

The background of the entire page is a photograph of several rows of glass jars filled with honey. The jars are arranged in a grid-like pattern, with some rows showing jars of different shades of honey (light yellow, golden, and dark amber) and others showing uniform colors. The lighting is warm, highlighting the texture and color of the honey.

North Carolina **Bee Buzz**

The Official Magazine of the NCSBA

Summer Conference

Beehive Grants

European Foulbrood

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Fall 2017

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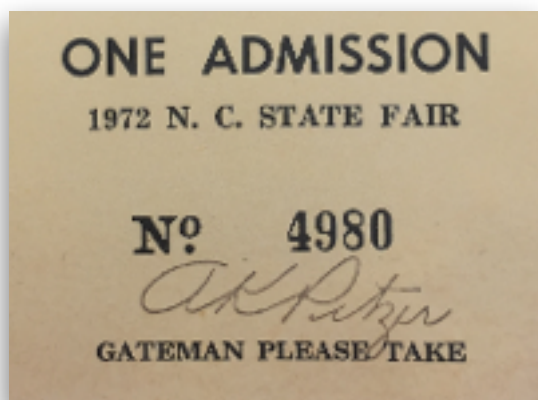
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North Carolina Bee Buzz

Fall 2017



Features



**Highlights From 2017
Summer Conference**

8



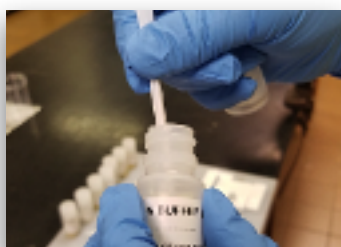
**The Mistakes I've Made!
Hive Treatment Safety**

22



Beehive Grants

27



**It Could Happen To You, Too!
European Foulbrood**

32

North Carolina State Beekeepers Association

Message from the President	5
Master Beekeeper Program	7
NCSBA Beekeeper's Calendar	11
In the Apiary	15
You Can't Take It With You	16
Birds, Blooms, & Bees - NC Zoo	18
Wolfpack's Waggle	19
Beefeeders	21
5CBA's Final HIP Update	24
Bayer Bee Care	30
NCSBA Library Update	30
Welcome Lee County Beekeepers!	35



ON THE COVER:

Honey display from the 2015
NC State Fair. *Photo: Lane Kreitlow*

North Carolina State Beekeepers Association



The mission of the NCSBA is to advance beekeeping in North Carolina through improved communication with members, improved education about beekeeping, and support of science enhancing the knowledge of beekeeping.

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Contact information for the NCSBA Officers and Regional Directors can be found in your Yellow Book Directory and on the NCSBA website www.ncbeekeepers.org

From the *Bee Buzz* Editors:

Bee Buzz Story Submission Deadlines: Winter Issue: September 21

We enthusiastically accept article and photo submissions! Please send us your articles and photos of news and information you'd like to share about your local association's latest events, successes and failures, a biography on a long-standing NCSBA member you would like to honor, or a young beekeeper you'd like to see highlighted. All honey bee-related topics will be considered for publication. While we regret that we cannot always include every submission, we will do our best to print as space permits. Please do not resubmit the same item, as we save all submissions for possible use in future issues. Submit your article in .doc or .docx format. Photos should be high quality jpg or tiff format. Please include a caption for photos. Do not embed captions in your photos or photos into your news article, but submit these as separate files. If you do not have access to a computer, we will accept typed or clearly handwritten articles. Mail written submissions to: *Bee Buzz* Submissions PO Box 1771 Pittsboro NC 27312. Email article submissions to: Lane Kreitlow at beebuzzcontent@ncbeekeepers.org

Submit your best bee-related photos for possible use! Please do not resize- send us the best resolution photos you have. Include photographer's name, and caption / description for each file. Email your photo submissions to Jody Moore at: beebuzzeditor@ncbeekeepers.org

Bee Buzz Subscriptions: Direct subscription questions and address changes to Laurie Shaw at membership@ncbeekeepers.org

Dr. Lane Kreitlow, *Content Editor*
beebuzzcontent@ncbeekeepers.org

Jody Moore, *Technical Editor*
beebuzzeditor@ncbeekeepers.org



Message From The President

by Rick Coor

What Kind of Beekeeper Are You?

Like all beekeepers, I find the honey bee to be very interesting... so much so, that I tend to my bees on a regular schedule from early April until mid September each year, and love every minute of it. I also enjoy the connection with other beekeepers that comes from being a member of the NCSBA. There are all kinds of folks keeping bees - the diverse membership of the NCSBA demonstrates that beekeeping is enjoyed by folks from all walks of life. All the trades and professions can be found in our ranks; people young and those young at heart; some keeping bees in cities and towns while others in rural areas.

We are held together by a common bond - we love our bees. People keep bees because it is something they want to do. Beekeeping is fun! For some, beekeeping is a science while for others, a pastime. The honey bee represents a continuum of life, a connection to nature and the God that created it all. Each spring brings new life, more excitement, and new possibilities. You are never alone when you are with your bees.

The image of the typical beekeeper has long been held to be of the older generation of folks who live out in the country, tend a few hives, sell some honey, and enjoy an easier pace of life. It does not take a genius to recognize that things have changed, but in what ways? Beekeeping itself has changed dramatically since the 1980's, but how have the members of the NCSBA changed? We were once an association of a few hundred, but since 2000 the membership of the NCSBA has increased by six-fold. This begs the question ... who

are the people in the NCSBA? It would be useful to know. Current and new programs could benefit from demographic data of the membership. Information to be presented in the Bee Buzz, on the website or on Facebook could be made more effective and relevant with a better understanding of the audience. The spring and summer meetings are major events for the leadership to prepare for, and for the members who attend. Relevant information about the attendees could make a difference in the selection of speakers and topics for workshops.

Not only do the ages and backgrounds of our members differ but so does what we believe is the best for our bees. Why do you keep bees? Are you an urban beekeeper or rural? Do you treat for varroa or are you treatment free? Are you a natural beekeeper? What would you like to learn more about? Do you volunteer in your local chapter? Are you a traditional Langstroth person or a top bar, Warre or horizontal hive type? Is Apitherapy for real? What do you think is jeopardizing the prolificacy of bees? What are your feelings about pesticide usage? Have you registered your hives? What would you like to see or hear at a conference? Do you think we need more research for apiculture science? Or... are you not worried about all this and want to be left alone?

Exactly what kind of beekeepers are we? Let us try to learn more about our Association. There is a survey on the ncbeekeepers.org website that asks the previous questions and more. This is intended to help the leadership connect with YOU - the membership. Please take a few minutes to fill out the survey. By doing so, you will help the NCSBA to improve beekeeping in NC and to help all of us help the honey bees.

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Master Beekeeper Program

by Paul Newbold Chairman Master Beekeeper Committee

The Master Beekeeper Program is

on strong footing. With 76 NCSBA chapters and a membership of over 4500, keeping up with the growth of the Association has been a challenge. The chapters are now turning out nearly 500 Certified Beekeepers each year. We have a system in place that puts that certificate in their hands in less than 2 weeks after the information is submitted to the committee. Journeyman certificates are up, and over 40 were presented at chapters around the state this past year by our regional directors. The number of Master Beekeepers is up nearly 1/3 since 2014.

Only a few changes have been made to the Master Beekeeper Program in the last 3 years, but lots of changes as to how we run the program. Computer banks of test questions, Games and Quizzes on the website, and data entry for the chapters is just the beginning for what's in store. Our promise to pass on

test results and get certificates out in a timely manner has helped to restore the integrity of the Program. Promises made and promises kept. Treating everyone equally and holding everyone to the same standards has been our policy.

After the 2017 Summer Conference, a new Chairman of the Master Beekeeper Committee will have been appointed. B Townes, from Beekeepers of Wilkes County, will be the new Chairman. B brings over 10 years experience as a member of the NCSBA, a Master Beekeeper and a Master Gardener. A retired horticulture instructor and vice president of Wilkes Community College, B is more than qualified to take over the MBP program and lead it forward. Please extend a warm welcome to B as he begins as the new Chairman. Emails and phone calls with questions concerning the MBP should be directed to him. Thanks to all of you for working with me while I was chairing the committee. It has been a real education for me, and has brought a great deal of pleasure from meeting and talking with each of you.

