North Carolina Bee Buzzz

The Official Magazine of the NCSBA

Real NC Honey Raising a Bee Barn Oxalic Acid Considerations

Spring 2023



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North Carolina Bee Buzz Spring 2023



Features



Volunteering at the NCSU Bee Lab



Real NC Honey



The Raising of a Bee Barn

North Carolina State Beekeepers Association

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On the Cover: Photo: Keith Rokoske

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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From the Bee Buzz Editors:

Bee Buzz Story Submission Deadlines: Spring : Jan 14 - Summer: Apr 21 - Fall: July 21 - Winter: Oct 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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Jody Moore, Technical Editor beebuzzeditor@ncbeekeepers.org

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



Message From The President

by: Doug Vinson, NCSBA President

We are early into a new year with all the opportunities for a fresh start and new beginnings. New Year's resolutions do not seem to be as popular as in the past, at least not to me. At one point I was into lots of *less-than* and *more-than* but the guilt of not achieving success led me to abandon resolutions for the most part.

That said, I do not think we should approach a new year as simply the turning of a calendar page. There must be more significance to it than that. I mention opportunities in the first sentence, and I recommend looking for those after the celebration of any new year.

I cannot make opportunity suggestions for your personal, day-to-day life but I do feel comfortable with offering some for your new beekeeping year.

As a beekeeper and member of the NCSBA, you have access to all the programs, educational and training activities offered and endorsed by the Association. Avail yourself of any of these that you have not connected with before. Master Beekeeper Program, Certified Honey Producer Program and Born and Bred Queen Rearing Program are examples.

Volunteer opportunities abound at both the chapter and the state level. Assisting your chapter with mentoring, educational programs, outreach efforts and leadership are great ways to interact with fellow beekeepers and the public.

Consider serving as an interpreter and guide at the Honey Bee Garden exhibit at the NC Zoo.

Our two annual statewide Conferences feature noted speakers, informative workshops, and interaction with beekeeping supply vendors. If you have never attended a conference, give yourself that opportunity this year.

I have written here and elsewhere regarding the new Apiculture Field Laboratory at NCSU and the accompanying NCSBA Distinguished Professorship in Apiculture, so I think most are aware of these initiatives. Plan to be a proud part of this legacy with your financial support. Our membership numbers suggest that even small contributions by all would accomplish our goal without hardship on any.

Our website, www.ncbeekeepers.org, has a much more detailed and eloquent description of this effort and instructions as to how to donate. I will mention one very simple method and that is the \$10 Dollar Challenge. Just add \$10 (or preferably more) to your annual due's renewal. One-time gifts, gifts-in-kind and five-year pledges should continue to be strongly considered.

We resurrected our honey competitions at last year's summer conference after a break due to Covid with

moderate success. Over 70 items of honey, cooking with honey and bee-related art were entered. These competitions foster keen competitiveness as well as general entertainment for attendees. Bring your entries and join in!

Although the publication date of this edition may be after the spring conference, I will mention the black jar competition planned for that event. The format for this competition will return to the one used at New Bern, Summer 2020. This is an easy and fun contest to enter. Simply bring your honey to the conference and check it in. Rules for entry and details are available on the website.

Appropriately, with new emphasis on our contests, an effort is underway to standardize rules and judging for all our recognized NCSBA competitions.

I have suggested to you some beekeeping-related opportunities to replace New Year's resolutions. My list is certainly not inclusive so look for areas that offer a new beginning or fresh start for 2023!

At risk of redundancy, please consider support of the endowment initiative and plan to attend our 2023 conferences.

Bee on board!



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BeeFeeders



North Carolina Pollinator Plants

by: Ulana Stuart, NC State Extension Master Gardener Volunteer

I have wanted to write about the North Carolina native wildflower biennial fernleaf phacelia, (Phacelia bipinnatifida) for some time in this column. Fernleaf phacelia is a beefeeder that grows well in morning sun or part shade. I started out with just a few plants and it expanded to an extensive groundcover in my front yard for years. Once it is established, fernleaf phacelia will reseed and spread into a groundcover that blooms the entire month of April. I don't recall where I got those first few plants and I have not been able to find any seeds for sale. I have only found fernleaf phacelia available as expensive mail-order plants. I hope to find and report on a seed source sometime in the future.

I recently became aware of another species of Phacelia plant that has some NC farmers and beekeepers all abuzz. It is an annual called Lacy Phacelia, Blue Tansy, or Bee Phacelia (Phacelia tanacetifolia). I did some research and found it is used outside its native range of the southwestern US as an annual cover crop, bee plant, ornamental or in meadow seed mix. East coast seed suppliers are promoting lacy phacelia so North Carolina growers can easily find seeds. It takes full sun and is somewhat resistant to heat, drought, and deer.





Lacy Phacelia, Phacelia tanacetifolia Lacy phacelia attracts other beneficial insects such as our native hoverflies that eat aphids. Its long, unfurling inflorescence of nectar-rich flowers open in sequence which gives it a longer flowering period of about 4-5 weeks attracting honey bees, bumble bees and other pollinators. It supplies a healthy amount of dark blue pollen and is one of the highest producers of nectar that can be grown.

