THE MARIN BEEK NEWS

Volume 9, Issue 10 November 2017

What You Missed

Our last meeting featured a talk by Gro Amdam, PhD, Professor, Arizona State University, School of Life Sciences. Dr. Amdam talked about "Vaccinating Honey Bees: Concept, Data, and Feasibility".

Gro Amdam
Vaccinating Honey Bees: Concept, Data, Feasibility

Dr. Amdam is originally from Norway. She is a biologist who has been working with bees for over 20 years.

Can queen vaccinations protect colonies against brood diseases?

Immune system:

- Humans:
  - Innate immunity – quick acting - Detects an infection but is not very targeted
  - Adaptive immunity – similar but it uses antibodies which bind to certain disease causing molecules. When you get a disease your body produces antibodies, which stay with you and react if you get the disease again. Vaccination creates antibodies without getting sick.
- Bees:
  - Only have innate immunity: So how do you use vaccines?

Many mammals use eggs to produce offspring. Most eggs have the same basic components.

Vitollegenin (Vg) is the oldest yolk protein in eggs. It is ancestor to several immune proteins. Vitollegenin is several million years old. Vitollegenin evolved into many other proteins that provide immunity.

Vitollegenin has been found to aid innate immunity in fishes. It binds to the pathogen and can help neutralize disease-causing bacteria.

Honey bee queens have vitollegenin but honey bee

See What You Missed on Page 2

What's the Buzz?

Our next meeting will be on Thursday November 2, 2017 at the American Legion Log Cabin, 20 Veterans Place, San Anselmo, CA. starting at 7:30 pm. The meeting will feature a talk by Janet Brisson, owner of Country Rubes Beekeeping Supplies. Janet will be talking about small hive beetles.

Upcoming Meetings:

December 7, 2017

Gene Brandi, commercial beekeeper and current president of the American Beekeeping Federation, "Beekeeping from a Commercial Perspective".

January 4, 2018

Marin Beekeepers, "Panel Discussion: Community Breeding".

February 1, 2018

Mace Vaughn, Pollinator Program Co-Director, Xerxes Society for Invertebrate Conservation, "Habitat and Lobbying".

March 1, 2018

Leo Sharaskin, editor, Keeping Bees with a Smile, "Natural and Practical Beekeeping".

See What's the Buzz on Page 2

What You Missed continued from Page 1

workers do too, Cells in the abdomen produce vitollegenin. Queens use vitollegenin to produce eggs. Workers use vitollegenin to produce royal jelly. Vitollegenin is a large component in royal jelly.

As queens age the amount of vitollegenin in their bodies is reduced. As workers move to foraging their levels of vitollegenin also diminish.

Vitollegenin is found inside phagocytic cells, cells that protect the body by ingesting harmful foreign particles, in honey bees.

Can this help us to create a vaccine against certain pathogens?

Dr. Amdam conducted an experiment, Introducing vitollegenin to American Foul Brood (AFB). The vitollegenin bound to the pathogen and then the immune system kicked in to destroy the AFB

Vitollegenin can bring bacterial pieces into the queen ovaries and eggs. She is studying whether vitollegenin could bring portions of bacteria that were not alive into larvae thru the queen and the royal jelly. Could possibly act like a vaccine for larvae against various diseases.

Problem was that it would require injecting the queen with the dead pathogen. Not really practical.

Bees naturally vaccinate their young but it only works if the larvae develop in the same place as the adult bees. They found that vitollegenin from different areas is different so it doesn't provide immunity if you are a migratory beekeeper.

Dr. Amdam is experimenting with the use of an oral vaccine for inoculating larvae against American Foul Brood. They have found that when they orally vaccinate queens with dead AFB the larvae have significant immunity against AFB.

Queens could be vaccinated by queen breeders, providing increased immunity for the hive.

Dr. Amdam closed by pointing out that this is still in the experimental stage. Not viable for real life applications yet. They are not sure if it is specific to strains of AFB yet.

What's the Buzz continued from Page 1

April 5, 2018

Samuel Ramsey, Doctoral Student, University of Maryland, "Varroa Research".

