CENTRAL COAST BEEKEEPERS NEWSLETTER

February 2024

NEXT MEETING February 28, 2024

PRESIDENT'S MESSAGE

By Jeremy Egolf

Something I love about living in rural coastal Oregon is the relative lack of light pollution on a clear, dry, bracing winter's night, perfect for identifying those constellations that fascinated me as a child but I never quite buckled down to observe directly. The flip side of course, is winter's ice storms and howling winds (witness Lincoln County this January), that test how well we prepared our hives for our climate. I've already heard of a few deadouts (my hand is raised) so the good news is that we've identified a provider for our bee bulk order, Henry Storch -- see the write up in this newsletter.

And we've sketched this year's program (see next page). Rick Olson will discuss what to do with all those new packages and nucs you're thinking of buying, and Max Kuhn follows with what to do if your colonies more than survived and the residents are considering relocating to another state. Then for April we plan a repeat of last year's fascinating deadout workshop, so please save a frame or two to bring and discuss, so that a colony's passing shall not be in vain and that we may learn from our collective experience.

There's lots of advice out there on winter preps but the point now is survival – a common thread is that if you find the hive is light (or you're otherwise concerned about food stores), on a non-rainy day with temperatures above 50 F (55 is better), expose the highest super briefly and pour some granulated sugar on the top bars – should take only a few seconds per hive.

Stay tuned, the year is young.

The Year's Program

All meetings Wednesday, 1:30, at the Newport Public Library, except for the June and July meetings, which are at the OSU Extension office in Newport.

February 28: Rick Olson: "Installing Nucs and Packages"

March 27: Max Kuhn: "Swarm Control"

April 24: Deadout workshop (please bring a frame or two, including any oddities you'd like to share); Lessons Learned and Spring Preparations

May 22: Dr. Ramesh Sagili (Director of OSU Bee Lab): "Varroa Control and Pollen Supplements"

June 26: Dr. Andony Melathopoulos (OSU Extension Service Master Melittologist): "Take a walk on the wild side: the weird and wonderful world of native bees (for beekeepers)." Note: meeting at the OSU Extension Office, 1211 SE Bay Blvd., Newport.

July 24: Annie Marion (USDA Natural Resources Conservation Service, Waldport Field Office): "Coastal Pollinator Habitat." Note: meeting at the OSU Extension Office, 1211 SE Bay Blvd., Newport.

August: Summer party hosted by Pat Wackford (to whom we are grateful!) (date TBD)

September 25: Dr. Dewey Caron (Emeritus Professor of Entomology and Wildlife Ecology, University of Delaware, and Affiliate Professor, Department of Horticulture, OSU): "Winter Hive Preparations"

October 23: TBD

November 27: Annual Meeting (Election of Officers, Plans for Next Year)

Foraging for Bees: 2024 Bulk Package and Nuc Order

We explored several options and decided to make this year's purchase from Henry Storch (OSO Honey Farms). For our paid-up members purchasing through CCBA, they are available at $155 for a three pound package, $180 per five frame deep nuc. The nucs include five frames of bees, at least two frames of capped brood, one frame of open brood, and 2 frames of honey/pollen. Henry will mark queens for an additional $10 (each) for those who want this service. Henry's target date to deliver our nucs and packages is May 19th.

Steve Niles (available through our email address: centralcoastbeekeepers@gmail.com) is coordinating the club purchase. Please provide him your orders as soon as possible to ensure your bees are reserved and Henry can plan his work. For our members, the April 24th meeting is the hard final date for orders. Purchasers will be informed of delivery logistics as the date approaches.

More about Henry Storch on the next page.

Henry has about 15-20 years' experience with bees; he's been selling bees for 10 years, including wholesaling to Bridgetown Bees (Portland) for six years and also to Central Oregon Beekeepers. This year he is providing Bridgetown 100 packages, assembled in a week.

His bees' genetic roots are Lincoln County "Buckfast" bees bred in the Big Elk Creek area from dark northern European stock (tracheal mite resistance, some varroa resistance) but they have been hybridized over the years with Caucasians, Carniolans, Russians, etc., thus can best be described as Oregon survivor hybrids. He states his bees are basically late season and build up fast. The bees are Oregon mated, mostly in Lincoln County. He grafts queens starting the last week in March.