New MBP Chairman: B Townes
email: mbp@ncbeekeepers.org
Phone: (336) 984-1048



Master Beekeeper Program - Fall Regional Testing

For more information email: mbp@ncbeekeepers.org

EAST: OCTOBER 7, 2017 - 9:00 am till Noon

Craven County Cooperative Extension
300 Industrial Drive
New Bern, NC 28562

Facility is located just off the Clarks Exit on Highway 70 approximately 8 miles west of the city limits of New Bern.

All tests start at 9:00 am

NO TEST issued after 10:00 am

There will be: written testing for Certified, Journeyman & Master Levels

There will be practical exams for Journeyman and Master Levels only.

Certified Practical Exams will not be issued at this time/location.

WEST: OCTOBER 21, 2017 - 9:00 am till Noon

N.C. Cooperative Extension Office at Wilkes County
416 Executive Drive
Wilkesboro, NC 28697

See wilkes.ces.ncsu.edu for direction assistance. We have been advised that the location is GPS challenged so to help you locate the facility, note that it is located off SR 421 at exit 285, north 500 feet to Executive Drive on the left.

All tests start at 9:00 am

NO TEST issued after 10:00 am

There will be: written testing for Certified, Journeyman & Master Levels

There will be practical exams for Journeyman and Master Levels only.

Certified Practical Exams will not be issued at this time/location.

Highlights From 2017 NCSBA Summer Conference

July 13-15, 2017 Winston-Salem



NCSBA Person of the Year : Todd Walker



Fountain Odom, Secretary Michael Regan, and Rick Coor

BEST of SHOW 2017

Banana Pineapple Cake - Charlieann Carpenter

Ingredients:

3 cups all-purpose flour	1 cup white sugar
1 cup honey	1 tsp salt
1 tsp baking soda	3 eggs, slightly beaten
2 cups of mashed bananas	1 cup oil
1 ½ tsp vanilla	¾ cup chopped pecans
One 8 ¼ can crushed pineapple, undrained	

In a mixing bowl, stir together dry ingredients except for the pecans and make a well in the center. Combine the rest of ingredients along with the pecans and add to the dry ingredients. Mix until well moistened. Pour batter into a greased and floured baking pan.

Bake at 350° F for 65 to 70 min. Cool in pan 15 min. Remove and cool on wire rack. Sprinkle with confectioners sugar or drizzle with a powdered sugar glaze.



Bee Bowl Winners: Five County Beekeepers Association

2017 Cooperative Extension Worker of the Year



Andy Burlingham

Tar River Beekeepers



Congratulations Blue Ribbon Winners

Judges: Joe Smith, Terry Gooch, Bruce Harman

Entries: 71 **Entrants:** 46

Best of Show: Anne Houck - SM10 Extracted Light - Perfect Score

Jody Moore SM1- Deep Comb Extracting	Sandy Carlson SM2- Shallow Cutting Comb	Greg Reavis SM7- Chunk Light	Jody Moore SM8- Chunk Amber
Jody Moore SM9-Chunk Dark	Anne Houck SM10- Extracted Light	Mark Henson SM11-Extracted Amber	Virginia Webb SM12- Extracted Dark
Murdock Butler SM13- Creamed Honey	Virginia Webb SM15-Beeswax Products	Virginia Webb SM16-Gift Basket	Randall Austin SM17- Dry Mead
Tim Huffman SM18- Sweet Mead	Dorothy Butler SM19- Melomel Mead	Mark Powers SM20- Photograph	Anne Houck Best of Show



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September Notes

- Beehive population drops and drones begin to die off
- Harvest remaining honey crop making sure to leave about 60 pounds for winter use
- Start feeding and medication at end of the month, if necessary
- Mite treatment is important in the Fall

Photo: Lane Kreitlow

September 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
27	28	29	30	31	1	2
3	4 Labor Day	5	6 	7	8 <u>NC MTN STATE FAIR</u>	9
10	11	12	13	14	15	16
<u>NC MOUNTAIN STATE FAIR Sept 8 - 17</u>						
17 <u>NC MTN FAIR</u>	18	19	20	21 Autumn Equinox	22	23
24 <i>Piedmont Aster (40)</i>	25	26	27	28	29 <u>DIXIE CLASSIC FAIR</u>	30 <i>Coastal Aster (40)</i>



October Notes

- Observe the bees are preparing for winter
- Include any necessary windbreaks or insulation
- Continue supplemental feeding, if needed
- Attend a fair near you this month

Photo Courtesy: vegetablefruitcarving.com Titus Arensberg, Artist

October 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5 	6	7
DIXIE CLASSIC FAIR Sept 29 - Oct 8						
8 <u>DIXIE CLASSIC FAIR</u>	9 Columbus Day	10	11	12 	13 <u>NC STATE FAIR</u>	14
15	16	17	18	19	20	21
NC STATE FAIR Oct 12 - 22						
22 <u>NC STATE FAIR</u>	23	24	25	26	27	28
29	30	31 Halloween	1	2	3	4

November Notes

- Bees are clustering together on colder days to keep warm
- Some recommend an oxalic acid treatment around Thanksgiving because there is very little in the way of capped brood in the hive
- Plan for your Christmas presents: Bottled honey and beeswax products make great gifts



November 2017

Photo: Jody Moore

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
29	30	31	1	2	3 	4
5	6	7	8	9	10	11 Veterans Day
Daylight Savings						
12	13	14	15	16	17	18
19	20	21	22	23 Thanksgiving	24	25
26	27	28	29	30	1	2

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In the Apiary: Fall in North Carolina

by Nancy Ruppert, Apiary Inspector, NCDA&CS

While entering the autumn season brings us relief from the hot summer, it also brings one of the most important preparation times of the year for beekeepers: taking action, when/where needed, to help our bees get through the winter. If we fail to do this in a timely way, our bees are not likely to survive this most challenging season of cold temperatures and limited forage.

Maintaining healthy colonies in the 21st century boils down to three primary factors: productive queens, adequate nutrition, and limited pest pressure. (There are other influences on colony health, but in most cases they are not as significant.) If any one of these three factors is lacking, winter survival of the colony is at great risk, and if two or more of the three factors are lacking, there is almost no chance of colony survival.

Productive queens are not as common as we would like but when a source is found, use it! Because quality queens are very scarce from early September through the end of March for most North Carolina beekeepers, we need to closely examine the queen's performance in our colonies by mid-August so that poorly-performing queens can be replaced. For colonies that enter the fall with failing queens, the only options for beekeepers are combining those colonies with stronger queenright colonies or accepting the likelihood that the colony with a failing queen will die before spring. **Note: combining a weak colony with another weak colony during fall or winter usually results in a weak colony that will not survive the challenges of winter.**

Adequate nutrition for our bees entails more than what can be covered here, but suffice it to say that most beekeepers will need to provide supplements for at least part of the fall/winter season: thicker sugar syrup (2 parts sugar to one part water), candy boards, or fondant are excellent choices to supplement carbohydrates if the hive enters November with less than 60 pounds of stored honey, and even then there may be a need to supplement carbohydrates before winter's end. Most healthy hives will be fine without pollen supplementation, but our colonies can get a jump-start on building up for spring by adding pollen or pollen substitute during late December and/or early January.

Pest management, particularly that of varroa mites, continues to be the most problematic issue for

beekeeping and colony survival, especially during the challenging winter months. Varroa mite levels must be under control before mid-October, because the winter bees that are developing during October and November will be permanently weakened and have a shorter lifespan if they are forced to develop in a mite-infested colony. Details of successful mite management are beyond the scope of this column, but should be discussed IN EVERY LOCAL NCSBA CHAPTER during the summer and/or fall, EVERY YEAR UNTIL WE GET IT RIGHT!! While there has been progress toward breeding a better bee (that can tolerate varroa mite effects), we are not there yet on a broad enough scale, so most beekeepers must intervene on this. Please follow label instructions when using pest management products in the hive, and if there are no instructions for use in a beehive, you probably do not have the right product. Learn how to check mite levels accurately—before and after any intervention—so that you know when to intervene, and whether or not your intervention was successful.

