarship for children who are enthusiastically interested in getting started in beekeeping, but too young to manage a hive on their own? If we did this, the additional investment would be an additional suit, gloves, and hive tool for a supporting parent or older sibling.

The group discussed this; among ideas that came up were having a “little brother/little sister” attached to an experienced beekeeper – not a formal program, but more like how Gottfried Fritz’s 2017 mentee Rylee’s younger siblings got involved. Gottfried got them veils, and they watched Rylee work her bees. Mel Gregorich suggested that we simply extend the age range to include younger kids. Current youth scholar Caleb Smith suggested that youth scholarship students could mentor younger kids; Austin Nelson noted that he is already working with his neighbor who is younger than he is. Bob Harris suggested that the club could purchase a few children’s suits and keep them at the apiary for young ones who come to our workshops. Pamela Daudet asked whether we look at finances of youth scholars’ families; Education Coordinator Peter Glover answered that we have never tried to means-test families. Lisa Aldrich noted that we are unlikely to get a barrage of young applicants; overall, the consensus was that we don’t need to formalize anything new, but should proceed on a case by case basis when we find younger children who are interested in beekeeping.

Mentor Program Update: Community Outreach Coordinator Cody Warren reminded members that our September 15 Fall Management Workshop would give hands-on work to follow up Dan’s talk. (*Post-meeting update: the workshop was well attended and fun – see photos below.*) Cody also announced that for the first time, we are holding a candy board workshop – this will be at the apiary on Saturday, October 6, from 10 to noon, covering both hard sugar candy and no-boil methods. We’ll also make some candy boards for our apiary bees.



Scenes from this year’s fall management workshop: left, youth scholarship student Caleb Smith made a moisture box for his bees; right, Mentorship Coordinator Cody Warren led our workshop, where we put together some of the moisture control boxes for our Apiary bees.

Apiary Update: Our apiary again got hammered by yellowjackets, Cody reported: two colonies were lost, and two were combined to give them a better chance to thrive. The other colonies are doing very well. At our September 15 workshop, Cody noted that we will build moisture control boxes for the apiary and start the process of preparing the bees to over-winter.

Community Outreach: In lieu of participating in the Southwest Washington Fair, LCBA has been involved in some alternate events. Dan asked Phil Wilson to report on Grays Harbor Fair (see photos above). Phil reported that in his role as membership coordinator for Olympia Bee Association, he was organizing that group’s presence at Grays Harbor and invited LCBA members to join in – Phil, Walt Wilson, Cody and Linnea Warren, and a few others pitched in. They were under a 12x12 canopy, so there was less space than at the Southwest Washington

Fair, but we were warmly welcomed by the Grays Harbor Fair management, who did not charge fees for us to exhibit. Phil also commented that their booth was somewhat aromatic, as it was next to the hog barn: “that’s how you get honey bacon,” someone in the audience quipped. Dan thanked Phil for organizing.



Above, scenes from LCBA/Olympia’s exhibit at the Gray’s Harbor Fair: left, Cody Warren with the Olympia Beeks’ observation hive; center, the Queen and her court; right, Linnea Warren with visitors to the observation hive (photos courtesy of Phil Wilson).

Below, scenes from our exhibit at Seedpod Farm’s Harvest Festival & Craft Fair on September 22: left, a young visitor to our observation hive; right, kids enjoying the “bee the face of the bee” board; bee-low, Pamela Daudet explained the People’s Choice Honey Tasting to visitors. We’ll announce the winner of the People’s Choice contest at our October 11 Meeting!



What is your BMP (Best Management Plan) for Overwintering?

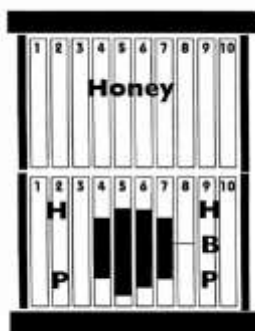
by Dewey M. Caron

The Window is Closing. Our opportunities to adjust colonies for winter survival are about done. Still time to feed but further manipulations are risky. Even mite control. Our colonies should now be fat – both fat fall bees and fat with winter stores.

Feeding to enable bees to store sugar water honey is always a good BMP. Studies have demonstrated that bees actually overwinter better on such honey compared to some fall sources (usually identified as goldenrod and/or aster). Since this honey will be used by bees late fall feeding will not contaminate any honey harvest product.