Depending on the NC region and temperature, lacy phacelia planting can start from late February to late March. It is a rapid grower that ranges from 1 to 3 ft tall with an equal spread of attractive blue-lavender blooms and feathery leaves. Lacy phacelia does not like wet feet, so its planting location requires some drainage. According to the seed companies I contacted, some reseeding will occur naturally in the following year.



Mexican sunflower, Tithonia rotundifolia

Mexican Sunflower (Tithonia rotundifolia) is an annual plant native to Mexico and Central America that can be started from seed. It is low maintenance, heat, and drought tolerant, and able to survive poor and dry soil. Mexican sunflower grows best in poorer soils that don't contain lots of organic matter. They do need some drainage, so no "wet feet". It is fast growing and reaches 3 to 6 feet in height, producing a lot of showy orange-red blooms that measure up to 3 inches wide. Dead-heading the blooms will prolong the bloom season which runs from the beginning of summer and lasting well into autumn. They will produce a good amount of nectar and provide dark yellow to orange pollen pellets. Finally, Mexican sunflower is deer resistant.

This article is the first of a series on planting annuals for bee feeding. Lacy phacelia and Mexican sunflower check off many plant-grower boxes for me: long bloom times, drought resistant, deer resistant, and the Mexican sunflower grows well in pots. I'm looking forward to trialing out more annuals soon.

For more information on gardening use the North Carolina Extension Gardener Plant Toolbox at plants.ces.ncsu.edu.





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In the Apiary: Spring2023

by Shirley Harris & Bridget Gross Apiary Inspectors, NCDA&CS

Happy Spring, Everyone! It's the time when many new beekeepers are going to receive, or have already received, their nucs or packaged bees. We are also checking our bees to see who survived winter. We hope all your colonies made it! We should also be feeding our bees if needed, checking for healthy brood, removing deadouts, splitting colonies and preparing to catch swarms. Spring is an important time to check your colonies for varroa mites using a sugar shake or alcohol wash and treat if needed. If you're not sure how to check for mites, visit the Honey Bee Health Coalition website at https://honeybeehealthcoalition.org and consult their Tools for Varroa Management guide for step-by-step instructions. Colonies that measure above the 2-3% threshold should be treated with one of the registered products available at beekeeping supply stores. Products containing amitraz, thymol, essential oils (eucalyptus, camphor, menthol) and formic acid are good choices for spring.

Remember, most treatments need to be removed from hives at least six weeks before the honey flow, so check for mites early and treat if needed. Most importantly, follow the label instructions that are included with your chosen product exactly as written! Improper or off-label application of products is prohibited and may lead to the development of mite resistance.



Spring Build Up

Brood rearing ramps up around mid-February and early March when spring blooms are starting to reveal themselves. The rapid population growth of colonies in spring often leads to swarming. Swarming is essentially reproduction at the colony level, where a single colony splits into two or more colonies. Swarming is highly beneficial to the bees, but not to the beekeeper! When a colony swarms, it usually takes with it more than half the bees in the colony. Those bees represent the awesome workforce that could have made surplus honey for us.



Powerful Spring Colony

Large colonies at risk of swarming could also be divided into splits by the beekeeper. Splits are essentially artificial swarms created under controlled conditions.

Spring is the height of swarm season so taking measures to prevent swarming should be top priority.



Overcrowded Conditions

NC Bee Buzz - Spring 2023

Therefore, beekeepers should approach swarm season by asking themselves, which would I like more of, bees or honey? If you would like to have a nice harvest of honey, the key is to keep the bees in the hive by offering them more room in the form of extra hive boxes. Sounds easy, right? Add another hive box when the top box is about ³/₄ full. Don't add boxes too early, before there are enough bees to protect the added space. However, don't wait too long as crowding in the brood nest can trigger swarming. It's a delicate balance!



Swarm Season

If you want more colonies, spring is the best time to create splits from large colonies after the cold snaps because we don't want to have any chilled brood. Then decisions, decisions! Do you plan to allow the splits to raise a new queen themselves? If so, are there enough drones flying from other colonies with which the newly raised queens can mate? Or do you plan to provide each split a purchased queen from the List of Dealers Authorized to Sell Bees in NC (see

https://www.ncbeekeepers.org under Resources). The more diversity in the gene pool, the healthier the queen will be.

Colonies need an abundance of food to help the population grow during the springtime. This food could come naturally from plants in the area, but most of us will need to supplement our bees with food in late winter/early spring as most floral resources aren't abundant until mid- to late-March and often colonies have run out of their winter stores by now. This food can come in the form of sugar syrup and/or pollen or pollen substitute patties (for stimulating brood production). While supplemental feeding is important, too much can lead to a rapid population growth that results in swarming. We need to strike a balance where our bees have enough food, but not so much that it triggers swarming.



Tulip Poplar Bloom

Checking for healthy brood is also important. You want to be sure colonies do not have any bacterial diseases such European foulbrood (EFB) or American foulbrood (AFB). Indicators of EFB include yellowish brood, brood that is not sitting down in the cell, and brood that smells bad. Indicators of AFB include punctured cells, sunken in cells, brood that ropes out, and a bad smell. If you think you have AFB, that is an immediate call to your inspector! Healthy brood is pearly white, does not have a smell, sits down in the cell, and has brood food around it. Brood food is the milky-white substance surrounding the brood.



