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The Official Magazine of the NCSBA

Honey Tasting
Mentor Programs
Cooking With Honey
Summer Conference Photos
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Fall 2018



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North Carolina Bee Buzz Fall 2018



North Carolina State Beekeepers Association

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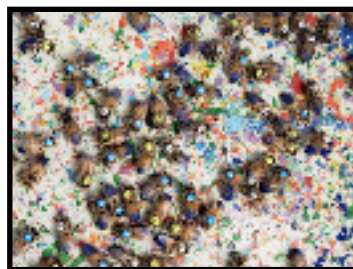


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*Look for **COOKING WITH HONEY**
recipes throughout this issue!*



ON THE COVER:

Research Bees

The 2018 field season brought with it a fine display of collaboration between the hard-working researchers at the NCSU Apiculture Lab and the true spirit of volunteerism infused within the NCSBA. Sixty-three volunteers painted and tagged a total of 18,000 bees over the course of 16 weeks. The working title of the project, led by Dr. Daniel Charbonneau, is *Queen rearing as collective decision-making*. Photo Lane Kreitlow

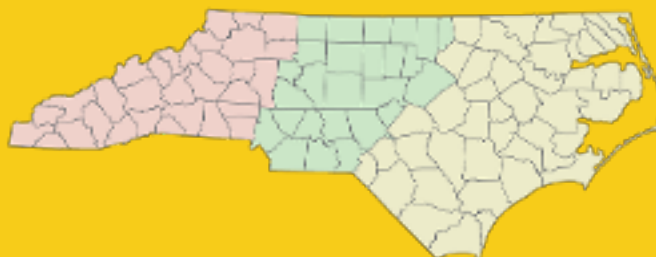
North Carolina State Beekeepers Association



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:** Summer: Mar 21 - Fall: June 21 - Winter: Sept 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. 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.

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NCSBA Communications - Stay Informed!

Beekeepers, please reference the text portions for the following announcements at www.ncbeekeepers.org

4/28/18 New Wolfpack Waggle Issue

5/15/18 Dr. Tom Seeley, Phil Craft, and Dr. David Tarpy Presenting at 2018 Summer Meeting

5/18/18 Key Member of NC General Assembly Tours NCSU Honey Bee Lab

5/24/18 Town Beekeeping Requirements Inquiry

6/7/18 NC Certified Honey Producer Chosen as Vendor at Biltmore Estate, Blue Ridge Parkway

6/12/18 2018 Summer Conference Schedule



Message From The President

by Rick Coor, NCSBA President

NC Beekeepers: Our support makes a difference!

I am writing this message to share with you some news that Dr. Tarpy informed me of during a recent conversation. His Apiculture Program will soon take delivery of a brand-new work truck! The color of the truck will be NC State red and will be used by his lab technician, Jennifer Keller, and his research associates. This purchase was made possible from monies donated to his program by the NCSBA. I was very proud to receive this news and as President, to represent the individuals in the NCSBA who made this possible.

Dr. Tarpy pointed out that grant funds cannot be used to purchase many of the things the bee lab needs to get the job done. Therefore, our outside unrestricted donations made the difference in his being able to buy the new truck. In 2016 and 2017, NCSBA beekeepers contributed sums totaling not less than \$26,000 to the NC Agricultural Foundation, earmarked for the Apiculture Program.

In advance of the summer meeting, the NCSBA decided that a chapter level donation campaign would be initiated for the Apiculture Program. Communicating with the chapters of our association was not easy. The first step was to send emails in order to secure a valid mailing address for each chapter. That process was not completely effective because as of May, twenty-nine of our chapters had not updated their contact information with the Membership Secretary. Eventually, an email was sent to all but seven chapters. Some chapters did not respond to the initial email, but fifty-seven did. Letters requesting a donation to the Apiculture Program were sent on their way. I closed the letter with a pledge that if a chapter donated \$250 or more that I would recognize them at the summer meeting.

The results of the emails and letters were interesting.

Officers from three different chapters responded to ask what association it was that I was the president of! Some folks responded to say that their chapter voted against making a donation. For other reasons, some of the letters never reached their chapter membership. But in the end, forty-one chapters responded with a donation, a pledge or else indicated that they had previously donated. The response was so outstanding that I feel obliged to recognize the chapters who supported the Apiculture Program in the *Bee Buzz*. There is a solid group of chapters that share the values of the NCSBA. I received word that Forsyth County and Mecklenburg County had previously made direct donations of \$2,500 and \$5,000 respectively, to the NC Agricultural Foundation, the foundation that handles all contributions made to the Apiculture Program. The Coastal Plains Beekeepers, the chapter which led the way for fundraising for the Honey Bee Garden at the NC Zoo, indicated that they were planning to hold a raffle in the fall for the Apiculture Program. See box below for outstanding Chapter contributions.

These contributions and pledges totaled \$20,518. Well done! Thank you very much to the chapters that contributed to the Apiculture Program; we can all be proud of our support. I am proud to serve as your President!

In mid 2017, I began making a monthly contribution of \$20 to the NC Agricultural Foundation earmarked for the Apiculture Program. I have donated about \$280 so far and can be considered to be a stakeholder of the program. I hope that others will become stakeholders as well. There are many folks in our association that could sign up and make a small monthly contribution; one can start or stop at any time. The link to the NC Agricultural Foundation can be found on ncbeekeepers.org along with details about how to get started. Our support makes a difference!

Thanks for reading,

Outstanding Chapter Contributions

<u>\$1,000 +</u>	<u>\$500 - \$999</u>	<u>\$250 - \$499</u>
Henderson County Catawba Valley	Caldwell 5 County Gaston Lincoln	Chatham Person Davidson
		Orange Wilkes Moore Rockingham Union Albemarle
		Chowan Rowan Johnston Burke Halifax Haywood Craven-Pamlico
		Tar River Rutherford Harnett Cabarrus Buncombe Neuse

The Outer Banks, Onslow, Jackson, Madison, Randolph, Granville, Stanley, Cumberland, Wake and Cashie Chapters contributed \$2675 collectively.

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In the Apiary: Fall in North Carolina

by Nancy Ruppert, Apiary Inspector, NCDA&CS

Beekeeping success (as in, productivity by bees and survival of most hives) in this day and time requires careful attention to seasonal differences in honey bee needs and behavior. This is no more important than in the fall—the beekeeper's last chance to finish getting the hives ready for the challenging winter season. (Honey bees follow a different calendar than humans, and their winter preparation should actually be taking place during the summer.). One noticeable change in honey bee behavior during the fall: they seem to have no interest in drawing out/making wax into comb. Because drawn comb is critical for effective clustering during cold nights, frames that do not have drawn comb should be moved to the far sides of the hive or replaced with drawn comb.

Another significant change for fall: bees have little to no interest in making queens in most of North Carolina, even if they have a failing queen (and often, even if they are queenless!). So for those who missed the opportunity to purchase quality queens before autumn, there will be little chance of finding a productive queen unless unusually good fortune appears. A colony with a failing or absent queen during the fall has almost no chance of surviving on its own through the winter. This is one of several reasons that combining hives—in this case, one with a failing or absent queen—can be the best long-term option for a colony.

Combining colonies is sometimes needed during the fall to keep a weak hive from experiencing a slow, painful death; this may at the same time provide the receiving colony with valuable extra adult bees. When possible, a colony that is weakened and cannot rebuild its population should be combined (unless active disease is present) with a queenright colony that is not diseased or otherwise weakened. Ask an experienced beekeeper for details on how to combine hives.

Beekeepers know that even a healthy colony can be devastated (and killed) by the effects of varroa mites and the viruses that they introduce. This becomes frighteningly apparent during the fall and winter; as such, hives show significant declines in adult population and/or quickly collapse. If the winter bees that are developing during October and November are being raised in an environment with excess varroa levels, they are usually permanently weakened and die

prematurely, while at the same time the queen bee does very little or no egg-laying (another seasonal variant); this combination of events wipes out *hundreds, if not thousands*, of colonies each winter in North Carolina alone. Please refer to www.honeybeehealthcoalition.org for reliable information and excellent videos regarding varroa mite assessment and management.

