



## February 2023 NEWSLETTER

**LANE COUNTY BEEKEEPERS ASSOCIATION**  
130 HANSEN LANE, EUGENE, OR 97404

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### President's Message by Fonta Molyneaux

February is an exciting time for beekeepers. For backyard enthusiasts we may not be actively managing our hives this month, but we certainly are thinking about it.

March is go time, so February is time for the final equipment preparations to begin the season. All the gear is built, cleaned, sorted, ordered, and will be ready to go by mid-March to early April as we meet the spring build up with our overwintered colonies and plan for new ones we hope to acquire or replace.

For us backyard beekeepers who don't take our hives to pollination in sunny California, we are sure to experience more rain and freezing nights before winter gives way to spring nectar in abundance. While it's not advisable to remove insulation or crack the boxes apart yet, we need to continue hefting our hives to make sure colonies have enough stored honey or dry sugar to make it through early spring. Beekeeping in our region "begins" around March 21<sup>st</sup> with the Spring Equinox and will wane by the Autumn Equinox, September 21<sup>st</sup>. A relatively short season by any standard, but especially when the weather doesn't cooperate.

Every year presents differently and experience tells us to BEE ready! I think some of the most important skills in beekeeping are observation and timing. We must ride the wave of the seasonal highs and lows and collaborate with our bees for a much higher potential than would be singularly possible. Our careful collaboration at the right time is the magic that makes for a successful season.

One of the most important times of the year is the early spring nectar flow that begins with those first flowering trees and shrubs in March and peaks with swarm season in late April and May. During this time our bees are refilling their pantries to accommodate the needs of an expanding brood nest. Our spring planning and management will set the stage for the whole season. Through keen observation we can discover the needs of our bees and respond accordingly. Neglecting our hives in early spring puts colonies at a disadvantage for the entire season! Our bees need us!

*continued on page 2*

### GENERAL MEETING February 21, 2023

#### In-Person Meeting

**Come early to socialize and share your Questions with experience beekeepers.**

**Social 7:00pm-7:30pm**

#### Early Session

**Doors open at 6:00pm**

**Session Starts at 6:15pm**

**Topic: Installing Packages & Nucs**

**Speaker: Jonathan Loftin**

Fireside Room

#### General Meeting

**Topic: Late Winter & Early Spring Management**

**Speaker: Judy Scher**

**Program begins at 7:30pm**

Trinity United Methodist Church

440 Maxwell Road, Eugene

Turn West off River Road (South of Beltline)

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*president's message continued*

Beekeeping is a dynamic relationship between humans and honeybees. The more knowledgeable and experienced we become the more we will be able to work with our bees to accomplish our goals.

Please join us at our February 21st meeting, as we prepare for our favorite time of the year BEE SEASON!!!! We have two talented beekeepers to share tips and tricks for early spring management.



### Upcoming Events & Announcements

**Feb 28th –At Home Beekeeping Series, Alabama Extension Service**

**Topic: TBD**

**Join via Zoom at:** <https://auburn.zoom.us/j/904522838>

**Join via Facebook Live at:** <https://www.facebook.com/LawrenceCountyextension/>

(If you use Facebook, after logging in, click on more, then events.)

The presentation will be recorded and posted on their Facebook page for 2 weeks.

**March 4, 2023 - Ninth Annual BEEvent Pollinator Conference**

**March 4th - LCBA Beginning Beekeeping Classes**

Contact Pam Leavitt: [pamseaver2000@yahoo.com](mailto:pamseaver2000@yahoo.com)



### Ninth Annual BEEvent Pollinator Conference Saturday, March 4, 2023

**Location:** Linn County Expo Center, Albany, OR

**Time:** 9:00am - 3:30 pm

**Cost:** \$30

They will have both in-person and online options.

Topics include: Blue Orchard Bee, Backyard Pollinators, Adapting to Climate Change, Mason Bees.

For more information and registration:

<https://linnmastergardeners.com/>

### LCBA Swarm List 2023

LCBA will be up updating the swarm list soon. This list is intended for members who will collect swarms. It is **not** for those wanting swarms. If you were on the list last year please let us know if you want to continue to be on the list this year. Check to make sure your information is correct by clicking on the link below and your membership dues must be current.