Healthy Brood

Spring is also a great time to evaluate the condition of the comb in your colonies. How old is the comb? Marking new frames with the year is an accurate way of keeping track of the age of the comb. Frames of drawn comb older than a few years should be traded out with frames containing new foundation so that new comb can be built but don't trade out all the frames at once! Switch out a couple of frames of old comb in each box every spring, to allow for fresh comb.

May we all have a happy spring with productive colonies and plenty of honey in our supers!

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The NCSBA Master Beekeeper Program is completely run by volunteers, most of whom get no recognition at all. If you think the two old guys who pass out tests at the NCSBA Conferences are "it", not only are you very mistaken, you should seek out a few key people and give them a long-overdue "thank you." Those people are the Chapter MBP Coordinators.

Every NCSBA Chapter should appoint someone to serve as their MBP Coordinator. This person must be a member in good standing of NCSBA and at least Certified in the Master Beekeeper Program. They should have adequate time to devote to the entry of records online, particularly following bee school season but also ongoing during the year as people complete Certified Practical Exams.



Even though every chapter should have a designated MBP Coordinator, only 56 (of 83) actually do. If your chapter is one of those currently unserved, or if your chapter MBP Coordinator is swamped with work and needs help, step up and volunteer. You'll earn a MBP Service Credit (#3), but don't do it for that reason. That would be putting the cart before the horse. The MBP doesn't need people who serve in order to get points and recognition; we need people who serve in order to help their community and fellow beekeepers. It is those people we want to encourage and recognize.

What does a MBP Coordinator do? Their role is to connect the chapter with the NCSBA MBP Committee. As such, they:

1. Serve as liaison between chapter members and the Committee, answering everyday questions about MBP requirements, etc. and contacting the Committee with questions that are more complex.

2. Work with the chapter's bee school committee with respect to conducting Certified Written Exam testing at the conclusion of their bee school. It is the MBP Coordinator's role to request the current Written Exam from the Committee and ensure that it is administered according to MBP rules, with no cheating or "teaching the test". The Coordinator is the front-line assurer of the integrity of the test results. If that responsibility isn't taken seriously, the testing and the subsequent certifications are a worthless mockery of what we are trying to accomplish.

3. Enter the Written Exam results into an online record-keeping system. Full instructions are provided. If someone is computer-savvy enough to fill out an occasional Doodle Poll online, they should be able to navigate the MBP system.

4. Enter Certified Practical Exam results when that exam is completed. Typically, Practical Exams are administered throughout the year and the results trickle in. The Coordinator is expected to enter them in a timely fashion.

5. Submit an applicant's record when both the Written and Practical Exams are successfully completed. At this point, all that is required is to click on the <Submit> button.

The primary role of the MBP Coordinator is related to Certified-level testing. However, with our new on-demand testing approach, a chapter can request a local Special Testing Event that covers all levels of tests (except those requiring in-hive assessments). The MBP Coordinator should be a key player in requesting and facilitating these Special Testing Events.

In addition, an ideal Coordinator encourages continuing education within the chapter, such as conducting MBP Study Groups for beekeepers who are trying to advance in the Program. The Coordinator doesn't have to be the person who leads Study Groups, but he/she should work closely with them to help assure success.

I cannot emphasize enough that all MBP Coordinators are volunteers. As such, the only reward they get is your thanks. Find out who your Chapter MBP Coordinator is, seek them out at your next monthly meeting and give them a warm and sincere expression of gratitude for their otherwise thankless service. Without them, the Master Beekeeper Program cannot function.



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Wolfpack's Waggle: BUILDING A BUILDING: STEP 2 – PRELIMINARY DESIGN IDEAS by Dr. David Tarpy NC State Extension Apiculturist

In our last column, we went over the lengthy process of selecting a site for the new Apiculture Facility on the Lake Wheeler Farm Complex just south of NC State's campus in Raleigh. After about 9 months of discussion, negotiation, and political wrangling, the committee finally settled on a location—in front of the former (now condemned) building right off Inwood Drive (site 3A on the map in the previous Bee Buzz). Now the fun part can begin!



The architectural firm bilboa (the lower case intentional as part of their branding), headed by the husband-wife team of Ian and Erin Patrick, has been a fantastic partner in this part of the process. They first led a brainstorming session to identify the general needs of the new structure with members of the NC State Apiculture Program (namely Jennifer Keller and myself), representatives of the NCSBA, and others in the Facilities Division at NC State. It was immediately clear that we needed to incorporate elements into the building design that addressed each of the three main missions of our program: Extension & Outreach (working with beekeepers and the general public, respectively, on training and education about honey bees and pollinators), Research (hypothesis testing and discovery of issues pertinent to honey bee health and welfare), and Instruction (formalized teaching at NC State, primarily at the undergraduate level). Together, this meant having a large meeting space for trainings and workshops, office space for students and other researchers, laboratory space for empirical testing, and support space for beekeeping and other equipment.

NORTH CAROLINA STATE UNIVERSITY APICULTURE PROGRAM

Armed with the basic information about program needs, biloba then sketched out half a dozen or more initial concepts, floor plans, and renderings. With further discussion and refinement, they focused on two design types that incorporated all the necessary elements (Figures 1 and 2). It is important to note, however, that the process is still ongoing, and the design is still flexible at this point in time, but we are starting to narrow things down to the important elements. As you can see in both examples, there is a foyer immediately inside the front entrance for educational displays, a large open seminar room for extension and instructional trainings, an office suite for students and our apiculture library, a laboratory with several ports for observation hives, and ample support space for beekeeping including a spacious honey extraction room. One aspect that we thought was particularly novel was an "education hive" deck-in essence a screened-in porch where large groups of students, beekeepers, or school kids could gather then have a beehive right outside so that they can get up close and personal without the worry of getting stung.