Wishing you a Happy Fall, and Happy Beekeeping!



Photo: Lane Kreilow

Honey bee displaying the the characteristic signs of Deformed Wing Virus, one of the many diseases transmitted by varroa mites.

You Can't Take It With You

by Lewis Cauble NCSU Apiary Inspector

I loved Rick Coor's article

in the Summer 2017 issue of the *Bee Buzz* regarding donating money to the NCSU Apiculture Science Fund via the NC Ag Foundation. He did such a good job of explaining what the NC Ag Foundation is, how to contribute, and why contributing is important. We are an organization of over 4000 members. If everyone gave a little, we could make a big impact on the Apiculture Program at NCSU. I applaud Rick for making the commitment of \$20 per month and hope that many others will follow his good example.

It is so easy to donate through the NC Ag Foundation website. You can make a one-time donation or follow Rick's lead and set up a recurring contribution (monthly, quarterly, yearly). You can also make a donation in memory of or in honor of someone. I used it to make a small donation in memory of John Ambrose in 2015 and did the same for Bill Sheppard in 2016. The family gets a nice note informing them of the donation, NCSU Apiculture gets the money, I get a tax deduction. Everyone wins. When I die, no flowers please! Send the money to NCSU Apiculture via the NC Ag Foundation. Wondering what to get me for Christmas or my birthday? Send some money to NCSU Apiculture!

In 2016 I contacted NCSU about setting up a deferred gift plan. There are plenty of options here including a bequest through a will or trust, a charitable remainder trust, remainder interest in a residence or farm, assignment of a life insurance policy. What I did was simple. I named NCSU Apiculture as the beneficiary of one of my retirement accounts. They will get whatever is in the account when I check out. It is a bit like buying them a lottery ticket, so we will just have to wait and see how it plays out. If I get hit by a truck tomorrow, they will get a good chunk of change to use as they see fit. If I take after my fraternal grandmother and go to 102 years old, NCSU Apiculture will likely be out of luck. Best case scenario for them is that the account continues to grow over the next 20 years and I fall over dead at my retirement party. At any rate, the folks at NCSU made the process of setting this up easy.

I don't know if NCSU Apiculture will benefit from my deferred giving plan so I know it is important for me to continue selling a few nucs and some honey each season and send a portion of that money to them to support the good work that they do. I hope that my deferred gift will make an impact and I hope that others will consider including NCSU Apiculture in their estate plans.



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Birds, Blooms, and Bees Day

by Linda Hardison



NCSBA made a huge impact in a new education/ public relations opportunity at the NC Zoo in May. This was the first year that NCSBA Honey Bee Garden volunteers participated in a special event day at the zoo. The annual Birds & Blooms event became **Birds, Blooms & Bees**. It occurred on May 13. This event has always attracted a large crowd. Visitors to the bee exhibit were greeted with a big honey bee and beekeeper in full suit. Everyone loved this photo opportunity, both adults and children! Chip Brooks, our own friendly honey bee, and Tammy Shaw, our intrepid beekeeper, took time to interact with all the visitors.



A steady stream of visitors at the event

We had a variety of learning stations to help folks experience hands-on material about bees. There was a pollen station, a very popular honey-tasting station, and games and information about various bee types and homes. People enjoyed testing their knowledge of common backyard honey bee plants by matching plants or blooms with the correct identification cards at the pollinator plant station. We featured NCSBA and beekeeping skills at other stations. There was plenty of information and plenty of learning going on throughout the exhibit area.



Ellis Hardison & Jane Brooks help visitors taste honey

There were a lot of people who helped make this a success. Our wonderful volunteers were Steve & Cindy Rayburn, Bill & Julie Bates, Ellis & Linda Hardison, John & Jane Brooks, Stephen Taylor, Kenny Jones, Janno Lewis, Judy Pick, Chip Brooks, Tammy Shaw, John & Libby Freeman, Ray Wise, Tommy & Betty Patrick, and Paul Militello. Rick Coor, Danny Jaynes, Ellis Hardison, Nancy Ruppert, and Ken Knight donated honey. Thanks to our NCSBA Zoo Exhibit Committee, Linda Hardison, Janno Lewis and Judy Pick for organizing this affair. Special thanks go to the NCSBA Board, Patrick Jones, Debbie Roos and Don Hopkins for supporting this new effort to educate the public. Thousands of visitors got lots of positive exposure to honey bees and NCSBA through this special day. It looks like we've earned our place in this annual special event at the NC Zoo!



All Photos Courtesy Linda Hardison

Volunteers for Birds, Blooms, and Bees

NC Bee Buzz - Fall 2017

Wolfpack's Waggle: Happenings at the NCSU Apiculture Lab

by Dr. David Tarpay

Department of Entomology & Plant Pathology, NC State University



Donations to the NC State Apiculture Program: a Honey Bee Analogy

Semantics and definitions are important, and for good reason, since it keeps things clear in our minds especially when they get complicated. Take, for example, what we as beekeepers mean by 'colony,' 'hive,' and 'nest.' In the textbooks, sometimes you can see these terms used interchangeably, but they're by no means synonyms to each other. The 'colony' is the group of bees living and working together—the thousands of workers, queen, and brood. The 'hive,' on the other hand, is simply the "house" in which the colony lives (whether it be the box we provide or a natural cavity like a hollowed tree). The 'nest,' though, is the substrate inside the hive on which the colony resides (that is, the wax comb). So a hive doesn't swarm—a colony does, to establish a new nest.

There has been a lot of emphasis recently on our program and fund raising. We are very appreciative and humbled by these efforts, ranging from the NCSBA funding a scoping study for designs to a potential new research laboratory, to the fantastic initiative of the North Carolina honey bee license plate (where partial proceeds are donated to our program), to the group and individual donations to our Apiculture Science Fund. Each and every one of these donations is helpful and supremely appreciated, and we can't thank you enough. *Thank you, thank you, thank you!*



Artist rendering of proposed Bee Lab

With all of these activities and good will, it can get confusing as to the intents of these different fund-raising efforts. To make things clear, there are three distinct initiatives currently underway. First, NCSBA (led most notably by Charles Heatherly and Rick Coor) has very generously been spearheading an effort

to fund a new bee lab on our Lake Wheeler research farms. A new research facility will propel our program into the future and solidify the NC State Apiculture Program as a leading national program in bee research and extension for the next several generations. This effort is currently our highest and most immediate priority.

Second, we have our ongoing Apiculture Science Fund to which any and all donations help facilitate the inner workings of our program and its members. In particular, we tend to appropriate most of these donations for student projects. For example, it helps us have a student present at a scientific conference where they otherwise wouldn't be able to attend, conduct an additional experiment, or pay for undergraduate helpers for the summer. It also serves as a "rainy day" fund for the program, for when unexpected expenses arise (like when our ultra-low freezer stopped working last summer!).

Finally, the NC Agriculture Foundation plans to raise funds for an endowment for the Apiculture Program. Once a substantial endowment is in place, then the annual interest from this investment will help provide recurring funding for our program and in particular our Apiculture Technician position (currently held by Jennifer Keller). This will be critical to the long-term stability of the program; after all, what use is having a building without having people to put in it.

So you can think of these three initiatives in much the same way that we differentiate the honey bee colony, the hive, and the nest. The bee lab initiative by the NCSBA is like supporting the "hive," the structure in which our program resides. The endowment initiative by NCSU is like supporting the "colony" (that is, the people—especially Jennifer's position, without which we have no program!). The Apiculture Science Fund by all donors, big and small, is like supporting the "nest" (the infrastructure that helps "grease the skids" and enables everyone to work just a little more easily). Once again, we thank any and all support for each of these initiatives, and it is comforting to have such a supportive beekeeping community within the state to help them become realized.