<http://www.lcbaor.org/SwarmList>.

If you are a new member and would like to be listed, we will need your name, phone numbers, email, and the city or cities that you will respond to. You **must** have experience in removing swarms to be on the list.

Tall trees and building removals are listed separately on the swarm list. If you have the tools and ability to do these removals make note of this in your response.

Contact Judy at [judyscher@gmail.com](mailto:judyscher@gmail.com) 541-344-2114 or Nancy at [nancy.ograin@gmail.com](mailto:nancy.ograin@gmail.com) 541-935-7065

### February Honey Drawing

Thanks to everyone who donated honey last year! Proceeds were donated to the OSU Bee Lab for research.

We will have a drawing at our February meeting for a Down to Earth gift certificate for those who donated more than one quart.

If you would like to donate honey this year please contact Katharine Hunt at [keehunt@gmail.com](mailto:keehunt@gmail.com), 541-607-0106.

### Upcoming Tentative Meeting Topics

#### General Meeting

**Mar 21** Splits

**Apr 18** All About Swarms

**May 16** Understanding the Brood Nest

**Jun 20** Varroa Mites

**July 18** Unsung Bee Diseases

**Aug 15** Early Fall Preparation

#### Early Session

Yellow Jackets

Bee Math

All Things Comb

Honey Extracting

Treatment Options

Q&A



## Preparing For Your Bees

Things to do to start preparing for your Bees:

1. Order your bees.
2. Get your apiary site ready.
3. Assemble your boxes and other equipment.
4. Tools - gather all your tools and have them in a portable container. A five gallon bucket works really well.
5. Practice lighting your smoker. Even experienced beekeepers can find it difficult sometimes.

### Helpful OSU Honey Bee Lab Videos

Lighting a Smoker      Finding the Queen  
Early Spring Inspection      How to Mark a Queen  
American Foulbrood      Chalkbrood  
Swarms

[In the Bees with the OSU Honey Bee Lab](#)

### Honey Bee Suite

A good website for all kinds of information. Want to know how to do something or what something means visit their website.

[My advice for new beekeepers - Honey Bee Suite](#)

### Other Useful YouTube Videos

[Life Cycle of the Honeybee](#)

[First 21 Days of a Bee's Life](#)

[How Varroa Destructor Devastates Honey Bee Colonies](#)



### Two Bees in a Podcast

Two Bees in a Podcast is hosted by members of University of Florida's Honey Bee Research and Extension Laboratory.

Learn about honey bees, beekeepers, researchers, and specialists from around the world in educational, fun, yet practical episodes!

Hosted by: Dr. Jamie Ellis, Professor of Entomology, Department of Entomology & Nematology, University of Florida.

[Podcast - Honey Bee Research and Extension Lab - University of Florida, Institute of Food and Agricultural Sciences - UF/IFAS \(ufl.edu\)](#)

### Do Not Let Your Bees Starve

Judy Scher's talk this month is on Early Spring Management. Bees are consuming a lot of honey this time of year. Be sure to lift your hive and feed if necessary. Colony starvation is absolutely preventable. Easiest way to feed bees right now is to provide sugar cakes. Find the recipe on our website, [lcbao.org](http://lcbao.org), "Recipe" tab.



Sugar Cakes

## Early February Meeting

LCBA's early meeting is on "Installing Package Bees & Nucs". Now is the time to order your bees! Attend our meeting to learn more on what you need to know about packages and nucs and how to install.

### Nucs or Packages?

There are good arguments for either option. It can depend on the availability, type of beekeeping equipment you have, and time of year. For brand new beekeepers LCBA recommends you start off with a package as you get to watch a colony start from scratch. Watching the progression is a rich learning experience.

### What is a Package of Bees?

Package bees can be purchased in a wooden shipping box that includes a can of feed and a newly-mated queen. These packages are usually sold by weight (2, 3 or 4 lbs. LCBA recommends 3 lb packages. A newly-mated queen in a shipping cage is added to the package along with a can of syrup.

Some of the bees in a package may be related to each other, but most probably are not. Certainly the queen is not related, which is why the beekeeper must introduce the queen slowly to the newly installed package.

