NORTHWEST NEW JERSEY BEEKEEPERS ASSOCIATION

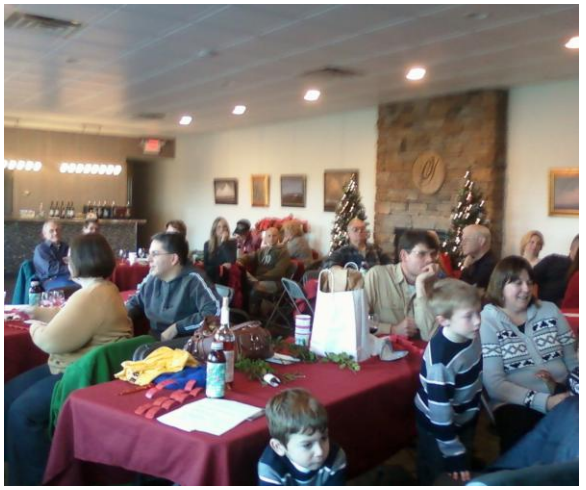
Fall & Winter Newsletter 2011

PRESIDENT'S MESSAGE

My Fellow Beekeepers: I think we should begin the next year on the same page of music that we close this year out with. We must remember our reason for being. Our number 1 priority is to foster the art and science of beekeeping and as a branch association of NJ Beekeepers provide for the guidance and continuing education of beekeepers and interested individuals. Our website was designed and implemented http://www.nwba.njbeekeepers.org with this priority in focus. This year marks its' first full year of operation. Please continue the practice of looking at our website as a primary reference resource. There are many links to other primary reference websites like Scientific Beekeeping, which can be found at http://www.Scientificbeekeeping.com. This website is the creation of Randy Oliver, a commercial beekeeper, diligent researcher, and a very sound technical writer. Randy has condensed a great deal of scientific information into a less complicated language that is understandable by adult beekeepers. Young people might not necessarily understand the lingo so it is up to us to give clear descriptions or boundaries to observe in their mentoring program. This means we have to tell them how to do it. New adult beekeepers might also find themselves a wash in sleep inducing detail so it is important to remember that attention to details in beekeeping have consequences. Usually details like a mouse guard or feeding bee candy to the bees are the difference between hives that survive the winter and those that do not. Learning those tedious details can be part of a mentoring program as well. New beekeepers, who want some mentoring structure should contact 1st VP Bob Kloss, who is charge of the mentoring hives at Echo Hill and distinguish themselves as First Year Beekeepers. Ed Vaeth, 3rd VP has joined Bob to assist Bob in the mentoring program. It would also be important for individuals who do not have any hands on experience to come to our hands-on field meetings and seek out an experienced fellow beekeeper to help them out inside the hive until they are comfortable doing it themselves. The first lesson to learn is to define the reason for going inside the hive before you do, and then think about it and organize yourself accordingly.

Holiday Party

We had a Triple First Class Holiday party!



Election Results:

The Elections were held at the Holiday party. The results were that we have 2 new members who have joined the Executive Board. The Officers and their positions are as follows: Charley Ilsley, President; Bob Kloss, 1st VP; Kevin Inglin, 2nd VP; Ed Vaeth, 3rd VP; Karin Weinberg, Treasurer; and James McCauley, Secretary. This year the Holiday Party was held at the Old York Winery in Ringoes, and was hosted by Roger Gares, his wife, Maryann; and his son

Scott. This was an excellent location for the party and a good time was had by all including the children. We had a Chinese Auction for odds and ends. Tara Weinberg and Brian Inglin were callers. Scott & his wife were there and the kids were the club echoes-faithfully repeating each number in unison. Leave it to the kids!

The Chinese Auction featuring caller Tara Weinberg, runner-Brian Inglin, and the young Horsnall brothers

Seasonal Management, Reminders, & Explanations

"Most of us are humbled by the fact that beekeeping is a lifelong learning experience, full of surprises, and ruled largely by Murphy's Law. The best way to learn beekeeping is to work with an experienced mentor who has successfully kept bees in your area for many years. I'd look for someone who is candid about the mistakes they've made, and the number of times that they've recovered from major crashes. The biggest problem with healthy overwintered colonies is how to keep them all from swarming."- Randy Oliver.

Our priority is to manage to our bees for a successful overwintering period so that we can enjoy advanced colonies for spring time uses. This article will be devoted to two key concepts that profoundly affect over winter ability: The Varroa Season and the worker caste of honey bees. We'll cover feeding bee candy and other emergency operations in early February.

