



The Bee Line

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Newsletter of the Oregon State Beekeepers Association

Do Honey Bees Commit Altruistic Suicide?

Ellie Chapkin



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This may sound like a strange question, but it has been shown that honey bees that are exposed to a stressor may remove themselves from the hive and prevent the spread of a disease. However, the underlying behaviors that lead to self-removal are not fully understood. In this experiment, we observed behaviors that may be involved in the altruistic self-removal process in honey bees, to determine if bees infected with *Nosema ceranae* remove themselves from the hive and protect against further spread of the gut parasite.

First, we inoculated 400 bees with *Nosema ceranae* spores, then tagged those and another set of 400 uninfected bees with unique identifying tags with numbers allowing us to distinguish individual bees in the hives (Figure 1). Our tagged bees found their new homes in our observation hives, four in total. We took five-minute videos of individual bees during filming sessions so that we could document their behaviors. For four weeks, we filmed the bees twice a day, three times a week, for two-hour periods (Figure 2). This resulted in about 77 hours of footage to carefully comb through and analyze. We used a program called BORIS (Behavioral Observation Research Interactive Software) to track the behaviors of the bees as we watched the videos (Figure 3). We carefully picked apart every second of footage in order to assess and document the behaviors of each of our tagged bees, infected and uninfected, so that we could compare their behaviors. We became experts at deciphering bee behavior, which was sometimes a challenging task. At times our camera-shy bees would flip over and cover their tags, participate in multiple behaviors at once, or hide behind other bees.

In addition to the video footage we took of our observation hives, we also collected counts of our tagged bees. About twice a week, we did a count of which of our tagged bees were still observed in the hives (Figure 4). By doing this, we were able to get an idea



Figure 1



Figure 2

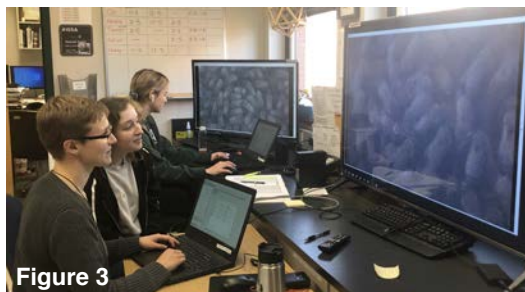


Figure 3

Continued on page 3



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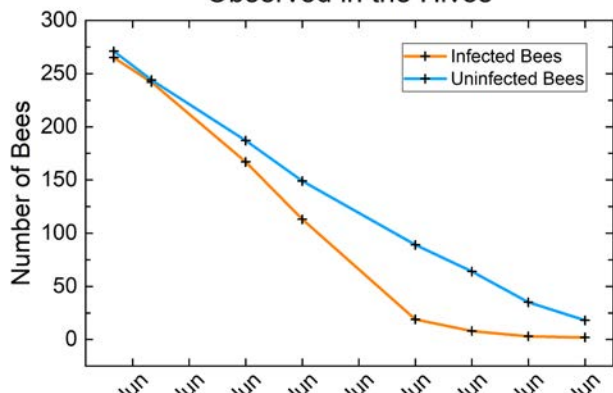


Figure 4

Data Collection Dates

of whether or not infected bees may be removing themselves from the hive. By performing manual counts of the infected bees in the hives as well as comparing behaviors of infected and uninfected bees, we are able to explore potential actions leading to the altruistic act of self-removal.

While we are still awaiting our statistical analysis, there are some trends that we can see so far. It looks like, from our preliminary results, the infected bees are involved in fewer social interactions with other bees (Figure 5). We are also losing more infected bees than uninfected bees from the hives. Additionally, robotics researchers who we are collaborating

Number of Contacts

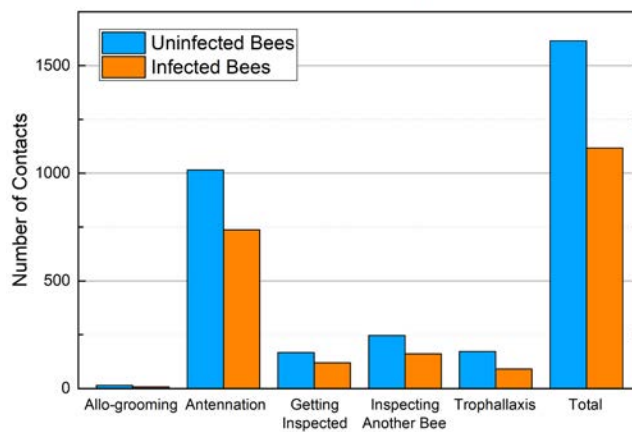


Figure 5

Social Interaction

with on the project will use the data to create models based on biological systems by applying bee behavior to autonomous systems. Their algorithms, with applications in swarm robotics, look toward biological examples for solutions to engineering issues. We're hoping that the results from this project can further contribute to what is known about altruistic bee behavior and our understanding of how *Nosema ceranae*-infected honey bees interact in the hive.

Note: Ellie Chapkin is a PhD student in Ramesh Sagili's Honey Bee Lab, Oregon State University. She presented on her work during the OSBA 2020 Fall Conference.

Effects of the Southern Oregon Fires on Honey Bees

Mike Miller

This fall I started compiling information on hive loss from smoke from last summer's fires in southern Oregon. These losses are heavy. I have lost 30 of my own to smoke, and 14 or 15 other beekeepers have lost an additional 45 or more. Most of these beekeepers had only one or two hives, though a beekeeper in Cave Junction lost 13 of his total of 14. One beekeeper's hives were fine on inspection the day before the fires started; within a week, all were dead.