### What is a Nuc?

A nucleus colony (nuc) is the central core, or heart, of a larger colony. In essence, a nuc is a small colony living on four to five frames. It has all the components of a fully-grown colony, including brood in all stages of development, workers in all stages of development, most likely some drones, and a laying queen. In addition, it usually has some stored honey and pollen.

Because there are no standards, nucs vary tremendously between sellers. Some sellers specify exactly how many frames of brood are guaranteed. Some say how many frames of adult bees to expect. Some offer a frame of honey and pollen. Some only specify the number of frames in the box, such as 4-frame nucs or 5-frame nucs. Also, some may be on deep frames and some may be on medium frames. Because of all the differences and pricing, it is up to the buyer to ask questions and learn what he is buying.

Another major difference between nucs is their age. In my opinion, the very best are over-wintered nucs. In other words, the small colony is a cohesive unit that spent the winter together with their queen. Healthy overwintered nucs are likely to explode in the spring, giving you a vibrant, populous colony in no time.

Other nucs are made up immediately before the sale. The colonies may have been in pollination service, for example. After pollination, the colonies are divided, given queens, and sold as nucs. Sometimes this type of nuc may not do as well as they are not yet a cohesive whole. Most nucs do just fine. The buyer should ask whether the nuc was overwintered or newly established.

*\*Excerpt from [HoneyBee Suite](#)*



## Why Did My Bees Die?

Did you lose colonies over the winter? The main reason bees don't make it through the winter is varroa mites. As long as a hive has enough food and has a big enough functioning cluster they can survive. Only the strong can survive a tough winter and only the bees that are raised in the fall can survive as these bees are different. They have different fat deposits, different hormone profiles and they are the only ones that are designed to live for months. If the last few generations of bees raised in the fall are weakened by viruses, they will be unable to handle the winter and form a strong cluster. There are other factors also that contribute to their downfall such as starvation.

One of the best videos to watch is from the University of Michigan Beekeeping Extension Service is "Why Did My Bees Die?" Be sure to check it out to learn more.

[https://www.youtube.com/watch?v=ZWtSbVXqO\\_Y](https://www.youtube.com/watch?v=ZWtSbVXqO_Y)






## February Beekeeping Tips by Chuck Hunt, LCBA Member

1. Spring for beekeepers means checking for brood and queen, checking for foulbrood, and doing mite checks if you use a screen bottom board. You must make a decision whether to medicate for mites and then decide what medication to use. Also, it is time to check on the hive's honey stores to avoid late winter and early spring starvation. Medications should be placed in the hives sometime in February or the first week in March. In order to do all this begin by picking a warm afternoon when the temperature exceeds 55 degrees F and there is no wind or rain.
2. Attention to varroa mite population is absolutely essential for the survival of your hive. There are a number of medications that may be used if you decide that your mite fall requires medication. There are too many medications to list the proper dosage and use in this column but three recommendations may be made. First, always follow the directions for use carefully particularly in regard to safe handling and disposal. Second, talk to other beekeepers who have used the mite control measures you plan to use. Finally, you may want to alternate mite medications from one year to the next, or even from spring to fall, in order to avoid mite resistance to the measures you have decided to use. You should be aware whether mites will develop resistance to the particular measure you have adopted.
3. All beekeepers must be able to recognize American or European foulbrood and look for this disease in their first, and subsequent, spring hive inspections. Every hive inspection should include an inspection for foulbrood.
4. Check hives in February or early March for honey stores. Hives that are strong can be lost in March due to dwindling honey stores and the increased need for honey due to increased brood rearing. Lift the hive gently from the back in order to estimate how heavy the hive is. As an alternative, open the hive on a warm spring day and check for adequate honey stores. The hive should have no less than 15lbs of honey (about 3-4 deep frames of honey or about 5 western frames) as a minimum. More honey is much safer. If the hive is light, feeding is essential for survival. A good early spring feed for bees is fondant. Some people use candy canes instead of fondant.
5. When checking for stores, or on any warm spring day when the temperature is over 55 degrees F and it is not windy or raining, check your hives for queens. At this time the queen should be laying eggs in large numbers in order to build up the population. Check the brood nest carefully for the presence of these eggs. Do not expose the frames of brood too long to the sun or cool air. If the queen has a good pattern and the hive is building up, go home and have a small glass of mead and celebrate the successful wintering of your hive. If there are no eggs, the hive is weak, or is not building up well, or you see disease.... Skip the mead, medicate, and think about re-queening or combining weak hives.

