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# North Carolina Bee Buzz Spring 2018



#### North Carolina State Beekeepers Association

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**Spring Conference Info** 

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ON THE COVER: Honey Bee on Buckwheat Greg Sides Richmond County, NC

#### NC Bee Buzz - Spring 2018

# 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.

Bee Buzz Subscriptions: Please direct subscription questions and address changes to membership@ncbeekeepers.org

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

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

#### **NCSBA Communications - Stay informed!**

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

10/12/17 Beehive Grant Fund Application Period Starts October 16
10/23/17 2018 Membership Form & Card-return Policy; New Membership Coordinator, Phone Number & Address
10/29/17 Wolfpack Waggle
11/7/17 Bee Buzz Request for Photos
11/7/17 Posting Bee School Information on the NCSBA Website
11/17/17 Update Your Chapter Contact's Email Address for 2018
11/27/17 NCSBA Spring Conference: Hotel Deadline and Advanced Registration
12/4/17 MBP Quizzes for December will be Frequently Missed Questions
12/29/17 Chapter Contact Request for Information Reminder





# Message From The President Born & Bred Series Introduction

by Rick Coor

#### The NCSBA Born and Bred Queen Rearing Program

The North Carolina State Beekeepers Association (NCSBA) in cooperation with the Apiary Inspection Program of the North Carolina Department of Agriculture and Consumer Services (NCDA&CS) and with the guidance from the Apiculture program at North Carolina State University (NCSU) is proud to present a program of beekeeper instruction with the goal of promoting an in-state queen and honey bee supply. It is a fact that North Carolina is home to the largest number of hobbyist beekeepers of any State in the Union and therefore the demand for honev bee queens, packages and nucs is substantial but the local supply is limited; the overwhelming majority of honey bees annually purchased by North Carolina beekeepers is produced in other regions. The climatic conditions of North Carolina are such that a person or firm with the will and capital required to operate a large scale honey bee farm would most assuredly relocate to a more southern state where the production season begins a full two months earlier than that of North Carolina.

However, North Carolina has the potential to become an unparalleled region for local queen micro-breeders, small scale queen rearing enterprises that are able to produce their product in the area where the product is in demand. Beekeepers agree that queens produced from locally adapted stock are better.

A situation of concern for North Carolina beekeepers is the spread of the Africanized Honey Bee (AHB) into North America. The estimated 15,000 mostly hobbyist beekeepers in North Carolina have thus far lived a charmed life, free from any established areas the AHB, but that could change. Some experts believe that the arrival of the AHB is only a matter of time. An in-state supply of honey bees and queens would be invaluable in an effort to prevent the spread of the AHB should it become established in SC, GA, or NC.

This edition of the *Bee Buzz* features two articles that are part of an ongoing series about the NCSBA's Born and Bred Queen Rearing Program. Please take a look at the information presented in this and future editions and consider the advantages of locally produced honey bee stocks and become a part of the development of an in-state supply of honey bees.



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# In the Apiary: Spring in North Carolina

by Nancy Ruppert, Apiary Inspector, NCDA&CS

**The NCDA & CS** apiary inspection season during the winter is less active for outdoor work, much of which involves assessing sickness and death; more on that below. By the time you read this, North Carolina beekeepers will be (or should be!) actively engaged in the busiest season of the beekeeping year: addressing hive nutrition, closely assessing brood quality, preparing more equipment for hive

expansion/splits/honey production, and dealing with deadouts. Procrastination during the spring can be very costly, often resulting in loss of honey production, loss of bees and/or good queens, and sometimes complete hive losses.

Nutritional needs are heavy for beehives in our area during late winter/early spring, as population growth demands large quantities of both protein (pollen/pollen substitute) and carbohydrates (stored honey or feeding, as most areas don't have much nectar until mid-March or later). Foragers should be bringing in heavy loads of pollen from multiple sources. Even hives that started 2018 with plentiful honey stores *might* need carbohydrate supplements during the late winter if the hives are full of healthy adult bees and brood. Keep in mind that consistent nutritional supplements can significantly increase hive populations quickly by early spring, which also leads to risks for swarming! Swarm management is important during spring; visit your local beekeeping club meeting for helpful tips.