Proper nutrition is essential for healthy bees. In most of North Carolina, pollen is still readily available during the fall, so protein supplements are not needed in most cases. While much of our state has some form of a fall nectar flow, usually during October, this may not be enough to provide all of the carbohydrates necessary for the bees to get through the winter alive. If a beekeeper has not set aside enough honey for a colony's winter requirements—at least 60 pounds—then supplemental feeding of sugar or similar carbohydrates is recommended, in the form of thick syrup. Example: a mixture of eight to ten pounds of granulated sugar per gallon, starting in mid- to late September so that the bees can store it for winter.

So bee-keepers, separate yourselves from bee-havers by taking appropriate and timely action. This helps keep your bees happy (and alive!) so that you can enjoy fall festivals and holidays!

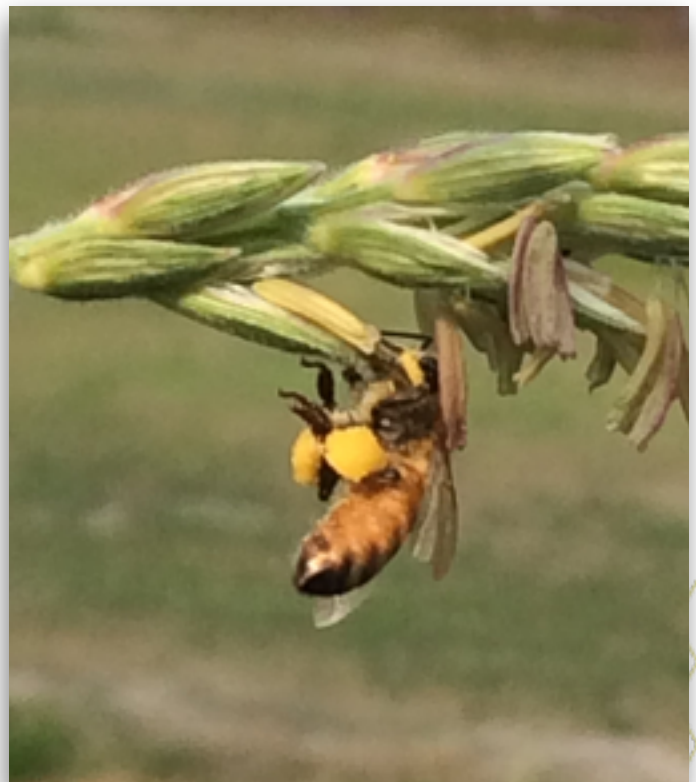


Photo: Rhonda Kosen

Bee Hive Thermal Industries, Breaking News, Saving Honey Bees Organically

An organic and noninvasive solution in targeting and killing Varroa Mite infestations, that are killing honey bees, was developed by the joined forces of, Bee Hive Thermal Industries (www.beehivethermalindustries.com) and OVEN Industries (www.ovenind.com), experts in temperature control.

Even if you're not in the bee keeping business, commercially or as a Hobbyist, you may have heard that, "honey bees are in trouble". There are a few main reasons that we could list in this dilemma and most experts will most likely agree that the Varroa Mite is near or at the top of that list. Bee Hive Thermal Industries designed this Thermal System utilizing an industrial grade heater blanket and electronic controls which are easily installed and removed from the hive. The end goal of the product is to raise the temperature of the hive to a programmed temperature, killing the mites & hive beetles without harming the bees based on studies done in Europe & US. To see the game changing product in action, click the link and view the video. <https://youtu.be/D3U4G2Ws91o>



In the fight against today's Varroa Mites, beekeepers are often, if not always, resorting to pesticides as the solution. Bees have many other predators and hardships to endure, including weather related issues such as cold temperatures, moisture and diseases. The effect of the Mite on the overall colony is paralyzing to both general activity and honey production within the hive. This revolutionary product is showing positive results in killing and controlling mites and hive beetles, with only a few applications annually. For show listings click here <https://www.beehivethermalindustries.com/events/>

Bee Hive Thermal Industries, located in beautiful Pageland South Carolina, is to be recognized as a global leader in the design, development and distribution of organically suitable products for the bee industry globally. The company strives daily to provide unique and safe solutions for bee keepers everywhere, providing them with high quality, value and reliability. Caring for our bees is very important to the mission of Bee Hive Thermal Industries. Visit our website at www.beehivethermalindustries.com

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Buzzing Around the

by: Christi Henthorn



On June 23rd, the Granville County Beekeepers Association (GCBA) hosted their 3rd Annual Bee Jubilee at the Granville County Expo Center in Oxford. With 2000+ attendees and over 70 vendors, things were buzzing all day. Although bee/pollinator based, the event also focuses on shopping small and local with dozens of NC makers and growers. This was a great opportunity to get some early holiday shopping done!

Several NC bee companies joined the fray: Honestbee Hives, Beez Needz, Lick Log Branch Apiaries, Dadant, Beekeeper INC, Baxter's Bee, and Backyard Bee Company. Person County Beekeepers Association set up shop again this year and answered bee questions. Orange County Beekeepers Association hosted a make and take lip balm workshop.

Some NC Bee royalty even made an appearance! Suzy Spencer was seen sampling local honey at the Honey Tasting table and Geneva Green was spotted chatting with Person County. Adolphus Leonard gave a presentation on the NC State Fair and bee/honey entries.

GCBA would also like to thank the following bee companies for their Drone (\$100+) Sponsor donations to the Silent Auction: Brushy Mountain, Bee Built, and Western Bee. Thanks also to the other companies with smaller donations – it is all appreciated!

WANTED: Speakers, sponsors, vendors, workshops, and more! Bee Jubilee planners are already working on 2019's event on June 22. This is a great opportunity to connect with beekeepers from around the state. For more information or to get involved, please e-mail granvillebeejubilee@gmail.com.

Photo: Christi Henthorn



Ricky Manning, Journeyman from Lick Log Branch Apiaries in Buncombe County poses with his Top Bar Hives and tinctures

The Bee Jubilee hosted many educational opportunities. In the cool auditorium, folks learned about various pollinators with Chris Apple and planting a pollinator garden with Maria Hristova-Kazmierski. Keith Rogers and Amy Gordon discussed becoming a beekeeper. Greg Taylor educated the crowd on Mead making and history. Closing out the day, Volker Borneman of Avazyme, Inc (an RTP company) discussed honey testing and creating a library of NC honey data. Ricky Manning offered a Top Bar Hive Workshop in one of the classrooms. The GCBA demonstrated honey extraction, set up a hands-on *So You Want to Be a Beekeeper* display and offered honey to taste.



Photo: Christi Henthorn

Adult and Child hand knitted Bee Hats from A Knitted ART with Allison McCandless

COOKING WITH HONEY: Honey, Fruit & Nut Grain-Free Bites

by: Sandy Carlson

Ingredients

1/3 cup pure honey
2 T coconut flour
1 T almond or peanut butter
1/8 tsp sea salt

1 1/3 cups chopped nuts (choice)
1/2 cup chopped dried fruit (choice)
1 cup unsweetened coconut flakes

· Preheat oven to 300°F. Trim parchment paper to line an 8x8-inch baking dish, leaving parchment paper to hang over two sides of the dish.

· In a large bowl, add the honey, coconut flour, all natural nut butter and salt. Use a spoon to stir until well combined.

· On a large cutting board, course-chop a couple of large handfuls of assorted whole nuts (see note below). Measure out 1 1/3 cups of the chopped nuts and add them to the honey mixture.

· Next, chop the dried fruit and measure out 1/2 cup and add to the honey mixture.

· Finally, measure 1 cup of the coconut flakes (not shredded coconut). Place coconut flakes on the cutting board and course-chop. Add coconut flakes to the honey mixture.

· Using a spoon, mix ingredients together making sure they are thoroughly combined.