### Welcome New Members

Lyndsie Brett	Eugene
Mark Brink	Pleasant Hill
Kevin Burnett	Eugene
Joseph Dellert	Eugene
Regina & Octavius Fiacco	Eugene
Helen Fitting	Springfield
Jonathan Fryer	Eugene
Trisha & Michael Hatch	Eugene
Tim & Pam Herrmann	Eugene
Avy & Myco Miller	Eugene
Kathy Nice	Eugene
Jean Perrot & Greta Reitingar	Cheshire




## FOR SALE

### Five frame NUCS

Deep frames w/  
three frames brood

locally raised 2023 Queen\* \$200\*\*

3lb. Packages with  
2023 Queen\*  
\$170\*\*



\*Queens are Carniolan/hybrid mix

\*\* Package deposit included

**Contact: Brian (541)520-6566**

### LCBA February Beginning Bee Class

Our first bee school class of 2023 was held on February 4th. There were 15 registered attendees for this four hour class. The presentation was focused on the beginner beekeeper teaching how you get started. Class included equipment needed, tools and usage, where to get packages and nucs, how to install a package of bees into a hive, feeding until the bees are able to forage from their local environment and when to add additional hive boxes to a beginning hive. The threat of varroa Destructor was also emphasized along with the importance of accessing "Tools for Varroa Management". Attendees Trisha Hatch & Jo Reside won the door prizes.

Thank you to Matt Stouder, Mike France, Lynn Hellwege, and Brian McGinley who provided equipment and shared their beekeeping knowledge and Paula Sablosky who managed the refreshments



### LCBA's next beekeeping class is happening on March 4th



IN PERSON BEGINNING BEEKEEPING CLASS  
TRINITY UNITED METHODIST CHURCH  
440 MAXWELL ROAD, EUGENE, OREGON

SATURDAY, MAR. 4, 2023 9:00am-1:00pm \$50.00 per person  
Each class covers the introduction using Langstroth equipment\*



What you need to know to be successful when you start your journey. The first three months as a new beekeeper requires knowledge of bees, equipment, installation, feeding, inspections and care of the colony.

Includes a 65-page PDF LCBA Beekeeping Guide

Pre-Registration Required, Class sizes are limited

CONTACT: PAM LEAVITT: Phone: 541-344-4228

Email: [pamseaver2000@yahoo.com](mailto:pamseaver2000@yahoo.com)

\*NOTE: Top bar, Warre and Treatment Free Beekeeping not covered.

[www.lcbaor.org](http://www.lcbaor.org)



# LIVE BEE PACKAGES ON SALE FEB. 1

#### WE OFFER:

- **3lb packages** (10,000 bees) – \$165
  - Carniolan Bees w/marked queen
  - Italian Bees w/marked queen
- **Queens** – \$45
  - Carniolan or Italian marked queens
- **Nuc Boxes** – \$220
  - PNW bees w/unmarked queens

**DRIVE-THROUGH PICK UP**  
GloryBee Distribution Center

**Packages:** Fri, April 21 & Sat, April 22,  
8am to noon

**Nuc Boxes:** Sat, May 6, 8:30-10am

Search "Bees" at [GloryBee.com](http://GloryBee.com)  
to order by April 16!

GLORYBEE.COM  
(800) 456-7923

All pick ups are at our Hwy. 99 location,  
29548B Airport Road, Eugene.

1% of beekeeping sales is donated  
to fund critical honey bee health  
research. [savethebee.org](http://savethebee.org)





## **Meeting Highlights, by Matt Stouder, LCBA Secretary**

### **Varroa and Nutrition Management: Keys to Successful Beekeeping by Ramesh Sagili, OSU Bee Lab**

Dr. Ramesh Sagili with Oregon State University presented on two major issues that are key to successful beekeeping – varroa mites and nutrition. If you plan ahead and deal with varroa and nutrition throughout the year, there is a 90% chance your hive will survive through winter.