He typically keeps between 500-1200 hives, shipping them to California for almond pollination during the late winter and returning them to Oregon in March. He has several apiaries in Lincoln County and in the Corvallis-Philomath area, and pollinates in the valley from Coburg to Tangent. In Lincoln County, he provides pollinators to Gibson Farms (the blueberry farm just north of Siletz on the 229) and has had bees near the Charolais cattle operation near mile 16, also on the 229. There is a nice listing of his diverse apiary areas and consequent varietals here: https://www.osohoneyfarm.com/home/#varietals

Henry uses mostly formic acid and oxalic acid treatments, rotating for effectiveness. He used amitraz last year but it's too expensive and not effective enough so he's not planning on using it in the rotation this year. The main way he used it was in mating nucs after catching first round of queens but he plans to use oxalic vapor instead.

An older profile of Henry is here: https://www.portraitmagazine.com/41-keeper-of-the-honeybees

Some Options for Bee Classes

We urge the simply curious, the new beekeepers and those who are on the steep part of the learning curve to affiliate with the Oregon State Master Beekeepers program, with details here:

https://extension.oregonstate.edu/mb

The Master Beekeeper program offers fine and informative online lectures coupled with mentoring by experienced beekeepers, including the renowned "Fridays at the Apiary" sessions at the OSU campus, which provide opportunities to inspect conditions in multiple hives with docent/mentors and the chance to ask those seemingly basic questions for which you can't seem to find the answers anywhere… like, "Where's the queen?'

For those who want something additional or supplemental, the Oregon State Beekeepers Association webpage has links to a plethora of February and March classes in our state.

https://orsba.org/events/categories/classes-and-workshops/

Most of these require some travel, but the Tualatin Valley association is planning an online class in March: https://tvbabees.org/

Speaking of Bees Foraging….

With the occasional warmer and drier day as we make our way from winter solstice to spring equinox, some folks have noticed bees rummaging in bird seed and even sawdust. Scratching our heads, we uncovered this item, courtesy of Michigan State University Extension …

Hungry honey bees visiting bird feeders

By Howard Russell, MSU Diagnostic Services, Department of Plant, Soil and Microbial Sciences - March 19, 2015

Honey bees take advantage of any food source after a long, cold winter, including bird feeders.

Honey bees forage for food in a bird feeder somewhere in Michigan's northwestern Lower Peninsula. Photo credit: Debra Alexander

A concerned homeowner sent me this photograph of dozens of honey bees foraging on cracked corn in her bird feeder. Even though corn is not typical food for honey bees, they commonly will take advantage of any food source when the weather first breaks in the spring. Our daytime temperatures over the past

week or so were high enough to allow bees to fly and search for food, but with no flowers available they feed on whatever they can find.

The bees collect the pollen-sized seed dust particles and yeast that are found in the cracked corn and other seeds we set out for our little feathered friend for which, I'm sure, the bees are extremely grateful. The bees will move on to their preferred food sources as spring flowers begin to appear.

A couple of other thoughts on the bees feeding among the bird scratch can be found here:

https://www.homesweetbees.com/beekeeping/2017/2/8/bees-in-cracked-corn

https://www.beepods.com/why-are-my-bees-eating-birdseed/

And Michigan State has a nice general presentation on bee nutrition (though you'll need to zoom in on the pdf to read it):

https://bees.msu.edu/wp-content/uploads/2018/03/Honey_bee_nutrition_and_feeding-handout.pdf

CCBA Board Highlights:

The Board met January 29th by Zoom and spent some productive time getting organized for the year.

- We started 2023 with $3118 in the treasury and ended in December with $3334.
- We will be consolidating our club's equipment, particularly reviewing items suitable for displays.
- Max will bring the club's queen isolation frames to the meeting – they are available for purchase (price TBD).
- We are setting the April meeting as the firm cutoff date for bee orders. The price the club is charging for Henry Storch's nucs and packages includes a $5 surcharge to cover minor expenses, with the residual as a fundraiser for our treasury.
- A booth has been reserved for the Lincoln County Fair in July. Max will work on an observation hive. We look forward to volunteers to help staff the booth!
- We will provide our outside speakers a $50 donation to the non-profit of their choice.
- Jim Parrish volunteered to publicize our meeting dates for posting in newspapers, etc.
- Dale Dawson offered to be our Facebook administrator.