What I'm finding is hives full of dead bees with a lot of honey and a small amount of pollen. Nothing more. The brood cells are empty. My hives as well as those of the other beekeepers had been treated for mites. Hives that were on the valley floor did much better than the ones located from 150 feet to 2,500 feet above it, the area where the smoke was the heaviest. In addition, the losses in Phoenix and Talent have been many times worse than in the rest of the region. Not only did they have the smoke from burning vegetation, they also had a toxic mix of many chemicals from the 2,600 homes and businesses that burned.

These toxins in the smoke may kill in three different ways. First is by direct contact, thus making a loss of field bees. Next is by indirect means as the bees go from one food source to another and toxins adhere to their bodies. They are then transferred to

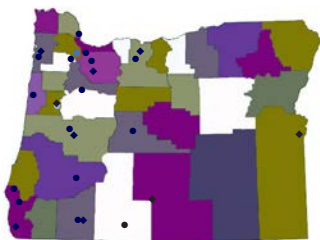
the inside of the hive and contaminate it. This weakens the bees to the point of not being able to perform their many functions. Number three is related to how the bees communicate



with one another by the use of pheromones. Their antennae are covered with tiny receptors that tell them what's going on in the hive. The toxic smoke impacts those receptors and their use, so the bees have less ability to function. My sense is that the bees became lost and confused. I believe that is why I'm finding no brood in the hives. The bees just weren't able to do what they know how to do.

My study is a ongoing. I am still getting calls from beekeepers whose bees were strong going into winter. Their findings are the same, dead bees and no brood. Much more research needs to be done. You can help me if you have lost a hive that was surrounded by smoke in southern Oregon or anywhere in Oregon. Please send me a email at: mikemillersbeesupplies@gmail.com. I would like to talk with you. Thanks for your help.

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• AFFILIATED REGIONAL ASSOCIATIONS

Central Oregon Beekeepers

Meets 6:00–7:30 PM, fourth Tuesday, virtually
President: Allen Engle—aengle@bendbroadband.com
Website: www.cobeekeeping.org

Columbia County Oregon Beekeepers

Meets 6:00 PM, first Thursday, Deer Island
President: Linda Zahl—503.799.7073
Facebook Page: ColumbiaCountyOregonBeekeepers

Columbia Gorge Beekeepers

Meets 6:15 PM, third Wednesday, Hood River
President: Jerry Frazier—jerry1.frazier@gmail.com
Website: gorgebeekeepers.org

Douglas County Bees

Meets 7:00 PM, first Wednesday, Roseburg
President: Robert Baune—541.863.9414
Website: www.douglascountybees.org

Klamath Basin Beekeepers

Meets 9:00 AM, third/fourth Saturday, Klamath Falls
President: Paul Davitt—541.591.2260
Website: www.klamathbeekeepers.org

Lane County Beekeepers

Meets 7:30 PM, third Tuesday, Eugene
President: Brian McGinley—56magoo@gmail.com
Website: www.lcbaor.org

Linn Benton Beekeepers

Meets 6:30 PM, third Wednesday, Corvallis
President: Everett Kaser—everett@lbba.us
Website: www.lbba.us

Oregon Central Coast Beekeepers

Meets 6:00 PM, fourth Wednesday, Newport
President: Stu Willason—swill29w@gmail.com
Website: www.ccbaor.org

Oregon Prison Beekeepers

Program Manager: Chad.E.Naugle@doc.state.or.us

Oregon South Coast Beekeepers

Meets 6:00 PM, third Tuesday, Gold Beach
President: Jesse Fletcher—beekeeperscoastal@gmail.com

Portland Metro Beekeepers

Meets 7:00 PM, second Thursday, virtually
President: Doug Sieckmann—503.854.5417
Website: portlandmetrobeekeepers.org

Portland Urban Beekeepers

Meets 7:00 PM, first Wednesday, via Zoom
President: Cheryl Wright—cwright80@hotmail.com
Website: portlandurbanbeekeepers.org

Southern Oregon Beekeepers

Meets 6:30 PM, first Monday, Central Point
President: Risa Halpin—rhalpin906@gmail.com
Website: southernoregonbeekeepers.org

Tillamook Beekeepers

Meets 6:30 PM, second Tuesday, Tillamook
President: Brad York—dbradleyyork@gmail.com
Website: www.tillamookbeekeepers.org

Tualatin Valley Beekeepers

Meets 6:00 PM, last Tuesday, virtually
President: Debby Garman—tualatinvalleybeekeepers@gmail.com
Website: tvbabees.org

Willamette Valley Beekeepers

Meets 7:00 PM, fourth Monday, Salem
President: Richard Farrier—rfarrierfarms@gmail.com
Website: wvbahive.org

Message from the President

Greetings, fellow beekeepers. Spring is one of my favorite times of the year to be a beekeeper. The bees are growing fast, and, if the weather cooperates, in most locations the forage is starting to get good. Maybe not good enough though, so keep an eye on stores. Big overwintered colonies can really burn through honey as they incubate brood at around 94°F. Not only are the colonies at risk of starvation, the developing larvae can be severely impacted if not incubated at the right temperature. Brood incubation temperature can impact everything from mortality to longevity, learning, memory, and pesticide susceptibility. Keep that syrup flowing! For a great treatment on the subject, check out: www.ncbi.nlm.nih.gov/pmc/articles/PMC384730.

Clearly temperature is a big deal and can have a profound impact on producers and bee colonies. I would encourage everyone to be flexible with bee suppliers. Mother Nature does not always cooperate, and more harm than good comes from adhering to *man*-made schedules in the face of weather extremes.