Force feed as much heavy (mixed 2 parts sugar to 1 part warm water) sugar syrup as you can. Use feeders that hold a large volume of syrup or add multiple feeders. Feeders should be placed on top of the colony, not at entrance, or use an in- hive (division board) feeder. Only pure crystallized cane or beet sugar should be mixed into the heavy syrup.

The illustration below demonstrates the ideal hive configuration we strive for in October. If your colonies do not look something like this, their chance of being alive and productive next spring is reduced. I will show what individual frames should look like. Heft the hive and check gross weight.



Mite control at this late date may be a waste of time and money. Results of the survey of 25 Lewis Colony beekeepers this past spring revealed a 47% overwinter loss rate this past winter. What might it be this winter?. The June newsletter had a summary - to see the full report, visit: <http://pnwhoneybeesurvey.com/wp-content/uploads/2018/05/2017-18-LewisBA-REPORTa.pdf>.

Just below this column in this newsletter, there is a reprinted Blog from Garrett Slater of the Minnesota BIP Tech Transfer team. Covered is how to take a mite sample and interpretation of the results. There is also a table of how to visually look for mites, which is not adequate for estimating risk of mites to the colony but can still be useful to key the BMP pro-active need to

take a good sample for mite population determination. My Tools for Varroa Management includes more details <https://honeybeehealthcoalition.org/varroa/>.

I will review why we need to be more vigorous in our mite control efforts. Colonies with high mites may already be dead or are merely ghosts, their chances of surviving until spring extremely poor. Some treatments seem to not be working as well as in the past and we again found mite numbers to increase very quickly in September. I hope to offer some insight into BMP varroa mite management.

NOTE: I hope you found the 2018 Lewis Co survey report of value. Please consider making notes now to enable you to more easily fill out a report next April about your winter success and management this current season. Here is an aid to make those notes <http://pnwhoneybeesurvey.com/notesheet/>

Signs of Mite Damage- How To Identify Progressed Varroosis?

By Garrett Slater, BIP Tech Transfer Team Member, University of Minnesota

From the BeeInformed Partnership Blog, Sept 26, 2018: <https://beeinformed.org/2018/09/26/the-signs-of-mite-damage-how-to-identify-progressed-varroosis/>

Varroa infested colonies entered the United States in ~1987, and changed beekeeping forever. Beekeeping has always been time consuming, difficult and experience oriented; however, beekeeping became even more challenging when beekeepers were called to eradicate a bug on another bug. Since its introduction in the US, beekeepers have reported high annual colony losses due to mites. In fact, some beekeepers report 60% losses due to this troublesome pest. While beekeepers have faced devastating challenges before, including American Foulbrood, Varroa mites has presented damages never before seen.

Varroa have become more difficult to manage since their introduction. The mites are seemingly embedded within the honey bee industry reality as nearly, if not all, colonies have Varroa. Like many beekeepers say: "all my colonies have mites, I just cannot see them". Even if alcohol washes do not reveal mites, Varroa is present in the brood or will be present soon due to infestation from surrounding colonies. As mites have become more widespread, they became a vector for a variety of viruses. In fact, researchers are finding more and more variants of Deformed Wing Virus (DWV), a virus that affects the honey bee's essential flight capabilities. Research has shown that DWV-B (Deformed Wing Virus variant B) can be responsible for high over-winter losses.

The point here is that Varroa devastates colonies. It would also seem that Varroa are transmitting more virulent strains of viruses with each passing year. Because of this, I recommend to keep mite levels below 1 mite/ 100 bees in the spring and below 3 mites/100 bees in the fall. With Varroa loads any higher, beekeepers risk high colony losses.

Monitor, Monitor, Monitor: Beekeepers must consistently monitor mites if they expect to have strong and healthy colonies. Beekeepers can monitor their mites in various ways, but I recommend both of these two methods: perform an alcohol wash (or other monitoring method) and observe the overt signs of mite damage. It is ideal to perform monitoring methods once a month, but we realize this is not always possible. Because of this, combining both monitoring and observation methods are recommended. Ideally, mites should be monitored at least 4 times a year. As seen in Figure 1, below: population increase, population peak, population decrease, and fall dormant; it is essential to understand the seasonal changes. For example, brood density varies throughout the year, so certain treatments can be less effective at different times. By understanding seasonal cycles, beekeepers can better manage their mites. I understand Figure 1 does not reflect the reality of every region but it gives a good overall general idea. Some regions have multiple population peaks due to large honey flows, so you will need to understand the honey bee seasonal phases in your region. But essentially, as the bee and brood population increase, so do the mites.