Mass Bee die-off in ESCONDIDO, California —

Last September, a mass die off, 65 of 67 hives, occurred at the San Diego Bee Sanctuary. It's been attributed to a pesticide, fibronil, that is used by some beekeepers and in agricultural applications. The story can be found here:

https://www.sandiegouniontribune.com/news/environment/story/2024-01-19/bee-sanctuary-die-off-investigation-fipronil

Here are links to the Bee Sanctuary, and to Bee City USA, a Xerces Society project mentioned in the story:

https://www.sandiegobeesanctuary.com/

https://beecityusa.org/about/

News Flash:

Large European Foulbrood grant awarded to OSU Bee Labs

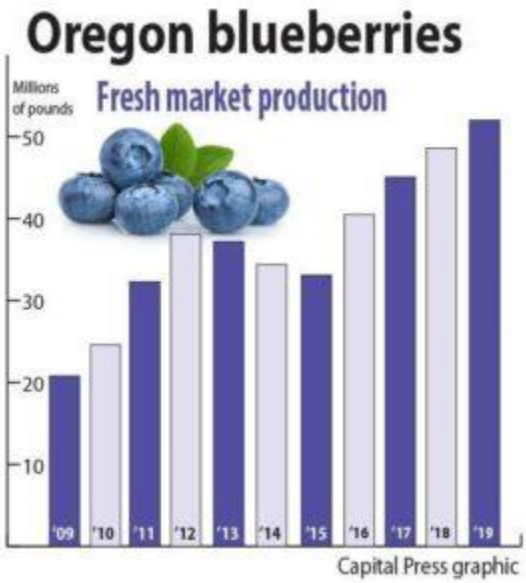
by Dewey M. Caron, Communications and Content Specialist for the Oregon Master Beekeeper Program

By this time next month most of the Sagili and Melathopoulos bee lab personnel will be in California almond orchards. They will be assessing bee colonies as part of a $4.2 million, four-year study focused on European foulbrood (EFB), a serious disease affecting the pollination of specialty crops such as blueberries. Dr Ramesh Sagili will lead the project in partnership with Washington State University, University of California-Davis and Mississippi State University. The funding is from the USDA (NIFA National Institute of Food and Agriculture).

European foulbrood disease is caused by a bacteria that infects honeybees during their larval stage, turning newly hatched larvae into brown mush within a few days. “It used to be a minor problem in the past, but for the last six or seven years, it has grown into a more serious disease,” according to Dr Sagili. The disease causes persistent colony declines and even die-offs. Diseased hives aren’t strong enough to properly pollinate. Beekeepers who pollinate early-season crops such as highbush blueberries are especially affected.

“Those who work for blueberry pollination, about 30% of hives minimum are impacted with this disease, but we don’t have solid numbers at this time,” Sagili said. The colony assessments in California are

directed toward better understanding this disease. The study will track honey bee hives as they are transported to pollinate almonds and then blueberries across Washington, Oregon, California and Mississippi. “We are trying to comprehensively address the problem rather than doing it piecemeal. We’re trying to figure out all the factors that might be contributing to this disease,” Sagili said.



Four beekeepers from each state are participating, and more than 1,500 colonies will be part of the research, which includes checking frames for signs of foulbrood, estimating colony populations and surveying microbiota of bees and larvae. The research will monitor colonies’ nutrition and document different climate factors. Samples will be collected when evidence of foulbrood is present for further lab analysis.

Note: this study will offer participation opportunities for Master level students needing a research project

[This article taken from the Oregon Master Beekeeper newsletter, to benefit CCBA members who don’t subscribe.]

If you Think Honey and Computers Don’t Mix:

At a WSU Vancouver lab, researchers test a sweet solution to faster, cleaner computers

By Jes Burns (OPB) Dec. 11, 2023 6 a.m.

A honey bear is probably one of the weirder things you’d see in a science lab, especially in a lab making computer parts.