Flexibility of mind and body is crucial to being a successful beekeeper. Every year brings unexpected threats and opportunities. We must be nimble in our planning and management. It is quite a feat to prepare for both the worst and best possible outcomes simultaneously. This is why I think commercial beekeepers are some of the most amazing people I know. The pursuit of success requires that beekeepers risk much blood and treasure. I often joke that a bee colony is like a pile of hundred dollar bills with wings . . . that sometimes fly away and never come back. There are definitely easier ways to make more money, so our occupational choice boils down to love for one's work. If one keeps bees for a living long enough, one will inevitably experience loss and frequently work until they are cold, wet, tired, and hungry. Sounds great . . . right? Lucky for us, the highest of the highs always seem to outweigh the lows. After 24 years of beekeeping, I still get incredibly excited at the sight of a batch of plump queen cells, a frame with a perfect brood pattern, or a patch of the perfect forage. We beekeepers can take a lot of pride in what we do. We feed the world and are about as essential as they come.



The problem is that even when we do everything right, and to the best of our abilities, a good outcome is definitely not guaranteed. I have never met a commercial beekeeper who is consistently happy with their winter losses. There are definitely bad years and good years. Even when a good year comes along, we face many risks from things like sprays, floods, fires, and thefts. Commercial beekeeping is definitely not for the faint of heart.

Despite all the challenges we face as beekeepers, the number of managed colonies has been slightly increasing over the last several years. As this becomes more well known, I am occasionally encountering some non-beekeepers who like to say the whole “save the bees thing” is a myth. What they fail to understand is the superhuman effort and financial risk that commercial beekeepers put forth. I am not sure how sustainable this really is, not to mention that many of the same forces working against honey bees are working against all bees. Last time I checked, native bees have very few caretakers feeding, medicating, and migrating them. Their numbers are in a steep decline. Our honey bees would be in the same boat if it were not for the almond industry and the high risk tolerance and work ethic of beekeepers. Almond pollination is about the only thing keeping the majority of commercial beekeepers alive. It would be very difficult to make a living just producing honey in Oregon. Oregon consistently ranks near last for honey production in the United States. To make matters worse, we must often compete against cheap foreign or fraudulent honey.

Our relationship with the almond industry provides much needed income and a chance for an early spring. This represents an opportunity to grow surviving colonies large enough that we can hopefully make up our winter losses and possibly have some leftover bees to sell, if that is what you do. The almond industry is not only keeping commercial beekeeping alive, it is subsidizing the entire pollination industry. The big colonies

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we produce early in the year to make those precious nuts can and must be split. This results in an annual abundance of new hives that keeps the price of pollination much more affordable for later season crops. In a way, the relationship between beekeepers and almond growers is the lynchpin in our entire food supply. A major hiccup in the almond industry would spell trouble for the entire farming community and economy. I feel grateful for organizations like Project Apis m. that have helped the almond industry become more bee friendly and have funded precious research to help solve honey bee problems.

Speaking of research, the fundraising committee has been meeting and making great strides towards launching our Centennial Fundraiser for the OSU Honey Bee Lab. We have a few corporate sponsors lined up and plans are beginning to take shape. I am really looking forward to working with all of you when we launch publicly to raise \$500,000 for the lab. This effort has the potential to really benefit all bees and beekeepers.

Keep the feed flowing, hives growing, and plant that pollinator garden.

John Jacob

Spring is Survey Time

Dewey M. Caron and Ramesh Sagili

Ramesh and I will again be seeking the cooperation of Pacific Northwest beekeepers with an annual Overwinter Loss Survey. Large-scale beekeepers were mailed a single-page colony loss survey in March and asked to kindly fill that out within a month and send it back in the postage-paid envelope. If you prefer, you can also complete this survey electronically at: www.pnwhoneybeesurvey.com/survey. Click under (take the survey!); first question (number of colonies) separates larger-scale from backyard beekeepers. Survey opened March 15 and continues throughout April.

We appreciate your past involvement and ask that you help provide us this information once again this spring. Participation in the Pacific Northwest Overwinter Loss Survey should not interfere with the great response of Oregon beekeepers to the national Bee Informed Partnership survey. The BIP electronic survey will be available during the entire month of April (as last year). You can sign up for a reminder by visiting the www.beeinformed.org website. During your visit, look for the recent compilations of data on overwintering management, mite control, and other useful information; you can also look at just Oregon responses now on an interactive map on the website.

Oregon beekeepers involved in pollination colony rental should also have received a paper survey form asking for information on number of colonies, colony rental price, and crops pollinated in our annual Pollination Economics Survey. Started by Mike Burgett, this survey has data now for over 30 years. It is the largest continuous database of its kind. If you have not done so, please return this survey and annual loss survey at your earliest convenience.

If you rent colonies for pollination and did not receive this survey, or your loss survey has not arrived, then please contact Ramesh at ramesh.sagili@oregonstate.edu and we will get it right out to you.

Question of the Month

Question: In January 2018 there was a report that Lithium Chloride might be useful for the treatment of Varroa mites. What is the current state of this research?

Response from Ramesh Sagili: Lithium Chloride was shown to have the potential to control Varroa in a lab experiment with caged bees and a semi-field study with broodless artificial swarms (Ziegelmann *et al.* 2018), but I have not seen any further large-scale studies conducted in the field to evaluate efficacy of this compound for Varroa control. There are some concerns about larval toxicity and toxicity to bees when the larvae and bees are exposed to this compound for a longer

period of time. A recent study (Kolics *et al.* 2020) has shown that Lithium Chloride can also kill Varroa on contact (contact mode of action). Earlier studies have mostly shown systemic mode of action of Lithium Chloride.

Kolics *et al.* Contact effect contribution to the high efficiency of lithium chloride against the mite parasite of the honey bee. *Insects*. 2020;11(6):333. Published 2020 May 28. doi:10.3390/insects11060333.