#### **Varroa Biology; Mite Life Cycle**

Dr. Sagili started out discussing the biology of the varroa mite. There are two phases associated with varroa - the phoretic phase and the reproductive phase. The phoretic phase is when the adult mites are riding around on the bees and not hiding under the capped brood. They like to sneak between the abdominal segments of the bees because the bees can't reach the mites there when they groom themselves. Fun fact: did you know that varroa mites cannot survive on any other bee species besides honeybees? In the reproductive phase, the female varroa mite enters a larval cell about 12 hours prior to cell being capped. She will hide beneath the larval food and then lays her first egg about 2.5 to 3 days after cell capping. She will proceed to lay another egg every 30 hours or so. The first egg she lays is always a male and the rest of the eggs she lays are female. Once the mites hatch, they will feed on the larva in the cell.

Ramesh asked the group what percentage of mites are in the capped brood cells and what percentage are phoretic? The answer depends on the time of year, but it is somewhere in the range of 60/40. In a study performed by OSU in September, they found that 56% of the mites were under capped brood and 44% were phoretic. Ramesh also mentioned that varroa can be transferred among bees from bees drifting between hives. varroa are also able to hop from bee to bee at water sources, foraging sources, etc.

The team at OSU wanted to learn more about varroa population dynamics and get better estimates of phoretic and reproductive mite numbers. They set up an experiment approximately 30 minutes west of Corvallis in an area with no other managed colonies. Included in the experiment were six hives. These hives were treated with Apivar between Feb 11 and March 22, and then received no treatments between March 23 and Sept 14. The hives were then killed using alcohol and the tedious process of counting all the mites in hive (both phoretic and reproductive) began. The team estimated that more than 50% of the mites were in the capped brood cells during brood rearing season. It is important to keep this in mind when using mite treatments to control varroa

#### **Mite Sampling Methods and Treatments**

There are several mite sampling methods available, including the alcohol wash, sugar shake, counting via sticky boards, carbon dioxide, etc. Ramesh says the alcohol wash is most accurate but does kill the bees.

Available varroa treatments include Apivar (Amitraz), Formic Pro (Formic Acid), Apiguard (Thymol), Oxalic Acid, and others. Ramesh outlined potential strategies for controlling Varroa. Strategy one included frequent monitor of mite levels from spring to late fall. Ramesh suggests that instead of calendar based varroa treatment (where treatments are applied at a specific time during the year based on date) we should focus on a varroa population dynamics-based treatment approach. This means that the beekeeper should pay attention to what's going on with the season and respond accordingly. For example, if we have an early spring and brood rearing begins earlier than normal, the beekeeper should monitor for mites and begin treatments when warranted, which will likely be ahead of when we might treat based on past years.

The second strategy Ramesh suggests is to rotate use of available mite control products that have been documented to be effective. For example, at OSU they use Amitraz during spring, Formic Acid in the summer and fall (while paying attention to temperature restrictions), and oxalic dribble during the winter. It is very important to monitor mites after treatment to make sure they are effective. If not effective, treatment may need to be repeated. To avoid mite migration between colonies, Ramesh suggests treating all surrounding colonies in the apiary at the same time. Of note: OSU has found that Amitraz is more effective in the spring than in the fall.

#### **Oxalic Acid (OA) Vaporization Studies**

The OSU Honeybee Lab has performed studies on the effectiveness of using OA vapors in 2019, 2021 and 2022. Some questions they hoped to answer with the studies include:



### highlights continued

Is 1 gram per brood chamber dose adequate? If not, what is an effective dose?  
 How many times can OA vapors be used?  
 Does OA vapor damage queen, brood, bees, etc.

In 2019, the bee lab tested larva mortality by using a 1 gram dose per brood chamber and determined OA was safe for both bees and larva. In 2021, they tested 1 gram, 2 grams, and 4 grams (per brood chamber) and started seeing larva mortality at 4 grams. Follow up testing in 2022 was performed to test the efficacy of 3 gram and 4 gram doses. The lab was hoping to see if there was a difference in larva mortality between the 3 gram and 4 gram doses.

Three applications of both the 3 gram and 4 gram doses were performed one week apart. The team measured mite infestation via alcohol washes and sticky boards and evaluated colonies for bees and brood. Worker bees were sampled to evaluate oxidative stress and damage to appendages. Queens were collected at the end of the study.