"It's just processed, store-bought honey," said Ph.D. student Zoe Templin. "Off the shelf — a little cute bear so we can put it in photos. But for Templin and her colleagues at Washington State University, Vancouver, the honey is key.

In this video still, a honey bear glows ominously. Researchers at Washington State University, Vancouver, are developing computer components made of honey to reduce e-waste. *Dan Evans / OPB*

"It is cheap and it is easily accessible to everyone," said master's student Md Mehedi Hassan Tanim.

The honey also has natural chemical properties that make it a promising foundation for a new kind of environmentally friendly computer component — one that could make computing faster and more energy efficient while reducing the impact on the environment.

"For me electronics in general produce so much toxic waste. It really is a devastating amount of electronic waste that occurs," said Templin. In fact, the world produces about 50 million tons of electronic waste per year. Only 20% is recycled, meaning the other 80% ends up in landfills. Using honey instead of materials like silicon in computers would make recycling easier and less toxic, because honey breaks down in water.

"I would love to see this become a stepping stone to having electronically clean waste," said Templin. "Actually getting organic materials out into your phone, into commercial use."

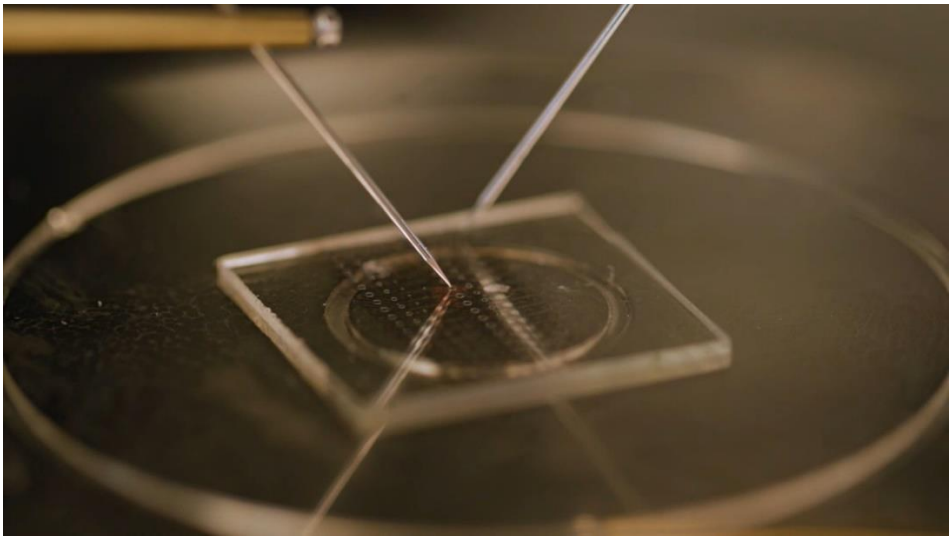
Memristors

Templin and Tanim have spent a good deal of time in the University's cleanroom fabricating electronic components called memristors. "We generally fabricate devices at the start of the semester for like 2-3 weeks and then we test them later," said Tanim. "I've fabricated like 40 to 50 samples, but there are hundreds of devices on each sample." The devices are extremely small so the dust-free space of the

cleanroom and head-to-toe protective gear is necessary to create the pristine metal and honey layers that comprise the chips. “We have to keep our devices as clean as they are because our honey film is so thin. Any particles that land on that film… [are] going to be a defect and it is going to affect the performance of our device,” Templin said.

In this video still, WSU Vancouver grad student Zoe Templin works in a cleanroom in March to fabricate a new kind of honey-based computer component. *Dan Evans / OPB*

She places a glass slide in a centrifuge and drips a few drops of a specially diluted honey mixture on the surface. She starts the machine, which will spin the honey into an even layer. “It’s thinner than our hair,” she said. They’ll make the memristors by sandwiching the honey between two metal electrodes.



In this video still, the WSU Vancouver researchers test the memory-building capacity their new honey-based memristor in March. Each small circle on the chip is one device. *Dan Evans / OPB*

Memristors are relatively new in the world of electronics. The term is a portmanteau of the words "memory" and "resistor" — both essential for computers. The memristor's function was first theorized in the 1960s, but no one managed to actually make one until 2008. Its combination of memory and electricity resistance is unique in electronics, but there's another place where this combo is quite common — in our brains.

