



CENTRAL COAST BEEKEEPERS NEWSLETTER

January 2023

Issue number 77

NEXT MEETING January 25, 2023

January 25th Meeting: New Time & Place

Our first meeting of 2023 will be on Wednesday, January 25, from 1:30-3:30PM at the Newport Public Library. For those wanting to save time and travel expenses, we will also have an option to join via Zoom. We will be discussing getting ready for spring and this year's process for bee orders.

To join via Zoom:

<https://us02web.zoom.us/j/89517987868?pwd=QzVTR1JKYlFYbXdnUjg5QkhDbncxdz09>

Meeting ID: 895 1798 7868

Passcode: 715645

One tap mobile

+13462487799,,89517987868#,,,,*715645# US

(Houston)+16694449171,,89517987868#,,,,*715645# US

PRESIDENT'S MESSAGE

By Pat Wackford

Hope you all had a great Holiday and still had time to keep an eye on your hives. I have checked and changed out towels in the moisture boxes and in doing so can take a quick peek into the top honey super. I have both hives insulated and see bees breaking cluster to forage on their stores. The hives are still heavy. On those “warmer” days there is a small window for cleansing flights.

If you had a chance to read the December Newsletter, we gave notice of changes to our Club meeting location and time. We will be going back to the Newport Library, 35 NW Nye Street, and meet from 1:30 PM to 3:30 PM. Meetings will still be on the 4th Wednesday of the month. The next meeting will be January 25th please be sure to mark your calendars!

This month we will be taking orders for bees from a supplier in Eugene. We would like to have a rough idea how many packages members may need for an April delivery. This may not be a final number but hopefully you will not lose any more hives this year. Make your request for number of bees to be higher than you may need. It will be better to have more bees ordered than not enough. We hope to have pricing available at the meeting. Please plan to pay your club dues so that you can get the club's special pricing. Dues are \$15 per individual and \$25 per family.

Also, this month, Max will be discussing getting ready for spring and what you should be doing now in January. The New Bee Year has begun.

Finally, there are two officer positions unfilled for 2023, that of President and Vice President. This will be my final meeting as President, and Max will step in if necessary for a brief time.



2023 Membership Dues

The club will once again offer members discounts on bees and will coordinate delivery. Your club dues must be up to date to receive the discount. Club dues remain at \$15 for individuals and \$25 per family and are due at the beginning of the year. You can pay via bank transfer, PayPal (using our email centralcoastbeekeepers@gmail.com) or check sent to CCBA at PO Box 1916, Newport, OR 97365. No additional paperwork is needed for renewing members.

You may also want to consider supporting OSBA. Members can join for \$40 a year. The club benefits from your affiliation with the OSBA such as matching donations to the USU Bee Lab and liability insurance for events.



Surprising” – Researchers Have Found That Honey Improves Key Measures of Cardiometabolic Health

By UNIVERSITY OF TORONTO JANUARY 3, 2023

Honey is a sweet, thick liquid made by bees using the nectar of flowers. It is commonly used as a natural sweetener in foods and beverages and has been valued for its medicinal properties for centuries.

According to a new study from researchers at the [University of Toronto](#), consuming raw honey from a single floral source may have significant benefits for cardiometabolic health.

In a systematic review and meta-analysis of clinical trials, the researchers found that honey consumption was associated with lower fasting blood glucose, total and LDL ('bad') cholesterol, triglycerides, and a marker of fatty liver disease. Additionally, honey consumption was linked to higher levels of HDL ('good') cholesterol and some markers of inflammation.

"These results are surprising because honey is about 80 percent sugar," said Tauseef Khan, a senior researcher on the study and a research associate in nutritional sciences at U of T's Temerty Faculty of Medicine. "But honey is also a complex composition of common and rare sugars, proteins, organic acids, and other bioactive compounds that very likely have health benefits."

Previous research has shown that honey can improve cardiometabolic health, especially in vitro and animal studies. The current study is the most comprehensive review to date of clinical trials, and it includes the most detailed data on processing and floral source.

The results were recently published in the journal *Nutrition Reviews*.

"The word among public health and nutrition experts has long been that 'a sugar is a sugar,' said John Sievenpiper, principal investigator and an associate professor of nutritional sciences and medicine at U of T, who is also a clinician-scientist at Unity Health Toronto. "These results show that's not the case, and they should give pause to the designation of honey as a free or added sugar in dietary guidelines."