The Varroa Season

A primary management concern for mid-summer is to assess Varroa mite levels in the bee yard and then to react accordingly because mite levels will vary from hive to hive but high counts in one hive are a source of mites for lateral infestation of all the rest hives with low counts or worse.

The Varroa stressed colony usually collapses between fall and early spring. How does this happen? During the late autumn or early winter, the mite population is at its lowest point. The mite is phoretic, female, and non-reproductive. A phoretic mite is a mite in a dispersal mode, travelling on a bee and staying alive by feeding off of that bee. If there was a time to use a fumigant, it would be at this time. However weather doesn't permit because our common fumigants have a minimum temperature of 50 degrees F and one cannot open hives up to expose brood nest in the cold or having bees beard out to the freezing temperatures.

Mites will slowly start to reproduce as do the bees. As the hive mores through to spring bees reproduce and so do the mites. Bees are producing nurse bees and forager bees, live, and tolerate the mites. This continues until Late July through September. In the hive, the varroa count peaks, colonies stop producing drone, and cut back on worker brood. There are a large number of mites circulating and feeding in the brood nest area, mostly on nurse bees. Since treatment was skipped any new brood produced will be ravaged by the advanced mite population. Many of the developing young are killed, rendered useless by the mite parasite, or stressed to virus susceptibility or ultimate mortality due to Nosema. The majority of these worker bees are nurse bees timed to be winter bees. As the colony collapses lateral infestations are transmitted by robber bees. Robber bees come to feast only to encounter mites lying in wait and then carry the mite to infest another colony of bees, usually in the same yard.

This is the varroa season. I am not sure where the term-varroa season, came from, but certainly the varroa season occurs when mites are actually developing an ever increasing presence in the hive. In an article on drone culling by Randy Oliver and included references, there are good summaries concerning varroa reproduction (IPM 5.5 Fighting Varroa: Biotactics II).in this article it says that varroa reproduces rather poorly

in worker brood, but is **nearly three times** more successful in drone brood, due to its longer post-capping period. It's not surprising then, that female mites prefer drone brood by a factor of roughly 10 to 1 (reported figures range from 4:1 – 12:1). The mites, being tiny and blind, apparently recognize nurse bees by odor, and ride around on them until they smell a drone larva of the right age. Since nurse bees spend much more time feeding drone larvae than worker larvae, the mites have ample opportunity to come into contact with drone larvae. Clearly, when drone brood is being amply produced so are varroa mites in the susceptible hive. They can be treated for as soon as drone is capped. Read and understand the article by Nicholas Calderone.

A feral colony of bees builds about 17% drone comb. Rapid mite reproduction in this amount of drone brood largely accounts for the decimation of the feral bees by the mite. The stimulus to build drone combs is good forage (at any time of the year), with a negative feedback from drone brood already existing.

This drone culling article was the work of Dr. Nicholas Calderone of Cornell University. Randy Oliver provided a link in his Biotactics II article to this article because of its significance. Some real learning can be accomplished by a thorough reading of Randy's referenced articles. For your convenience the link to the website: http://www.masterbeekeeper.org Go to B-Files and look up article 13. The article can be found there.

Abundant mite populations are correlated with significant drone populations especially in untreated non-hygienic bee colonies. How does the mite inflict damage on a bee hive? We will see below:

The worker caste of honey bee

Trying to explain "mite damage" in terms of the end results, a collapsed or dead hive requires knowing the certainty of potentially lethal overwintering effects that the mite causes.

The pathogenic effects of the mite parisitization are that the nurse bee to winter bee transition is disrupted and the honey bees' potential to over winter is compromised or eliminated.

Nurse bees and winter bees are not in the same caste of worker bees. Nurse bees are specialized to caring for brood, eating pollen and making jelly, and feeding foragers. Other specialized types of worker bees are middle aged bees. They do things like make wax, ferry nectar, prepare honey and become guard bees. Forager bees are yet another type of worker bees. Foragers do the hard work and collect pollen and nectar. The forager bee is the only bee besides the swarm specialized for daily foraging flights.

The factors which either allow or restrict each of these specialized castes of worker to their specialization are exactly what control the hive. These control factors are pheromones, hormones, beneficial feeding (trophalaxis), and the resultant effects upon the bee biochemistry, morphology, and 'social behavior. We can explain this in more depth as we fill out our reference library and adapt the website for those who desire to deeply understand the biology of the honey bee.