· Place the mixture into the parchment-lined baking dish. Fold overlapping flaps down and evenly press the top of the

mixture firmly to pack-in the ingredients so they hold together better after baking. Then, peel back the parchment flaps from the top. (Do not trim, as the flaps make it easier to remove the mixture after baking.)

· Bake for 20 minutes. Then remove from oven and allow to cool on stovetop for approximately one hour (or until bottom of baking dish is room temperature).

· Place in freezer to continue cooling. Once nearly frozen (about 45 minutes to an hour), remove dish from freezer. Then, run a knife along the two edges without parchment. Using the parchment paper ends, lift from the baking dish and place on a cutting board.

· Cut into bars or bite-size pieces. Pieces may be stored in the refrigerator if they will not be eaten within a week.

Recipe notes:

You can use any combination of nuts, such as almonds, cashews, pistachios, peanuts, etc. The same goes for dried fruit. Any combination of dried fruit you choose and then measure out 1/2 cup.

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I was visiting a small public garden in downtown Chicago this summer and couldn't resist asking the head gardener which flowers host the most honey bees. At first his response surprised me: he said it was mostly flowers on the trees and shrubs. But many years of observing my own bees and their harvesting efficiency confirmed that his comment was correct. In my garden, the most popular nectar and pollen visits have been on mature woody shrubs and trees. I believe this is because the bees can cover many more flowers with less energy expenditure.

An excellent woody shrub for the late summer nectar drought is Peegee hydrangea (*Hydrangea paniculata*) from Japan and China. This bush has many cultivars and the challenge is to avoid the many cultivars that produce a large number of sterile flowers. The cultivars that are best for pollinators produce an unusually large amount of small yellow pollen grains and nectar: 'Chantilly Lace', 'Pinky-Winky', 'Tardiva' and 'Silver Dollar'.

Photo: Ruth Ann Grissom



Peegee hydrangea (*Hydrangea paniculata*)

These selections all have beautiful panicle-shaped blooms, tolerate clay soils better than most flowering shrubs, and are drought tolerant after a one-year establishment period.

These shrubs have no significant pest and disease problems. This bush is hardy from Zone 3 to 9 and grows well throughout NC. It is best to plant them in full morning sun with some afternoon shade. Also, be sure to mulch their roots to keep them cool. They can get large (up to 10 feet high and wide) and they bloom on the current season's growth. Prune these back by one third in late winter or early spring for more blooms

and fertilize in the early spring.

Walking my neighborhood one late October, I was amazed to find a 1-foot tall, 3-foot wide groundcover plant covered with bright yellow button flowers that were covered with dozens of honey bees. I recognized the plant but had not ever attempted to grow it myself. I asked the owner if I could take some cuttings and am now successfully growing a very large container of gold and silver chrysanthemum (*Ajania pacificum* or *Chrysanthemum pacificum*).



Photo: Royal Botanic Gardens, Melbourne

Gold and silver chrysanthemum (*Chrysanthemum pacificum*)

This plant is a native of Japan, is hardy in Zones 5 to 9 and is a member of the Aster family. It has striking bluish-green foliage with silvery margins, hence the name. It has a high amount of tiny yellow pollen grains and is an excellent nectar source. Gold and silver chrysanthemum doesn't like wet winter soil, so drainage is quite important if you want to grow it perennially. This is why I grew my specimen in a large pot. It will tolerate some afternoon shade, but full sun is best. For more blooms and a sturdier plant, I recommend pinching back the tips in early summer. Even though they are not as showy as regular chrysanthemums, they have no pest or disease problems, and I have not personally seen any deer predation.

Finally, I want to suggest a fall flowering native plant that can supply plenty of yellow pollen and nectar from September to October: Late Boneset or Late

Continued on Next Page

Thoroughwort (*Eupatorium serotinum*). This is a three to four-foot tall perennial with narrow leaves that form flat heads with lots of tiny white blooms that can keep the bees busy for up to three weeks. It requires sun in order to have plenty of blooms. This plant was found only in our coastal plain but more recently has spread inland to the piedmont and mountains.



Photo: Wikimedia.org

Late Boneset (*Eupatorium serotinum*)

COOKING WITH HONEY: BBQ SAUCE

by: Janie Stephens

Ingredients

¼ cup margarine
¾ cup diced onion
¾ cup Ketchup
¼ cup water

¼ cup honey
2 T Worcestershire Sauce
2 T Heinz 57 Sauce
¼ tsp ground black pepper

Melt margarine over medium heat. Sauté onion in margarine. Stir in all other ingredients. Bring to boil. Simmer 5 minutes.

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Wolfpack's Waggle: How the NCSBA and its Members Have Directly Supported the NC State Apiculture Program

by Dr. David Tarpy

Department of Entomology & Plant Pathology, NC State University



With over 20 people in the lab now, we have recently decided to pull the trigger on purchasing a second vehicle so that our students can go to our various field sites to collect data, move beehives, or otherwise conduct their research experiments without having to fight over our one lone pickup. Our new truck—colored Wolfpack red, of course—was only made possible by the generosity of the donations to our program by the NCSBA (proceeds from the annual silent auction), its county chapters, and individual member beekeepers over the last several years. So, *thank you, thank you, thank you!*



F-150 Crew Cab in "Wolfpack Red"

Besides our new crew-cab F-150, the miscellaneous gifts and donations over the years have helped our program in countless ways. Here are just a few examples of some of the tangible benefits that such donations have afforded us:

- **New lab computer:** NCSU's bookkeeping rules stipulate that we can only purchase a new computer on a research grant if and only if we can prove that the machine is used solely for that research project (e.g., to run computer simulations). That means general computer resources can only come from miscellaneous funding sources, so these gifts helped us upgrade our main lab computer a couple of years ago so that we can store data, write reports, and analyze our data. Nothing can get done without it!

- **Summer research help:** Claire Collins has been the media intern in our program for the last few years. She is in charge of our social media accounts and develops content for our YouTube channel:

(<https://tinyurl.com/ycxy5mlm>). For the past two summers, our project on pollinator habitat required an additional set of hands. Because that grant didn't have a line item for undergraduate research help, we were able to keep Claire on for the summer using the donations to the Apiculture Science Fund.

- **Student tuition:** James Withrow is a PhD student in our program studying novel ways to use queens and make their colonies more productive. A couple of semesters ago, he was on a research grant that paid his stipend, fringe (health care), tuition, and fees (which, by the way, all totals \$36,437 per year, even though the students barely get half that). There was a budgeting snafu, though, where James' tuition couldn't be charged to that grant, so the only way that we could keep him in his doctoral program was to cover those costs on our Apiculture Science Fund.

- **Conference travel:** This past winter, our postdoc Brad Metz attended the annual American Beekeeping Federation conference to present his research and activities in our Queen & Disease Clinic. He is developing new tools for measuring reproductive quality of queens and drones so that beekeepers can assess their colonies to improve their management. His travel was covered by donations to our science fund.

There are far too many individuals to thank for their generosity, and we have tried our best to do so when donations do not come in anonymously (which most are when made online). I do wish to highlight two particular sets of individuals, however, for going above and beyond. First, Bill Sheppard's memorial fund very generously mentioned our program as a means to honor his memory, and I thank each and every one of you who did so on behalf of North Carolina's patron saint of beekeeping. Second, I want to thank Sandy Carlson, the entire Franklin County Beekeepers, and all of the anonymous folks behind the NC beekeeping license plate initiative, as 5% of the proceeds from the DMV go to our program. This has been a tremendous program that continues to pay dividends, and we can't thank y'all enough!





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Master Beekeeper Program

by Doug Galloway Master Beekeeper Committee Member

Thanks for your help!

The committee oversaw a successful round of testing at the Spring Meeting, with about 60 beekeepers participating. As I write this we are preparing for the Summer Meeting and expect a similar number of beekeepers seeking to test their knowledge and expand their understanding of the honey bee.

The staff of the MBP Committee work hard to provide reasonable, accurate and current test questions, and we are rewarded by the success of the candidates. It is important to also recognize the many volunteers who assist the MBP Committee in those efforts.

