



CENTRAL COAST BEEKEEPERS NEWSLETTER

September 2018

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NEXT MEETING SEPTEMBER 26TH, 2018

President's Message By Patti Johnson

I always look forward to fall with its the brisk mornings and warm afternoons. And while there is much to be done to prepare for winter, such as cleaning out garden beds, trimming, and planting new bulbs, my chores help me feel hopeful and anticipating the first blooms in spring.

And like my garden, I am also readying my hives for winter, doing hefts, and feeding if honey stores are light, checking and ensuring mites are controlled, and pulling my moisture boxes out of storage to be added to the hives as the temperatures drop. In just the same way as the garden, the bees help me anticipate and feel hopeful, especially when the I see them taking their first cleaning flights after long stretches of cold, wet weather.

So, it is timely that Carolyn Breece, Senior Faculty Research Assistant at OSU, could fit us into her schedule to come to speak about winterizing our hives, and giving tips that will help increase their odds of survival. No matter if you are a long-time beekeeper or just starting, it seems there is always something to be learned or something said that jogs your memory of a task you have forgotten to do.

I also wanted to again, remind folks of the OSBA 2018 Fall Conference. It will be held in the Salem Conference Center, October 26-28th. Remember, if you cannot attend the whole conference, you can purchase partial admission for specific days. It is a wonderful experience to

be exposed to some of the newest research in the field and have a chance to ask questions of the experts presenting it.

The OSBA leadership is offering each member club one scholarship for admission to the conference. We will be having a drawing at our upcoming meeting for those club members who are available to attend and would be interested in going. You must have paid 2018 club dues to participate in the drawing. The scholarship covers conference admittance only and does not pay for food or lodging. Think about it. If it works, put your name in the drawing and good luck!

Last, but certainly not least, it is time to begin thinking about starting a club membership or renewing your current membership, particularly if you want to order bees through us in 2019 as our suppliers require that all orders come from active club members. We will be prepared to accept dues at our meetings through the end of the year – remember that we do not meet in December – and as membership runs on a calendar year, your membership will run through the end of 2019.

I hope to see you at the meeting!

Patti

We are starting to develop the club's Board for 2019 and are looking for interested club members to assist us in planning our meetings and addressing policy issues when they arise. You need not be an experienced beekeeper as it is important for us to have a variety of levels of expertise to ensure that we are addressing the needs of all our members at meetings. Please consider joining the Board and connect with Patti at the next meeting (or respond to this email) so we answer any questions and add you to the list of 2019 Board members.

Our September meeting is Wednesday September 26th at 6 pm at the **Newport Library**. We will be hearing about preparing for winter so that our hives survive. Carolyn Breece, Senior Faculty Research Assistant at OSU will present and share her extensive knowledge about bees and beekeeping.

Preparing for Flu Season by Dr. Dewey M. Caron

In my current article for the American Beekeeping Federation Quarterly I write about "Flu season - in Humans and Bees".

Here is a condensed version.

Fall traditionally begins the human and bee flu season. The Flu, i.e. virus infections, can sicken our animals and, just as there is a human toll, some of the animals in our care too will not be able to fight off one more "bug" under the often-crowded conditions under which we husband our animals. If one individual, human or animal gets sick and if conditions permit, the viruses spread from sick to healthy leading to larger losses.

In the case of our bee colonies, increasing numbers of mites and decreasing or lack of diversity in floral resources, are proximal triggers that lead to unhealthy triggers. On average over 40% of colonies of backyard beekeepers and 25% of commercial U.S. colonies will not survive the overwintering period, based on the past 12 years of Bee Informed Partnership (BIP) survey data. It is not precisely known how many of the losses are flu-related.

We know honey bees have a large variety of viruses. Some annually reach epidemic proportions and affect numbers of colonies in an apiary or region of the country. Early names were fall dwindling, autumn collapse CCD, but now generally called the Bee PMS (or Varroa Mite Syndrome, VMS). While this has been the situation for many years, it

increasingly has challenged beekeepers over the last 30 years of varroa mite infestations and the rising dominance of industrial beekeeping.

Some viruses are of lesser significance and only result in death of individuals in a colony. Lacking a flu immunity shot for bees, we are often left with the single option to control the varroa mite, vector and enhancer of several serious viral infections, when we wish to improve overwintering success.

The most serious bee virus of bees is Deformed Wing Virus (DWV). When pupae are infected, often because of being fed on by reproducing varroa mites confined within the developing capped brood cell, adult bees emerge with deformed wings. If we see adult bees with deformed wings it potentially means, there is an epidemic of this virus in the colony. We are seeing only the "tip of the iceberg".

One of the issues with DWV virus is that it is NOT deadly enough to kill immediately. Deformed adults do not immediately die upon emergence from their capped cells, but rather they are cared for by their adult sisters and thus serve as a source of infection for their adult caregivers. Adults that get DWV lack symptoms (their wings are normal), but before they die they can pass their infection to larvae or other adults. Because of their illness, adults exit their colony and, primarily via drifting, take the virus to other colonies in the apiary and to surrounding apiaries. The epidemic spreads rapidly in the area where bees are common.