Sievenpiper and Khan emphasized that the context of the findings was critical: clinical trials in which participants followed healthy dietary patterns, with added sugars accounting for 10 percent or less of daily caloric intake.

"We're not saying you should start having honey if you currently avoid sugar," said Khan. "The takeaway is more about replacement — if you're using table sugar, syrup, or another sweetener, switching those sugars for honey might lower cardiometabolic risks."

The researchers included 18 controlled trials and over 1,100 participants in their analysis. They assessed the quality of those trials using the GRADE system and found there was a low certainty of evidence for most of the studies, but that honey

consistently produced either neutral or beneficial effects, depending on processing, floral source, and quantity.

The median daily dose of honey in the trials was 40 grams or about two tablespoons. The median length of trial was eight weeks. Raw honey drove many of the beneficial effects in the studies, as did honey from monofloral sources such as Robinia (also marketed as acacia honey) — a honey from False Acacia or Black Locust Trees — and clover, which is common in North America.

Khan said that while processed honey clearly loses many of its health effects after pasteurization — typically 65 degrees Celsius for at least 10 minutes — the effect of a hot drink on raw honey depends on several factors, and likely would not destroy all its beneficial properties.

He also noted other ways to consume unheated honey, such as with yogurt, as a spread, and in salad dressings.

Future studies should focus on unprocessed honey, Khan said, and from a single floral source. The goal would be higher quality evidence and a better understanding of the many compounds in honey that can work wonders for health. “We need a consistent product that can deliver consistent health benefits,” said Khan. “Then the market will follow.”

\$1.1M in funding to unlock power of critical protein in honeybees

ASU Professor Gro Amdam to research vitellogenin to support honeybee health

Vitellogenin is a protein that may be the key to optimizing health and reproduction in all egg-laying species. This protein has been around since the start of animal life; even dinosaurs had it.

[Gro Amdam](#), a professor in the [School of Life Sciences](#) at Arizona State University, has been fascinated by the potential of vitellogenin to change the way we think about animal reproduction and overall health. Recently, Amdam and

international collaborators were awarded \$1.1 million to advance vitellogenin research and support honeybee health. Vitellogenin is a critical protein that supports honeybee health. Photo courtesy Christopher Bang

Before moving to the United States, as a PhD student at the Norwegian University of Life Sciences, Amdam decided to pursue the study of vitellogenin in honeybees. Initially, academics thought vitellogenin was just another protein in egg yolk, crucial for almost all egg-laying animals, but nothing spectacular. Despite the common belief, Amdam knew there was more to the vitellogenin story — something exciting and ready to be discovered.

As part of her PhD work, she found interest in fluctuations of this protein, particularly in bee workers. She found that different patterns of expression were closely related to fundamental aspects of the bees' life cycle. Honeybees were the perfect model organism to investigate this protein. They are easy to breed and produce vitellogenin in vast amounts, with some bees producing up to several hundred micrograms per day.

Amdam said this protein is like a Swiss knife: It possesses multiple modifications and add-ons, which are critical to its function.

After more than 20 years of investigating vitellogenin, \$1.1 million was awarded to Amdam's summer home campus, the Norwegian University of Life Sciences. The funds come from a competitive, multidisciplinary and international program that receives over 2,000 applications in all fields of biology and Amdam was one of the 82 funded. This award will be key in financing research at ASU and with international collaborators.



Amdam is thrilled by the support and endorsement of this award.

"Getting funded is one thing," she said, "but the fact that an international community recognized the importance of (vitellogenin) is the most exciting! This work has been considered unique and extremely competitive in an open arena."

Their multi-year project aims to unlock the power of vitellogenin variants in honeybees. Its broad scope starts at the genetic and molecular level and ends with investigating its effects on veterinary medicine, agriculture and society at large.

"We are going from genetics and simulations of the protein structure to molecular dynamics, all the way to growing the protein in animals and observing its effect in bee colonies," Amdam said.

Vitellogenin is a protein that is shared among various species. Understanding the role of vitellogenin in health and reproduction is critical when it comes to sustainable food sources. The goal is to develop new techniques for breeding healthier animals, not only honeybees but also fish and poultry.

"With this proposal, we are taking the step from honeybees to a platform for application in animals that are our food sources," Amdam said.

"This allows us to take an entirely new look at these species, like the bee, chickens or fish, and say, 'Are we taking care of this protein?' If we ignore it, then other things will fall apart," Amdam said. "This leads towards healthier farm animals so we can better understand how they utilize macronutrients to support health and reproduction."