While the structure and content of the facility is still in flux, there has also been a lot of back-and-forth on the placement of the potential building on the proposed site (Figure 3). This is where the environmental engineers and designers come into play, looking at the slope, topography, existing trees, and overall landscape. This is no small task, as one downside to this location is a small apartment immediately adjacent housing the family of the director of the Dairy on the Lake Wheeler Farm. Nonetheless, there should be ample space to place the new building, including a driveway, parking, and even the potential for a pollinator garden.

We still have a lot of work to do, and many decisions to be made, but we are finally making some tangible progress on the facility structure itself. We look forward to continuing this process, with the timeline goal of having a final rendering by mid-summer. Again, we thank the NCSBA and everyone who have worked behind the scenes to make this happen, and we will all be excited to see the final structure up and running!





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Granville and Vance County Beeks headed north to the Heart of Virginia 1st Annual Beekeepers Conference

A group of beekeepers from Granville County Beekeepers Association (GCBA) and Kerr-Tar Beekeepers Association (KTBA) made the relatively short drive to the historic bustling college town of Farmville, Va. for a delightful, educational, jam-packed, one day event. The Rotunda, a Jeffersonian style building on the Longwood University, was the venue.

The Heart of Virginia Beekeepers Association put together a very well-structured day with NCSU's own Dr. David Tarpy as keynote speaker, with various breakout sessions on relevant, timely topics.

Ample vendors displayed their beekwares and supplied many great door prizes.

We give a much-needed congratulations and thank you to our neighbors to the north for including us.

We would encourage our NC neighbors to add this to next year's beekeepers' educational opportunities.

L to R: Don Faulkner, VP GCBA; Dr. Andrea Faulkner; David Randolph, Sec. GCBA; David Short, Pres. KTBA; Wendy Brewer; Bob Holtaway, Exec. Cmte. Dir. GCBA; and Diane Holtaway

Volunteers Needed at NC Zoo for 2023 Honey Bee Exhibit!

by: Phil Uptmor NCSBA Zoo Coordinator

The North Carolina Zoo Honey Bee

Garden exhibit was opened in 2009 by a cooperative effort of the NC Zoo, NC Zoo Society, North Carolina State Beekeepers Association, NC Farm Bureau, and Syngenta, to educate the public about our beloved honey bee. Beekeepers had been conducting informal demonstrations at the NC Zoo for many years, but it wasn't until 1994 when three members of NCSBA – Dr. John Ambrose, Bill Sheppard, and then NCSBA president Irvin Rackley – discussed the possibility of partnering with the NC Zoo to provide an observation hive and beekeeper volunteers on weekends in a more systematic way. This beautiful exhibit is the result of many volunteer hours and a great deal of fundraising.

The success and popularity of the Honey Bee Garden exhibit has been very good the past 13 years. Almost 200 beekeepers have volunteered their time and services for over 25,000 hours. The exhibit is very popular with zoo guests! There are requirements for zoo volunteers and additional requirements for beekeeper volunteers. Zoo volunteers must maintain an active NCSBA membership, be able to talk to guests about honey bees, have a basic understanding of pollinators in general, speak about the importance of pollinator plants, and be able to explain the activity seen in the observation hive.

There are several benefits to beekeeper volunteers, too. The Zoo allows beekeepers to sell their honey under specific conditions and many guests enjoy buying local North Carolina honey. Many beekeepers have initially volunteered at the zoo to gain credits for the NCSBA Master Beekeeper program. However, many of these beekeepers return even after their service credits were fulfilled because of the satisfaction and enjoyment volunteering in the Honey Bee Garden brought them.

The training classes for beekeeper volunteers will be held this spring. Start your process by completing the registration form on the NC Zoo's website: (https://www.nczoo.org/contact/volunteer_application).

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Volunteering with NCSU Honey Bee Lab

by: Kim Guillemette, NC Journeyman Beekeeper

The North Carolina State University Honey Bee Queen and Disease Clinic was established to provide quality assurance testing for queen bees, pathogen screening, genetic analysis for Africanization and customized experimentation. Focusing on basic science and field research, the clinic works to solve practical problems with scientific solutions. Although many may not consider the need for local researchers a necessity, the presence of this extension service is a great benefit to NC beekeepers. As part of the Master Beekeeper Program, beekeepers can volunteer to work in the lab, in the research bee yard or design and execute research in partnership with NCSU honey bee researchers.

Lauren Patruzo, Genetics Research Technician

The opportunity for a beekeeper to participate in honey bee research is a unique learning experience and one that I recently took advantage of at the Thomas Hall honey bee lab on the campus of NCSU. With the semester winding down as the holiday break approached, it was the perfect time for me to visit the lab to assist Lauren Paturzo, Genetics Research Technician. Lauren recently joined Dr. David Tarpy's team to focus on the Disease Clinic. Lauren previously worked at the University of Florida and is immersing herself in all things honey bees. With Lauren's teaching and oversight, I felt up to the challenge of learning a few techniques at the bench.