Ziegelmann *et al.* Lithium chloride effectively kills the honey bee parasite *Varroa destructor* by a systemic mode of action. *Scientific Reports* | (2018) 8:683 | DOI:10.1038/s41598-017-19137-5 8.

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BEEKEEPER EVENTS

— 2021 —

ABF Conference & Tradeshow. Postponed until 2022.

May 20: World Bee Day. *Information:* www.worldbeeday.org/en.

June 21–27: National Pollinator Week 2021. *Information:* www.pollinator.org/pollinator-week.

July 26–30: Eastern Apicultural Society 66th Annual Short Course and Conference, University of Massachusetts, Amherst MA. *Information:* www.easternapiculture.org.

August 23–27: Oregon Bee Atlas 2021 Beginner Bee School. Oregon State University. Corvallis. *Information:* extension.oregonstate.edu/program/all/bee-atlas/events. (See also for additional events.)

October 1–2: Washington State Beekeepers Association 2021 Conference. *Information:* wasba.org/events/conference-info.

October 22–24. Tentative dates for the OSBA 2021 Fall Conference, when we hope again to meet in Florence. Updates will be posted at: orsba.org/osba-fall-conference.

November 16–18: California State Beekeepers Association Convention 2021. Hilton Santa Barbara. *Information:* www.californiastatebeekeepers.com/annual-convention.



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2021 BEEKEEPING CLASSES:

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Keeping Bees in April

Max Kuhn

April in Oregon, here west of the Cascades at least, usually means the beginning of SWARM season. Swarm season for many of us is the most exciting time of the beekeeping year. But swarming is not the only reason to be excited. It is also the time of year when beekeepers are receiving their newly purchased bees. These bees usually arrive in the form of 3-pound packages or nucs. The bees have been ordered a few months before from a variety of suppliers located all over the US. Receiving these new packages or nucs can be as exciting as catching a swarm—especially for those unfortunate folks who are still waiting to catch that first one. To those folks I say, “Don’t give up.” As long as we have honey bees, we will have swarms. And each year that you continue to keep bees, your chances of catching that swarm improve. So hang in there, your turn is coming.

Now back to the packages and nucs. A few years back, one of my beekeeper friends received one of those packages of bees and installed them as per directions into a ten-frame Langstroth-style box. He placed the caged queen between two frames in this box, shook the remaining bees from the package into the same box, and closed it up for the night. He then added a feeder filled with sugar syrup. The next day he meandered out to the bee yard to have a look at the new hive. After watching the hive entrance for a few minutes and not seeing the expected bees coming and going, he sensed something was wrong and opened the hive for a closer look. Whoa! Every single bee was gone . . . vanished! No trace. Except one. There in her tiny little cage was the queen. The only bee left in the box!

How could this Happen?! What would cause a package of bees to leave a perfectly good hive box, stocked with sugar syrup, and furnished with the latest in hive hardware!!! —not to mention leaving their newly introduced queen still stuck in her cage? What kind of bees would do this? One possible answer to this mystery lies in the process of the building of the packages themselves.

If you have never had the opportunity to watch or participate in the package-building process, you are missing a real treat. If you ever have the chance to go and witness this event, grab it; it is worth the effort. For those folks actually working on the process, it is pure work. For the bees, it is pandemonium, but the end result of this event is the nice tidy little packages of bees that you bring home to install in their new home.

The package-making process involves a large box, of sorts, made from wire mesh to contain a large amount of honey bees. Into this box is inserted a size large funnel made of metal, or similar material, which provides a slick surface for the bees to slide through on their way into that box. The box and

funnel are moved from bee hive to bee hive in the commercial beekeeper’s apiary. At each hive, workers choose a few frames of bees and, after checking to make sure the frames do not contain the queen, they then shake the frames over the funnel mouth. This causes the bees to slide through the slick funnel and into the mesh box.

The process is repeated until the box, which may contain a hundred pounds of bees, is full. The full box is then moved to another area where the bees are scooped out with a scoop that holds about 3 pounds of bees. The scoop is emptied into the funnel again, though this time the bees are sent sliding into the wire-and-wood travel box, which you eventually receive and take home to your apiary. (I apologize at this point to the commercial beekeeping profession for my oversimplified description of their package-making process, a process they take very seriously and carry out with the utmost care and consideration of the honey bees.)

The above process is coupled with the little-known fact that as many as 20 percent of all bee hives might, in April and May, contain multiple queens. Yes, it is true. During these spring months, when a colony is preparing to swarm, it may contain more than one queen. Usually they are mother-daughter queens, and it is a temporary situation due to bad weather that forces the swarming colony to wait for clearing before completing the swarm process. The daughter queens are much smaller and less distinctive than the larger mother queens, which makes these virgin queens more difficult to see. I believe they can easily slip past the beekeepers preparing the packages for shipment.

Herein lies one possible reason for the absence of the bees in my friend’s hive. When he installed his package of bees, it contained an extra queen! A battle might normally ensue between the two queens in this scenario, except for the fact that the one queen was contained in the small cage. So, the bees in this case, not being able to attack the caged queen, may have opted for another alternative, which was to abscond or swarm.

What if this situation were to happen to you? What would you do? I have given it some thought and decided I probably would not complain to the company selling me the package. What could I say? “Hey you guys sold me two queens for the price of one, so I want my money back.” Naw . . . that might not work.

I must point out that a nuc does not have the problem described above. The nuc is normally made with a laying queen that is not caged and has already been accepted by her hive mates. The nucs are more expensive, however.

Happy Swarm hunting. May your packages have only one queen!