May 3, 2018

Elina Nino, Extension Apiculturist, UC Davis, "Effects of Supplemental Forage on Bees".

June 7, 2018

Marin Beekeepers, "Gadgets and Gizmos".

July

No meeting: Marin County Fair, June 30 – July 5.

August

No meeting: Marin Beekeepers Annual Potluck.

Aid for Beekeepers

It is heartbreaking to know the devastation endured by our beekeeping neighbors to the north in Sonoma and Napa – many of whom were family, friends and business associates. Many were only recently allowed to return home to evacuated areas and are still assessing damage. Much is still not known about their specific short and long term needs.

The Sonoma County Beekeepers Association (cooperating with the Napa Beekeepers) has assembled a task force to identify what is needed.

They have asked to be given a little time to organize. When they give us our marching orders, we'll report back and let you know how you can help.

Every little bit would help. Just think...even though an individual bee only produces 1/12 of tsp of honey in her lifetime, together the colony can produce hundreds of pounds a year.

In that spirit, you might consider giving $5 to the fund to help support beekeepers in Puerto Rico. On the mainland, those impacted by disasters have their surrounding communities to support them in times of crisis. But our fellow Americans in Puerto Rico are all in crisis. Help the Pollinator Partnership help them. Every dollar counts and right now Blue Diamond Growers will match the next $5000 donated so your contribution can have double the impact.

https://www.gofundme.com/fund-for-puerto-rico039s-pollinato

Hive Tips

By Bonnie Morse, Bonnie Bee & Company

If you haven't done so already, time to reduce the hive size before winter.

Temps are starting to drop and your beekeeping season is winding down. Time to get a move on with your winter preparations, if you haven't already (though the bees have been getting ready for months). Remove unused space and unneeded honey so the bees will not have to work as hard to keep warm.

If you have a box on top of the hive that has no (or very little) built out comb on the frames, it needs to come off for winter. It is highly unlikely the bees will be building comb up there this season and that is a lot of dead air space where heat generated by the cluster will escape to.

Bigger does not always mean better.

For a variety of reasons (genetic, mite load, etc.) not all colonies will go through winter with the same cluster size. We're concerned less about the cluster size than the general health of the bees as well as the amount of space we leave on the colony for winter. A cluster that is on 5 medium frames is not going to need a full super of honey on top...ensuring they have a 50:50 brood to food ratio will likely suffice and keeping them in one box will help them minimize the effort it takes to keep warm.

For larger colonies, we want to be sure they have about 30 lbs. of honey. That is the equivalent of about 4½ full deep frames or ten medium frames.

Cold doesn't kill bees - moisture does.

Make sure your hive tilts forward slightly so rain doesn't condense inside on your bottom board. If you see moisture inside on your top, you should consider giving them a little more ventilation by adding a shim, stick, or thin piece of wood between the top and inner cover.

Equipment Storage

Store your honey supers and built out combs in a manner that will not encourage wax moths, i.e. where light and airflow are abundant or in a freezer (or after freezing). If you stack outside, put spacers in between hive bodies to allow for airflow. Do not allow too much space or mice might move in and make a nest and destroy your combs.

Temps are cooling down and the drones are all but gone.

If you plan to check your hive, have a plan for why you are going in and what you are looking for. Plan to inspect when temps are 60 degrees or above and keep your inspection as brief as possible. Inspecting at this time of year for curiosity sake could potentially do more harm than good (and if you injure your queen the colony has little likelihood of successfully replacing her), but a well planned and executed inspection could save a colony from starvation or mites.

Preparing Colonies for Winter

You can find out a lot of information without opening the hive.

Put your ear up to the side and knock gently. What kind of buzz do you hear? Does it sound like a large cluster or a few sporadic bees? Try to heft the hive. Is it heavy with stores or is it light and lifted with ease? If you have a screened bottom board, what do you see on the monitoring board? From debris, can you see if the size of the cluster the same, smaller or larger than when you looked last? Do you see dark cappings from brood emerging? Or lighter cappings where stored food is being consumed?