Results of the study indicated that there was a higher level of larva mortality at the 4 gram dose than the 3 gram dose and that the 3 gram dose is probably optimal for treatment and to minimize larval death. Further study is needed. Ramesh reminded the group that the label is still the law, and the current label for OA is 1 gram per brood chamber.

### Honey Bee Nutrition

Nutrition is the first line of defense for keeping healthy colonies. There are 3 levels of nutrition in honeybees: colony nutrition, adult nutrition, and larval nutrition. Nurse bees have the maximum pollen needs in the hive because they produce brood food via their hypopharyngeal glands.

Ramesh discussed Macronutrients vs Micronutrients. Macronutrients are carbohydrates (nectar) and protein (pollen). Micronutrients include things such as vitamins, minerals, and lipids (sterols). In general we don't know as much about micronutrients which is why the team is researching them.

Pollen is the primary source of protein for the honeybee hive and contains crude protein and amino acids necessary for honeybee health. Most pollens are 10 to 40% protein and are also a source of lipids, minerals, and vitamins. Nutrition (especially protein) is crucial when the colonies are rearing winter bees. Different pollen contain different amino acids, and if one pollen is missing a key element another pollen will likely contain it. This is one reason why it is very important for honeybees to have a variety of food sources.

All insects including honeybees require sterols. In particular, the sterol 24-methylene cholesterol is a very important sterol obtained from pollen. It is important for proper molting. Sterols are passed from adult bees to larva during feeding.

### Habitat Improvement for Bees

OSU is working to develop a pollen nutritional composition database and is seeking assistance from citizen scientists for pollen collection. Currently, plant lists for pollinators are based on attractiveness to honeybees, as opposed to nutritional needs. Ramesh discussed that attractiveness and nutrition are not the same thing. For example, he is attracted to French fries over a salad, however a salad would be a better choice for nutrition.

Thank you Ramesh for taking time to present to our group!



LCBA's early January session was a Q&A for our new beekeepers.

Our president, Fonta Molyneaux, presented a thank you gift to Brian McGinley for being president these past two years. It was a difficult time, but we were still able to get the information out through zoom and our newsletter to help our fellow beekeepers!







## Hive Life Conference Report by Robin Martins, LCBA Member

The 2023 Hive Life Conference, in January this year, was in Sevierville, Tennessee. I was one of the lucky hobby beekeepers to join 2,000 like-minded, passionate, inspirational and all-around kind people from the United States and some internationally. Sevierville is a beautiful little town with lots of history. Of course I would not see any of it as I was having too much fun at the conference meeting friendly and knowledgeable beekeepers who were happy to give words of wisdom if you were interested in hearing.

They had excellent speakers touching on all different aspects of bee life. \*Kamon Reynolds, co-founder of Hive Life, and his family put on a very good show and should be proud of what they accomplished. One of my favorite speakers was Frederick Dunn who is a Cornell University Certified Master Beekeeper. I have been watching his YouTube channel since I started beekeeping two years ago and was fortunate to meet him and his wife Annette. What a treat! I was also able to get my picture taken with Kamon, Frederick and Annette. My daughter Claire, who is nine, asked me why I wanted a picture with them. The best way I could explain that to her was, remember when you went to Disneyland and got a picture taken with the princesses and how excited you were, that was how I felt at Hive Life.

As adults we don't get as many real life moments to meet people who inspire you and who have the same passion. The friendships and connections I made during those three days are with me when I'm beekeeping. I have a network of information to help me succeed with bees.

At Hive Life they also have a honey show. I entered my honey products into 12 categories. What a fun and challenging experience that was. A few were amber, creamed and infused honey, bread, cake, notions, lotions and needle crafting. All must be made by you and from your honey and are judged by experts. This being my first year I knew I had a lot to learn and was surprised to find out that my Honey Oatmeal Bread won first place. What an honor. This is a recipe I have perfected for over 10 years. I also received several complements on my crochet bee and honeycomb scarf and my fused glass with flower and bees. If you ever get a chance, I highly recommend attending next year's conference. I know I can't wait to attend again next year.

Kamon Reynolds: <https://www.youtube.com/channel/UCkoAugRakc1TtvXxL4Kr76Q>

Fredrick Dunn: <https://www.youtube.com/channel/UCVmPauAIOLKR9>



Robin Martins  
Note her LCBA tote bag!