Brood assessments during late winter and spring should include both quantity and quality of brood. By mid-March, most North Carolina beehives should be well-established in brood-rearing, with multiple frames of full brood patterns. Those that have little or no brood should be closely examined for the root cause—are they queenless, or has she failed? Did they swarm? Do they have pest or disease issues?

The *quality* of the brood basically refers to the health of the developing baby bees (eggs, larvae, pupae): are they heavy with varroa mites and/or viral illnesses such as sacbrood or parasitic mite syndrome? Are the larvae weak and yellowed, like in European foulbrood (EFB) bacterial disease? Are the capped brood cells torn open and malodorous, like can occur with American foulbrood (AFB) bacterial disease? Or do you have frames full of healthy larvae/capped brood? Problems with brood health can have a serious impact on the overall hive and should always be addressed in a timely manner. Consult reliable resources for more details on/photos of brood health.



Healthy apiaries are ready for splits and swarms by or before late March in most of NC, and waiting until last minute to obtain/prepare boxes and frames is a recipe for disaster! Many spring swarms are healthy with productive queens, so even if your hives aren't swarming, you might want to be ready to capture someone else's swarm. Bees also can be very busy making/storing honey during the spring, sometimes a full super per week, so have multiple supers ready by mid-April.

By early spring, most hive deadouts have been removed from the apiary. Inspecting a hive that died out or left (absconded, as in ALL of the bees leaving home) is almost as important as inspecting your living bees, because learning about *why* the bees died or left is extremely valuable. Do not let pride keep you from consulting an experienced local beekeeper or your apiary inspector when you notice hive death or other apiary problems! Early notification and response is key to any hive "necropsy", as fresh evidence left behind gives much more information than three months of decay and freezing. Also, timely examination and action on dead or weak hives sometimes protects other hives from sickness or death.

Last but not least, keep learning in bee schools, field days, meetings and workshops. Happy Beekeeping!

#### 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 (<u>www.beekivethermalindustries.com</u>) and OVEN Industries (<u>www.ovenind.com</u>), 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. <a href="https://youtu.be/D3I4G2Ws910">https://youtu.be/D3I4G2Ws910</a>



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.beebivethermalindustries.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 <u>www.beehivethermalindustries.com</u>

Lynn Williams (803) 504-9313 Bee Hive Thermal Industries lynn@beehivethermalindustries.com \*\*Sales Rep.'s Needed For Sales & Support\*\*



Michael Bush, author, lecturer, queen breeder, and beekeeper, is a legend among organic beekeepers. He has been using organic management methods for years that most of the "experts" say can't be done. He is coming to Smithfield, NC for an organic beekeeping event: Johnston County Ag Center Auditorium, 2736 NC Highway 210, Smithfield, NC, February 24, 2018. Full Hot Meal provided. Vendors Welcome. This is an All Day Event. 9AM-5:30PM. Registration starts at 7:30 AM.

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## **Bayer Bee Care Center** Update on the Hive Scale Project

by: Annie Krueger

It's been 9 months since the hive scale project began back in April and it's time to look back on the season and highlight some of the early observations and outcomes of this work! Our goal with this project was to use electronic hive scales to gain insight into how the timing and duration of nectar flows vary across the Piedmont, and within different landscapes. We followed the weight of individual hives and analyzed the land cover types (developed, forested, cropland, etc.) present within a 1-mile and 3-mile radius of the apiary. All participating beekeepers are able to view the raw weight data on the Solutionbee website, but I have only provided percentage data from land cover assessments on the project webpage to protect the privacy of individual locations. Follow the project at: https://tinyurl.com/yc5tzwnq.

- To date, we have 50 beekeepers involved in the project (not including myself!) spread across 19 counties in the Piedmont, representing 97 hives.

- We will be bringing in all these folks in February to sit down and talk about how we continue with the project and use this feedback to guide our next steps.

- We observed a strong nectar flow in early June across the Piedmont and a resurgence of the flow in late June.