Our brains are full of nerve cells called neurons, and we learn when our neurons create connections between each other. The points where the neurons connect are synapses. When we hear a new piece of information, a small bridge is built across the synapse. The bridge is our memory. The more we hear the information repeated, the more robust that memory bridge becomes. "So we have our neurons and the synapse, they process data and they store data at the same time," said WSU Vancouver electrical engineering professor and project head Feng Zhao. This dual function is a huge deal and helps make our brains the most efficient computer on the planet.

The team's memristor works the same way. It builds bridges (microscopic filaments of metal atoms) through the honey when exposed to certain levels of electricity — that's the data processing. When the electricity stops flowing, the bridge remains intact — that's the memory. If you reverse the flow of electricity, the memory is wiped clean. "We are building systems of memory that are as efficient as how the brain stores memory," said Templin.

Zhao's lab at WSU Vancouver discovered that honey has the chemical characteristics needed to make memristors work. "They have big molecule chains in the material. And we need those molecule chains in order for us to build up those bridges," said Zhao. The team also focused on honey because it's stable and doesn't spoil. And unlike other traditional computer materials, producing honey actually benefits the environment because of the key role bees play in pollination. "Using honey as the synapse element is great. It's very clever. It's a nice advance as far as getting things to be biodegradable," said Purdue University physicist Erica Carlson.

In this video still taken in March, WSU Vancouver professor Feng Zhao tests honey-based computer components called memristors that were developed in his lab *Dan Evans / OPB*

A new branch of computing

So if you have a computer component that mimics a brain cell, could you put a bunch of them together and get a computer that mimics a brain? The answer is yes. “Right now our device simulates a single neuron, a single synapse, but we want to integrate those devices together,” said Zhao. “And then this will behave more like our brain.” This is the idea behind neuromorphic computing — a new revolution in computer design.

“We’re coming up against some hard technological issues to where we need fundamentally different forms of computation if we’re going to keep the world moving forward the way that we want to keep moving forward,” Carlson said. Pretty much every computer we use is based on a design that’s 80 years old: The von Neumann architecture. In this design, the part of the computer that processes information is separate from the part that stores it. And it takes time and energy for the information to travel in between. “This conventional computing system consumes a tremendous amount of energy,” Zhao said.

Neuromorphic computers solve this bottleneck, in part, by having the processor and storage all in one place — the memristor. “It’s a building block,” said Tanim. “By combining millions of devices like this, I can build a neuromorphic … chip, which can actually do the computation that a supercomputer can do — but 100 times faster and using 1000 times less energy.”

In this video still taken in March, WSU Vancouver grad student Md Mehedi Hasan Tanim watches the progress of the sputter machine, which is used to fabricate metal electrodes for computer chips. *Dan Evans / OPB*

These neuromorphic computer systems are still in their infancy as far as development goes, but that could be changing with the seemingly overnight emergence of artificial intelligence. “Right now, the way we’re doing AI is we’re using software to mimic the brain, and we’re putting that software on computer architectures that weren’t designed for it. So that’s why it’s so enormously energy intensive,” said Carlson. It’s estimated that within four years, AI servers like ChatGPT will use as much electricity annually as countries the size of Argentina. Neuromorphic computer systems could eventually reduce

that energy use significantly. “Now that we’re in the midst of the AI revolution, it would not surprise me if we started to see a lot more funding,” she said. “I mean, we’re trying to do something fundamentally different, and nobody knows which is going to be the best method.”

With honey-based devices, the WSU Vancouver team thinks they’re on track to help solve two problems at once. By developing a biodegradable computer component made of honey, for a computer system that’s more energy efficient than any we’ve ever seen, the team is taking computers into a faster and cleaner new age. “I’m actually extremely fortunate to have been raised and grown up in the Pacific Northwest, that cares about the environment to this level,” said Templin. “Where I can do research that could … truly help the environment in a way that really hasn’t been explored before.”

Club Info

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

Address: POB 1916 Newport, OR 97365

Email: centralcoastbeekeepers@gmail.com

facebook: CCBA meta