Each of our NCSBA chapters has an MBP Coordinator/proctor. They work within their clubs to coordinate Certified testing with the chapter's beginning beekeeping classes/schools, then work with the candidates to insure they have met the qualification requirements of the MBP and NCSBA. Further, all the data required to document a candidate's success or challenge with the testing process must be recorded in a database and submitted for final approval. This takes time, effort and knowledge that our MBP Coordinators/proctors gladly donate to our chapters with very little, if any, thanks. May I say to you all a heartfelt, Thank You!

If you succeed at the Journeyman Beekeeper level of the MBP, you have a choice of having the certificate

mailed to you or presented to you at your local meeting. At the MBP Committee, we prefer to have certificates presented in person to highlight the effort and expertise that the new Journeyman brings to their club. Our regional directors have continuously provided this service and if unavailable, the responsibility falls to a local Master Beekeeper or the chapter president. Thank you to each of you for your contribution to the MBP Committee!

When you go to testing at a statewide meeting or other statewide testing event, you will notice a lot of Master Beekeepers involved and helping with the registration process, practical exams, proctoring or just assisting nervous test-taking candidates. These folks are taking time from their day to give back, as most beekeepers do, and we at the MBP Committee are so grateful for their ongoing support and endless contribution. Thank you!

The MBP has been reviewing and updating our content on the NCSBA website. You will notice some changes and clarifications. I want to assure you that these are based upon our experience and are solely intended to assist you with the process. We remain committed to providing a fair and verifiable assessment of an MBP candidate's knowledge and skill. We also will continue with the policy of evaluating each candidate's qualifications in light of all circumstances so as to be fair while maintaining the integrity of the Master Beekeeper Program.

Lastly, look below this article for the location and dates of Fall Testing 2018 and Spring Testing 2019.

NCSBA-MBP Fall Testing, Saturday, October 27, 2018

Location:

Alamance County Center
209 N. Graham-Hopedale Road
Burlington, NC 27217

NCSBA-MBP Spring Testing, Saturday, April 27, 2019

East Location:

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

West Location:

Burke County Extension Office
130 Ammons Drive
Morganton, NC 28655

Hours: 9:00 AM till 12:00 Noon - No Written Tests Issued After 10:00 AM

Please Notify MBP@ncbeekeepers.org of your plans to be tested (Requested but not mandatory)

No testing at the NCSBA/SCSBA Joint Spring Meeting in Monroe

New Beekeeper Throw Down

by: Kirsten Lewis

TAR RIVER BEEKEEPERS

Eric and Trudy Garris were the winners of the Tar River Beekeepers (TRB) competition held for new beekeepers beginning in the spring of 2017. Their prize was a new four-frame radial extractor valued at \$650. In addition, their mentors Murdock and Dorothy Butler, received a \$100 gift certificate to Coastal Bee Supply. The competition was sponsored by Jerry Flanagan and Coastal Bee Supply and administered by Barbara Connold.

but the most important one was that each participant carefully document their activities and progress through journals and/or photographs. The competition was designed to encourage the participants to push themselves as beekeepers and mentors to stay actively involved with the new beekeepers.

Of the seventy graduates of the 2017 TRB Bee School only six final submissions were received by the deadline of March 1, 2018. Each entry was beautifully and creatively produced and showed tremendous growth in beekeeping knowledge and application. In addition to Eric and Trudy Garris, entries were received from Stephanie Crane, Danny LaBell, David Ryan, Lou Ann Day, and Earl Moore. Congratulations to all who completed the challenge!



Photo: Courtesy Kirsten Lewis

Eric and Trudy Garris with Murdock and Dorothy Butler

In order to submit an entry each participant needed to be a novice (first-year) beekeeper and needed to start one or more colonies from a nuc, package or swarm. Then, during the course of the year, each new beekeeper needed to produce some honey and make a successful split. There were several other guidelines,



Photo: Courtesy Kirsten Lewis

From left to right: Eric Garris, Trudy Garris, Lou Ann Day, Earl Moore, Stephanie Crane and Danny LaBell (Not shown David Ryan)

COOKING WITH HONEY: PEACHES & CREAM MUFFINS

by: Melinda Miller

Ingredients

2 eggs
1 cup sour cream
½ cup unsalted butter
¾ cup honey

1 tsp vanilla extract
2 cups all-purpose flour
½ tsp sea salt
½ tsp baking soda

½ tsp ground cinnamon
1 cup diced peaches

Preheat oven to 375°F. Line muffin tins with muffin liners. Melt the butter on low heat. Set melted butter aside to cool before stirring into the egg mixture. Mix dry ingredients in a medium bowl.

In a large bowl, add the eggs and whisk. Add the sour cream and vanilla extract. Add honey and butter. Mix well. Slowly pour the wet ingredients into the dry ingredients. The batter will be thick. Take care not to over mix. Add diced peaches and gently fold into batter.

Fill the muffin tins ¾ full. Bake 20-25 minutes. Enjoy!

NCSBA



Summer Conference Photo Highlights

July 19-21, 2018 - Flat Rock, NC







2018 Master Beekeepers



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Co. Ext. Worker of Year- Christy Bredenkamp



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NCSBA Highlights Young Beekeepers: Essays

What I learned about Beekeeping

by: Avari Merritt

Last spring, I attended the NCSBA Spring Conference in New Bern where I met many different beekeepers and learned a lot of new things about beekeeping. One thing I learned is about the benefits of hygienic bees. If you think something may be wrong with your bees but you can't figure it out, let your bees! If they are hygienic, they will sort it out themselves. Now, what would you say if I told you I can give you a solution to that dreaded varroa mite? It's true! That pesky mite will fall if you keep hygienic bees! You can test this by placing a varroa mite onto the back of one of your girls. If she immediately uses her legs to try to groom the mite off of her, you might just have yourself a colony of hygienic bees. Bees will also stop varroa at the source: brood. If they detect a varroa mite on their brood, they will pull it out of the comb and throw it out of the hive. You can test this theory by using the freeze or pin kill brood assay.



Also, with hygienic bees comes propolis, that sticky, annoying stuff that irritates you while doing your inspection. It's not just you, everyone knows how annoying it can get after a while! Don't fret, though. Propolis also has its own benefits! It is known to prevent disease in your hive because it is antifungal, antibacterial, and antimicrobial. It is also antiseptic, anti-inflammatory, anesthetic, and it has been said to have healing properties. It can also help to keep pests where they belong: *out!* Not only is propolis basically

anti-everything, it's used to keep the hive nice and tidy. If a mouse (or something too big for them to move) dies inside their hive, the bees will propolize the living daylights out of it! You might see one of these 'mummified' mice inside your hive after the winter season passes. Interestingly enough, wild colonies of bees use propolis differently than our bees use it. When we open our hives, propolis is gluing the frames down. It's in the corners and in the cracks between boxes. In the tree cavities, though, bees coat the walls around them completely with propolis, as well as around the entrance. Both our bees and the so-called 'wild' bees out there use propolis on their virgin comb. The beautiful, pristine white comb that you love becomes that yellowy-orange color because the bees coat it with propolis.

The last thing I want to talk about is honey tasting. I learned a lot about how honey is judged at a class taught by Ms. Suzy Spencer. The first thing that she spoke to us about is the honey wheel, or actually, the multiple honey wheels. Now, I could go through all the tastes and aromas, but you could easily look it up. I'll just say, there are the base flavors, the types of flavors, and then the specific flavors. She also told me about something that I had already learned, but she put it into perspective. Pinch your nose, chew a jelly bean while still pinching your nose, stop pinching your nose and continue chewing, breathing through your mouth. I was astounded! The taste was there, but the 'flavor' was not. Now, let me explain. Taste and flavor are two different things. Taste is what happens when the taste buds on your tongue touch your food and perceive taste. Flavor is when that happens and at the same time, your nose is acting as an aroma perceptor. Combining taste and aroma gives you flavor. I learned all this and so much more at the NCSBA Spring Conference this year, and I hope to attend it again next year!