Figure 1: Honey bee seasonal phases – Beekeepers should monitor mites once a month, but if this is not possible, mites should be monitored at least 4 times a year: during the late winter-early spring dormant, population increase, population peak, population decrease, and fall dormant phases. I recommend alcohol washes (or another monitoring method) during these periods. Photo courtesy of the Honey Bee Health Coalition.

Mite Monitoring Techniques: I attached a chart outlining the 3 major mite monitoring techniques I recommend. Perform one of these techniques 4 times a year: Early spring, late spring, late summer and early fall. Each beekeeper has their preference, so use the method you feel the most comfortable with. I use alcohol washes, but I feel comfortable with sugar rolls or CO2 as well. As long as you monitor, there is not a wrong method!

Advantages & Disadvantages:

Sugar Rolls: Known research on accuracy; Common method: May not kill bees; Messy; Hard to do on windy, rainy or humid days; More time consuming; Less accurate

Alcohol Wash: Well documented; Quicker than sugar rolls; Can be more accurate than sugar roll; Can be messy; Kills bees

CO2: Quickest method; Easy to do with multiple colonies; Kills the bees (most likely)

When monitoring for mites, beekeepers should review mite thresholds. I outline my recommended thresholds for each monitoring method below. If your colony is above threshold, I recommend taking actions. Mite thresholds are not an exact science, even if you have levels below the threshold, it is no assurance that your colonies will be healthy and successful. For example, I have sampled many commercial beekeepers with mite levels <0.5 mites /100 bees in the spring, and they eventually had huge losses. I typically see mite levels spike in the late summer because: A) summer treatment with honey supers are limited, B) Mites are often lurking in the brood, and C) Mites from other beekeepers nearby can (re)infest colonies. Because of this, always monitor and monitor again. Once mite levels do spike, they may be difficult to bring down. Too often, when you notice, the mite damage is already done. I should note that I recommend alcohol washes, powdered sugar rolls or CO2 over a sticky board. Sticky boards are not nearly as accurate, because they do not quantify the level of infestation. If a sticky board is your only option, you can attest that you have some mites or more mites, but you are not able to assess the level of infestation (1, 2, 3 mites/100 bees). Use other monitoring method options for more accurate results and an infestation level to compare with suggested thresholds. *These thresholds may vary per US regions. These are the threshold I recommend in the Midwest (MN & ND).

Monitoring Method: # of mites in early-spring; # of mites in mid-spring; # of mites in late-spring; # of mites in early-fall; # of mites in late-fall

Alcohol Wash: 1 mite/100 bees; 1 mite/100 bees; 1 mite/100 bees; 3 mite/100 bees; 3 mite/100 bees

Powdered sugar roll: 1 mite/100 bees; 1 mite/100 bees; 1 mite/100 bees; 3 mite/100 bees; 3 mite/100 bees

CO2: 1 mite/100 bees; 1 mite/100 bees; 1 mite/100 bees; 3 mite/100 bees; 3 mite/100 bees

Sticky Board: 9 mites/24 hours; 9 mites/24 hours; 9 mites/24 hours; 12 mites/24 hours; 12 mites/24 hours

Mite related Disease Progression: I inspect and observe hundreds of colonies annually. When I enter a colony, I often immediately know whether it has (or did) have high mite levels simply by observing progressed signs of mite damage. Just observing progressed mite damage does not suffice, but it is a good start. By noting visual signs of Varroa, you will know just how important your mite levels are and the need for action. Monitoring is best but if you can recognize some of the visual signs, you will better understand the extend of the mite damage to your colony.

I outlined the 5 stages of mite damage, which I relay to my beekeepers. In the spring during population increase, I want to see colonies within the Stage 1- 2. While I hate to see mites in the spring, this is not always a bad sign. Even if I observe mites, the colony may be below the recommended threshold, so just continue to monitor that colony. During the late spring, summer and fall, I like to see colonies within Stage 1-3. Even if Chewed Down brood (CDB) (outlined below) and phoretic mites are seen, it does not mean that beekeepers have high levels. However, a combination of phoretic mites and CDB can signal worse mite issues. If these signs are seen, continue to monitor these colonies. As for Stage 4-5, I never want to see these stages, regardless of temporal period. Deformed Wing Virus (DWV) and Varroa Mite Syndrome (formerly Parasitic Mite Syndrome or PMS) can signify high mite levels. Specifically for Varroa Mite Syndrome, it signifies very progressed mite damage, which often results in colony deterioration and eventual colony death. If colonies are in stage 4 or stage 5, monitor immediately to determine extent of damage. Action is often required, but may be too late.

