NOVEMBER 2016, ISSUE 11

Joco Beekeepers

A monthly newsletter brought to you by the
Johnston County Beekeepers Association

Officers

President Al Hildreth
Secretary Thomas Anderson
Treasurer Evie Vose
Program Director n/a

Meeting information

Third Monday each month 7:00 pm.
Johnston County Agricultural Center
2736 NC 210 Hwy
Smithfield, NC US 27577
(map it)

Meeting Agenda

The November 14th meeting will feature: Jennifer Keller is the featured speaker for our November meeting. She is a Research Specialist working for Dr. David Tarpy. She will address general questions, and talk about Hive Life Cycle Basics & Determining When Re-queening is Necessary.
https://projects.ncsu.edu/cals/entomology/keller

Nominations for Board Members!

We will be voting for 2017 board members. On the ballot are;

- President - Al Hildreth
- Vice President – Barney Niles
- Treasurer – Lisa Velasquez
- Secretary - Tom Anderson
- Program Director – Thunderhawk Chavis
- 3-yr. Director – Kenneth Gossett

CLUB Gear

The next time we will be taking orders at the November 14th meeting just in time for the holidays. Please bring small bills or checks made to JCBA.

Directors

1st Director Ronnie Fish
2nd Director Janice Turrisi
3rd Director May Markoff
Webmaster Facebook Newsletter Adam Pendergrass

In this Issue

Businesses and Services

Businesses and Services offered by JCBA are listed on our website at (click here)

Have a story? Would you like to be featured in the newsletter?

Please submit your request to Newsletter@jocobee.org

Like us on social media

(click here)

This Month's Bee Tips!

Asters are slowing down.

Starting in August continuing into Winter this is prime time for invasive wasps and yellow jackets. Installing an entrance reducer can help by giving the guard bees more control over the entrance.

- ☑ Feed all hives.
- ☑ Begin feeding 2:1 (2 pounds of sugar to one pint of water.) The thinner syrup stimulates the queen to lay more brood while the thicker syrup will be used as winter stores.
- ☑ Do your bees have at least 45 lbs. of stores for winter? If needed, you may 'steal' honey frames from hives which have an over-abundance of stored honey.
- ☑ REMOVE queen excluder so the queen may stay in the cluster as it moves up to the highest point in the hive.
- ☑ Make sure you haven't made the hive completely air tight, as the bees need some ventilation.
- ☑ Ensure the brood is in the frames in the lower brood chamber.

We need to feed all the hives. Even the ones you feel are prepared with 45 or more pounds of honey. All colonies can benefit from free food. Some may not take any while there are better nectar sources they can find. While we have warm days, the liquid feed is sufficient.

Bees use multiple cues in hunt for pollen

Bees use a variety of senses and memory of previous experiences when deciding where to forage for pollen, research by the University of Exeter suggests.

The researchers believe pollen-collecting bees do not base their foraging decisions on taste alone, but instead make an "overall sensory assessment" of their experience at a particular flower.

Bees typically do not eat pollen when they collect it from flowers, but carry it back to the nest via special "sacs" on their legs or hairs on their body.

This makes it difficult to understand how bees judge whether the pollen a flower produces is nutritious enough for their young.

Indeed, researchers have been puzzled for a long time as to what exactly bees look for when they collect pollen from flowers.

Co-author Dr Natalie Hempel de Ibarra, expert in insect neuroethology at Exeter's Centre for Research in Animal Behaviour, said: "It seems that bees don't just respond to a single nutritional compound in pollen, such as crude protein content, but to a range of sensory cues in pollen and flowers.

"They also form memories for locations and types of flowers that they have visited which affect their foraging decisions.

"We need more research that considers the behaviour and neurobiology of bees to understand when and why they prefer some plants and some pollen over others.

"A breakthrough in this area could advance our efforts in both biodiversity conservation and crop production."

The review, published in the journal Functional Ecology, examines existing evidence on how bees use their senses, previous experience and -- in the case of social bees -- feedback from the nest to decide where to gather pollen.

First author Dr Elizabeth Nicholls, a former PhD student at the University of Exeter and now a Postdoctoral Research Fellow at the University of Sussex, said: "Our review is unique in considering pollen foraging from an individual bee's perspective, asking which senses bees use to decide which flowers are worth visiting.

"In our review we suggest that although bees may taste pollen during collection and use this nutritional information to guide their choices, they are also likely to pay attention to the strong odour and visual appearance of both pollen and the flower itself.

"For bees that live together in colonies, information passed on from the other bees in the nest, either via chemical cues or even special 'dances', may also be important in influencing their pollen-collecting behaviour."