Avari Merritt is a student at Currituck County High and a member of Beekeepers of the Albermarle. Her family owns Rascal's Apiary

NCSBA Highlights Young Beekeepers: Essays

My Journey to Beekeeping

by: William Merritt

In the ten months I have been involved with bees, I have learned and have become interested in a lot about how bees survive the seasons, predators, and other dangers their environment throws at them. I have also become interested in how these bees differ with each subspecies, and how they function in order to survive. Each bee in the hive has its own job, one needed to help the others to live. Workers, having a variety of jobs, do the majority of the work in a hive, while the queen continuously lays all of her eggs throughout the day. Drones make it possible for the queen to do her job by giving her the sperm she needs.

One necessity for any living thing to survive is food. The organs and components that make up a worker bee are designed specifically to produce their own food: honey. The process in which honey is produced by a bee is a lengthy but simple one. All of the honey produced by a worker starts out as nectar that many plants produce. During the nectar flow, bees go around collecting this nectar from every flower they can find, visiting nearly 5,000 a day. They take this nectar through their proboscis into their honey stomach, where they'll store up to 40 mL of nectar until they return to their hive. When they get back, they will regurgitate the nectar they collected into the hive, and the process of turning it into honey will be finished by the inside workers. These young worker bees will begin to take out most of the water from the nectar by manipulating the nectar while also using evaporation in the hive. The bees will repeat this process until the humidity in the honey equals somewhere around 17%, but no higher than 18.6%, and now you've got honey. The workers will cap it and eat it when necessary.

While the workers do all of the laborious work for the colony, drones have one primary job: mating. These bees also play a big role in showing when the swarm season is beginning, which is apparent when you notice drones flying out in early spring. When the queen is roughly a week or two old, she will meet in a drone congregation area (DCA), where she will mate with anywhere from 10-20 drones from neighboring colonies. After mating, the drones will die, and the queen will be able to fertilize eggs for the extent of her lifetime.

Though the queen is one of the most important members of the colony, she's not in charge. The workers make all the decisions and actually tell her what she should be doing. But, because of the capabilities of a

queen, she is a vital part and without her, the hive would be in a panic. She is also the longest living bee in the colony, averaging a lifespan of about 4 years. Throughout that time, she will lay over a million eggs, as many as 2,000 per day in her prime!

This is only a small portion of the things I have learned in my journey to beekeeping, but some of the things that have specifically caught my attention. I hope you have learned something about bees that you didn't already know, and maybe this will increase your interest in bees as it did for me!



William Merritt is a rising senior at Currituck County High School. He is a member of Beekeepers of the Albemarle.

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The Importance of Mentor Programs

by: Darryl Gabritsch

Mentor programs are an important element in building a solid foundation for new beekeepers. Many new beekeepers acquire early instruction by way of a bee school taught by local beekeeping chapters, and by attending monthly chapter meetings. A typical bee school provides around eight to twelve hours of classroom instruction, and perhaps a few hours in an apiary, where students are shown how to light a smoker, don the protective equipment, and how to inspect a colony. Monthly chapter meetings typically provide half hour to one-hour presentations on various topics that may or may not be geared toward the new beekeeper. In all, even in taking advantage of chapter beekeeping schools and monthly meetings, the new beekeeper may only receive less than 20 hours of structured learning during the critical first year. Attending NCSBA annual meetings will add to the learning experience, but the time and expense associated with the conference(s) are often prohibitive. Outside of these opportunities, the new beekeeper is sometimes left to learn beekeeping on his or her own, unless a local chapter has a good mentor program.

A main purpose of a mentor program is to match experienced beekeepers with less-experienced beekeepers, so that two-way learning may occur. Mentor programs help fill the educational gap by providing tailor-made, one-on-one learning opportunities for both the mentee (student) and the mentor (experienced beekeeper). Mentees receive the confidence-building support and expertise necessary for success in the early years of beekeeping; the mentor gets refresher training on topics he/she presents to the mentee as the mentor prepares for the mentoring session by researching and answering questions presented by the mentee.

A good mentor-mentee match is critical to the success of the program. Good matching of mentors with mentees is the first step toward a successful mentor program. A good pairing is one in which the mentors and mentees are in close geographical proximity to each other, and where the mentor is readily available and receptive to the specific needs of the mentee. The closer the Mentor and Mentee are located to each other the more likely they will meet for mentoring sessions and apiary experience. Mentors and mentees coordinate individual mentoring sessions amongst themselves on topics both parties agree to, so a good rapport between the two is advantageous.

Traits of a good mentor. Becoming a mentor comes with it a few expectations to which the Mentor must be willing and able to commit. Anyone volunteering to be a mentor should periodically call or email the assigned mentee multiple times per year. Ideally, the Mentor will check in with the Mentee at least a couple times a month during critical periods during the year such as spring buildup, swarm season, nectar flow, fall nectar flow, and winter hive preparation period. The Mentor should be receptive to any emails and phone calls from the Mentee seeking advice.



Photo: Courtesy Darryl Gabritsch

Thong "T" Nguyen, Mentee and Moore County member, wiring foundation during the "Do One" phase of a mentor session with Mentor Darryl Gabritsch.

In addition, a good mentor exhibits the following traits:

- **Desire to teach.** The Mentor should be an enthusiastic, encouraging teacher. The Mentor should be willing to research topics he/she is not familiar with if asked an unknown question by the Mentee.
- **Reachable.** The Mentor should be receptive to being called at reasonable hours and during perceived emergencies. The Mentor should exchange phone numbers with the Mentee and encourage them to call if problems arise.
- **Patience.** The Mentor must remember that we were all inexperienced at one point. New beekeepers will make mistakes, sometimes making the mistake

Continued on Next Page

multiple times before they understand the task.

- **Friendly.** The Mentor should remain friendly and encouraging. A condescending teacher will quickly cause the Mentee to lose interest in beekeeping if constantly being told they are “doing it wrong”. The Mentor should point out the positive things the Mentee is doing and make friendly suggestions / corrections to bad technique.

- **Knowledgeable.** The level of experience of the Mentor need not be extensive. The Mentor should have a well-rounded knowledge of beekeeping but does not necessarily need to be a participating member of the Master Beekeeper Program, or have decades of experience, though these would obviously be beneficial. A vast amount of knowledge may be acquired in just a couple of seasons, particularly by ambitious beekeepers who jump in full-force, attend beekeeping schools and chapter field sessions, chapter and state meetings, outreach programs, and/or participate in the Master Beekeeper Program. Even a one- or two-year beekeeper has much to share with the brand *newbee*, and often even with seasoned beekeepers because of their fresh perspective. Don’t allow the misbelief that one must have years of experience in order to serve as a mentor to drive participation. Beekeepers of all levels should be encouraged to seek mentoring, and be a mentor, when he/she feels comfortable doing so.

- **Professional.** The Mentor should remember that he/she represents the local chapter, the NCSBA, and self-respecting beekeepers worldwide. Treat the Mentee as you would want to be treated.

- **Open-minded.** Be willing teach different methods and topics to the Mentee regardless whether you use a particular method or not. From wire embedding to varroa mite treatment options, the Mentor should be open to explaining a variety of approaches to beekeeping even if they choose to go a different route.