Stage, Visual Signs, & Notes:

Stage 1 Zero signs of mites, brood diseases or viruses

Stage 2 Visual signs of phoretic mites on either workers or drones. This does not necessarily mean a mite issue exists, but if mites are seen, monitor to determine extent of varroosis.

Stage 3 Chewed Down Brood and/or phoretic mites

Stage 4 Deformed Wing Virus (DWV) and/or Chewed Down Brood and/or signs of phoretic mites. Visual signs of Deformed Wing Virus (DWV) can mean larger varroa issues. Obviously, this depends upon the number of bees with DWV and the number of phoretic mites seen, but mite monitoring is recommended to determined extent of varroosis. These signs signal a more progressed form of varroosis.

Stage 5 Varroa Mite Syndrome (VMS) and/or Deformed Wing Virus (DWV) and/or Chewed Down Brood and/or Phoretic mites Visual signs of Varroa Mite Syndrome usually signal extreme issues with varroosis. If Varroa Mite Syndrome is seen, then mite levels are often a significant issue and has advanced to the most progressed stage of varroosis.

Visual signs: Phoretic Mite



Above, Phoretic mite on the thorax of a worker bee. Photo by Rob Snyder.

Phoretic mites are Varroa mites seen on the abdomen of worker (or drone bees). Most phoretic mites, however, are found underneath the bee, more precisely tucked between the abdomen's sclerites where they latch on and feed. Because of this, I typically inspect the ventral abdomen of several worker bees during inspections. This is why beekeepers "never see mites", even if these beekeepers have higher mite levels. Visually inspect phoretic mites just on the workers, not the drones. If phoretic mites are seen on worker bees, then this represents a more progressed infestation of mites. Signs of phoretic mites indicate the colony is in Stage 2-5. Visually inspect other signs to further pinpoint extent of damage.



Above, the bottom right corner contains a cell with chewed down brood (CDB). Bees begin chewing brood when they sense mites within the cell, so this can indicate larger mite issues. Photo by Rob Snyder.

Chewed Down Brood (CDB): Bees can sense mites in the brood. If sensed, bees will uncap and cannibalize the pupae. If CDB is seen, then mites may be at a high level, especially within the brood. CDB can indicate progressed mite damage, so continue to monitor and assess colony health.



Above, this bee has deformed wing virus, a debilitating virus than can easily deplete a colony. Oftentimes, bees with the virus are removed from the colony. So if bees with Deformed Wing Virus are seen, than this can indicate larger issues. Photo by Rob Snyder.

Deformed Wing Virus (DWV) represents the next stage of varroosis progression. Bees with DWV are kicked out of the colony so if bees with DWV are seen than Varroa has become an issue. DWV does not signify un-manageable mite levels for the colony, but it is a more progressed sign of mite damage.



Above, Varroa Mite Syndrome (VMS) is the most progressed sign of mite damage. If VMS mite is seen, than the damage is done. These colonies will likely collapse, and there is nothing a beekeeper can really do. At this stage, the colony has already dwindled and deteriorated. Photo by Rob Snyder.

Varroa Mite Syndrome (VMS): A pathogen has not been identified for this disease; however, mites are always present when this disease is seen. This brood symptom looks similar to other brood diseases except the larvae do not rope like foulbrood. Larvae do appear sunken to the side of the cell. If Varroa Mite Syndrome is observed, then colony has likely dwindled and deteriorated. Varroa Mite Syndrome is the most progressed sign of mite damage, and truly at a stage of no return. Even if low phoretic mites are seen, Varroa mite syndrome often means an end to your colony, even if treatment is applied. Symptoms: Spotty brood and Varroa present on adult; Mites may be present on brood; Mites seen on open brood cells; Small population size; No odor present, just sunken brood.