As with the Asian flu in humans, there are different strains of DWV virus in bees. One strain considered more "virulent" is the DWV B strain. Another strain is relatively avirulent. DWV is found in 90% of samples analyzed by the BIP. Recent sample analysis has found 64% of all samples have VDV-1 virus (Varroa Destructor virus), which is also considered highly virulent for bees. This virus was found in only 2 samples collected in 2010 (from samples stored in a freezer by USDA).

Colonies with higher levels of mites may exhibit the BEE VMS syndrome with snotty (cruddy) brood, and poor, ill-defined brood patterns. Such colonies are unable to properly organize the fall brood nest, are poorer at overwinter clustering nor do they rear the requisite healthy population of fat fall bees.

Proactive mite control remains our best alternative to help our bees avoid viral flu epidemics. By Labor Day (once we have removed honey supers) it is time to get serious about protecting bees from the annual flu viruses. Waiting until fall arrives or allowing the bees to become unhealthy is too late to start. Like much in bee colony care, the more successful beekeepers anticipate, not merely react.

I trust your bees are prepared for whatever flu epidemic occurs and we don't have a repeat of the heavy winter colony losses, (>30%, nationwide, 38% among OR backyarders and 37% for LCBA members of last winter.

How Do Bees Select Larvae for Royalty? (Making Queen) During Emergency?

Ramesh Sagili

When a colony suddenly becomes queenless due to any possible reason, we see bees making emergency queen cells rapidly by modifying the existing larval cells with larvae that are less than 3 days old. Have you ever pondered how bees select larvae for making new queens in that emergency? Do bees randomly select some larvae for rearing queens during the emergency queen-rearing process? It is logical to assume that, as most-advanced social insects and having evolved over millions of years, honey bees probably have a more-systematic approach in selecting larvae for rearing queens to increase colony fitness (given the importance of the queen in success of a colony) rather than a random selection process. The criteria or factors considered by honey bee workers in selecting larvae to rear new queens during emergency queen rearing are poorly understood, except the fact that younger larvae are preferred for queen rearing.

As female caste (queen or worker) development in honey bees is dependent on type of larval diet (i.e., nutrition) in this study we hypothesized that the nutritional state of larvae is meticulously assessed and used by workers when selecting larvae for rearing queens. To test this hypothesis, we conducted a series of experiments by manipulating the nutritional status of one-day-old larvae by depriving them of brood food for a four-hour period, and then allowing workers to choose larvae for rearing queens from nutritionally deprived and non-deprived larvae. Please refer to the methods section of the publication [cited at the end of this article] for details. Further, in this study we also simultaneously investigated the role of genetic relatedness (between larvae and bees) in selection of larvae for queen rearing as there was some debate in the past regarding kin discrimination or nepotism. It was thought that honey bees may preferentially selecting larvae that are closely related (same father and mother) to themselves to make new queens.

Larval selection for queens by workers between related and unrelated colonies having queens which are open mated and queens which are super-sisters (mated by only single drones) based on larval deprivation. --no significant difference was observed in the number of queens reared to pupation in both (a) open mated (natural mating) and (b) super-sister colonies with respect to related and unrelated colonies. However, a significantly higher number of queens were reared to pupation from the non-deprived treatment groups when compared to the deprived group in both (a) open mated ($p < 0.0001$) and (b) super-sister colonies ($p < 0.05$).

The effects of queen-rearing method on the acceptance of deprived and non-deprived young larvae for queen rearing--a significantly higher number of larvae were selected for

queen rearing (to pupation) from the non-deprived group compared to the deprived group ($p < 0.01$) when workers selected larvae in the natural selection method. No such significant difference between the groups was observed in the artificial selection method.

In all the experiments, significantly greater numbers of non-deprived larvae than deprived larvae were selected by bees for queen rearing, irrespective of genetic relatedness. Our results demonstrate that honey bees perceive the nutritional state of larvae and use that information when selecting larvae for rearing queens in the natural emergency queen-replacement process. We speculate that nutritionally deprived larvae send nutritional stress signal in the form of pheromones to worker bees, and worker bees in turn use that information when making choices regarding queen rearing.

For the full article, which is titled "Honey bees consider larval nutritional status rather than genetic relatedness when selecting larvae for emergency queen rearing" and appears in *Scientific Reports*, Volume 8, Article number: 7679 (2018), please visit: www.nature.com/articles/s415698-018-25976-7

ANNOUNCEMENTS AND OPPORTUNITIES

Sept 22nd – Sam Comfort Location: Eugene Backyard Farmer – 501 Washington St., Eugene at 2 pm – Treatment Free but not Stupid Beekeeping and Queen Raising in the Backyard

October 26th – 28th Oregon State Beekeepers Association annual conference at the Salem convention center.

For more information visit the Oregon State Beekeepers Association webpage and click on "2018 Conference" <http://orsba.org>

APIMONDIA 2019 congress which will take place in Montréal from September 8 to 12, 2019 www.apimondia2019.com.

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