Winter Feeding with Drivert Sugar

Club member Dave Peterson has been feeding drivert sugar to his hives in recent years and finds it very effective and convenient. He uses a 1-1/2 inch spacer above the inner cover. But most inner covers have enough room to add some sugar under the outer cover. After pulling honey supers in September, He places the spacer on top of the inner cover, adds a 1 pound pollen patty and two half gallon scoops of the drivert sugar. Within a month, most of the hives have

See Winter Feeding on Page 4

Beekeeping Classes

Upcoming Classes

Backyard Beekeeping

Considering becoming a beekeeper? Take the first step by learning about this fascinating and important pollinator. This is a great time of year for new beekeepers to start planning so equipment is ready and bees are ordered in time for the 2018 season.

In this class, you'll learn about the roles of the queen, workers and drones within a colony and how they interact with seasonal cycles. Learn about basic considerations you'll need to take into account before jumping into this exciting new hobby, including where to place your hive, equipment options and sources, bee sources, and time required.

At the end of class, you'll have the opportunity to sample some local honeys from around Marin County.
Saturday, November 11, 9:00am – 12:00pm, $50 per person
Location: The Fairfax Backyard Farmer, 135 Bolinas Rd, Fairfax
Register through The Fairfax Backyard Farmer. Limited to 12 people.

Beginner Beekeeping class series (9 hours, $99)

Classroom sessions will include basic bee information, seasonal cycles of a colony, equipment options, where to place your hive, how to get bees and tips on working with your equipment. When the weather warms up, there will be a field session so you can observe and practice working with your tools and bees.
Class room sessions: Wednesdays, January 24, 31, February 7, 6:30pm – 8:30pm (3 classes, drop in fee = $30/class)
San Rafael Community Center, 618 B St., San Rafael.
Registration through the San Rafael Community Center opens November 1.
Field Day: Sat., March 17, 9:30am – 12:30pm, location TBD, tent. San Geronimo

Intermediate Beekeeping class series (9 hours, $99)

You've got your colony through winter (or not) – now what? Class sessions will include how to clean up your equipment, expanding hive size for spring, swarm prevention- and if that fails, swarm capture, setting up bait hives for swarms, identification of common pest and diseases and management options for them. Topics will also include dealing with special situations: aggressive hives, queen failures, and laying workers. Field day will include information on how to split a colony, pest and disease ID, and swarm prevention.
Classroom sessions: Wednesdays, February 21, 28 & March 7, 6:30pm – 8:30pm, 3 classes, drop in fee = $30/class

San Rafael Community Center, 618 B St., San Rafael.
Registration through the San Rafael Community Center opens November 1.
Field Day: Sat., March 17, 1:30pm – 4:30pm, location TBD, tent. San Geronimo

taken the gallon of drivert and made some progress on the patty. If you have small hive beetle in your area, you may want to add only ½ of a pollen patty at a time. Pollen supplement can serve as an attractant to the beetles.

Feeding Drivert Sugar

The Bush Farm site has an excellent discussion of the various methods of feeding (http://www.bushfarms.com/beesfeeding.htm). The nice thing about drivert sugar is that the bees can easily take it up directly. However they do require additional water to dissolve the sugar. Drivert will dissolves easily in warm tap water with a brief stir, even when making 2:1 heavy syrup for winter feeding using various liquid feeders. Dave uses it for his Humming Bird Feeders as well.

Using it dry is a great way to feed in our climate. The space above the inner cover stays plenty warm for the bees to feed all winter. You can go in to the space in most any weather to add more sugar without disturbing the cluster. You might get some ants that find the stash. Dave uses a Grants Ant Stake at the base of the stand where the ants are marching up. It takes a couple days, but they are gone for several months until the stake is used up.

Dave made the scoop in the picture from a one gallon plastic jug. They have many uses around the house and are great for scooping the sugar, chicken feed and wild bird seed. If you don't use all the 50 lbs. bag of drivert for your bees, you should get some hummingbird feeders and use the balance for them. You'll be surprised how many hummers will hang around when you feed them on a regular basis. If you start feeding them, you need to continue through the winter or they will starve. Hummer mix is very light 1:4 sugar to water. Dave has gone through 8 bags, which he gets through the Club's group order.