To begin my time in the lab, I reviewed safety training on a computer. The safety training covered sting safety (because even dead bees can sting), personal protective equipment, wash stations, location of a first aid kit and general layout of the lab. Short and sweet, I finished the training in just a few minutes. It is important to note that I do not have any special training to work in a lab. Many years ago, I took classes with labs in college and I have some limited exposure to specimen collection in my profession. By and large, the only necessary qualification was an ability to follow simple instructions.

NCSU Honey Bee Lab in the Thomas Building

My goal, described by Lauren, was to prepare samples for extracting RNA from bees taken from different colonies before and after a treatment condition. Each step of the process had a detailed protocol or set of instructions. With forty samples in the pre-treatment group and forty samples in the post-treatment group, I rolled up my sleeves, put on my gloves and got started.

Containers labeled for processed honey bee samples

To begin, I labeled large and small containers for each sample in the pre-treatment group and the post-treatment group. Both containers and lids were carefully labeled with the colony number and the point during the study when the bees were collected. I measured out five grams of frozen bees for each of the large containers and stored the remainder back in the -80° freezer. The homogenization protocol was next with the 5 gram samples placed in a mortar, covered with liquid nitrogen, ground to a powder and spooned into the small containers. So far, so good. The next step was a protocol named "RNA extraction with Zymo Direct Zol Miniprep". This protocol involved working under the lab's fume hood. A fume hood is a work area that protects a worker by venting toxic vapors, gases or dust. The ground honey bee samples were processed under the fume hood with several chemicals, buffers and washes that extracted the RNA from the tissues and isolated it for additional analysis.

Pretreatment samples of honey bees kept frozen on dry ice

At this point, I had worked fifteen hours in the lab and ended my time with Lauren. In truth, the time flew by and I enjoyed being able to contribute to lightening Lauren's load while learning how to be junior technician. I got to work with the centrifuge, pipettes and liquid nitrogen which was very cool (pun intended) and I can't wait to hatch my own research ideas.

The new NCSU Apiculture field research lab is slated to begin construction in the fall of 2024 at the Lake Wheeler Research Farm Complex in Raleigh. Plans

Transferring a chemical with a pipette into a honey bee sample under a fume hood

include a new lab that will be better equipped and will mean more opportunities for beekeepers to interact with researchers through advanced bee schools, hands-on field days and workshops. The point of connection between researchers and beekeepers is an important one. Researchers benefit from the practical observations made by beekeepers and beekeepers can look forward to best practices brought about by research.

Kim Guillemette is treasurer of Beekeepers of the Neuse. Kim and her family live in Pikeville, NC operating as Bartlett Bees Apiary & Farm. Photos: Guillemette 2022

NCSBA Library Update:

The library circulation data show that three DVDs were checked out this quarter.

It's swarm time and there are honey bees to add to your apiary! Check out how to do it.

That's the report for this quarter.

If you have a favorite DVD, if it is still available on DVD, and you think it would make a good addition the NCSBA Library collection, please let me know at either contact listed below.

Also, due to some recent concerns, patrons will be limited to checking out one DVD at a time.

Bob Kemper, NCSBA Fred Deer Librarian

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Considerations on the Use of Oxalic Acid for Varroa Mite Control

by: Don Hopkins, Apiary Inspector Supervisor NCDA&CS Jennifer Keller, NCSU Apiculture Technician

Oxalic acid (OA) has become one of the most discussed treatments for varroa mite control. When used properly, OA is inexpensive and reasonably effective at keeping mite numbers low. Current methods of application are only effective during broodless periods, which in North Carolina is usually a brief period due to our mild winters. New application methods are currently being tested with hopes of extending that window of opportunity.

Many of you may have heard of OA pads as a slow-release method of administering oxalic acid. The hope is that this method could be used any time of the year, like some of the other mite control products currently available.

The product was first developed in California and most of the subsequent research has been performed there with some promising data. Results of the trials in California have shown evidence that there is some level of mite control using oxalic acid pads. Although no official trials have been done here in NC, anecdotally the results have not been nearly as convincing. It is important to understand that the mode of action of OA is still not known. It is not clear why the results of these pads are not showing as much control here in NC, but the environmental differences may be one explanation. California typically has low annual rainfall and very low humidity while NC has a much higher rainfall and extremely high humidity for much of the year.

Figure 1: Dribble Method

Some states are trying to get the approval to register these OA pads as a legal manner of treating colonies. Currently, North Carolina does not recognize this method as being consistent with the label. According to the label, there are three legal ways to apply oxalic acid: dribble method, vaporizer method, or treating a package. Any other method of administering OA is considered off label and is not acceptable. Perhaps the easiest method for beginners is the dribble method. OA is mixed with sugar syrup and dribbled over the cluster of bees on a cool winter morning before they begin to fly (Fig. 1). This method requires no special equipment, so it is inexpensive and much safer than vaporizing since there is no exposure to OA vapor. The vaporization method requires a special device placed in the hive that heats two grams of oxalic acid crystals to the point where it vaporizes equally throughout the hive before it dissipates (Fig. 2). The third method involves treating a package using a similar method to the dribble method. In North Carolina, these are the only labeled ways to apply OA to colonies.