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BeeFeeders

North Carolina Pollinator Plants

by: Ulana Stuart, Master Gardener

In the fall, bees look for pollen and nectar sources to prepare for winter so smart BeeFeeders provide fall blooming nectar and pollen plants to support this preparation. With this in mind, here are two fall blooming suggestions for you to consider in your garden:

Boneset (*Eupatorium perfoliatum*) is a clear favorite of bees, butterflies and wasps for nectar and pollen from early September until the hard frost. This native plant grows throughout North Carolina from the coastal plains up to the mountains. Boneset prefers moist, well-drained soil but can grow in damp and even seasonally wet locations with part to full sun exposure. Mature plants will reach 1 to 3 feet in height and width.



Photo: virginiawildflowers.org

Boneset

Boneset is a choice ornamental plant with showy, small white heads arranged in a broad flat top with a fuzzy appearance. Boneset forms vegetative colonies through rhizomes but is not overly aggressive. The rough textured foliage is bitter tasting, which discourages deer from browsing. This plant is trouble-free for gardeners and is easy to find at many local nurseries.

Honey from Boneset nectar has been described as dark amber and quite thick, but you've already harvested your honey so it should be ideal to leave for your bees over the winter.

A common *Monarda* garden plant is **Bee Balm** but the corolla is too long for honey bees to access, as it is adapted for insects with a longer tongue. **Spotted Horsemint flower (*Monarda punctata*)** is an eccentric beauty that is perfect for honey bees, providing easy



Photo: hawthornhillwildflowers.blogspot.com

Spotted Horsemint

access for both nectar and pollen. According to Lovell's *Honey Plants of North America*, American spotted horsemint is the most valuable species to the beekeeper of the 15 species of the genus *Monarda*. In the 1920's, spotted horsemint was highly regarded as an excellent honey bee plant throughout much of the US. It grows wild throughout North Carolina, from coastal plains up to the mountains.

Spotted horsemint grows in moist to dry soil but the location must be well drained. Preferred exposure is part to full sun.

Mature plants grow from 2 to 3 feet. This species is not very long lived, especially in rich soils but it does reseed. It is also very easy to start from seed, and there are several online sources to buy from. The plant blooms for 4 to 6 weeks and can bloom longer if the weather is rainy.

Spotted horsemint is high in thymol, which many of you will recognize as the active ingredient in Apiguard® and Apivar®. However, do not count on this for your varroa mite treatment. The honey is described as clear light amber in color and has been compared to basswood honey in flavor (Lovell).

I want to thank Ken Moore, NC Botanical Garden assistant director emeritus, for plant suggestions and discussion. Fall is the best time for southern gardeners to install new plantings because the plants you put in your garden now will be well established for 2018. The heat of southern summers can be very tough on spring plantings.

The Mistakes I've Made!

Hive Treatments: Applicator Safety and Responsibility

by Doug Galloway

When I started in the Master Beekeeper Program (MBP), I knew I had a lot to learn about beekeeping. I still do. What I didn't know was how it would direct me to areas that I didn't know! I didn't recognize the inadequate way I was dealing with the safety and responsibility of applying, handling, storing and disposing of those pesticides I find important to keep my bees healthy. Most beekeepers acknowledge that the best course of action to keep our bees healthy is to promote hygienic behavior, allowing our bees to succeed either by resisting a disease or pest, or coexisting with them. Until the time comes when hygienic behavior is predictable, many of us see the path to sustaining healthy, productive bees requires treating them with pesticides when their condition dictates it is necessary. The NC Pesticide Applicator Certification Core Manual states, "A pesticide is any substance that is used to kill a pest or prevent or reduce the damage it may cause". Pesticides include herbicides, insecticides, fungicides, miticides, bactericides, and others.

As a beginning beekeeper, my many mentors, to whom I am so grateful, shared their approaches to keeping healthy bees. I listened and then chose what I thought best for my bees and my situation. Sadly, although I read the labels regarding application strength and/or length of time/exposure for treatment, I paid virtually no attention to the effect the pesticide being applied to the bees might have on me, or the environment. Awareness to my previous neglect came from the education I received while studying for the Private Pesticide Applicators License, one of the many choices of sub-specialties I could pursue and hoped to achieve while working on the MBP.

The Private Applicators License requirements are rather simple. Go online to WWW.NCagr.gov/spcap/pesticides/index.htm. From this page you can order your study guide by going to the bottom center of the page, and selecting "Pesticide Exam Study Materials Online Ordering". Schedule your exam by choosing the red "Online Exam Registration" box at the center of the same page. The cost is minimal and your license is good for 3 years, with a one-day ongoing education requirement for renewal, and of course a small fee.

The benefit of doing this, whether you decide to actually get your license or not, is that you become

aware of the need to protect yourself, family and employees, from the risks associated with exposure to the pesticides we are now using to keep our bees healthy.

Having read the Core Manual a couple of times I am clearly no expert, but I am now much more aware of the importance of minimizing my exposure. The EPA has classified pesticides as either "general use" or "restricted use". If you can buy it without a license, it is general use. Regardless of being restricted or general use, the label statements have the force of Law. "Anyone using a pesticide in a manner inconsistent with the labeling may be subject to civil and/or criminal penalties". (1)

Last year at the summer meeting in Hickory, NC, Dr. Marion D. Ellis, University of Nebraska, gave an excellent talk about treating for Varroa. He shared his experience of first treating Varroa after the last nectar flow, and a latter treatment when no brood was present using oxalic acid vapor. I had been using Apiguard® for my Varroa treatment, and decided to add the oxalic acid vapor treatment based upon Dr. Ellis' experience and instructions. In early August I began treating with Apiguard®. Though I followed the instructions for treatment, I paid little attention to the need for safety. I installed the thymol trays using my bee gloves, followed up by removing two weeks later and installing the second tray, which I removed in another two weeks. I left the used, empty trays in the back of my farm vehicle with the intent on collecting them and throwing them away when I got around to it. Not a very good plan!

In September I received my NC Pesticide Applicator Certification Core Manual and began to read. It is never easy to recognize how sloppy and to some extent, irresponsible your conduct is. So after reading once and chastising myself, I read it again, this time taking notes, and chose to set a higher standard for the way I handled the pesticides I was using.

Oxalic acid vapor is something that many people are now using for protecting our honey bees from *Varroa destructor*. The label on oxalic acid as sold by a bee supply store or found on the Internet is clear, very specific precautions are necessary to protect you or your employees during the application. "Personal Protective Equipment (PPE)- Handlers and Applicators who apply product by the vaporizer method must wear: Long-sleeve shirt and long pants, socks and shoes,

protective gloves, protective eyewear (goggles or face shield), half-face respirator with cartridge and/or particulate filter" (2). These instructions are followed by "User Safety Requirements", which covers your conduct and clean up of your PPE. There are a lot more details on the label, and everyone who is treating with any pesticide should read the pesticide label and comply with what is written there. It is not only the law, is there for your protection, the protection of the environment and to ensure the proper application of the pesticide to treat the pest does not damage the host, i.e., your honey bees.

Since my discovery, I have read lots of pesticide labels and have been surprised by many facts I had not previously considered. Those essential oil based pesticides like Apiguard®, ApiLife Var® and Mite-A-Thol®, have extensive pesticide labels online that point out the extreme need for following label instructions. There are four signal words to identify the level of risk a pesticide offers. From the highest to the lowest risk they are "Danger-Poison, Danger, Warning and Caution". You might be surprised what your treatments risk level is. Apiguard®, ApiLife Var® and Mite-A-Thol® are all "Danger". ApiVar® (amitraz) risk signal word is "Warning", while oxalic acids and Mite Away Quick Strips® risk signal word is "Danger-Poison". The bottom line is: **read the label and follow its**

instructions. Don't be creative with your PPE, use what is instructed on the label, don't smell or taste the pesticide, and dispose of pesticide containers per the label instructions. **Believe the EPA and make sure the only ones treated are your bees!**

There are many sources for PPE on the Internet. A few I have found to be reliable and competitively priced are:

Zoro: contact at www.zoro.com

Gemplers: contact at www.gemplers.com

Northern Safety: contact at www.northersafety.com

Most suppliers will not give advice as to what you need, it is up to you. One area I researched quite a bit was which cartridge to buy for the half mask respirator I use for oxalic acid vapor treatments. As oxalic acid vapor is an organic vapor/acid gas, I chose a cartridge that was recommended in the literature for that application. It has a built in particulate filter designated P100.