Traits of a good mentee. A good mentee basically has the same traits as a good mentor, but from the perspective of being willing to learn. The Mentee should be reachable, patient, friendly, professional, and open-minded. The Mentee should be committed to the process and contact the Mentor frequently to ask for mentoring sessions. The Mentor can’t read minds or know the Mentee’s schedule without asking. The Mentee should be open-minded to the fact there are many different methods and techniques involved in beekeeping. Most importantly, the Mentee should set aside any ego or feelings of embarrassment and *ask for help when they need it!*

Mentoring methods. Each mentor will have his/her own mentoring styles and methods. For new mentors

that need a suggested starting style I recommend the military method of teaching consisting of the “Crawl, Walk, Run” or “See One, Do One, Teach One” method. The Mentor would then ask check on learning questions during mentoring sessions and send follow-up emails and text messages to the Mentee explaining what events occurred during the mentoring sessions, wherein the Mentor states what training was conducted and *why* each method or event occurred during the session. Components of that teaching method are:

1. **See One.** The Mentor explains what he/she is doing as he/she demonstrates the task to the Mentee. An example might be to assemble a frame and installing foundation. The Mentor explains how to assemble the frame and explains why he/she does or does not use glue and side bar nails. The Mentor explains the pros and cons of using glue (Pros: Stronger joints with the nails; sufficiently strong joints without glue. Cons: Potentially introduces into the hive unwanted chemicals that are part of the glue; or slightly weaker, but sufficient strong joints without glue). The Mentor must fully explain *why* he/she is doing a particular step of the task, so that the Mentee can get a better understanding of the various techniques and eventually make an informed decision on what the mentee will do when assembling his/her own frames.

2. **Do One.** The Mentee then performs the task that the Mentor just demonstrated. The Mentee explains *why* and *how* each step is performed as the Mentee performs the task. The Mentor observes and makes encouraging corrections to mistakes the Mentee makes. At no point should the Mentor use derogatory verbiage. The Mentor should make necessary corrections and explain the reasons for the corrections, so the Mentee knows what the proper technique is and why it is done in a particular manner.

3. **Teach One.** The Mentor has the Mentee demonstrate a previously learned task that was taught in a previous mentoring session. If available, the Mentee teaches another person the task in front of the Mentor. The Mentor again makes necessary corrections in a positive, encouraging manner while explaining why the task needs to be done in a particular manner.

4. **Follow-up Correspondence.** It is important for the Mentor to follow up mentoring sessions with an email or text message. The correspondence should list all tasks and reasons why each item was covered during the mentoring session. The follow-up correspondence serves as a replay mechanism and historical record for the Mentee to review at his/her leisure. The correspondence reinforces what was covered during the session and allows the Mentee to review the lessons at-will without the need to call the Mentor to

talk about the lesson. The Mentor should include links to useful websites, articles, or YouTube videos that reinforce the topics covered during the mentoring session.

Mentoring topics and session length. Mentoring can begin at any time during the calendar year. The mentoring session length and frequency are as much as both parties agree to. Mentoring sessions can last as long as both the mentor and mentee can afford to spend time together. Typical mentoring sessions last from one to two hours, and one to two times a month depending on weather and schedules. Mentoring can begin without the Mentee having bees if the Mentor teaches sessions in his/her apiary. In a perfect world, the Mentor anticipates upcoming events and structures mentoring sessions to correspond with the beekeeping calendar.

Mentoring session ideas include:

- **Equipment assembly session:** Assemble a hive body, assemble a frame, install a full sheet of wax foundation, cut and install a starter foundation strip, cross-wiring a frame, and embedding crimp wire into foundation.
- **Colony inspection and management.** The Mentor frequently invites the Mentee to his/her apiary when the Mentor is conducting routine management inspections, which may include testing and treating for pests and diseases.
- **Making Splits.** The Mentor could teach the Mentee how to make a split and the reasons one might employ the split method.
- **Honey extraction.** The Mentor may demonstrate a method of honey extraction while explaining why he/she chooses to use the demonstrated method.
- **Winter hive preparations.** The Mentor may demonstrate how to make a candy-board or discuss how much food stores the honey bees need.
- **Visit the mentee's planned apiary site.** The Mentor could meet at the Mentee's planned apiary site and recommend where to locate hives and explain the reason for the recommendation.

Visit NCbeekeepers.org under the Master Beekeeper Program section for more suggestions on mentoring session topics.



Photo: Courtesy Darryl Gabritsch

Inspecting a queen cell split to see if the queen has emerged

A good mentor program serves as the foundational building blocks for a new beekeeper. A structured, encouraging program arms the new beekeeper with the knowledge and confidence he/she needs to succeed in his/her beekeeping journey. Good mentor programs provide a pool of future knowledgeable mentor beekeepers to pay forward the skills they learn in the program. A good mentor program also helps fill membership ranks when word gets out that the chapter has a good mentorship program. Remember the adages: "Build it and they will come" and "Knowledge is Power – SHARE IT!"

Darryl Gabritsch is an NCSBA Journeyman Beekeeper and Golden Achievement Program committee member in West End, NC. He is the Vice President of Moore County Beekeepers Association and a member of 5CBA.

COOKING WITH HONEY: BAKLAVA

by: Ellen McCarter

Ingredients

- | | |
|---------------------|----------------------|
| 1 lb. phyllo sheets | 1 tsp. cinnamon |
| 1 c. butter, melted | ½ tsp. nutmeg |
| 3 c pecans, chopped | ¼ tsp. ground cloves |
| 2 T sugar | |

For the syrup:

- | |
|------------------|
| ¾ cup honey |
| 1 T. lemon juice |
| ¼ cup sugar |

Prep:

15x10x3" pan

Preheat oven 350°F

Thaw phyllo sheets. Place 10 sheets in buttered pan, brushing each with butter. Mix nuts with sugar and spices. Sprinkle half of the nut mixture over the phyllo. Add 10 sheets buttering each one. Sprinkle rest of the nut mixture over phyllo. Add rest of phyllo buttering each layer. Cut into 2x2 inch squares, then split the squares in half to make a triangle. (Do not cut through bottom layer.)

Bake at 350°F for 50 minutes. - Combine syrup ingredients and bring to boil. - Cut through bottom layer of Baklava. Pour syrup over and return to oven for 5-10 minutes - Cool

NCSBA Born & Bred Program

Getting a Chapter Program Started - Summer Update

by: David Arnold



A quick recap... 5CBA used some of our 2017 GAP Chapter-of-the-Year money to support a Born and Bred-based queen rearing project for our club. In March we got organized and held a couple of workshops to educate people on the queen rearing process (using a very condensed PowerPoint version of the NCSBA Born and Bred Queen Rearing Program) and to build the mating nucs we'd use.

Photo: Courtesy David Arnold



5CBA Grafting Workshop

We were very fortunate to have Dana Stahlman, a 4th generation commercial beekeeper and EAS Master Beekeeper, host a grafting workshop at his home for people interested in grafting but who were unable to attend the NCSBA queen rearing workshop.

Because we were on the queen's development calendar and not our own, and following the workshop manual, we couldn't graft and insert queen cells (from the incubator) into mating nucs on the same day of the week, so we decided Wednesdays would be our graft days and Saturdays would be our mating nuc days.

Photo: Courtesy David Arnold



Born & Bred Grafting Techniques

Grafting

Finally, we were ready to begin grafting on

Wednesday, April 18th, or were we? The first hurdle was where to graft. We used our club apiary as the location, which does not have a house, barn, shed or even an outhouse to use in setting up a nice, cozy grafting location like what's pictured in the manual. So, we created our own 5CBA NCSBA BAB QRP PGS (5CBA NCSBA Born and Bred Queen Rearing Program Portable Grafting Station) ... okay, it was a tent with a small table in it.

Now, we were ready to begin, except the weather the previous week or so had not cooperated and we didn't feel we'd have enough resources to get started. So, we waited a week then finally, on Wednesday, April 25th we had our first of six successive graft days. We also created our cell builder, using the frame alignment chart from the Born and Bred manual as our guide. The challenge there was that the hive we had designated to become our cell builder had recently swarmed, so we were removing queen cells and borrowing brood frames as we were configuring the cell builder. As an aside, one of the least of our worries was finding a suitable frame from which to graft as the club apiary had probably 10+ hives in it. However, because of a swarm-fest just before we started, finding a suitable frame was a bigger challenge than we anticipated (just another example of how we had to just roll with the punches and deal with whatever the day presented). Oh yeah, and because once you start the calendar is set by honey bee biology, this is a rain or shine project!