Figure 2: Vaporization Method

All three of these methods are effective in lowering the mite count in a colony if done properly and at the right time. For most of NC, that time would be December or January when there is little to no brood. After that, brood-rearing begins to increase, and since OA does not penetrate wax, it will not affect mites under cappings. By time this writing is published, colonies should be showing signs of large brood nests, so OA will not be effective this time of year.

As with any other varroa mite control methods, it is important to verify its efficacy during and after treatment. Dead mites on a sticky board aren't accurate enough since it does not tell you how many mites survive. It is critical to follow up treatment with either an alcohol wash or a sugar shake to determine post-treatment mite levels. As a cautionary note, frequent and repeated or extended applications of any product may speed up resistance to that product.

It is important to have healthy bees before the honey flow as most treatments should not be used while honey supers are in place. Determine your mite levels now and formulate a plan to keep these levels low. If you have any questions, please contact your local apiary inspector.

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"Real NC Honey" and the Certified Honey Producer Program by: Debbie Griffith, NC Master Beekeeper, CHPP Chair

Take a stroll down the grocery store aisle and peruse the honey offered for sale. It's eye-opening – and a little disappointing. Prices range from \$5 squeeze bears to \$8 pint jars to \$12 quart jars with labels proclaiming "raw", "local" (from the Midwest), "organic" and "Grade A." No wonder the average consumer is a bit overwhelmed and confused! Perhaps that's why we, as beekeepers, get questions about why our local honey at the tailgate market costs a bit more than at the local grocery.

We all know the reason: that grocery store honey is probably not 100% real honey and may have been adulterated with corn syrup, rice syrup or other sugars that are much cheaper to produce than real honey. An analysis by the Honey Authenticity Project, an association of activists and industry representatives, estimates as much as a third of all honey offered for sale nationally is fake or adulterated. Food Safety News has declared that honey is the third most adulterated product, right behind milk and olive oil.

But why adulterate a wonderful natural product? The short answer is greed. As people become more aware of the benefits of honey, including its therapeutic and healing properties, the demand for honey has increased substantially in the past 20 years. People scramble to "Buy Local" in hopes that the local pollen it contains might offer relief to allergy sufferers. So, unscrupulous merchants have taken advantage of the higher demand. Because there is no federal regulatory standard for honey, millions of gallons of honey produced in other countries flow into the U.S., much of it cannot be accurately traced to its source, and much of it has been cut with corn or rice syrup. Lacking enforcement, merchants can price honey-flavored syrup far below what we as beekeepers can offer for our real honey.

The numbers don't add up, and the law of supply and demand is out the window.

Consider this: Records from the USDA show that honey consumption in the U.S. has increased by more than 40% in the past 20 years. At the same time, the number of bee colonies has remained stable or even decreased, and the productivity of those colonies has declined quite a bit. You'd think that increased demand and declining supply would mean a bonanza for beekeepers. But no. Competition with low-priced fraudulent honey products, much of it imported from abroad, is probably the greatest economic threat to beekeepers today – more than varroa, CCD and the rising cost of equipment and labor.

In addition to the threat to the economic futures of beekeepers, fake honey can be a very real health risk, as well as reduce the trust of consumers in a valuable product. And its taste just doesn't compare to our real N.C. honey.

The National Honey Board, an industry-funded promotion group that educates consumers about the benefits of honey, is working to encourage the production and marketing of wholesome and trustworthy honey. This group also is advocating for stronger testing solutions to detect fake honey through source tracing and testing of honey offered for sale in the U.S.

But the fake honey entrepreneurs have found ways around testing technologies. According to the National Honey Board, there is no single universal analytical method capable of detecting all types of adulteration. But a combination of the available tests offers the most effective detection.

Some of the current tests include:

-13C Stable Carbon Isotope Ratio Method (SCIRA) -This test detects only corn or sugar cane-derived syrups (C4 sugars). It cannot detect syrups made from beets, rice, wheat, or other plants (C3 sugars).

- 3C Stable Carbon Isotope Ratio Method paired with a Liquid Chromatograph or EA/LC-IRMS – This method can detect adulteration with C4 sugar syrups and can indirectly detect adulteration with C3 sugar syrups, though with less sensitivity than for C4.

-Nuclear Magnetic Resonance (NMR) works by exposing honey samples to a powerful magnetic field, causing the atoms to "resonate". This unique honey fingerprint is compared with samples in a database of 18,000 samples and can detect numerous added sugars. This is offered by a private lab in Texas, Siratech.

-Liquid Chromatography-High Resolution Mass Spectrometry (LC-HRMS) LC-HRMS is the most recently developed method and is not yet in widespread use.

As you would expect, these tests are expensive. The National Honey Board continues to evaluate these tests and more detailed information is available on its website.

In the absence of federal regulations, extensive and expensive testing, what can we beekeepers do to play a small part in ensuring quality, unadulterated honey for our customers and to restore faith in authentic honey?

One solution offered by North Carolina State Beekeepers Association (NCSBA) is the Certified Honey Producer Program (CHPP).

CHPP traces its roots back to 2008 and was the brainchild of the late Dr. John T. Ambrose, former president of NCSBA and long-time faculty member at NC State University. Ambrose also was known for having developed the NCSBA Master Beekeeper Program.