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What Does the New Ruling on Oxalic Acid in Honey Mean?

Meghan Milbrath

On February 23, 2021, the FDA finalized a **ruling that establishes an exemption from the requirement of a tolerance for residues of oxalic acid in honey and honeycomb**. For many, this was no surprise, as it has been in the works (and open for public comment) for several months. However, the announcement created a stir among beekeeping forums and groups, resulting in a lot of attention, and unfortunately a lot of misinformation being shared. The purpose of this post is to explain this ruling and what it means for you and your bees.

The short answer is that this ruling does not change the way you use oxalic acid (OA) in your hives—it does not mean you can use oxalic acid with honey supers on. The long answer that explains the reasoning is below.

It is important to understand the difference between the goals of the FDA and the EPA, and the difference between a tolerance level and a pesticide label. The role of the FDA is to protect human and animal health. One of the ways that they do this is through enforcing **food tolerances**. A tolerance is the maximum amount of a specific pesticide that is permitted to be on a certain food that will be marketed in the US. This tolerance level is set by the EPA (www.epa.gov/pesticide-tolerances/about-pesticide-tolerances). The goal of a tolerance is to ensure that foods are safe for human and animal consumption. Set tolerance levels take into consideration all of the different foods a particular pesticide can be on. For example, if pesticide X is labeled to be used on both cherries and apples, the EPA would establish residue limits (tolerances) individually on both cherries and apples that are low enough to account for the fact that some people are going to be eating both types of fruit, ingesting pesticide X from multiple sources. These tolerances are regulated through targeted sampling. The USDA and FDA will analyze food samples, and, if they are above tolerance levels, they may take regulatory action. Usually they will contact the state department of agriculture to conduct investigations, and foods with illegal residues are considered adulterated and typically seized. *An exemption from the requirement of a tolerance means that the FDA will not measure a food product for that particular pesticide.* So, this recent ruling for oxalic acid in honey means that the FDA and USDA will not test honey for the presence of oxalic acid, or, if oxalic acid is found during the sampling of honey, it will not result in any regulatory action. While too much oxalic acid can be dangerous, it does show up naturally in a lot of foods, so it makes a lot of sense for the FDA not to look for it specifically

in honey. This is great! This means that, if you are selling honey or beeswax and someone tests it, you are not going to get all tied up with restrictions or regulations if oxalic acid were to show up in it.

The FDA's goal is to protect human health by limiting the amount of residues on certain foods through the use of tolerances. These tolerances are enforced by testing foods. An exemption from a tolerance means they will not be testing those food products for that particular pesticide.

The EPA on the other hand, has broader interests than just human health. The EPA is also concerned about how pesticides are used (not just how much ends up on final food products), which is why they enforce pesticide label restrictions. A pesticide label describes many things, such as what should be worn while applying the pesticide, if it should not be mixed with other pesticides, and how it should be applied. Pesticide labels are written by the manufacturer of the pesticide and approved by the EPA. Labels relate to tolerances in that, if used according to the label, there should be no illegal residues. So, tolerances are basically one tool to ensure pesticides are applied according to the label.

The label for oxalic acid currently states “**Do not use when honey supers are in place.**” As long as this label is in place, it is the law, regardless of FDA tolerance rulings. However, that doesn't mean that this label restriction is permanent. Manufacturers are constantly updating their pesticide labels as new research is done or as situations change. This means that it could be possible that the manufacturer may submit a new label to the EPA for approval in the future, especially if there is new research. But for now, that has not happened, so do not use oxalic acid while honey supers are on. If you want to make a change regarding pesticide use in honey bees, it is important to know who the manufacturer is of the labeled product, as they are the ones that will be changing the label. You can contact them, and you can also support the researchers who are working to study the effects of pesticides on honey bees and honey so that there is more scientific evidence to drive change.

The final important regulatory consideration is that pesticide use and registration are done at the state level. Your state may restrict oxalic acid use, or they may not enforce it in all situations. It is important to understand rulings in your state.

From the beekeepers' perspective, however, these label limits are not that restricting, because oxalic acid is not that useful when colonies are in honey production (and there are other

options for use at that time). Some points to consider if you were hoping to use oxalic acid during honey production:

- ❖ It is important to use more than one treatment when managing mites. Using only multiple applications of a single pesticide like oxalic acid over and over is how pests develop resistance. Use oxalic acid as part of your Varroa mite management strategy, not as your only mite management strategy.
- ❖ Oxalic acid does not work through the cappings (Rademacher *et al.* 2006). During peak summer, when honey supers are on, there is usually a lot of capped brood in the hive, and most of the Varroa will be in the capped brood. If you treat at this time, you will be missing most of the mites. Some beekeepers try to get past this by treating many times, but that can be damaging. Any time you treat, it is disruptive and damaging to bees, so it is important to time treatments so you are maximizing damage to mites while minimizing damage to bees. Otherwise you will cause unnecessary harm to your colony.
- ❖ When honey supers are on, there are often a lot of open brood cells as well. Oxalic acid is known to cause damage to open brood (Terpin *et al.* 2019). Damaging brood during honey flow can weaken the colony later in the summer.
- ❖ We already have treatments that are labeled for use when honey supers are on and that work through the cappings—Mite Away Quick Strips and Formic Pro. If you live in a place where mite levels get high during honey production, use these products instead.

Oxalic acid is still a useful tool for beekeepers to keep Varroa levels under control. Oxalic acid is the best tool to use when colonies are broodless. For example, it can be applied to new packages, and it is often used with success to clean up mites in the fall after bees have stopped brood rearing. Some beekeepers have also used oxalic acid in conjunction with splits and queen cells when they are making increases, to reduce the mites in newly created hives.