- We observed large nectar flows (100 lb. weight gain) in July and August for hives in intensive agricultural areas in the eastern Piedmont (Halifax, Nash, Wilson Counties) correlating with high percentages of cotton and soybean production in these areas. - After looking at the land cover assessments, I am particularly interested in adding locations in highly developed (i.e. rooftop operations, downtown locations) and intensive agricultural areas (i.e. coastal regions). If you have hives within these select locations, please contact me at annie.krueger.ext@bayer.com!

- There are a lot of interesting observations we can make with this project; however, it is important to recognize some of the major limitations:

- Each beekeeper keeps their hives how they see best fit so there is no standardization in how these hives are managed.
- We have minimal information on the strengths and conditions of these hives throughout the year outside of weight.
- The land cover assessment is based on the previous year's land cover data and may not be accurate of what the landscape actually looked like, but you can see the year-to-year variability at the USDA Crop Data Layer website: https://nassgeodata.gmu.edu/CropScape/
- Effects from weather (rain, heat, cloud cover, etc.) are not included in these assessments.

There is a lot of room for improvement but at the same time, there is still a lot we can learn about our bees as well as from each other! Sharing these data and the outcomes from this project can make us better-informed beekeepers. Learning more about the areas we are keeping bees can only help us learn how to cater our own management strategies for the unique needs of our hives.



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#### Wolfpack's Waggle The "Do's and Don'ts" of Winter Beekeeping

by Dr. David Tarpy

Department of Entomology & Plant Pathology, NC State University

**Winter** *seems* **like** it should be the slowest time for beekeepers because the bees aren't active, but that doesn't mean it should be. In fact, the dormant season is a great time for beekeeping in all sorts of ways. Here are a couple of things that you should be doing this time of year, as well as several things that you should avoid!

**DO: Heft your hives to make sure they have enough winter stores.** Late winter and early spring are perhaps the most tenuous times for honey bees. That's because they're brooding up in preparation for spring, but at the same time they're running low on their stored food reserves (both honey and pollen). During the winter months, it's a good idea to check each hive once a month or so by "hefting" it—simply lift the entire hive from the bottom board a couple of inches. If you feel a lot of resistance that means it's heavy and has plenty of honey left; if not, you might want to take action (see below).

**DON'T: Open the hive when it's too cold.** Hefting is far superior to actually opening the hive to check for honey stores, even for a quick inspection, during periods of prolonged cold (<40 degrees). Opening the hive will break the propolis seals between all of the woodenware making it much less efficient at keeping the heat inside after the hive is put back together. If you absolutely must go into a hive during the off-season, make sure it's (a) as brief as possible and (b) on as warm a day as you can make it.



North Carolina Hives In Winter Snow

#### DO: Provide supplemental feed when it's warm enough.

If running low on food stores, don't hesitate to give your bees a boost. If low on stored honey, provide them with an additional sugar source. If low on stored beebread, provide them with a pollen patty. At the NC State Apiculture lab, Jennifer often provides each colony at least one pollen patty right after the new year in order to stimulate brood rearing. That way, once spring does arrive, they're really ramping up their populations to take advantage of those early pollen and nectar flows.



**DON'T: Feed syrup ineffectively.** During the winter, the bees can't dry out liquid sugar to store in the combs, so if they can't break cluster because of cold weather be sure to only feed them fondant (solid sugar patties). A thick syrup is OK if the daytime temperatures are above flight temperature (54 degrees) since they will make use of it as they consume it, but try to make sure they can eat whatever you provide them within a week. Once spring comes (with daily active foraging), feed them a thinner syrup to stimulate the queen to lay eggs. Also, don't use entrance feeders but instead use top-hive or division board feeders, since the bees will have more ready access to them.

DO: Build new equipment, especially new frames. One critical but often neglected factor in promoting bee health is to replace old comb. Beeswax sequesters pesticides, nosema spores, and other diseases, so those old black combs have to go! The spring nectar flow is the best, fastest, and least-stressful time for colonies to build new comb, so have your frames ready to go during the winter so that you have plenty of new foundation for them to work on come spring. At the bee lab, we mark the top bars on our frames each year by the queen color year (red, green, blue, yellow, and

**Continued on Next Page** 

#### **Continued From Previous Page**

white) and then swap out our combs at least every 5 years (if not more regularly). And don't forget to repair and replace other old equipment too, just to make sure each hive is in good condition for the bees.