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## **“Flattening the Mite Growth Curve**

**by Dewey M. Caron**

Flattening the mite growth curve needs to be done in tandem with spring colony buildup. Recognizing that it is nearly impossible to bring high mite numbers down without potential damage from viruses. Our control strategy should be to keep mite population buildup as low as possible. Varroa mite control cannot wait until the supers come off. It is clear that when we discuss varroa mite control, we are seeking to control the virus vector. Mite control alone will not reduce losses, since viruses, not the mites, kill colonies.

During winter when there is little brood present, oxalic acid dribble or vaporization is an excellent chemical control choice. Colonies begin spring buildup with a low mite load. Extended release oxalic acid (OAE) may have a promising future, but details of how to deliver still need be worked out and a legal product delivered to market.

In early spring varroa mites are not efficient at reproduction. They are old. We know colonies are primed to raise drones as soon as they can in spring. We also know female varroa mites prefer drone brood over worker brood. Mites determine which is which via odor clues. Nurse bees, the bees female varroa mites prefer as dispersal hosts, spend considerably more time feeding drone larvae than they do worker larvae. This means the older female mites have ample opportunity to come into contact with drone cells.

Varroa mites leave their adult nurse bee host to invade a brood cell in a window of about a day prior to capping of the last molt of the larva. The mites hide in food at the bottom of the cell while the pre-pupa stage spins a cocoon. Once pupal stage molt is completed, the mites emerge to open a feeding hole on the pupa. Reproduction of the female mite is more successful in a drone cell compared to a worker cell as foundress mites can rear three or more female offspring, compared to a single daughter in a worker cell.

An effective non-chemical means of flattening mite population growth during spring buildup is drone brood removal. Like all mite control methods, there is a best way for it to be of value, but by itself it is not enough. We still will need efficient mite reduction via rotating a series of pesticide chemicals to control varroa. Different individuals have different preferences for what chemical to use in spring. Drone brood removal can fit as one weapon, alongside chemical control in an integrated mite control strategy. Note: Cameron Jack and Jamie Ellis have an excellent review of IPM technique effectiveness for mite control - cited below.

The key to drone brood removal is to gain control where the colony rears drones. If drone cells are scattered among several frames, it will not be time efficient or meaningfully effective to utilize drone brood removal. But if you control where a colony rears most of its drones, by giving them a place to put them, the technique can be incorporated into normal spring colony inspections/feeding.

Use of foundation and culling of older frames, concentrating your placement of drone sized cells, allows us to maximize a drone brood control management. Use of worker-sized cell foundation, can typically keep the number of drone cells to about 5%. The older the comb, the higher the probability of drone comb. Seeley and Morse (Insectes Sociaux, 1976) analyzed eight natural tree cavity nests; they averaged 17% drone comb. In a later study, Seeley (Apidologie 2002) compared honey yield of five colonies with 20% drone comb to five without drone comb over three seasons; the colonies with the drone comb averaged only about one-half average honey production (25 pounds to 49 pounds). He expressed the opinion however that using drone brood removal as a mite control “might still be desirable, since killing drone brood to kill mites may largely eliminate the negative effect of drone comb on honey yields.”

Randy Oliver (Scientificbeekeeping) has an excellent discussion of how drone brood removal can work. To implement drone brood removal, first reduce the amount of drone cells in frames. You want to confine the majority of drone brood to specialty frames. Such frames are removed following capping of pupal cells, halting the development of drones. When fewer numbers of drones emerge as adults in spring colonies, fewer mite females will successfully reproduce. Like everything else with bees, timing is everything.

Special frames to confine drone comb utilize plastic frames of drone foundation (sold by bee suppliers as green plastic frames) or the use of drone cell foundation in a standard frame. These frames are placed at the edge of the expanding spring brood nest to be drawn and used by the queen to lay unfertilized (drone) eggs. Alternately a whole or partly empty

*continued on page 11*

(foundation-less) frame can be utilized; in spring the bees will construct drone sized cells in them. My choice is to put a drawn medium frame in a deep box – the empty space beneath the bottom bar will be filled in by drone comb in the spring buildup.