Oxalic acid is not the best tool when a colony is in honey production with a lot of brood. And it still isn't labeled for use when honey supers are on.

For more information on the topic, please see these new resources from the USDA:

Information on the Upcoming Amendment to the Varroacide, Oxalic Acid (API-Bioxal™): www.ars.usda.gov/northeast-area/beltsville-md-barc/beltsville-agricultural-research-center/bee-research-laboratory/docs/oxalic-acid-faqs.

Resources for Varroacide Registration: [www.ars.usda.gov/northeast-area/beltsville-md-barc/beltsville-agricultural-](http://www.ars.usda.gov/northeast-area/beltsville-md-barc/beltsville-agricultural-research-center/bee-research-laboratory/docs/oxalic-acid-faqs)

[research-center/bee-research-laboratory/docs/varroacide-registration](http://www.ars.usda.gov/northeast-area/beltsville-md-barc/beltsville-agricultural-research-center/bee-research-laboratory/docs/varroacide-registration).

References

Rademacher, E. and Harz, M. (2006). Oxalic acid for the control of varroosis in honey bee colonies – A review. *Apidologie*, 37 (1), 98–120.

Terpin, B., Perkins, D., Richter, S. *et al.* A scientific note on the effect of oxalic acid on honey bee larvae. *Apidologie*, 50, 363–368 (2019).

US EPA, Pesticide Product Label, Oxalic Acid Dehydrate, For Varroa mite control on bees. www3.epa.gov/pesticides/chem_search/ppls/091266-00001-20150310.pdf.

Note: Reprinted from the Bee Informed Partnership @ 2021 beeinformed.org with kind permission from Bee Informed Partnership and Meghan Milbrath, Coordinator, Michigan Pollinator Initiative, Michigan State University. Originally published on March 10, 2021. Meghan has specifically recommended including the FAQs provided by USDA (the first USDA citation, this page), as “they have the real inside scoop.” If anyone has difficulty with access, please email osba.newsletter@gmail.com or phone 503.772.3486 for a copy.

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Apiary Registration with ODA

Every person who owns, or is in charge of, five or more colonies of bees located within the state or Oregon, must register each year with the Oregon Department of Agriculture. The form needed to register colonies is located at: apps.oregon.gov/SOS/LicenseDirectory/LicenseDetail/606 or obtained in person by visiting: 635 Capitol Street NE, Salem, OR, 97301

The current cost of apiary registration is \$10 with an additional charge of \$0.50 per colony for five or more hives. After July 1, the registration fee will increase to \$20. The fee per hive remains at \$0.50 per colony for five or more hives. The number of colonies that must be registered is equal to the highest number of full strength colonies managed within the state at any point during the previous year, prior to the registration deadline of **June 1**.

All money collected from apiary registration shall be spent on research at the OSU Honey Bee Lab predominantly focused on honey bees (honeybeelab.oregonstate.edu).

REGIONAL NEWS

Regional Representatives

North Coast

I have been cleaning out my shed and going through bee equipment trying to decide what to keep and what to pass on to other beekeepers. I haven't had bees for a couple of years, and, although I miss them, I won't be getting more any time soon. My location is not very conducive to bees, and, added to all the other challenges bees have, it just doesn't seem fair. But, with the weather easing up and the occasional day in the fifties, I miss the time spent watching the bees start to come in and out of the hive, the excitement of the first pollen packs seen on a returning bee, the anticipation of going into the hive to see just what the queen has been up to these last few weeks.

We're still getting a lot of rain and with some pretty cold nights and sharp winds during the day; moisture in the hive is still a clear and present issue. There's not a lot starting to bloom in my area yet, so, if I did have bees, I would probably be feeding them now and anxiously watching all the shrubs and plants I've put in over the years with honey bees in mind to catch the first sign of blooms.

Both north coast associations have been holding Zoom meetings with interesting discussions and very helpful videos. There have been losses this year, but I don't know yet how severe. Probably the greatest loss has been the interpersonal contact among beekeepers. On the other hand, though, having the bees to work with over this last year has probably been a real godsend for many folks. Stay safe.

Kathy Cope

South Coast

Our bees arrive on Tax Day. A load of bee packages, about 60 or so, will be picked up from afar and dispersed to their new hosts of Curry County, Oregon, and Del Norte County, California.

Communications have been challenging since we don't gather to share the buzz anymore. Most of the officers of Oregon South Coast beekeepers elected in 2019 are still hanging in there, looking forward to an election update in the fall. Maarty Van Otterloo is vice president and Shelley Pottmeyer, secretary. President Jesse Fletcher is now also the treasurer.


Usually the association arranges early in the year to purchase a quantity of bee packages, usually managed by the treasurer and transported by the Roses, Russ and Babette, of My Honeys Produce. Neither Jesse nor Russ had heard from anyone wanting bees, so they both made initial arrangements for packages and then put out the word. The response was good, close to the usual amount of orders. The Roses will be delivering to beekeepers south of the border, in Crescent City and Smith River, as well as to Brookings and Gold Beach. "Our bees are overwintering pretty well," says Russ, "and things are looking good for 2021 in spite of Covid!!!"

Moisture is still the number one challenge during lockdown time for the colonies here. There have been some losses. The characteristic weather pattern hardship has not happened this year. Often there is a surprise spring for about two weeks in either January or February, getting the bees all revved up for lots of blossoms, and then come March, fiercely blustering with wind and rainstorms, deflowering the orchards and depressing the groundflowers. Overoptimistic colonies that overpopulated die in that sneaker season pattern. This year, though, it seemed that there was never any two weeks of sun

with no rain, nor any two weeks with rain and no sun. Good for keeping colonies temperate.