**DON'T: Procrastinate!** Spring will be here before you know it, so beware the march of time. As in many things in life, preparation is the key to success so don't put off building the new frames and other equipment so that you're scrambling in April when you're trying to deter your bees from swarming.

DO: Educate yourself during the off-season. We all have more to learn as beekeepers, no matter what level and how many years of experience. Challenge yourself! Take your local bee school again, or better yet participate by providing a workshop or presentation on an advanced topic that you're comfortable with. There are so many excellent books about bees and beekeeping out there, branch out and read one that you haven't had a chance to yet. If you're computer savvy, take some of our online classes through our Beekeeper Education & Engagement System (http://go.ncsu.edu/BEES)!



The Internet, Books, and Bee Clubs are great ways to educate yourself during the Off-season

DON'T: Give up if your bees don't make it, or neglect to learn from your mistakes. Learn from your mistakes, and share with others so that everyone can learn collectively. One of the hard realities of modern-day beekeeping is that you as the beekeeper can do everything right but still sometimes things go wrong. Our goal is to help our bees and do everything we can to assist them, but it doesn't always go perfectly. Don't fret, but rather take the challenge to do better next time, because when things go well the rewards are completely worth it.



NC Bee Buzz - Spring 2018

# BeeFeeders

#### **North Carolina Pollinator Plants**

by: Ulana Stuart, NC State Extension Master Gardener

**Spring is here** and I hope your bees have many nectar and pollen plants from which to choose! This article will provide suggestions for some of the best North Carolina plants for nectar and pollen sources. I hope you can plant one or more of these plants to give your bees additional forage sites to visit.

Let's start with spiderworts (*Tradescantia virginiana* and T. *ohioensis*), native perennial plants that can grow 2-3 feet tall throughout North Carolina. Their triangular shaped bluish-violet blooms open in the morning and last only one day. Spiderworts have lots of buds to replace the daily blooms. Blooming starts in April and can last into July. They grow better in the morning sun with light afternoon shade and will need extra moisture if they are in full sun all day. They are easy to grow and will spread easily.

American holly (*llex opaca*) is a 15-30 foot pyramidal evergreen tree that grows throughout North Carolina. The tiny white blooms start in April and continue through May. Holly grows best in full sun. For good pollination you will need 1 male plant for every 3 female plants. Ask your nursery for guidance to make an appropriate selection. The blooms typically last 6-10 days. I have personally seen holly blooms literally covered with bees. As a bonus, the female plants produce beautiful red berries in the fall.



Carolina silverbell (Halesia carolina)

Carolina silverbell (*Halesia carolina*) is a beautiful (small, but can grow up to 30 feet) native tree that grows naturally in the mountains and a few parts of the Piedmont. It can also be planted and will grow easily throughout the entire Piedmont and into zone 8(9) of the Coastal Plain. In early April beautiful white bell-shaped clusters of 2 to 6 blooms often emerge before the leaves. Carolina silverbell grows best in well-drained, moist soil with sun or semi-shade light. Oakleaf hydrangea (*Hydrangea quercifolia*) is a spectacular southeastern native shrub. It grows up to 4-6 feet in height and width in sun or partial shade. For optimal growth, use mulch to keep the soil moist. Oakleaf hydrangea blooms in May and into early June, with beautiful fragrant white (turning to pink) panicle blooms. These blooms are 10-12 inches long and last 7 to 10 days.



Black locust (Robinia pseudoacacia)

Black locust (*Robinia pseudoacacia*) is a fabulous tree for large bee garden sites, especially along the edge of the woods. It can become somewhat weedy but bear in mind that it can produce the highest amount of nectar possible with lots of pollen to boot. Peter Lindtner tells us, "Every beekeeper should plant one black locust tree per hive in their garden". The white, extremely fragrant, pea-shaped and pendulous flower clusters stand out against other trees, and their nectar produces a light colored honey. Black locust is a member of the legume family, which naturally adds nitrogen to the soil.