Amdam and her team have been instrumental in the paradigm shift in vitellogenin research. "Our research has pushed this field forward," she said.

With so much more to learn, expanding our understanding in this field has grown into a team effort, and Amdam has been able to share her excitement for vitellogenin with former and current students, who plan to take her initial research to new levels. For Amdam, vitellogenin is "a gift that keeps giving." "I can say that I've trained people that have been important in moving this knowledge forward, and this is super rewarding!" Amdam said.

U.S.D.A. Approves First Vaccine for Honeybees

Dalan Animal Health's vaccine for American foulbrood, an aggressive bacterial disease, is the first for any insect in the United States.



A conditional license for a vaccine to protect honeybees against American foulbrood disease has been approved by the U.S. Department of Agriculture. Credit...Newsday LLC / Getty Images



By [Remy Tumin](#)

Jan. 7, 2023 NYT

A biotech company in Georgia has received conditional approval from the U.S. Department of Agriculture for the first vaccine for honeybees, a move scientists say could help pave the way for controlling a range of viruses and pests that have decimated the global population. It is the first vaccine approved for any insect in the United States.

The company, [Dalan Animal Health](#), which is based in Athens, Ga., developed a prophylactic vaccine that protects honeybees from American foulbrood, an aggressive bacterium that can spread quickly from hive to hive. Previous treatments included burning infected colonies and all of the associated equipment or by using antibiotics. Diamond Animal Health, a manufacturer that is collaborating with Dalan, holds the conditional license.

Dalail Freitag, an associate professor in honeybee research at the Karl-Franzens University of Graz in Austria and chief science officer for Dalan, said the vaccine could help change the way scientists approach animal health.

“There are millions of beehives all over the world, and they don’t have a good health care system compared to other animals,” she said. “Now we have the tools to improve their resistance against diseases.”

Before you start imagining a tiny syringe being inserted into a bee, the vaccine, which contains dead versions of the bacterium *Paenibacillus larvae*, comes in the form of food. The vaccine is incorporated into royal jelly, a sugar feed given to queen bees. Once they ingest it, the vaccine is then deposited in their ovaries, giving developing larvae immunity as they hatch.

Scientists long assumed that insects could not acquire immunity because they lacked antibodies, the proteins that help many animals’ immune systems recognize and fight bacteria and viruses. Once scientists understood that insects could indeed acquire immunity and pass it to their offspring, [Dr. Freitag set about answering the question of how they did so](#). In 2015, she and two other researchers identified the specific protein that prompts an immune response in the offspring and realized they could cultivate immunity in a bee population with a single queen.

Their first goal was tackling American foulbrood, a bacterial disease that turns larvae dark brown and makes the hive give off a rotting smell. The disease ran rampant during the 1800s and the early 1900s in bee colonies in parts of the United States. While American foulbrood is not as destructive as [varroa mites](#), the bacterium can easily wipe out colonies of 60,000 bees.

The introduction of a vaccine comes at a critical moment for honeybees, which are vital to the world’s food system but are also [declining globally](#) because of climate change, pesticides, habitat loss and disease.

“There is no silver bullet, but there is a toxic stew of causation, and some of that includes diseases that are new and some that are old and familiar,” said Keith Delaplane, a professor of entomology at the University of Georgia and the director of its honeybee program, [which provided research grounds for Dalan](#). “It’s death by a thousand cuts.”

By pollinating food as they feed on pollen and nectar, honeybees pollinate about one-third of the food crops in the United States and help produce an estimated [\\$15 billion worth of crops](#) in the United States each year. Many beekeepers [lease their hives across the country](#) to assist in pollination of almonds, pears, cherries, apples and other types of produce.

[At least three-quarters of flowering plants](#) require the assistance of pollinators, including bees, butterflies and moths, to produce fruit and seeds.

Chris Hiatt, who keeps bees in North Dakota and California and is the president of the [American Honey Producers Association](#), participated in the vaccine trial over the summer with about 800 queen bees in North Dakota.

“For beekeepers, you just don’t want to be reliant on antibiotics,” which most beekeepers give once a year or when there are flare-ups, he said. “Antibiotics can wipe out some of the beneficial microbes. This has the potential to add other things, too.” Annette Kleiser, the chief executive of Dalan, called the vaccine “a huge breakthrough.” “Bees are livestock and should have the same modern tools to care for them and protect them that we have for our chickens, cats, dogs and so on,” Ms. Kleiser said. The conditional approval provides a mechanism that allows companies to accelerate approval for vaccines if they demonstrate there is a high, unmet need in the market, Ms. Kleiser said.