All the manzanita bloomed in late February as well as some orchard trees. The rosemary is celebrating the growing sun with its sky blue packages of sweet scent for the honey bees.

Mureen Walker



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Regional Associations

Central Oregon Beekeepers

Aaaah. We're finally getting the first hints that spring is coming. The grass is starting to green up (need to get those sprinklers going). The crocuses, snowdrops, and very early trees are finished, and the other bulbs are starting. The forsythias are in full bloom, and the lilacs are budding for later in the month. We probably won't have any more snow; however, there are probably several freezes left in the system. It's gotten nice enough that most of us are starting our inspections, if we didn't in late March. We're looking forward to the earliest of nucs later in the month.

In February and March, we held a beginners' bee school via Zoom. It went over quite well with 82 enrollees over a series of four evenings. Lots of information and questions and several awesome instructors. We are hoping it bodes well with helping the newer folks through their first year. In a poll of our members about success and satisfaction from last year, there was a slight rise in folks who had issues with success and satisfaction last year, so we had an association discussion in March. We are also looking forward to the results of the Pacific Northwest hive loss poll. Last year it was quite informative.

Our association will be continuing to meet via Zoom for a few more months, although we are all looking forward to in-person meetings, hopefully later in the summer after enough folks are immunized that they feel comfortable with meeting in person.

Please feel invited to attend any of our meetings. They are held on the fourth Tuesday of the month from 7 to 8:30 PM. The Zoom invitation can be found on our website at www.cobeekeeping.org under events.

Allen Engle

Columbia Gorge Beekeepers

The challenges incurred throughout the world over the past year through isolation due to Covid have taken their toll. Especially to beekeepers, who love to explore their hives but just as importantly to share their joy and frustrations. No longer are in-person meetings or annual conferences afforded. Thus, sharing the state of the Gorge beekeeping has been difficult. The winter blessed us with a nice layer of snow on Christmas Day. That was followed by a smaller dose in February. The snow on Mt. Hood is near average with 90" depth. This is critical as this snow supports our agricultural endeavors, as well as individuals, with fresh spring water. There is always that moment when the dreariness of cloud-covered skies, cold temperatures, along with other wintry conditions, that sighting of the spring's first bloom, a grass widow, brings feelings of joy. That day arrived the last moments of February as a few wildflowers sprung into being. So, the gloom of winter, at the sight of the first bloom, brings renewal. So it is when we find our colonies once again exploring their outdoors. Or, with

overwhelming sadness, the lack of bees crowding the entrance. Hopefully, spring will find us gathering in groups once again as we share our love for the awesomeness of this tiny insect, the honey bee.

Jerry Frazier

Lane County Beekeepers

Lane County Beekeepers have spent the month of March cleaning and repairing equipment, ordering bees and supplies, and checking the status of overwintered colonies in anticipation of the flurry of activities that April always promises. Despite COVID-19 constraints, our members have held association programs over the previous three months and instructed three groups of novices on the science of beekeeping. All in a virtual environment. Teaching Beekeeping 101 virtually clearly was challenging for both presenters and participants, and lacked the typical hands-on elements. However, the three classes were well attended and received positive feedback from students. Instructors reminded students that the class was simply their introduction to adventures with bees and encouraged them to reach out whenever they had questions about their colonies.

Association leadership is finalizing monthly programs for the remaining 2021 meetings. New memberships and renewals have been strong so far, and our fundraising honey sales are robust. We are planning for the same COVID-19 constraints on our annual public outreach efforts, such as Home and Garden Shows and other public activities. However, we were invited by GloryBee to staff a drive-thru station at their annual Bee Weekend to answer questions from beekeepers picking up their packages of bees and new queens.

April is expected to bring lots of new energy and smiles to association members as they reengage with active colonies and welcome new colonies to their bee yards. Veteran members are preparing for the annual volley of emails and phone calls from members with questions. Our association also will continue offering assistance to the public with the removal of unwelcome swarms and colonies. And beyond the standard advice about feeding, Varroa control, and swarm management, association leadership is prompting members to start yellowjacket control measures early before these colonies have a chance to expand.

Brian McGinley

Linn Benton Beekeepers

Welcome to a new month. Every time the sun comes out, the bees come out for a peek—until the sun goes away or the rain comes in and the bees go back inside. Funny, just like me.

This month we are looking forward to our guest speaker, Dan Scollard. Dan is our local Wasp Wrangler. If you find a yellowjacket, baldfaced hornet, or any wasp nest that scares

you, Dan is our man. I got to know Dan when I found a HUGE baldfaced hornet nest about 30+ feet up in one of my fir trees. Dan was one not to give up easily. Together we put enough of our good old American knowhow together, and Dan was able to suck out, with his custom-made vacuum, the majority of those mean critters. Dan came back two weeks later and got the rest after they rebuilt the damage we did to their nest. Dan puts them on dry ice and ships them in to extract their venom to help protect the rest of us.

I have a lot of respect for what Dan does. Until next month, it is time to start thinking about putting out those yellowjacket traps to capture those queens looking for new nesting sites around your hives! "All journeys have secret destinations of which the traveler is unaware," by Martin Buber. Best wishes.

Ray Juhasz

Portland Metro Beekeepers

The February meeting of the Portland Metro Beekeeper's Association (PMBA) was entirely devoted to topics with the new beekeeper in mind. There was a presentation on basic honey bee biology by Anne LeSenne. Anne also provided a great overview of (primarily) Langstroth hives and each of their components, including protective clothing, smokers, and other useful tools. Paul Stromberg presented an outstanding video he made showing how to build a wooden hive box. It was all really good information for both novice and experienced beekeepers. Our March meeting will have demonstrations of installing a nucleus hive into an 8- or 10-frame box and care for the newly installed colony. Additionally, members will showcase the tools and accessories they use in their inspections. Every meeting is attended by beekeepers with many, many years of valuable experience freely shared with those who are less experienced.