The University of Exeter is a major hub for bee and pollination research and currently advertising several postgraduate research projects. (link to story)

The occurrence of ecto-parasitic Leptus sp. mites on Africanized honey bees

Honey bee-mite-pathogen associations have led to the widespread collapse of Apis mellifera colonies in various parts of the world. The global trade in bees continues to expose honey bees to new pests and pathogens. Here we highlight to the beekeeping community a potential new mite-pathogen association. In South America, ecto-parasitic Leptus mite larvae have been recorded parasitizing adult honey bees and these mites are known to transmit Spiroplasma bacteria, the causative agent of "Mays disease" in bees. Here we provide new data and review past studies on Leptus mites, and discuss the potential risk to A. mellifera that this mite may pose in the future. (link to story)

CATCH THE BUZZ – Hawaiian Study highlights a new threat to bees worldwide

A recent study published in the Nature journal Scientific Reports highlights a newly identified virus—named Moku after the Hawaiian Island from which it was isolated—in the invasive wasp, Vespula pensylvanica. The research also warns that transmission of these kinds of viruses, especially from invasive species which can spread viruses to new locations, is a threat to pollinator health worldwide.

Particularly under threat are honey bees, which are as vital to our food systems as the crops they pollinate, and which are prone to a range of emergent diseases including Moku and Deformed wing virus (DWV).

The Moku virus was identified through a collaboration of institutes with complementary expertise.

Purnima Pachori of the Platforms & Pipelines Group at the Earlham Institute (EI) carried out the bioinformatics work of separating out host and viral genetic material, which allowed for the analysis and identification of the novel Moku virus led by Gideon Mordecai (based at the time at the Marine Biological Association (MBA), Plymouth).

"It's brilliant that our computational biology expertise at EI could contribute to the characterisation of a new virus which can be a threat to pollinator health worldwide" said Purnima.

It was through work at the MBA that the true uniqueness of the Moku virus revealed itself. Gideon Mordecai said, "The use of next generation gene sequencing techniques has led to a rapid increase in virus discovery, and is a powerful tool for investigating the enormous diversity of viruses out there."

The study has highlighted the importance of monitoring invasive species for broad-range viruses as well as the potential for transmission of these

pathogens. Dr Declan Schroeder, Head of the Virus Ecology Group at the MBA explains: "The true significance of this discovery lies in the potential ramifications that a new biological invasion could cause. Could we be seeing history repeating itself? Similar to the Spanish invasion of the Inca and Aztec empires in the sixteenth and seventeenth centuries, it was the smallpox and measles viruses that inflicted the most damage on the individuals of these populous nations. Here we are seeing an invasive wasp bringing in a new virus to honey bees."

The likelihood is that Moku has the ability to spread throughout the endemic population of honey bees in Hawaii. Gideon Mordecai concludes that "future challenges will be assessing the biological relevance of these novel pathogens and the role they play in the ecology of their hosts." (link to story)

New findings about the deformed wing virus

In recent years, massive losses of honey bee colonies have occurred during winter in Europe and North America. It could be shown that the Varroa mite and the deformed wing virus are the main factors responsible for the alarming bee mortality. Researchers from the University of Veterinary Medicine, Vienna have succeeded for the first time in simulating the course of disease using artificial genetic material of the virus. The symptoms of the so-called mite disease were reproduced in the laboratory without mites by the injection of synthetic RNA. This enabled the prudent development of new strategies in order to protect the bee population in the future. The results were published in the journal *PLOS ONE*.

The honey bee *Apis mellifera* plays an important role for the pollination of fruit and vegetable plants, besides its significance for the production of honey and wax. Losses of entire bee colonies during winter have economic and -- in particular -- ecological consequences as pollinators are missing in spring during blossom. Apiculture in North America and Europe is especially affected by partly massive losses. Only during the winter months of 2014/2015, up to fifty per cent of all bee colonies in some Austrian regions collapsed.

The main trigger of this bee mortality does not seem to be the use of pesticides in modern agriculture. Many studies have shown that the survival of bee colonies strongly depends on the infestation with Varroa mites, widespread blood-sucking parasites, and the transmission of deformed wing virus by these mites. A research group from the Institute of Virology at the University of Veterinary Medicine, Vienna has developed a new laboratory system, which enabled them to make an important step forward in the investigation of the virus. By using a molecular clone, they have simulated the course of disease in a targeted way under laboratory conditions.

Artificial viral genomes of deformed wing virus - Up to now, scientists have only used samples of the deformed wing virus, which they had taken from infected bees. "However, mixed and multiple infections can bias the results of such tests," stated lead author Benjamin Lamp. For the new test system, the researchers used artificial genetic material instead of natural samples of the deformed wing virus, in order to clearly correlate the course of disease to the virus. (Read Full Story)