References:

(1) *NC Pesticide Applicator Certification Core Manual*, Wayne G. Buhler, PH.D. NC State University.

(2) *Oxalic Acid Dihydrate pesticide label*, EPA Reg. No. 91266-1-91832.

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5CBA Hive Increase Project: Final Update

by Dianne Saunders, Candace Alvarez, Tim Huffman and Magnus Ullberg

This article is the last in the series about the Five County Beekeeper Association's (5CBA) Hive Increase Project (HIP). Our club's intent was to create a large temporary apiary for teaching new beekeepers, while demonstrating how to grow more colonies of bees from existing ones. As we come to the final months of the project, we share what worked, the challenges we faced, and insights into the experience.

What is the HIP?

The club's original goal with the HIP was to start with a single nuc of honey bees in the spring of 2016, and through a series of splits, increase it into twelve healthy and sustainable single-deep, 10-frame hives by October 2016; to successfully overwinter the colonies; to grow those hives into double-deep hives in the Spring 2017; and to produce honey for the club from those hives that season. The future of the club apiary would be determined in the summer of 2017, at which time it would have only four hives remaining in the apiary after returning the loaned equipment filled with bees to the sponsors, and selling or donating the extra colonies. Besides serving as a demonstration for how to create more colonies, the project would provide a temporary club apiary where individuals could gain hands-on experience in working with hives. At the time of this writing in the summer of 2017, we have split our way from a single, original nuc in April of 2016 to a total of 9 colonies: 1 triple-deep, 5 double-deeps, and 3 single-deeps. Based on experience, we expect about an 80% success rate on future splits from these hives, which would give us around 20 colonies by mid-October 2017. (If we reach this goal, we will need equipment for additional hives in which to place the splits. If we are unable to obtain enough equipment through donation or purchase, we will adjust our goals accordingly.) We also pulled 3 supers, which we estimate to contain about 4 gallons of honey. After the final splits in Oct. 2017, we will return one hive each to the original 10 sponsors, keep 4 of the hives for the club apiary, and sell any remaining hives, giving priority to the HIP participants. The total cost of the project to the club was for the sugar to feed the bees, and equipment for two complete hive set-ups and feeders, which averaged about \$1,000. Ten sponsors donated an additional 10 hive set-ups, which consisted of 2 deeps, 2 supers, and a feeder. In total, we began the project with 12 hive set-ups, a single nuc of bees, and purchased sugar, medication, and other incidentals.

How did it work?

During the HIP field days, beginners are encouraged to get in and work the hives. As a group, we all discuss what is happening in the hive, what direction to take, and talk through the reasons why we would take that direction. We have experienced beekeepers encouraging and working with new beekeepers, and making decisions as a group. After checking each hive, a plan is made for the next visit, providing the bees agreed with our plan when the next visit occurs. Many times we had to just go along with the bees' plans! For example: we planned to treat a hive for mites. A quick check for queen cells showed that it was planning to swarm. There were 11 queen cells hanging from the bottom of the frames. We split that hive three ways, and treated for mites the hive with the mother queen the following week. On another workday, we caught a swarm in a tree near the hives. The HIP participants experienced so much in such a short time, and received an extraordinary education that day. Our guiding concepts are Tim Huffman's *12 Months in the Apiary* (see the FAQ section of 5cba.org), a valuable resource to anyone looking to master the art of beekeeping in Piedmont region of NC. The topics we focus on:

- *Mite and beetle control*
- *When to do complete hive inspection*
- *How to read a hive without pulling every frame*
- *Re-queening*
- *When and how to combine hives*
- *When to add or take away drawn comb*
- *When and why to split*
- *When to focus on looking for queen cells*
- *Understanding when to feed and not feed*

Challenges faced

Our main obstacle was record keeping. We were striving for a system that was easy to use outdoors and quick for new people to take over and continue. The problem was that everyone has a different concept of record keeping. Throughout the year, we fine-tuned our forms and added additional forms to help understand the work at the apiary. We also summarized each field day and posted it on our forum to make it easier for everyone to follow our progress. Notes are kept in a binder, divided by hive. Each hive has its own section kept in order of most recent day first. This way we can

look back at the history of each hive during the workday. Each hive was numbered according to the sponsor of the hive. We found we needed to add more to our forms indicating what the hive looked like at the beginning of the workday and the end of the workday. Sometimes we would split hives, and sometimes we would combine them. To aid in keeping track of the changes, we created another form showing the locations and numbers of each hive and hive box at the beginning and end of each workday. Hive feedings were recorded and the records emailed by the feeder to the record keeper, and other feeders on the bee feeding team. This way we all stay in tune with what is happening at the hives.

Sharing what we learned

We learned that communication and record keeping are essential for the project to work. At the beginning, we outlined what was expected of sponsors and participants and what the club would provide. Although we made a plan and timetable for splits and hive building periods, the bees did not always go along with it, so we learned to be flexible. During the second year of the HIP, we found that 10 hives are too many to inspect in a single training session. Working the bee yard is slow when teaching, but splitting up into smaller groups didn't work well. Going forward, we will have no more than 4 club hives in our apiary in between HIP cycles. Using what we learned from this first HIP cycle, we will determine how to structure future HIP cycles so that they remain manageable, while allowing us to achieve the intended purpose of

educating new beekeepers and teaching the process of splitting colonies.

Committed experienced club beekeepers willing to lead the project are essential. They had a chance to share their wisdom, knowledge, and experience with beekeepers wanting to learn and understand how to make their own decisions at home. The newer beekeepers learned hive maintenance routines, how to understand the mechanics of a beehive, and how to maintain fresh queens and extra hives. Due to seeing and dealing with so many different situations during this project, it would have taken a new beekeeper many years to obtain the same amount of hands-on experience. Because the bees' actions weren't always in line with the plans of the beekeeper, it is too complicated to spell out the direct path from starting with a single hive and ending up where we are today (9 hives), because there were times when we split hives, only to have to recombine them later. Or, hives that we planned on splitting ended up swarming or dying before we could split them. We set out with a specific goal with a map to get us there, but had to remain flexible in order to adapt when bee action diverged from beekeeper goals. Regardless, we consider the project a huge success, with the most important achievement being the amount of experience and education gained by the participants.

We would like to extend a special thanks to Tim Huffman for spearheading this project, and to all of the volunteers, sponsors and participants for their hard work and contributions to make it a success.

Reflections of the 5CBA HIP Project by: Matthew Jones Youngsville, NC

When 5CBA's Hive Increase Project (HIP) started last year, I was very excited for the chance to increase my knowledge about honey bees. The Saturday HIP field days soon became a family event that the Jones family looked forward to attending every week. My daughter Morgan and I would grab our bee suits and camera, and head to the apiary, ready to dive into the beehives and meet new friends. We gained hands-on experience, and took advantage of the invaluable benefit of interacting with all different levels of beekeepers.

The HIP group learned first hand how difficult it is to keep accurate written records on our hives. We had some successful splits, and some that were not so successful. We caught some swarms, and lost others. We learned that the bees do not always cooperate with us, or produce the amount of honey we want. We started using a queen castle to raise extra queens. We learned how, when, why and what we should feed the bees. We read mite treatment labels and decided if, what, when, and how to treat for mites properly.

The main lessons learned from participating in the project were several-fold: first, is to get yourself hands-on experience in the beehive. The second revelation is that the beekeeper is always learning; we shouldn't just do things because the expert beekeeper says that's the way to do it. We need to know *why* and *how* it's beneficial to the bees and beekeeper. Tim Huffman told us, "I want beekeepers to think through and know *why* we make changes to the beehive, and not just do something because you were told to it that way." We learned to evaluate the pros and cons before taking any action in the apiary.

I will be eternally grateful to 5CBA members and Executive Committee for sponsoring the HIP. I am thankful for the sponsors who let us use their bee equipment for almost 2 years. Thank you, Tim Huffman, and all the volunteers who donated time, money, their Saturdays and knowledge. As a group, we learned a lot from the experience and best of all, had fun doing it!