According to Rick Coor, current first vice president of NCSBA, Ambrose was worried about the lack of regulations regarding the sale of "real" NC honey. Coor remembered, "Dr. Ambrose once said there was more sourwood honey sold than is produced, and he was bothered by beekeepers with just one or two hives who never sold out of honey."

Coor said Ambrose's original idea was to adopt a statewide honey standard (2010) that would be enforced by the North Carolina Department of Agriculture. But due to legal complications and the inability to take on enforcement activities, CHPP evolved into a voluntary program and is now the official honey marketing program of the NCSBA. Its hallmark is beekeeper integrity to produce and market real NC honey and to educate consumers about the value of our honey.

Any current member of NCSBA is eligible to join CHPP

for a fee of \$25 for a two-year membership. Membership in CHPP allows beekeepers to display the "Discover the Goodness" and "Certified" labels that advertise the program.

To be approved, the beekeeper must agree to a number of best practices, as well as have a reference who will vouch for their integrity as a producer of North Carolina honey. The best practices encouraged by CHPP go a long way toward ensuring that the honey that is "certified" by CHPP is wholesome, authentic, and produced by a trustworthy beekeeper in North Carolina.

Some of those best practices include not engaging in deceptive marketing or advertising, accurate labeling, selling only 100% N.C. honey with no additives or flavorings, and selling only honey that is produced by beekeepers within North Carolina (no honey packers/resellers are allowed).

Participants also agree not to feed sugar or corn syrup during periods of honey flow, to limit heating of honey to 110°F or less, to sell honey in its natural state, minimally filtered to remove debris and wax particles only, and to maintain sanitary and healthy extraction facilities as described by the state Department of Agriculture.

All members of CHPP can elect to have their apiary and sales locations displayed on the North Carolina Honey Locator Map, which is found on the NCSBA website. They also are eligible to purchase small labels that show their honey is "Real North Carolina Honey" certified by the NCSBA. These stickers have been consistently shown to increase sales and offer beekeepers an opportunity to explain the benefits of authentic honey.

Will the CHPP program solve the continuing confusion over whether the honey that consumers purchase is the real deal? Probably not entirely, but thanks to this voluntary marketing program, beekeepers can help educate consumers and instill more trust in honey as a wholesome commodity.

For more information about CHPP and a link to join, go to https://tinyurl.com/ncsba-chpp

Debbie Griffith keeps bees at Whippoorwill Hill Apiary in Avery County and is a former president of Toe Cane Beekeepers. She is chair of the NCSBA Certified Honey Producers Program and is a NCSBA Master Beekeeper.

HONEY LABELING GUIDELINES

Marketing your precious honey can be an art unto itself, and although that marketing begins with a beautiful, wholesome product of the hive, an attractive, accurate and informative label can ensure return customers who trust your honey.

Before you begin designing that wow-factor label, consider what content is required by law before you find the perfect typeface and bee-themed illustration.

There are both federal and state requirements for labels on jars of honey. The Certified Honey Producers Program (CHPP) has a few additional guidelines as well.

The Federal Law

The federal Fair Packaging and Labeling Act (FPLA), which is administered by the Federal Food and Drug Administration, requires that all food products must have a label that contains the following:

- The identity of the product (HONEY);
- The net weight (excluding packaging) of the product in pounds/ounces and grams;
- The name and address of the producer of the product.

An ingredient statement is not required unless you have chosen to add flavorings, spices, or other additives. In that case, you must include those additives in an ingredient statement.

A federal nutrition statement is NOT required for most honey producers in North Carolina if:

• The honey is offered for sale by a person who makes direct sales to consumers and who has annual gross sales/business done of not more than \$500,000;

• The honey is offered for sale by a person who has annual gross sales/business done in sales of food to consumers of not more than \$50,000;

The product does not bear any nutrition claims;

• The company producing honey employs fewer than 100 full-time equivalent employees and fewer than 100,000 units of product were sold in the US.

North Carolina Rules

The State of North Carolina adds a few additional requirements to the Federal labeling rules by way of the 1984 Memorandum of Understanding between the N.C. Food and Drug Protection Division and the Plant Industry Division of the N.C. Department of Agriculture.

The N.C. rules say that honey labels must include:

• The name honey. The floral source (sourwood, clover, etc.) CAN be part of the name if the product contains a significant amount of pollen from that flower.

- The name, address, and zip code of the manufacturer, packer, or distributor
- The net contents in the lower 30 percent of the label expressed in both pounds/ounces and grams.

If you participate in the NCSBA Certified Honey Producer Program, it is suggested that you include a few additional facts to ensure that the consumer is fully informed about your honey.

The additional guidelines for "Certified" North Carolina honey include:

• Observe the minimum labeling requirements set forth by the N.C. Department of Agriculture and Consumer Services (as above)

• Display a cautionary statement about not feeding honey to infants less than one year old, as advised by the American Academy of Pediatrics. This is usually a separate label not a part of your primary label.

- Include the floral source of the honey if known.
- Do not include the term "organic honey" to describe certified honey.

Once you've satisfied all those requirements and guidelines, you can begin designing your label including your apiary name and "brand", and perhaps an attractive illustration. There are many companies that offer label templates that can be customized to your specifications. Bee supply catalogs also offer pre-designed labels and templates.