Winter Bees are still another caste of worker bee. They are specialized to survive the winter of the temperate zone and sub-arctic ecotones. These bees survive the winter and then extend new young honey bee populations to replenish and repopulate the early spring environment.

Winter bees become the nurse bees of spring. It is like the honey bee comes out of suspended animation to aid the queen and reproduce all of what is familiarly known as worker honey bees. The winter bee populates the hive of winter. It was not known just what causes the queen to start raising the first brood of spring in January. Currently it is thought length of day is the stimulus. Every beekeepers' goal is to extend colonies overwinter.

Sadly, this expectation is no longer easy to accomplish. Beekeepers have to intervene because the varroa mite is an example of what we call a selective force. Just like the asteroid that was hypothesized to have hit the Earth and caused the extermination the dinosaurs.

So, necessarily we have to understand winter bees as the potential continuum of the caste of worker honey bee that they are. And the queen bee is the only path to the next generation along with her small army of winter bees. They support one another.

There are at least a few types of mechanisms that describe the transition of worker bees to winter bee. It is not age but time of exposure to the hive dynamic and other factors like the absence of pollen protein and season of winter in addition to physiological factors that govern transitions between castes of honey bees to winter bee. As pertains to winter, we have to understand that the bee strives to provide itself with dry, draft free quarters to over winter itself. Temperature affects how much honey they use. It is the elements that cause hypothermia. This is an evolved trait. Something else goes on physiologically within the castes of worker bees that has to do with the amount brood in the nest and the falling amounts pollen in the field that occur as we change from fall into winter.

The winter bee has much in common with nurse bee. It is easy to confuse them. The winter bee is characterized by low juvenile hormone levels; active fat body, high levels of vitellogenin, and a first rate immune system. Winter bees are unlike nurse in that low level of brood (brood hormone) or when the numbers of foragers are low they don't transition out of their winter bee state as do nurse bees. Once the hive is active in spring there are factors at work that govern the many shades of worker bee specialialization into what is necessary. But, the transition to winter bee occurs with the arrival of winter. There are many cues that are correlated with the arrival, but the most important seems to be the presence of pollen in the field causes a reduction of brood in the nest. Worker bees that emerge in colonies with little to no brood will make the transition to winter bee state. With respect to how the older bees know how to transition to winter bee state, there is insufficient scientific evidence to describe a model. Even foragers can change their physiology to then become a winter bee (Johnson, 2010).

In winter the worker caste is comprised of the winter bees. All of those bees of winter very quickly specialize in the spring to provide the queen and colony what it needs. Remember for winter their fat bodies must be intact and stable. Structure relates exactly to function in the case. Once spring arrives and there are fresh supplies of pollen and nectar, as well as increased amounts of brood in the hive, the vast degree of specialization of all workers is well under way.

A winter bee candidate is has to be a "fat bee". If the hive has a progression of good competent "fat" nurse bees then it will likewise have had adequate worker castes- the summer into fall. If enough nurse bees are available that haven't fed too much brood or managed too many foragers, their unique ability to eat pollen, digest it, and then dispense it will be carried through the winter. Their physiology changes for the winter. The nurse bee transitions to winter bee status, as do many other variations of worker bee within the nest that are not worn out and hive nutritional state allow.

Tim Schuler will add and underscore another stipulation. Tim says that going into winter, the generalist (winter) bee candidates must be in abundant numbers (10 frames of bees), and be unparasitized.

Why do the bees have to be unparasitized?

The varroa mite destroys the winter bees' ability to maintain its' fat bodies. It is this stored protein that enables the bees to make it through winter and rear brood in the early spring. Then they become a little more specialized.

During the summer the injured nurse bee transitions out of brood care, but it is unclear what this bee becomes. A deficit in nurse bees can develop, which means that more feeding responsibilities will exist for the competent nurses that remain. There will be faster burnout since it is the remaining nurse bee that produces vitellogenin rich protein jelly. Brood rearing can suffer. The effects will show in fall.

Why do we have to have such large numbers of unparasitized winter bees for winter?

A large number of bees are necessary for a healthy cluster. Normally about ten frames to make good provisions for spring. In order for that number of generalist bees to be

available for winter and unparasitized by the mite, treatments for mites must have been completed as soon to the end of August as permissible by temperature.

It is left up to the reader to consult his bee math references to determine how long it would take to produce 10 full frames of bees. Somehow it is that magic timeframe- the end of August. How do we accomplish this? We are developing a strategy we will publish before early spring management, which will detail the options. There are a few options, but one simply has no choice but to do treatments because NJ's bees in general are not hygienic in nature sufficient to manage a mite infestation.