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NC Beehive Grant Fund

by Rick Coor, NCSBA President

Working from memory, I recall that it was in 2004 when our North Carolina State Cooperative Extension Apiculturist, Dr. David Tarpy secured a grant from the Golden Leaf Foundation for the purpose of promoting beekeeping in North Carolina. Soon the word was out that 100 recipients would receive two beehives each and the resulting rush of interest led approximately 2,900 people to apply for the 100 spots. As a result of the Golden Leaf Grant, public interest in beekeeping increased dramatically and the membership of the NCSBA increased threefold. A recent action of our State's legislature has resulted in a new initiative to promote beekeeping in NC: the Beehive Grant Fund.

The Beehive Grant Fund was made possible by Representative Charles Graham, 47th District, of the North Carolina General Assembly, House of Representatives. The North Carolina State Beekeepers Association, Inc. appreciates and applauds the effort and initiative of Representative Graham in filing House Bill 756 on April 11, 2017, AN ACT TO ESTABLISH THE BEEHIVE GRANT FUND which became part of the final budget (Senate Bill 257) and is pleased to announce our partnership with the North Carolina Department of Agriculture and Consumer Services (NCDA&CS) Agricultural Development and Farmland Preservation Trust Fund (ADFPTF) in order to make this grant program successful and effective in encouraging the establishment of new beehives in the state.

To inform the members of the NCSBA of the Beehive Grant Fund and answer as many questions as possible beforehand, the information concerning the legislation and implementation of the Beehive Grant Fund is presented in the following pages in its entirety. The leadership of the NCSBA has no authority to make or otherwise change any of the guidelines.

The Agricultural Development and Farm Land Preservation Trust Fund will administer the Beehive Grant Fund and has submitted the following information to the NCSBA. The Agricultural Development and Farmland Preservation Trust Fund (ADFPTF) Advisory Committee plan for administering the fund.

1. Guidance for the beehive grants will follow the procedures as outlined in the legislative language without need of rulemaking.
2. Certified Beekeepers can apply during the Request for Proposal (RFP) application cycle set for October 16 – December 15, 2017.
3. Application will be in electronic format. Link to the application will be posted on the ADFPTF website during the RFP dates. The website is www.ncadfp.org.
4. Only completed applications will be considered and will be received on a first come basis. Evaluation and ranking priority order will be based upon a completed application with no issues and a clearly defined proposed use of the grant funds.
5. Application eligibility to include the following.
 - a. Grant funding to be used only for new beehives or the purchase of materials or supplies to be used for the construction new beehives.
 - b. The beekeeper must provide the following to be eligible.
 - i. A resident of North Carolina
 - ii. Must be at least 18 years of age
 - iii. A certified beekeeper as determined by the North Carolina State Beekeepers Association at time of RFP application.
1. An applicant must provide documentation of proof from the North Carolina State Beekeepers Association in the RFP application.

2. An RFP application without the North Carolina State Beekeepers Association document will not be accepted or considered eligible for evaluation and ranking.

6. Selected RFP applicants will be required to complete and sign a NCDA&CS ADFPTF grant contract which will be valid for 1 year.

7. NCDA&CS ADFPTF beehive grantees will be reimbursed for proven expenditures as agreed upon in the NCDA&CS ADFPTF grant contract. Grantees may receive up to the following.

- a. \$200 per new hive
- b. \$2,400 per maximum per grant contract
- c. \$2,400 is the maximum allowed annually for any beehive grantee.

Please note that In order to successfully file a grant application, an applicant must provide documentation to the ADFPTF that he/she is a certified beekeeper as determined by the NCSBA at the time of filing. A journeyman or master beekeeper is also a certified beekeeper. The role of the NCSBA will be to enable applicants to establish that they are certified beekeepers. An applicant will need his or her certified, journeyman or master beekeeper certificate in order to file. If a person needs a replacement certificate, the NCSBA will print and mail another for a cost of ten dollars. An applicant to the Beehive Grant Fund is not required to be an active member of the NCSBA but replacement certificates will not be issued to inactive members.

To order a replacement certificate, visit ncbeekeepers.org and find the Beehive Grant Fund page. A person will need their membership number and bank card information to place an order and pay online. Please allow at least ten days to receive a replacement certificate in the mail. An inactive member will be required to renew his/her membership.

The guidelines for the administration of the Beehive Grant Fund have been set forth by the Agricultural Development and Farmland Preservation Trust Fund Committee and are based on G.S. 106-651. Please read the statute as it appears in the records of the State of North Carolina.

BEEHIVE GRANT FUND

Section 12.6. Chapter 106 of the General Statutes is amended by adding a new Article to read:

Article 55A. Beehive Grants

S 106-650. Beehive Grant Fund

(a) Establishment. - The North Carolina Beehive Grant Fund is established as a special fund in the Department of Agriculture and Consumer Services. The Department is responsible for administering the Fund using personnel and other administrative resources of the Agricultural Development and Farmland Preservation Trust Fund program. The Fund may receive funds appropriated by the General Assembly and any gifts, grants or donations from any public or private sources.

(b) Purposes. - Funds in the North Carolina Beehive Grant Fund shall be used, as available, to encourage the establishment of new beehives in the State. Grants from the Fund shall be made upon application to the Beehive Grant Program as set forth in G.S. 106-651.

S. 106-651 Beehive Grant Program

(a) Definitions.- The definitions in G.S. 105-164.3 and the following definitions apply in this Article.

(1) Eligible activity.-Any of the following

- a. The purchase of a new hive for bees.
- b. The purchase of materials or supplies to be used for the construction of a new hive for bees.

(2) Eligible beekeeper. - A resident of the State who meets the following requirements.

- a. The person is at least 18 years of age.
- b. The person is a Certified Beekeeper as determined by the North Carolina State Beekeepers Association at the time of filing of the grant application.

(3) Fund. - The Beehive Grant Fund established by G.S. 106-650.

(b). Grants. – Any eligible beekeeper may apply for a grant from the Fund for an eligible activity. The Department shall specify the form and contents of the application, including the procedures for the submission of applications electronically. The Board may establish a fee for grant applicants to recover the reasonable costs of reviewing and processing applications. Grants shall be limited to two hundred dollars (\$200.00) per new hive, up to a maximum up to a maximum grant of two thousand four hundred dollars (\$2,400) per grant recipient in any year, and shall be issued in the order that each completed eligible application is received. In the event that the amount of eligible grants requested in a fiscal year exceeds the funds available in the Fund, the grants shall be paid in the next fiscal year in which the funds are available.

(c) Rulemaking. – The Board may issue rules to implement the requirements of this Article”

If you plan to apply, please make yourself aware of the rules and locate your certificate in advance. Please remember the following points

- The grant funds are not for the purchase of honey bees
- Applications should include a clearly defined use of the proposed funds.
- You must have your certificate in order to file a complete application.
- The Agricultural Development and Farmland Preservation Trust Fund is the agency that administers the Beehive Grant Fund and not the NCSBA.
- The NCSBA's role is to verify that a person is a certified beekeeper.
- The NCSBA has no authority to change or request changes to the administration of the Fund.
- There is more information posted on the ncbeekeepers.org website under beehive grant fund

In the overall scheme of things, the Beehive Grant Fund and the addition of 125 beehives to our honey bee population might be considered to have a limited direct impact. That was true of the 200 hives of the Golden Leaf Grant of 2004 but the impact of the program was tremendous. The perception and reception of honey bees and beekeeping in NC in the years since has become mainstream, in part due to the widespread interest generated by the Golden Leaf Foundation Grant. I trust that the Beehive Grant Fund can be considered a sign that our State leadership realizes the economic importance of bees in regards to agriculture and our leaders are ready to move forward to lend legislative support for apiculture. This is a step in the right direction for the future of the honey bee.

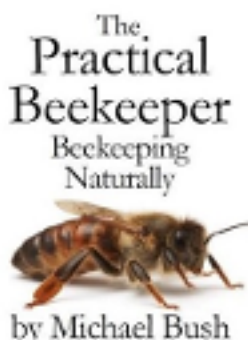
The beekeepers of the NCSBA extend their thanks to Representative Charles Graham and the men and women of our General Assembly who supported the important legislation that made the Beehive Grant Fund possible.