The Raising of a Bee Barn Beekeepers of Chowan County

by: Elizabeth Towe President Beekeepers of Chowan County

Particularly common in rural 18th-

and 19th- Century North America, a barn raising, also historically called a "raising bee" or "rearing", was a collective action in a community, in which a barn was built (or rebuilt) collectively by members of the community.

Since 2019 Beekeepers of Chowan County (BoCC) has maintained a small apiary for hands-on teaching beekeeping; a Summer 4-H Beekeeping Day Camp was added in 2021. Three times in as many years, our apiary had to be relocated at the end of each season. In late 2021 the use of a centrally located plot of land just outside Edenton was generously granted to us by husband & wife BoCC members. An Apiary Committee was formed in 2022 to maintain the colonies and conduct field days.

Beekeepers of Chowan County Apiary Committee from left to right - Marvin Hare, Tiffany Hirst, Jamie Williams & Ron Cummings

As the number of hives grew, it became apparent we needed a place to store equipment and supplies that were scattered among members in two counties, as well as a place to repair hive equipment and expand field days. The search for affordable on-site storage proved challenging with our small club's limited funds. After several months of examining options, it became clear we could not afford a ready-made building.

BoCC members solved this problem by turning the need for a barn for the apiary into a reality by designing and building it ourselves. When news of the project was announced, members looked through their own barns, sheds, garages, and attics to find anything they could donate to the cause. From a skid foundation to windows, cabinets, lumber, shingles, and more, were welcome donations as the design for the building began to take shape. The Club is fortunate to be in such a caring and giving community. Paint, flooring, and other materials have also been donated for our project.

BoCC is particularly grateful to be part of the North Carolina State Beekeepers Association (NCSBA) where relationships & friendships begin over beekeeping. I had a chance meeting and instant bonding with another Chapter's President - we share ideas and solutions to issues, encourage, inspire, and support each other in our new leadership roles. Upon learning of the barn building project at this year's summer meeting, 5 County Beekeepers Association (5CBA) contacted me to ask if they could help, as part of their mission "to support and encourage other bee clubs." A letter detailing our club's teaching apiary history, where we were in our barn building process, and our most pressing need for its completion – funding – was sent to association president Dianne Saunders. She presented our letter to 5CBA's membership and, as a result, they approved a generous donation to help offset the final expenses for the building completion. BoCC's Executive Committee, Apiary Committee and members were overwhelmed upon hearing a 5CBA member made an additional personal donation to our project. In her letter accompanying the check, Saunders noted "We know the growing pains of being a small new bee club...best wishes for your continued growth."

NC Bee Buzz - Spring 2023

BoCC held Saturday morning fields days from July through October to bring the barn building project to completion. During construction, we were fortunate that several members and their spouses were well versed in carpentry skills and had the tools and time needed to get the job done. Amazingly, when a particular skill or tool was required, someone with that skill or tool showed up the very day it was needed. BoCC hopes to add a lean-to in the spring to provide shade and workspace during inclement weather, and the long-range plan is to add electricity and water to the site. Fundraising for the addition has already begun, as BoCC sold all its very first honey harvest from the apiary at the recently held Chowan County Regional Fair.

As the saying goes, "Necessity is the mother of invention." What started as a need to keep supplies and equipment centrally located near our training apiary has resulted in a functional, weather-resistant workshop, storage facility, learning center and more. We could never have bought the building we built. In Saunders' letter she noted that the generosity of 5CBA's members caused "a legacy of sharing knowledge, honey bees, encouragement, and friendship" within their association. Our barn raising project, too, has done much more than build a useful structure. It has brought our members together to work on a common goal, allowed new relationships to develop and older ones to grow. We have had a really good time collaborating, learning, and teaching construction skills, about honey bees, and everything in between in those four hours every Saturday morning.

BoCC's Executive Committee, Apiary Committee & members would like to take this opportunity to sincerely thank 5 County Beekeepers Association's Executive Committee and membership for their support and encouragement when it was most needed.

Bee barn, honey house or bee shack — whatever you choose to call it; just like those barns from days gone by — it was built by community: a small rural town community & a bee community. *Photos courtesy BoCC*

NC Bee Buzz - Spring 2023

Silent Auction at the Spring Meeting: Anything Goes!

by: Pat Weisbrodt, NC Master Beekeeper

Calling all artistic beekeepers to create one-of-a-kind donations to our silent auction in March. All other beekeepers are invited to donate anything from bee products to plants for the pollinators. Chatham beekeepers challenge all chapters to donate one or two items worth at least \$15.00. Click on the URL below. The signup sheet will let us prepare for the number of entries.

Thanks to all donating and those that will bid on items. The Chatham Chapter will donate an observation hive, an encaustic, books (donated by the late Judy Pick), the bear beekeeper, and more. See you at the meeting!

More info at: https://tinyurl.com/NCSBA-Auction

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Kamon Reynolds

Dr. Morgan Roth

Master Beekeeper Program Testing for all levels Saturday morning Saturday, March 11. You must be registered for the conference to attend.

Black Jar Honey Contest - See contest rules and regulations on the website. The deadline for submitting entries is Noon, Friday March 10.

Silent Auction hosted by the Chatham County Beekeepers. The net proceeds to be donated to the fund for the endowed Professorship in Apiculture at NCSU.

Honey Judging Workshop Thursday, March 9. A separate fee and registration are required.

Visit www.ncbeekeepers.org For Details!