Most of these plants have multiple cultivars or selections to purchase and are readily available at local nurseries. You can select the straight species or ask for a nurseryman's recommendation. This is where a good nursery with knowledgeable staff can really make a difference. I recommend you purchase a hardier plant over a more ornamental version since hardy plants will typically withstand tougher conditions. While all of these plants grow well in all three regions of North Carolina, the bloom times will vary based on your location by approximately two weeks.

Sources: Honey Plants of North America by John Lovell Garden Plants For Honey Bees by Peter Lindtner.

# **Master Beekeeper Program**

by Doug Galloway Master Beekeeper Committee Member

#### Have you ever wondered how the

committees of the NCSBA work? I mean how the members within those committees get the many tasks they are charged with doing, done? Perhaps like you, I never gave it much thought. That changed for me during the Summer Meeting in Winston-Salem when I was approached by Paul Newbold about helping on the Master Beekeeper Program Committee. Well, I was flattered to be asked by this man who guided me through the MBP and whom I have grown to admire and respect. I had no idea of what lay ahead, but was looking forward to learning what I could do to fulfill this new role as a committee member. My new responsibilities were to take on the task of learning the systems that Paul Newbold and the MBP Committee had so carefully and laboriously installed. It is a work in progress and the rewards beyond learning the systems and what goes on "behind the scenes" are highlighted by getting to meet many of you who are participating in the program.

Now I am at the crux of the matter. Since getting involved, I have only learned about the MBP Committee, but I am suggesting that this bit of enlightenment applies to all committees, executives, directors and boards of this wonderful *volunteer* organization, the NCSBA.

The amount of work your organization's executives, directors, committees, etc. give to allow us as members to enjoy the many privileges and benefits is astounding. In the case of the MBP Committee, every month the questions we get to challenge our knowledge of beekeeping in the MBP/Quiz section of the NCSBA website are created anew. At each statewide meeting and at fall testing the questions for each level, Certified, Journeyman and Master are created anew (thank you, DJ and Bill Moran!). The venues have to be organized, materials printed, attendance documented and records kept. When it comes time to recognize the



successful recipients, certificates need be printed or presented and in the case of Masters, hardware needs to be engraved. For those who tried but did not yet succeed, committee members share the unhappy news, review test questions and provide encouragement for the candidate to continue toward their goal of the next level of the MBP.

I can only imagine what goes on behind the scenes of putting together the Spring and Summer meetings. Locating a venue, arranging for vendors, speakers, hotel accommodations, workshops, reviews and testing, just to mention a few and having no understanding of the scope of each category, the idea of it all makes my heart race.

First, I will say thank you to no one in particular, as none of these hard-working folks are doing all this work for praise or recognition. They do it because being of service is its own reward. The other reward they will acknowledge, is getting to meet and work with some amazingly selfless people who are smart, industrious and giving.

Secondly, I will say, well done! I am fortunate to have attended some national and large regional conventions, and the NCSBA meetings are a fine reflection of our state, our beekeepers and offer opportunities at a remarkably affordable cost that we NC beekeepers would not otherwise have.

Finally, I encourage you to take advantage of all that our state organization has to offer. Attend the two annual meetings, challenge yourself and utilize the Master Beekeeper Program to become a more knowledgeable beekeeper, and ask your regional directors how you might contribute some time and energy to our wonderful state organization.

# NCSBA Library Update

Dr. Aletha Andrew, Library Director at Wayne Community College, stated that the library is steadily loaning out our DVDs at a higher rate, which started in the spring of 2017. That is good news! We appreciate your patronage of the library and are happy to help you as one of your beekeeping resources.

We try to keep an eye out for any DVDs that would make a good addition to the collection and will snap them up when we find them. I'll keep you posted of any that we have acquired.