Toe Cane Beekeepers Present:

Michael Bush

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1:00 PM – 3:00 PM



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Author of *The Practical Beekeeper: Beekeeping Naturally*, Michael will be discussing natural steps beekeepers can take to keep their bees healthy.

Bayer Bee Care Center – Hive Scale Research in NC

by Annie Krueger



New technologies have made their way into the beekeeping world in the past decade and are looking to modernize how we keep bees. One of the earliest innovations was the electronic hive scale, which can open new insights into what the bees are doing without beekeepers ever opening the hive. In addition to potentially learning more about how our colonies are growing and developing, can hive scales provide us additional information that can inform our beekeeping management? Does new technology open up new avenues to not only better understand and appreciate these remarkable creatures, but can it also help us become better beekeepers?

To answer some of these questions, the Bayer Bee Care program has partnered with NC beekeepers throughout the state to better understand forage availability in different landscapes. We have provided beekeepers with electronic hive scales to follow hives throughout the year, uploading weight data on a weekly basis. We will use this data in combination with a land cover analysis of the area surrounding the apiary to assess effects of land cover on the timing of nectar flows and the magnitude of weight gain during these

flows. We hope to get a better idea of how different degrees of development/urbanization, forest and cropland affect the timing, intensity, and duration of nectar flows. By understanding what floral resources bees have access to and when, we hope to help the NC beekeeping community better anticipate the nutritional needs of their hives. Follow the project online at: <http://tinyurl.com/y94jetso>



Photo Courtesy Bayer Bee Care Center



NCSBA Library Update

Wow! We have had more requests for DVDs in the month of May than we have ever had. There were so many requests for certain DVDs that people were added to a waiting list. Dr. Aletha Andrew, the Library Director at Wayne Community College, has made a spreadsheet detailing the use of the NCSBA collection, and that data will help us plan our purchases. Our near term plan is to look at which titles were requested most often and then to purchase additional copies of them to meet the flow of demand.

It is definitely encouraging to see you use the NCSBA library more and more!

Don't forget- if there is a DVD title you think we should look at as a candidate for the collection, please let me know.

Bob Kemper

kemper27530@gmail.com

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It Could Happen To You, Too: European Foulbrood

by Dr. Lane Kreitlow

I should have kept my mouth shut!

You know, when I started bragging about getting “free bees” from a beekeeper friend. I totally jinxed myself! Through no fault of his own, the colony that originated as a split from one of his colonies and ended up in my apiary wound up having European foulbrood. My friend (who shall remain nameless to protect the innocent) is a very experienced beekeeper, and *none* of his colonies currently or in the past have ever exhibited any signs or symptoms of EFB (nor have any of mine, for that matter). But in some bizarre twist of fate, the colony I received as a benevolent gesture somehow contracted this unfortunate disease. European foulbrood is a bacterial infection caused by the bacterium, *Melissococcus plutonius*, that affects only brood. EFB does not produce spores as in American Foulbrood (AFB), but the bacterium has the potential to spread among colonies. Larvae become infected after they consume contaminated food fed to them by nurse bees. After ingested, the bacterium competes for food in the gut, where it usually kills the larva before the cell is capped. If the infection is low and food is plentiful, the larva may survive until adulthood. Strong colonies can often overcome EFB without treatment.

Recognizing EFB

One silver lining in all of this is that the experience validated my ability to recognize EFB and know to seek help. Here are the symptoms that prompted me to take further action:

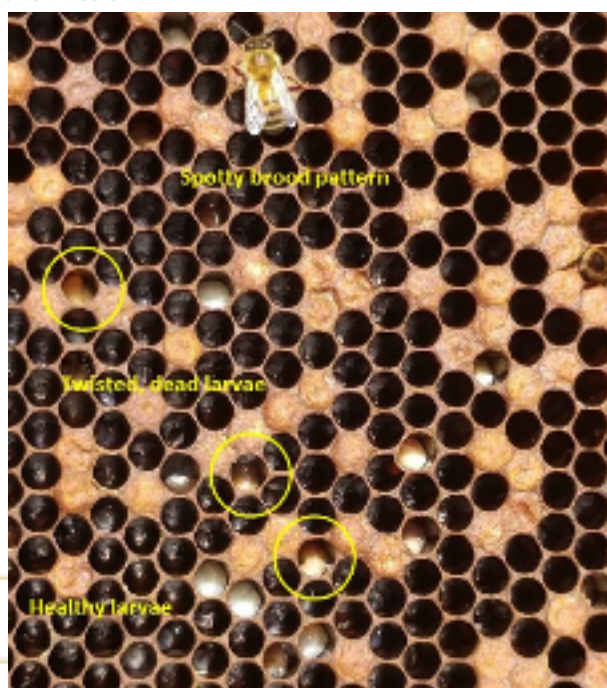


Fig. 1: Spotty brood pattern, with twisted, dead larvae in some of the cells.

- **Spotty brood pattern:** not a stand-alone symptom by any means, but an indication that something was not quite right with the colony (Fig.1).
- **Discolored, sick-looking larvae:** Healthy larvae are plump and pearly white; sick larvae are, well, sick-looking and often discolored (Fig. 2). There is a stark contrast between healthy and sick larvae that have been pulled from the cells.



Fig. 2: Healthy vs. sick larvae that have been pulled from the cells.

- Larvae that have died prior to capping, possibly in a twisted conformation (Fig. 1).
- **Faint sour smell-** this one always stumped me until I actually smelled it for myself. The smell is distinctly sour, as opposed to the “rotten” smell of AFB (I’ve smelled AFB frames in a lab, so I can now tell the two apart). The sour smell of EFB reminds me of dirty gym clothes after a good workout, and after sitting in the hamper for a while. Remember, though, that smoke from the smoker will mask odors so wait until the smoke has dissipated before performing the “sniff” test.
- **A positive EFB test:** EFB tests are readily available at many beekeeping suppliers for about \$14 a piece, or you can have Apiary Services, through your regional apiary inspector, have the sample tested for you at no cost to the beekeeper. The latter, of course, takes more time but is the preferred route, especially if you are a new beekeeper.
- **Overall weak colony:** It was clear that my

infected colony was most likely not strong enough to overcome the disease on its own.

What now?

This happened on the Friday before Memorial Day, so with the holiday weekend approaching, I knew getting a diagnosis would be delayed since I did not have any field tests on hand. Luckily, I live very close to the Beneficial Insects Lab in Cary so after contacting NCDA&CS's Don Hopkins and Will Hicks, it made sense for me to just run the brood frame to the lab myself since that was the fastest route to getting a diagnosis (Fig. 3).

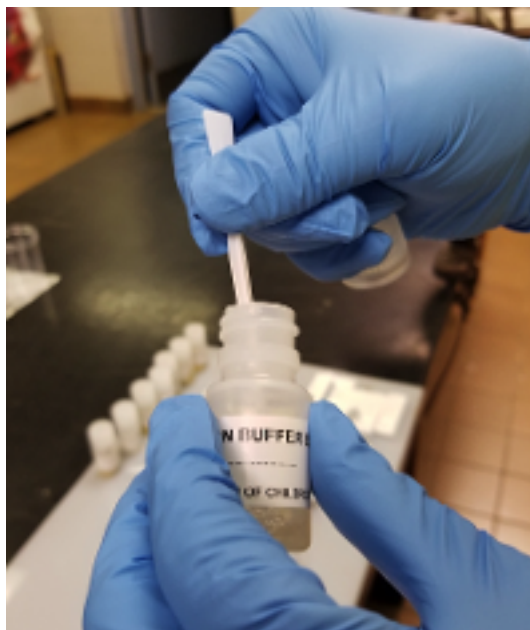


Fig. 3: NCDA&CS's Glenn Hackney testing the sample

With symptoms appearing a mere weeks after I received the bees- smack dab in the middle of the honey flow- I couldn't help but kick myself for the aforementioned verbal curse I imposed on my bees.

As suspected, the sample tested positive for European foulbrood (Fig. 4). Drat! True, it wasn't AFB, so at least there's that. EFB is far more innocuous than AFB, where strong colonies and management practices can often overcome it without the need for treatment. When necessary, though, EFB can be treated with antibiotics, unlike the spore-forming, decades-long persistence of AFB, which requires the burning or gassing* of equipment, and the complete disposal of the bees themselves. You definitely want to correctly identify the type of foulbrood disease, since the two require drastically different measures.