As was seen in examples above, the fat body is the site of a biochemical synthesis of vitellogenin, and a storage site for it. This protein complex has a multitude of applications including hormonal, energy producing, social, and developmental to list a few. Generalist, winter bees will become the nurse bee of early spring. Before that they are cell cleaners.

The hive normally suffers low productivity in spring if only a subnormal number of winter bees survive the winter. It is really critical to determine the extent of protein starvation in early spring because this will radically affect recovery of numbers in spring that remain.

References: Division of labor in honeybees: form, function, and proximate mechanisms Johnson, Brian, R. Behavioral Ecological Sociobiology (2010) 64: 305-316

Other references are as listed above.

State Beekeepers Postings

February 16, 2012: Thursday, 7:00 p.m. Executive Board meeting. Bordentown Eco-Complex.

February 17-25, 2012: Our Annual **Honey Show** at the Rutgers Eco-Complex, 1200 Florence-Columbus Road, Bordentown. 2011 WINNERS! Click here for current rules, sample score sheets and an entry form. If you have any questions, please contact the show chair, Janet Katz.

NJBA Winter Meeting

The NJBA Winter Meeting is posted on their website. 2/25 is the date and it will be hosted at the Rutgers Eco Complex. Debora Delaney, the Assistant Professor of Entomology & Wildlife Ecology at the University of Delaware will be the featured speaker. Cost is $20 in advance (Deadline 1/21) or $25 at the door. The meeting will also include election of officers and a review of the annual honey show awards announcements.
http://www.njbeekeepers.org/Calendar.htm

This promises to be a great meeting. We hope to have a nice turnout of NW NJ Beekeepers …See you there!

Northwest Calendar:

February 9, 2012 – Topic: Field Meeting- Sustainable Beekeeping: Making Splits Video and Popcorn Location Hunterdon County Complex, Route 12, Flemington, New Jersey

NORTHWEST BRANCH OFFICERS

NWNJBA Officers

President: Charles Ilsley, c.ilsley44@gmail.com ; (732) 469-0043
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Treasurer: Karin Weinberg, Metricom1@comcast.net ; (908) 479-1564

Librarian: Adele Barree, abarree@optonline.net ; (908) 575-8580

Warren & Hunterdon County Fairs

Warren County Fair

How do we say Thank you very much to our Honey Queens? We do this by recognizing their efforts and by thanking them. It was more than our pleasure to have the 2011 American Honey Queen and the New Jersey Honey Queen & Princess in attendance at the Warren County Fair this year. Teresa Bryson was a 2011 American Bee Federation Honey Queen. She is bright hard working student of Chemical Forensics and is in her senior year of college. Her family has a farm and both her and her sister manage about 30 hives. Also seen (*l to r)* is Daniel Inglin (NW beekeeper), Rebecca Mueller, New Jersey Honey Princess, Ella Barry, New Jersey Honey Queen, Charles Ilsley, Pres., and Kevin Inglin, 3rd VP.

The picture above was taken just before opening day of the Warren County Fair by Sharon Inglin-thank you Sharon! In excess of expenses, the Warren County Fair was a success. The Inglins were out in all capacities on opening day. Although not in the picture, Brian was also present, blowing up balloons and selling honey at the honey booth. Rebecca Meuller and Daniel Inglin walked around with balloons and brochures shaking hands and directing interested individuals to our honey stand and exhibits. Rebecca's father is Mark Mueller. Mark is now a past-President of Morris Somerset Beekeepers Association. We needed a bee cage to give exhibits inside the building and the Department of Agriculture cage was already allocated to another fair. Mark graciously made arrangements for NW to pick up the cage and bring it to the fair. This cage was a real big addition to our exhibit at Warren County Fair.