“The agency realizes that these new tools are needed in the market to help change practices,” Ms. Kleiser said, adding that the U.S.D.A. had recommended that the company pursue a conditional path “to get this out onto the marketplace as quickly as possible.”

Ms. Kleiser said that the company had to show proof of “safety, purity and certain degrees of efficacy” to gain approval and that it planned to continue collecting data while it applied for full approval. Dalan also hopes to use the American foulbrood vaccine as a map to produce vaccines for other diseases that affect honeybees.

“When we started, there was no regulatory path,” she said. “No one has ever developed an insect vaccine — they’re wild animals who fly around,” compared to domesticated livestock and pets with vaccine protocols. She added, “We’re really hoping we’re going to change the industry now.”

Dr. Delaplane, the entomologist at the University of Georgia, agreed.

“Someday,” he said, “we could have a cocktail that solves a lot of bee problems — that would be the holy grail.”



DRIFT

BY [DAN WYNS](#) [BEEINFORMED.ORG](#)

Bees have incredible navigation abilities that allow them to fly miles away from the colony to forage and return home with enough precision to locate the entrance to their colony, even when there are dozens of nearly identical hives within a small apiary site. The current understanding of navigation is that a combination of position relative to the sun and landmarks across the landscape get them close and then a combination of visual cues and pheromones to precisely locate the colony entrance. When a returning forager ends up returning to the wrong colony, she is typically not attacked as a robbing bee but accepted into the colony due to the pollen or nectar she carries. This process, known as drift, can lead to significant variations in colony strength over time and increase the potential for the spread of diseases and parasites within an apiary. Drift is generally not viewed as a huge problem, but there are some steps beekeepers can take to mitigate the amount of drift happening in their apiaries.



A large collection of uniformly colored colonies in a featureless landscape may invite excessive drift. Photo: Rob Snyder

When colonies are aggregated in large numbers and placed in rows of pallets, as is common in a commercial setting, there is potential for excessive drift. Many beekeepers elect to paint all of their woodware white, and this decision may be based on tradition, aesthetic, or other considerations. Others use a variety of colors, which creates a more vibrant apiary and may also help returning forages with orientation. While bees do not see the same spectrum of colors as humans, they are able to distinguish between different shades, assisting them in orientation. In general, dark colors should be avoided, particularly in excessively warm and sunny locations, so colonies will not become excessively hot. However, a mix of

pastel colors and tones can provide some variation to help bees distinguish individual colonies without adding the potential for thermal stress.



Varied colors and a hedgerow will help with orientation but colonies towards the end of long rows may gain extra bees through drift.



Photo: Dan Wyns

An apiary utilizing color variation, landscape features, and colony orientation to minimize drift. Photo: BIP

In addition to variations in color, placement relative to other colonies and objects in the landscape can offer navigational aids that limit drift. Many beekeepers have observed that when a number of colonies are placed in a long line the colonies at the downwind end of the line accumulate more bees and yield greater honey harvests while those at the upwind end of the line are often short on bees and lighter in honey stores. By placing an array of hives in circles or arcs, with entrances pointed in different directions, the downwind drift effect can be lessened. Prominent landscape features can also be helpful in providing

orientation assistance. In addition to potentially providing a windbreak, a structure, tree line, or hedgerow close to hives can reduce drift. Orientation landmarks can be particularly important when setting up yards for mating nucs. It is essential that queens return to the correct nuc after orientation and mating flights so extra consideration should be given to visual cues in order to minimize drift in mating yards.



A forager returning with a phoretic mite shows the potential for horizontal transmission via drift. Photo: Dan Wyns

Drift is not something that most beekeepers give a lot of thought and it is certainly not among the most critical factors impacting colony health. Nevertheless, there is a growing understanding of the impacts of horizontal transmission of varroa mites between colonies and the ability to control varroa levels within and between apiaries. Phoretic varroa on drifting foragers are one way that ‘clean’ colonies may become reinfested. Given the ever-increasing number of challenges to bee management, reducing drift represents one area where beekeepers can potentially reduce colony stress for a minimal amount of effort.



Club Info

Visit our website at: <https://www.ccbaor.org/>

Address: POB 1916 Newport, OR 97365

Email: centralcoastbeekeepers@gmail.com

facebook: [CCBA meta](#)