Photo: Courtesy David Arnold

A Very Busy Cell Bar

When we checked the cell builder the following Wednesday, many queen cells had been built out and were being broken down; in fact, we found a virgin queen (most likely from a queen cell we missed when creating the cell builder) ... important lesson learned. Luckily, we still had 5 viable queen cells for the

incubator to seed our first mating nucs. Our grafting and queen cell build out continued to generally improve over the next five weeks. Since we had at least ten people try their hand at grafting, usually three per week, the number of drawn queen cells varied each week from 5 to 16. The goal was giving as many people as interested the grafting experience versus maximizing our queen cell build out percentage.

Photo: Courtesy David Arnold



Working the Mating Nucs

Mating Nucs

The Born and Bred Program supports having a three-week rotation with the mating nucs, so we divided our twelve mating nucs into three 4-nuc groups: Larry, Moe and Curly. Our mating nucs were standard 10-frame medium boxes we divided with plywood inserts to create two mating nucs per box. Medium resources (brood frames and a mass of bees) were a bit of a concern because the club apiary uses deeps as brood boxes, so we had a couple of project members donate some medium brood frames in the early weeks. We created our own medium support hives to handle the load moving forward. Once the queen cells were inserted into the Larry nucs, we were to leave them alone for three weeks for the queen hopefully to mate and begin laying. We re-worked the Larry nucs the following week because of limited resources.

From there it was rinse, repeat the following week with the Moe nucs, and again with the Curly nucs.

Then on Saturday, June 2nd, WE DID IT! We completed the queen rearing cycle by capturing, marking and caging our first mated queen, Queen Debby! It was very exciting to peel back the Tyvek cover of "Larry C" and see if full of bees. When we saw brood, the excitement grew... and then, there she was!

Why the name Debby, you ask? I decided, using my self-appointed queen rearing program chair privilege, to use the female names of the 2018 hurricanes. This year the first female name is Beryl, but I couldn't bring myself to name our first mated queen Beryl. The next female hurricane this year is named Debby. The mating nuc cycle ended June 30th, with 7 more mated queens total: Florence, Helene, Joyce, Leslie, Nadine, Patty and Sara.

As the process ended with each mating nuc group, we converted them into single 10-frame medium colonies. We are now deciding how to transition these out of the project, possibly offering some to new beekeepers in our club for a low price.

By the numbers

A few project stats:

- **26** – people on our project email communications list
- **23** – people who attended at least one workshop or field day
- **2** – workshops (thank you Ed Paris and Dana Stahlman for hosting)
- **15** – field days (6 grafting Wednesdays and 9 mating nuc Saturdays)
- **7** – average field day attendance
- **8** – people who successfully grafted a young worker larva (good enough to be drawn out into a queen cell in our cell builder)
- **50+** - successfully drawn out queen cells
- **12** – mating nucs (4 Larry, 4 Moe, and 4 Curly)
- **8** – mated queens from our mating nucs

The comradery with project members, learning together and problem solving based on the inevitable curve balls the bees/apiary/Mother Nature threw us each week made for a wonderful experience, one I'd highly recommend to other clubs. If you're thinking of trying this, feel free to call or text me at (919) 673-4297.

David Arnold is a member and former Secretary of 5CBA. He is the organizer and Chairman of the club's first queen rearing project modeled after the Born and Bred Queen Rearing Program.

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The Basics of Honey Tasting

by: Suzy Spencer NC Master Beekeeper

This article is an introduction to the basics of honey tasting and a follow up to the workshop I gave at the 2018 NCSBA Spring Conference in New Bern. Please refer to the "Resources" section at the end to learn more.

I started on my own journey into the world of honey-tasting in 2014 when I first saw the *Honey Flavor Wheel* published by the Honey and Pollination Center at UC-Davis, California -- with over 100 specific flavors and aromas of honey from all over the world organized into categories. Wow. I later learned there are people trained to be expert honey tasters, that their talents are used to evaluate honey as well as to describe it, and that they "sense" the honey rather than just "taste" it.

TASTE VERSUS SMELL

Although the phrase "honey tasting" is used for convenience, the more proper term might be "honey sensing" because the experience involves "smell" as well as "taste". Even the senses of "sight" and "feel" are involved. Try this. Pinch your nose. Keeping it pinched, chew a jelly bean, then swallow or spit it out (it doesn't matter which; professional food tasters use "spit cups"). What do you sense? Un-pinch your nose, inhale from your mouth, and exhale from your nose. Now what do you detect? The latter actually involves the sense of smell, and the exercise illustrates why food is bland when we have a cold or stuffy nose. True "tastes" are detected by taste buds on the tongue and are limited to sweet, sour, salty, and bitter (most authorities now include a fifth one: savory). But "aromas" and "flavors" are detected by the olfactory bulb and sensors in the nasal cavity through two pathways: 1) through the nose directly by sniffing (ortho-nasal pathway) or 2) through the mouth and up into the throat and nasal passage (retro-nasal pathway). The latter is due to dilution, warming and volatilization of aromatic substances in the honey. What you detect via these two pathways may be very different. As a honey-taster, it is important to realize that honey can have a different or even unpleasant nose-smell that is not obvious when the honey is taken in through the mouth -- or vice-versa.

Many substances contribute to taste, aroma, and flavor including aromatic esters, long-chain alcohols, and organic acids. Those in the original nectar are transformed in the honey-making process in the hive such that the final product usually doesn't taste or smell like the original flower source. Also, certain types of honey when curing in the hive may give the apiary an unpleasant odor. But after it is fully cured and capped, it's fine.

FLAVOR AND AROMA WHEELS

There are many thousands of aromas and flavors detectable by humans. You can easily get overwhelmed when trying to describe and compare your honey-tasting experience with someone else's. Honey flavor wheels that group and list specific flavors and aromas are useful references for this. [Note: wine, olive oil, cheese, and chocolate tasters also use flavor wheels.] The following groups have developed honey flavor wheels: 1) UC-Davis Honey and Pollination Center <https://honey.ucdavis.edu/> ; 2) the American Honey Tasting Society <https://www.americanhoneytastingsociety.com/>; and 3) the International Honey Commission (IHC) <http://www.ihc-platform.net/contact.html>. The first two wheels are available for purchase through the websites. These three wheels do not share the same degree of detail and do not completely agree on the specific flavors and aromas or even the broader categories. NOTE: Just because a honey tastes like a term listed on the wheel does not mean it came from that plant source.

VARIETALS, PROFILES, AND "TERROIR"

Honeys can vary greatly in taste, especially if they are labeled as "wildflower" (i.e., the nectar sources were mixed, one did not exceed 50% of the total composition, or it could not be identified with certainty). They are fun to taste and tease out the flavors but may be hard to learn from since there are no "answer keys". On the other hand, if honey is labeled with a specific plant name (for example, sourwood, basswood, or buckwheat), at least 50% of the nectar should have come from that plant. These are referred to as *varietals* or *monoflorals*. Obviously, it is easier to produce a high-percentage, varietal honey in



Different colors, different tastes. 2015 NC State Fair display of 26 different honeys produced in 5CBA club members' apiaries located within a 30-mile radius of Zebulon NC.

areas where only one nectar source is flowering at the time. Beekeepers must carefully time the placement and removal of their honey supers to produce these. Varietals may still vary between beekeepers depending on the other nectar sources and the final percentages but usually have some consistent flavors, aromas, and other characteristics. Therefore, high-percentage varietals are good tools for learning to taste honey because "profiles" have been developed for many of them.

The profiles for the more common varietals can be found in books, brochures, websites, and other sources. Profiles will list the predominant flavors and aromas as well as other characteristics that help distinguish them from other varietals. Serious profiling is usually done by trained honey-tasters under controlled conditions. When profiling honey, not only are the tastes, flavors, and aromas recorded, but also color, mouth-feel (like texture, astringency and acidity), the "finish" (aftertaste), and how long it lasts.

Everything else being equal, the same varietals may have different profiles if they are from different geographical areas. This is due to conditions in the local environment including soil type and minerals, pH, soil moisture, rainfall, intensity and length of sunlight, wind, temperature, and other things. The common term for this (broadly applied) is "*terroir*" which means "soil" in French. The *terroir* is why certain types of wines are produced only in certain areas of the world (i.e., in specific soil types and growing conditions). This is also why a varietal honey produced in North Carolina will probably not have the same profile as the same varietal produced in another part of the country.