Still, EFB can spread, and while many colonies are strong or hygienic enough to rid themselves of it on their own, many are not, and may require antibiotic treatment, lest they succumb to this unpleasant disease. I have heard stories of beekeepers that lost every single hive in their apiary due to EFB, so it's

definitely not something you should ignore. In short, you do not want EFB running rampant in your apiary.

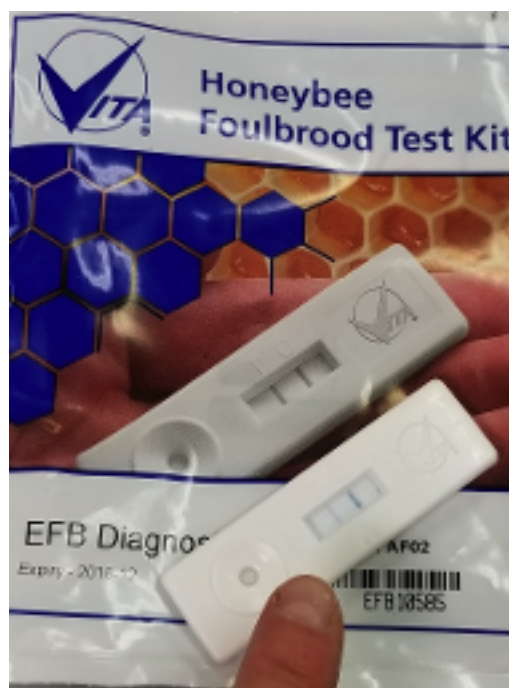


Fig. 4: A positive result!

More importantly, and the main point of this article, treating for EFB is no longer a matter of simply purchasing EFB medication from a beekeeping supplier, treating the afflicted hive, and going about your business. As of 2017, the **FDA Veterinary Feed Directive (VFD) requires that antibiotics used in feed and water for food-producing animals be administered by veterinary prescription only.** Given that bees are animals (really, they are!), and produce food they fall under this Directive. Though inconvenient, it is a necessary and important safeguard that enforces the judicious use of antibiotics. Overuse or unnecessary use of antibiotics breeds antibiotic-resistant strains of disease, as we often see with various human afflictions (think MRSA, tuberculosis, etc.). The same holds true for honey bee and other animal diseases. Besides, do you really want to risk consuming or selling a food that has residual antibiotics in it? Hmm. It was no surprise that my dogs' veterinarian had not yet heard of this, at least as far as it applies to bees, and was at a loss. However, she did direct me to the Exotic Animal Medicine Service at the NCSU College of Veterinary Medicine, in search of answers.

Here's what I discovered. (For the record, the NCSU veterinarian with whom I spoke said that I was only the 2nd person to contact him so far since the Directive has been in place, and that the implementation of the Directive was as of yet, a "moving target"). As it turns out, the apiary inspectors are seeing a higher amount of EFB this year for some reason, so the following information may be helpful to many of you.

Honey Bee Veterinary Consortium

The Honey Bee Veterinary Consortium (HBVC) is a group of veterinary professionals with an interest in honey bees. Since many veterinarians are unfamiliar with honey bee husbandry and disease, it may be otherwise difficult to find a veterinarian who can help beekeepers obtain antibiotics in order to treat for EFB. The HBVC is working to build a network of veterinary professionals who can help beekeepers, but the process takes time.

Visit <http://www.honeybeeveterinaryconsortium.org> to find a veterinarian. Please keep in mind that the network is new, and more professionals will be added as they join. Contact one of the veterinarians on the list if you find yourself in need of antibiotics to treat EFB.

Essentially, the beekeeper must establish a “personal relationship” with the veterinarian, known as a Veterinary-Client-Patient-Relationship (VCPR), in order to ensure that a prescription is dispensed only when deemed necessary (i.e. when the veterinarian determines that the bees are definitely infected with EFB). The HBVC is currently working on a standardized procedure for veterinarians to follow. As you can imagine, the practical implications are complicated, so it may take a little time before the waters become less muddy. In the meantime, it is in the hands of the individual veterinarians, who may follow a slightly different procedure, but will do what they think they need to in order to avoid breaking the law or losing their license. This may mean different things for different veterinarians. The cost associated with obtaining a VFD is generally the cost of a veterinary visit. In my experience, it was \$62 to obtain a VFD at a local private practice, but this will vary with the veterinarian.

In general, once it is established that the bees in question do, indeed, have EFB, the veterinarian will issue a prescription, i.e. a VFD. The beekeeper, in turn, must present the VFD to the beekeeping supplier when ordering the medication. You may have already noticed certain beekeeping suppliers making reference to this on their websites. You might see something like:

NOTE: Federal law restricts medicated feed containing this veterinary feed directive (VFD) drug to use by or on the order of a licensed veterinarian.

Supplies must also require a VFD to ensure that the directive is followed properly before selling the medication.

The take-home

It is important as beekeepers that we are able to recognize diseases in our hives, or at least know when

something is not quite right, and contact your regional apiary inspector for instruction on what to do next. Pests and diseases spread, so you are not only affecting your own hives if you leave problems unaddressed. You are also potentially affecting hives in nearby apiaries.

- While EFB is not nearly as virulent as AFB, it is still contagious, and beekeepers can inadvertently spread the disease among hives if you do not clean your hive tool between inspections. Likewise, drifting and robbing bees can spread disease, especially when hives are placed close together.

- You never know what you are going to get when you capture a swarm or receive bees. Purchased bees, in most cases, should be accompanied by a health certificate (if from out of state), or a license which ensures that the bees are AFB-free. This license is only required in NC from sellers of more than 10 hives, or a one-time “going out of business” sale of fewer than 50 hives. However, a sanitation certificate is not a 100% guarantee that the package or colony is completely free of pests or diseases other than AFB. Know the reputation of your supplier!

- The apiary inspectors are here for us! Take advantage of this invaluable and free NCDA&CS service. Know who your regional inspector is, and put their number on speed dial. They should be your first point of contact if you suspect something wrong in your colonies, and cannot diagnose it yourself.

- Once you receive medication, *follow the label instructions exactly*. Do not assume that just because your bees look better after one treatment you can stop treatment even if the label indicates that you need three successive treatments. Do exactly as it states on the label. In not doing so, you risk breeding antibiotic-resistant strains of disease.

- Do not use any medications within a certain window of time (as indicated on the label) prior to or during the honey flow. If you do treat during that window, you must sacrifice any surplus honey you might have otherwise harvested from that colony. Whether to treat or use a “wait and see” policy for EFB is up to the beekeeper, and the overall condition of the colony. Honey from an EFB-infected colony will not harm humans, but you cannot feed that honey to other honey bee colonies without the risk of infecting them. *Likewise, honey from colonies treated with antibiotics within the restricted time frame should not be harvested for human consumption.*

This was truly a learning experience for me. I guess my being a guinea pig and my bees’ misfortune was not entirely in vain. Luckily, I am in the position to be able to dispense this information to you so that you will

know what to do should you find yourself in the same predicament. Stay informed, and *Buzz On*, Beekeepers!

I would like to extend a special thank you to Dr. Jeffrey Applegate, Jr., DVM, NC State College of Veterinary Medicine, Dr. Dan Johnson, DVM, DABVP-ECM, Avian and Exotic Animal Care, and NCDA&CS Apiary Inspection

Supervisor Don Hopkins for consulting with me on this article.

** The NCDA&CS has 2 ethylene oxide fumigation chambers available to beekeepers for treating AFB-infected hive equipment. Contact your regional apiary inspector for more details.*



Welcome Lee County Beekeepers!

Lee County Beekeepers President Jim Rosensteel being presented his charter by regional director Kenny Jones. They became the 77th chapter after a vote by the NCSBA EC on July 13, 2017.



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Photo: Lane Kreitlow

Beekeeper Rebecca Fusco wearing a bee "glove", while holding photos of her grandfather, John P. Ritchey, Sr., doing the same in the early 1950's.