Summary: All beekeepers should consistently monitor mites throughout the year. Even if mite levels are low at one point, it does not mean they will stay low. Mite levels can easily spike, so always be aware and monitor and re-monitor. Beekeepers should learn how to monitor and visually inspect for mites. By doing so, varroa mites can effectively be managed. Varroa mites are the most challenging issue beekeepers face, so make sure you know where your colonies stand. If you don't, then you risk losing your colonies.

Cheers! -- Garrett Slater, BIP Tech Transfer Team Member, University of Minnesota

RECIPES OF THE MONTH

Chipotle Honey-Marinated Steak

Adapted from “The Asheville Bee Charmer Cookbook,” by Carrie Schloss (Agate Surrey, 2017).

https://www.washingtonpost.com/recipes/chipotle-honey-marinated-skirt-steak/16418/?utm_term=.8af4fb6d2a1f

Ingredients (for 5-6 servings):

- 2 Tbs fresh lime juice (from 1 lime)
- 1/2 large yellow onion, cut into 1/4-inch dice
- 1 Tb plus 1 1/2 teaspoons minced garlic
- 3 canned chipotle chiles, chopped
- 2 Tbs chipotle-infused honey
- 2 tsps ground cumin
- 2 tsps kosher salt
- 1 tsp ancho chile powder
- 1 tsp Spanish smoked paprika
- 1/4 cup extra-virgin olive oil
- 2 1/2 lbs sirloin steak, cut into large pieces, (may substitute skirt steak cut in 2 or 3 pieces)



Directions:

Combine the lime juice, onion, garlic, chipotle chiles, honey, cumin, salt, ancho chili powder, smoked paprika and oil in a gallon-size zip-top bag. Add the steak and seal, pressing out as much air as possible. Let it sit at room temperature for 1 hour, or refrigerate for up to 24 hours.

Prepare the grill for direct heat: If using a gas grill, preheat to medium-high (375 to 400 degrees) with the lid closed. If using a charcoal grill, light the charcoal or wood briquettes; when the briquettes are ready, distribute them evenly over the cooking area. For a medium-hot fire, you should be able to hold your hand about 6 inches above the coals for 4 to 6 seconds. Have ready a spray water bottle for taming any flames. Brush the grill grate.

Alternatively, position an oven rack 6 inches from the broiler element; preheat the broiler.

Remove the steak from the marinade and wipe off any excess marinade from the meat; discard the marinade. Grill or broil the steak for 6 to 7 minutes on each side (for medium-rare).

Transfer the meat to a cutting board and let it rest for 10 minutes, then cut it on the diagonal, against the grain, into 1/2-inch-thick slices. Serve right away.

Honey Glazed Carrots

A quick and easy healthy side dish that comes ready in 15 minutes from start to finish, from the “Immaculate Bites” Blog: <https://www.africanbites.com/honey-glazed-carrots/#wprm-recipe-container-576736>

Ingredients (for 6 portions):

- 2 pounds baby carrots
- 3 tablespoons butter
- 3 tablespoons honey
- 1 teaspoon lemon juice
- 1 clove garlic, minced
- 1 teaspoon thyme
- 1/2 teaspoon cayenne
- 1/2 cup fresh orange juice



Directions:

1. Bring a pot of salted water to a boil, then add carrots and let it cook for about 4 -5 minutes. They should still have some crunch to it.
2. Remove and add in cold iced water to stop the cooking. Drain and set aside. This step might be done in advance and refrigerated to save time. Reserve.
3. In a large skillet over medium heat, add butter, honey, lemon juice, garlic, thyme, cayenne and about 1/2 cup of orange juice, swirling occasionally.
4. When most of the liquid has reduced, throw in the carrots and stir until every inch is coated. Cook for another 2 to 3 minutes or more. Remove and serve warm.

BEES IN THE NEWS is on vacation this month (with the two long articles above, this newsletter seems long enough...). We will be back in November with a Bonus Bee News Edition!

ANNOUNCEMENTS

Also see “Upcoming Events”

Western Apicultural Society Newsletters: http://groups.ucanr.org/WAS/WAS_Journal. Click on the line in the paragraph on the right as directed. If you're still getting the old issue, click on "empty cache" in your browser or "refresh" or "reload" under VIEW in your menu bar.

WASBA Newsletter: Pick up your copy of this bimonthly online at www.wasba.org: click on "Newsletters." The July Newsletter's cover story is LCBA's Youth Scholarship Program!

That's all for now ~ take care, & bee happy!

~~ Susanne Weil, LCBA Secretary (Secretary@lcba.community; 360 880 8130)