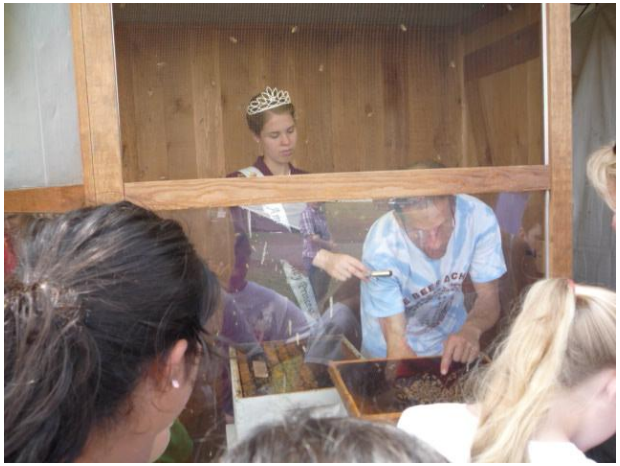
And then, about 45 minutes after this picture was taken Theresa Bryson was interviewed about the problems facing the honey bee by public radio. Wow! Now this was an interesting interview because the press snuck up on us. The reporter was a woman dressed up in cut off blue jeans with a GI hat on. First came the question, then came the recorder, then I called Kevin out of the bee cage because we had a rush at the honey stand. Kevin dealt with the reporter very effectively. I remember dealing with honey customers. Theresa Bryson gave a very concise opinion regarding the problems of honey bees. New Jersey's Honey Queen, Ella Barry, was greeting people at the fair, passing out literature, and then directing interested persons to our booth when all that happened. Likewise, Ella did a wonderful job. Meanwhile the Inglin brothers were engaged selling honey. Rebecca Mueller was blowing up helium balloons using the tank. Occasionally she would over fill one and the consequent resultant pop! Once I almost jumped over one of the tables.

That day, opening day, was as great day at the fair as I have ever experienced. The dynamic generated at the booth with the young people on both sides of the table meant we were reaching the public on a multitude of levels. This is what NW NJ Beekeepers are all about.

Hunterdon County Fair

Likewise, in excess of expenses, the Hunterdon County Fair was a success. And also, it was a ton of fun having the 2011 American Bee Federation Honey Princess-Allison Adams in attendance at the Hunterdon County Fair.

Allison teaches art teacher in Texas specializing in grade school and high school ages students. She began bee keeping 7 years ago with a scholarship for beekeeping education and has been successfully keeping bees ever since. Here Allison is seen with Stan Wasitowski in the bee booth at the Hunterdon County Fair giving a demonstration. And that is a fully loaded frame of bees in Stan's hands. But, neither Stan nor Allison has a bee in their bonnet. The secret is it is no so much the precautions necessary because the bees were smoked and combining the conditions of an absolutely perfect day for honey bees. We were at the fair and Stan asked the bees before they went into the booth if it was ok. No bonnets were necessary today at this time.

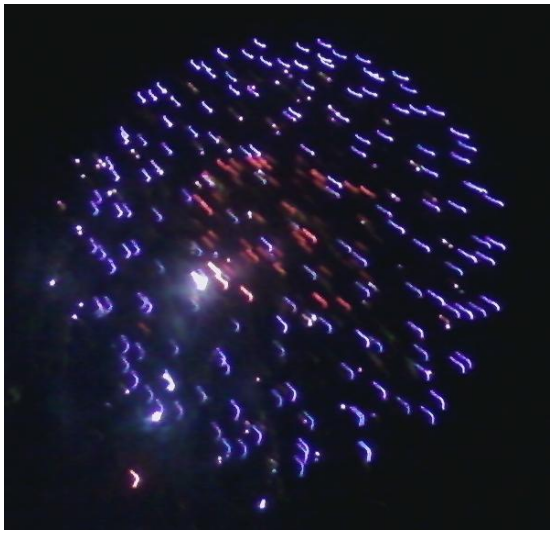


In this picture Allison holds the microphone for our 1st VP Bob Kloss. Notice how intently the focus on the bees in the picture. Bob is another one of our bee-whisperers. So no bonnets were necessary here either. I can bet Bob was pointing out the queen for the observers outside the booth or maybe this time it was some capped brood. I knew Allison would know exactly how and what was going to be said next. We were amazed at her depth of knowledge and ability to communicate with an audience. Code: Teachers are born that way.

The fireworks went off and much to everyone's surprise they were great. I was there with Allison, Sharon & Kevin Inglin, Fran & Stan Wasitowski, and others.

We had a visit from Hurricane Irene on the following day. Allison had to leave us to arrive somewhere like Montana ahead of our Irene for her next visit location. Bob Kloss and Kevin Inglin did their best the following day, but most everything from the fair wound up in his garage for a while. That's ok because Sharon is used to stuff appearing overnight on an emergency basis. She is a boy scout Mom and a beekeeper to.

And so, happy trails everyone including Irene and 2011 Say hello to 2012. Keep all Service People in your prayers.



Best regards,
Charley Ilsley
President
NWNJ Beekeepers Association

-RoyRogers-happy-trails.wav