Bob Kemper NCSBA Librarian

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#### The Value of Local Queens & The Art of Queen Rearing by Lane Kreitlow

#### The recent sold-out Born and Bred

workshops, NCSBA's version of the queen rearing workshop originally offered by the NC State Apiculture Program, is evidence of the fact that beekeepers have the desire to learn how to raise their own queens. North Carolina is one of the largest hobby beekeeping states, and yet we have to rely largely on queens purchased from other states. There are some very good queen rearing operations in North Carolina; there are just not enough of them to fulfill the demand for high quality queens. Whether your goal is to raise queens for your own use, or to join the ranks of other queen-rearing suppliers, there are many benefits to learning the art of queen rearing.

Increased supply- Raising queens in any quantity is beneficial by the simple virtue of increasing the supply. Many beekeepers have found themselves in the predicament of needing a gueen, but being unable to obtain one quickly (or at all). Bees are not like the A train, where another one is just around the corner. Eventually suppliers run out for the season, sometimes mid-season, and a beekeeper may find him/herself SOL (sighing out loud). True, bees can and often raise their own queens when there is the need. But in the case of "hopelessly queenless" colonies, where there are no eggs or larvae left that are young enough to be raised as queens, or after mating season has ended, or in the event of undesirable genetic qualities, only beekeeper intervention can save the colony. Having an immediate supply of queens can prove invaluable in these types of situations.

Shipping Stress- Thank goodness for all of those suppliers in warmer-climate states that keep us in the bees! We would truly be SOL without them. Though a necessity, shipping bees is not ideal. Bees exposed to excessive heat or cold has been shown through research to affect their quality, so it would behoove us all to minimize the duration of shipment through a local supply of queens. USDA-ARS Entomologist Dr. Jeff Pettis, in collaboration with members of the NC State Apiculture Program, is actively researching the effect of shipping stress on queens. Early results indicate that if a queen gets cold, the sperm in her spermatheca can die thus result in lower sperm viability. Learning how to raise queens as individuals or as chapters would ensure that a local supply is readily available, without added shipping stress.

Africanized Bees- With Africanized honey bees (AHB) making their way up the southern part of the United States, local queens are all the more important. Requeening with non-AHB queens is the best remedy for dealing with them if you'd rather work with less defensive bees (and who wouldn't?!). Once they stop their march northward, North Carolina may be the southern-most state on the Eastern seaboard that does not have AHB. If that scenario were to play out, NC beekeepers may be well poised to become queen suppliers for the southeastern states and the Northeast.



NC Queen: Worth the effort

Chapter Activity- A good first step toward mastering the art of gueen rearing is to take the Born and Bred or a similar workshop when it is offered. The next step would be to put the classroom information into practice by learning how to actually graft eggs/larvae that will (hopefully) become healthy gueens. Grafting is fairly simple, yet it is intimidating for many first-timers. It takes patience, some specialized equipment, and brood of the correct age (i.e., very young larvae). For a small-scale beekeeper, these queen-rearing necessities may be prohibitive. Chapters should consider a collaborative effort among members in order to defray the intimidation factor, the workload, costs, and to foster the team spirit of the club. Doing so would also boost the local population of queens, which clubs could share among members or with other clubs.

I hope that North Carolina moves toward becoming a larger supplier of local queens in the years to come.

Thank you to Dr. David Tarpy for his input on this article

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# A Visit with an Albanian Beekeeper

by Sean Collinsworth

#### Go to any beekeepers meeting in

America and you'll see a cross-section of class, culture, gender and education. We gather, usually once a month, to exchange ideas on hive management or honey production. Sidebar discussions are devoted to pressing matters, like the weather and how it's affecting the local flora. Unlike today's polarized and combative environment, beekeeper's meetings are characterized by camaraderie and fun. We are brought together to better understand a highly organized and complex insect society – the honey bee colony. But how do beekeepers in other countries manage their charges?

My wife and I had the great pleasure and honor to host a former Albanian commercial beekeeper and his family. Musa and Sedate Dyli, along with their son, Denis (our web designer and owner of Pivofy) and daughter in law, Stella, recently spent a weekend at our home. Dinner and breakfast conversations were animated, as Denis and his wife translated Musa's experience of keeping bees in the Mediterranean, and the difficulties of beekeeping in then Communist Albania. Regarding the latter, he spoke to how the Stalinist style of state administration nearly destroyed the country's apiculture, and the resultant decline in agricultural production due to lack of pollination.

