

Orange County Beekeepers Association

Meeting Minutes

August 11, 2022

Tim Struttman, OCBA President, opened the meeting and welcomed everyone for the August meeting. The meeting was attended by approximately 38 members (19 via Zoom, and 19 in-person at the Orange County Extension Office in Hillsborough).

Nancy Oglesby, OCBA Vice President, introduced our speaker, **Megan Damico**. Megan is a 5th-year Ph.D. candidate in Environmental Health Sciences at UNC Greensboro in Kasie Raymann's lab where she investigates how environmental factors influence the bacterial communities in the honey bee gut microbiome. She is also a Policy Entrepreneur Fellow at the Federation of American Scientists where she works on creating better safety regulations for pollinator probiotic supplements and increasing access to educational opportunities for veterinarians supporting beekeepers. Megan was awarded Advocate of the Year in 2022 by the North Carolina Audubon Society.

Presentation:

“Don’t Waste Your Money: Probiotics for Honey Bees” – Megan Damico

As in humans, the gut microbiome (i.e. the collection of bacterial species residing in the gastrointestinal system) of honey bees has been receiving a lot of attention for its important role in immune function, nutrition and metabolism, pathogen susceptibility, and overall health and development. Antibiotic overuse and the effect it has on the microbiome is also relevant in both humans and bees. Megan Damico first described how the honey bee gut microbiome can vary depending on diet, age, caste (Queen vs drone vs worker), season, and exposure to chemicals, especially antibiotics. Studies have shown that tetracycline treatment disrupts the composition of the honey bee gut microbiome, and increases susceptibility to opportunistic pathogen infection.

Probiotics (combinations of live lactic acid bacteria that support healthy bacteria in the gut) have become very popular, with the idea they can restore natural gut microbiome composition. In some settings—for example, post-antibiotic therapy, probiotics do show promise. However, the jury is still out on whether probiotics have a significant effect on humans and other mammals who have healthy microbiome communities. Megan Damico set out to test whether any of the commercially available probiotics or prebiotics (compounds that increase the growth/activity of beneficial microorganisms) actually do what the companies promoting them claim.

Her experimental design involved treatment of colonies (or not) with Terra-Pro (a tetracycline antibiotic) to induce loss of gut microbiota, followed by treatment with one of 3 different commercially available supplements marketed as probiotics for honey bees. Bee samples were collected pre-antibiotic, post-antibiotic, and post-probiotic supplement, and the gut microbiome composition was then analyzed by DNA sequencing. The results were striking—the bacterial species contained in the probiotic supplement were NOT found in the post-treatment samples, indicating that the product does not colonize the honey bee gut (an important point to note, none of the bacterial species in the probiotic formulation are even found in a normal honey bee gut!). Further, NONE of samples showed recovery of the honey

bee microbiome, contrary to the company's claims. Megan ended her presentation by stressing that better standards need to be made for companies selling products for bees, and third-party testing should be required before a company can make claims about their product. She also noted that there ARE some promising probiotic supplements not yet commercially available, and the companies developing them seem to be publishing rigorous scientific research that may provide the evidence needed to back up their claims.

Club Business:

Christmas Parade

Janet encouraged more members to consider volunteering. Tim mentioned this event is similar to the state fair outreach, instead of statewide, it's a local push to provide greater exposure for OCBA and our mission.

Outreach

Dawn Rogers, Community Outreach Director, reported there is an upcoming event being held at Duke Homestead (already has enough volunteers), and another opportunity will be advertised soon (at the Spring Haven goat farm).

Door Prizes

1. T-shirt: (in person) Walter Starks
2. Jewelry (necklace and earrings, donated by Barbara McFadan): (online) Debbie Garland
3. Wrapping paper (bee themed): (in-person) donated by Chris Apple
4. Uncapping knife: (online) Douglass Phillips
5. Jewelry (earrings): (in person) Nancy Oglesby
6. 2021 bee journals: These were donated, in-person attendees were invited to help themselves.

Tim thanked Walter for picking up the pizza and Nancy for making the salad.

Next Month's Speaker

The speaker on September 8th will be Elsa Youngstead, from NCSU. Her lab works at the interface of urbanization and climate change. She will discuss the effects of urbanization on bee populations in North Carolina.

Erika Wittchen
OCBA Secretary