However, it is too difficult to show it is due *terroir* rather than to differences in what other plants are growing at the same time in the two areas. It is something to be aware of, however.

GUIDELINES FOR TASTING HONEY

In my workshop, we tasted five varietal honeys: linden (basswood), tulip-poplar, buckwheat, goldenrod, and sourwood – all very distinctive. Attendees were encouraged to use words from the honey wheel to describe the aromas and flavors they were detecting. If you want to try this, I recommend that you get some varietals, assemble some friends for a honey tasting session, and compare your experiences with each other and with published honey profiles -- remembering why they may not match exactly. When tasting honey for fun, remember there are no "right" or "wrong" answers. We have different sensory capabilities and personal references. Also, some illnesses impact our sensory perceptions (some foods may have a metal taste, for example). Here are some general guidelines.

1. Have available a honey wheel or other list of terms for reference.
2. Avoid perfumes, eating strong foods prior to the tasting session, and similar sensory conflicts.
3. Do it early in the morning before eating anything.
4. Taste no more than six honeys per tasting, and pause 2-3 minutes between each one.
5. Reset your palate with the following: still water at room temperature, thinly-sliced green apples, or unflavored soda crackers. To reset your nose, smell freshly-ground coffee beans or your own skin (sniff the inside of your elbow).

6. Start with lighter honeys and work up to darker (assumed to be in order of stronger tastes).
7. To start, sniff to detect the aromas (three deep, quick sniffs). Do not sniff for more than 5-6 seconds. See #8. Record your experience.
8. Put a little bit in your mouth in the center of the tongue and let it "melt" over and down the tongue. You do not need a lot. You do not have to swallow it (professional tasters use spit cups like wine tasters do). Breathe in through the mouth and out through the nose. See #8. Record your experience.
9. For both sniffing (aromas) and tasting (flavors), take time with each honey and tease out the various "notes". Let them present themselves to you – don't "chase" them or try too hard. Come up with a word or two to describe the primary "notes". It may just remind you of something. When do the flavors appear? When are they over? Does one last longer than the others? Most importantly, what is it about this honey that will help you remember it the next time you taste it?
10. Remember to have fun!

RESOURCES FOR CONTINUED STUDY

I already mentioned where you can get **honey flavor wheels**.

There are several **books** on the subject with varying emphases. My favorite, all-round reference is *The Honey Connoisseur* by Marina Marchese and Kim Flottum. It gives more detailed information about how to taste honey, profiles of varietal honeys, and many other topics. A copy of the American Honey Tasting Society's honey wheel is also in the book.

I attended three **classes**. These are offered periodically. The first was a 2-day "Honey

Sensory Experience" at the Mondavi Institute, Honey and Pollination Center, UC-Davis, CA in May 2016 <https://honey.ucdavis.edu/>. We experienced over 50 guided honey-tastings and presentations on sensory evaluation and use of panels, honey aroma analysis, honey chemistry, analysis of honey, cooking with honey, the crystallization process, and many others. Labeled glasses with the various aromas on the CA honey wheel were left out on display to use as references. It was followed by a half-day optional "Master Class (Italian Style)" given by the head of the Italian honey testing service Gian Luigi Marcazzan. This was a brief summary of the first of three certification classes he offers in Italy for aspiring governmental honey-tasters including identification of aromas, detection of defects [thymol, fermentation, metal (iron) and smoke], and learning the flavors in 12 specific honeys. The third class I attended was a 2-day "Sensory Analysis of Honey 101" given by the American Honey Tasting Society <https://www.americanhoneytastingsociety.com/> in Weston, CT in October 2016. It was taught by Marina Marchese (co-author of *The Honey Connoisseur*) and Raffael Dali'Olio, both of whom trained under Mr. Marcazzan in Italy. We studied 15 US/European honeys and their characteristics and also heard presentations on many honey-related topics, including pairing different honeys with food.

We have set up a "**Honey Tasting**" page under "**Honey**" on the NCSBA website www.ncbeekeepers.org and will continue to add resources to it. From there you can download the California honey profiling form, a list of some terms taken from honey wheels, and other things to help you learn more about this subject.

If you have questions, feel free to contact me at nchoneytasting@gmail.com.

Sampson County Beekeepers' Fall Field Day 2017



Letters From Hawley Prindle

"OURS"

by Hawley Prindle



I guess it was a good thing

to get Bernice to go to the bee class this past spring. I used to call the bees "my" bees and now they are "our" bees. But just the other day, she was sharing some of what goes on in our bee yard and she definitely told her friend *"Hawley helps me with my bees!"*

But when it comes to going out to work the bees I often find I am the one doing the work. This morning I thought it about time to check for varroa mites. Bernice was washing the breakfast dishes as I mentioned that the bees needed checking.

Our bees have had it quite easy so far, feeding and building up nicely. Bernice wants to know everything I do and even asked me to write everything down and keep a record of what "I" do. Before she got into this beekeeping operation, I just kept everything in my mind. I don't know what you do in your record keeping method, but I just made a note to attach to one of my brain cells and would come back to it at some point. Bernice has a notebook! She even suggested numbering all the hives and numbering the frames. She got on the Internet and found some kind of list that had all types of things to be checked off. I guess she thinks I am going to forget something important.

Okay, I head for our beehives and my number one goal is to see if our hives need some mite treatment. "I" added a medium super on all our hives several weeks ago. Bernice writes down all the dates, so I can tell you it has been exactly two weeks since I have checked the hives. She yelled from the back door "Hawley you should be checking those hives every nine days like they told us to do in class." "Yeah, I know!" I replied.

She then said something about checking for mites! I had it on our schedule to check for mites and check if I needed to add honey supers, and to check for swarming. Breakfast dishes were taking a long time to get done. She wants to take the Certified practical test and is up to lighting the smoker. So I know she wants to be out here where it is real hot in the sun.

Five hives really don't take much time to inspect. All had laying queens and good brood patterns. I didn't need to add supers. In fact, they still had foundation to draw in the honey supers I added two weeks ago. I checked for varroa mites by uncapping some drone brood. Oh, Boy! There they were, just as I was feeling pretty good about the way things were progressing.

Of course, everything I read says these pests are the biggest problem to keeping bees alive. I didn't see any

last fall so I assumed I wouldn't find any today. What a surprise! I opened probably 30 to 40 capped drone cells to find mites in almost all of them. These tiny pests are quite easy to see in the drone pre-pupal stage when the drone cell is opened, and the pure white developing drone is examined. As many as four of the rust-colored mites were seen in several cells, and three in most of the others. I started to get sick to my stomach, not because there were mites in our hives, but because Bernice was going to have a fit! She expects me to have all the answers but when it comes to the varroa mite, I feel quite defeated. And I know she is going to have an answer!

Maybe it's just like the young queen from a swarm cell I brought to the house about a month ago. The virgin queen was just about to emerge from the cell and I thought Bernice might like to see the new queen climb out of the cell. Bernice was a joyous new mother. She wanted me to introduce it to a new nuc to save it. So I went out, opened up a hive, removed two frames of bees with a little brood on them, set up a nuc box, put the virgin queen into an introduction cage as Bernice beamed with delight. She even gave the new queen a name: Blossom.

Two days later, I checked on Blossom- she had been released and accepted by the bees. I shared the good news with Bernice. I let Blossom alone for several days before checking her hive again, only to discover that Blossom and the bees were gone! Absconded as sure as day. My thought was that she went on a mating flight and they decided to leave with her.

Bernice did not take the news well! After walking around the property hoping, with no luck, to find Blossom with her entourage hanging from some branch, Bernice used a few choice words to describe the queen and her bees.

Now I need to share that varroa mites are in our beehives! I am sure she will call a beekeeping friend to check to see what solution is the correct one. It will make no difference what I suggest.



Photos: Barbara Sammons

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