After a period of three to four weeks, capped drone cells are removed and pupae frozen or cells uncapped and removed by sharply shaking opened cells downward. The frames can then be returned to the hive to be cleaned up so cells may again be used for the queen to lay more unfertilized eggs. Or filled, capped drone comb may be removed from the hive and discarded.

A second alternative is to put the specialty frame into other colonies conventionally treated with miticides and allow them to be cared for by recipient colonies. This might be useful when swarming is not controlled (virgin queens of colonies that swarm need to mate with drones) or for queen producers - these would become drone mother colonies. Reusing drawn drone comb has the added benefit in that it is more attractive to queen egg laying and female mites.

Flattening the mite curve in early spring – it pays big dividends downstream in the fall bee colony.

Jack, Cameron & Jamie Ellis. (2021). Integrated Pest Management Control of Varroa destructor (Acari: Varroidae), the Most Damaging Pest of (*Apis mellifera* L. (Hymenoptera: Apidae)) Colonies. Journal of Insect Science DOI: [10.1093/jisesa/ieab058](https://doi.org/10.1093/jisesa/ieab058)

See also: <https://scientificbeekeeping.com/fighting-varroa-biotechnical-tactics-ii/?fbclid=IwAR0Mvg0y30pxy550YvnrV1gC3-osolMsdr46RIGH2nkYfISv5kz6QG0Ikky>



## PARASITIC MITES' BITING RATE



Excerpt from Bee Culture February 6, 2023

Parasitic Mites' Biting Rate May Drive Transmission Of Deformed Wing Virus In Honey Bees



By [Eurasia Review](#)

Varroa destructor is an ectoparasitic mite that can cause European honey bee colonies to collapse by spreading Deformed wing virus as they feed. A study published in *PLOS Pathogens* by Zachary Lamas and colleagues at the USDA-ARS and the University of Maryland suggests a relatively small number of mites can contribute to a large number of infected bees.

Arthropod disease vectors transmit pathogens while feeding on susceptible hosts. However, little is known about how the feeding dynamics of Varroa spread viruses in adult honey bees. In order to better understand varroa mite parasitism on honey bees, researchers conducted a series of experiments. First, they used fluorescent microspheres to test if varroa were feeding on adult bees each time they entered a known feeding position. They next determined whether microspheres could be transferred from a varroa to an adult bee via varroa feeding by allowing varroa to feed on bee pupae which had been injected with fluorescent microspheres. In the third experiment, researchers observed mites switching from adult bee host to host. The researchers then observed how a single mite could spread pathogens by feeding on multiple bees and calculated the relative risk of Varroa parasitism on adult workers.

Mites with high virus levels and which switched the most frequently contributed to the highest mortality in adult honey bees. Varroa are promiscuous feeders and switch hosts at a high rate. Mites switching hosts at the highest frequency were responsible for nearly three times as many parasitized hosts as their lower switching

*continued on page 12*

counterparts. Future studies are needed to better understand the mechanisms driving mites to switch hosts.

According to the authors, “Our work shows that viral spread is driven by varroa actively switching from one adult bee to another as they feed. Relatively few of the most active varroa parasitize the majority of bees. The ability to parasitize and infect multiple adult bees provides the best explanation to date for the maintenance and subsequent host-to-host spread of viruses among the long-lived worker bees common in these crowded and vulnerable colony populations”.

***we are here to share current happenings in the bee industry. Bee Culture gathers and shares articles published by outside sources. For more information about this specific article, please visit the original publish source:*** <https://www.eurasiareview.com/20012023-parasitic-mites-biting-rate-may-drive-transmission-of-deformed-wing-virus-in-honey-bees/>



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If you have any extra honey to share please contact Katharine Hunt, [keehhunt@gmail.com](mailto:keehhunt@gmail.com).

All donations will be combined, labelled per Oregon law, and sold locally. The funds generated are donated to the Honey Bee Lab at OSU for bee research.

Thanks or your support!

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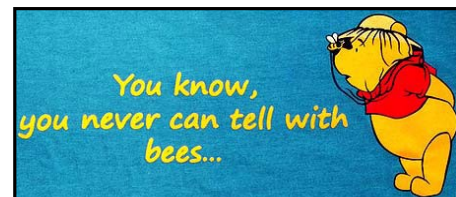


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[Click here](#) to access.

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