New and renewing memberships and nuc orders continue to roll in to the PMBA. As of March 1, we were over 50 percent of the way to our cap of 400 nucs. At this point, delivery is scheduled for April 10. Plans are underway for distribution of nucs on that day. Masks and social distancing are still part of the routine, and purchased nucs will be staged on tables for members to pick up after check-in. This worked very well last year and made pick up safe and quick. We are hoping for decent weather and a quick distribution of those 400 nucs.

The northern Willamette Valley finally experienced winter in February. The valley experienced snow, then ice, then more and more and more ice starting February 13th. Power for many of us was out for several days. Many of us with bees near trees were on pins and needles listening to limbs, trees, and ice crash down all night long, praying for the limbs to miss crashing down on hives. Our commercial beekeepers fared well because many of their hives were in California pollinating almonds. From listening to other local beekeepers, it seems like our intrepid little insects,

by and large, escaped harm and weathered the cold, wet onslaught. I lost a hive to limbs knocking boxes off their moorings and exposing bees to wet and cold. It truly could have been worse.



Many of us are optimistically preparing for the upcoming season by cleaning up gear and purchasing treatments and pollen patties. I'm cleaning and disinfecting all my tools and vow to be diligent disinfecting tools between hives and yards this year to prevent spread of diseases. Let's all hope and pray for a good season of healthy, strong hives with plenty of pollens, nectars, and bounty for our little friends.

Dave Schwartz

Portland Urban Beekeepers

Who isn't loving these warmer days? We're happily watching our bees zip back and forth from parts known and unknown, or we're anticipating the arrival of our bees (or both!). Either way, the spring is a harbinger of finer days to come.

We were fortunate to hear from our own Mandy Shaw at our March meeting. Many of you know Mandy as the creator and producer of the podcast *Beekeeper Confidential*. She gave us an overview of swarm catching—showed informative videos and provided stories and lots of tips and tricks for success in both collecting and baiting swarms.

For a few months now, PUB has been surveying its members regarding whether members would like to reconvene in person or continue our meetings on Zoom after the pandemic. We've heard from about half our membership, and so far the votes are 2:1 in favor of remaining on Zoom. It seems the convenience of participating in a meeting while in our pajamas is too good to pass up! We are now looking at ways to augment those with in-person social events, which we all know is an important part of our community development. We are hoping to start work parties at our apiary in June, and we're considering hosting quarterly gatherings at local pubs for informal sharing and mingling.

Many thanks to our members who developed and created a virtual Bee Buddy system on our web page. Now potential mentors and mentees are able to connect through our website and find another beekeeper to pair up with, learn from, and teach. If you're a beekeeper in the Portland area, join in!

Jessica Anderson



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Tillamook Beekeepers

Like we said last month, we at the coast can't wait until the weather is warm enough to hold outside apiary meetings, probably the May meeting. The March meeting was Zoom with seventeen folks attending, about half of them new beekeepers. We are devoting these spring meetings to the needs of new beekeepers. We watched and discussed three short videos, one on installing a nuc, one on inspecting the nuc a week after installation, and one on a comparison of different feeders. They were well received.

We heard from our nuc supplier that the bees we receive will have been treated with Apivar in their hives down in the almond orchards. So, if we should need to treat soon after we get them, it should not be with Apivar.

Our hive and bee discussions led to a question we really need a better answer to. One new beekeeper asked why a hive can have so many after-swarms that it is no longer large enough to be a viable colony. Research coming . . .

Our spring hive raffle has had 306 of the 1,000 tickets sold. The first raffle is at our April 9th meeting. We will also be raffling off a second hive exactly like the first one at the county fair in August. Anyone who buys raffle tickets for the first drawing is automatically still in for the second drawing in August. If any of you would like to purchase tickets, go to www.tillamookbeekeepers.org. Last month's *Bee Line* has a picture of the hive, which has the boxes painted like loaves of Tillamook cheese.

Claire Moody

Tualatin Valley Beekeepers

We offered our first virtual Bee School in early March, with three online sessions for about 20 students. The online classes seemed to work fairly well, but we look forward to post Covid and meeting again in person. As of the March submission date for this text, spring is coming along strongly in our part of the world and bees are bringing in lots of pollen. We are scheduling presenters for our monthly last Tuesday meetings, working to make sure our members get timely education around what to be doing in their apiaries. We are pleased to be part of the Portland Metro area Beekeeper Task Force. When someone in our area needs expert assessment and guidance on a dead or apparently ill colony, folks can access the form to ask for help on our website home page at tvbabees.org.

Debby Garman



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Nature will bear the closest inspection. She invites us to lay our eye level with her smallest leaf, and take an insect view of its plain. — Henry David Thoreau

The Bee Line

The Bee Line is the official publication of the Oregon State Beekeepers Association. Annual subscriptions to the newsletter are included with membership.

Please send news about your bees and your experiences in keeping them, as well as events, corrections, comments, questions, photographs and stories, interviews, recipes, points of view—and ads/advertising—to: Rosanna Mattingly, *The Bee Line*, 4207 SE Woodstock Blvd Ste 517, Portland OR 97206; e-mail: osba.newsletter@gmail.com. It's your newsletter—we want to hear from you!

The next issue to be printed will be the **May** issue, 2021. The deadline for submitting copy is **April 10, 2021**. Please let me know if you find difficulties with the deadline so we can work out the space and timing for the material.

May all be well!

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