Out of the dining room and into the apiary was an interesting, yet unexpected experience. There was no language barrier. Nothing needed to be said. Give any good beekeeper a hive tool and a smoker, then let him loose among bees. It was abundantly clear Musa knew his way around a hive. His effortless and methodical movements were calming to the thousands of bees swirling about. Everyone doing their job, bees and beekeeper engaged in the timeless workflow of a bee yard.



The unspoken language of Beekeeping

Communication is vital to community understanding. Successful beekeepers depend on each other's knowledge and experience. Sometimes all it takes is a simple hive tool to communicate mutual values. Musa's beekeeping skills and his stories of raising bees in the Peoples Socialist Republic of Albania left an unforgettable impression upon us. We truly hope he and his family will again visit our bees.

Sean Collinsworth & Denise Altay are the owners of KillerBeesHoney.com, an artisanal honey producer located in Lake Toxaway. Sean is also a member of both the NCSBA's Certified Honey Producer and the Henderson County Beekeepers. You can contact him at sean@killerbeeshoney.com.



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## **The Ominous Spread of the Africanized Honey Bee**

by Rick Coor NCSBA President

#### Note: This article makes reference to the NCDA&CS' North Carolina Africanized Honey Bee Action Plan. The plan can be found posted in its entirety at www.ncbeekeepers.org

Although the Africanized Honey Bee (AHB) has become established in areas of Louisiana, New Mexico, Colorado, Nevada, Oklahoma, Arkansas and large regions of Arizona, Texas, California and Florida, there does not seem to be much alarm amongst North Carolina beekeepers concerning the possibility of the AHB becoming established in NC. Everything is pretty much business as usual; beekeepers purchase bees and queens, move managed colonies to and from AHB regions, seemingly oblivious to the calamity that would befall hobbyist and sideline beekeeping as we know it if the AHB were to become established here.

The AHB can potentially spread to NC by two means. First, the natural processes of swarming and absconding. Second, they may spread by human assisted transport, the movement of managed beehives (such as migratory beekeeping) or the shipping of cargo from AHB areas, over land or by sea. Consider the annual north-south traffic of migratory beekeepers from Florida to Maine; the means for the spread of the AHB is already in motion. If beekeepers are to prevent the establishment of the AHB in North Carolina once they are introduced, an in-state supply of honey bee queens will be paramount. This is something that we should at least be thinking about. But first, we must establish an answer to a basic question.



# What is an Africanized Honey Bee (AHB)?

If this question were to be asked at a beekeeping school, the answer might be relatively simple: a European honey bee crossed with an African honey bee. That does not sound complicated. We have all heard of the AHB. Therefore, I was initially puzzled when I heard such a simple question being addressed during a meeting of the North Carolina Honey Bee Advisory Committee. The group was discussing the North Carolina AHB Action Plan. I thought to myself, to be sure everyone in this room knows what an AHB is but because the question was presented in a scientific context, no one in the room had a definite answer. What is an Africanized Honey Bee? What would the threshold level be for AHB hybridization in queens or colonies of bees that would warrant them to be classified as AHB? These questions would need definitive answers if the AHB were to become established in our state. Beekeeping would dramatically change. Honey bee operations large and small would be subject to quarantine and possible destruction. Issues of nuisance from honey bees would arise.



How would we know if an AHB colony were to be brought into North Carolina, or whether or not the genetic influence of the AHB is already here? Is it possible that the honey bee stocks of our state are being subjected to a slow but steady trickle of hybridization as a result of the purchase of honey bee queens and transport of honey bees to and from the AHB zones of Florida and California? It is difficult to know. The NCDA&CS must monitor thousands of hives shipped to California each season to pollinate almonds, thousands more that overwinter in Florida, still an untold number that are part of the migration of pollinators through our state. What percent of the hives involved might have re-gueened themselves while in an AHB region? What about the swarms that are cast from the migratory hives? It is not reassuring to know that the regulations that govern the transportation of honey bees into and out of NC were established in the

**Continued on Next Page** 

"... the plan calls for an organized effort to establish North Carolina as a self-sufficient beekeeping community with ample queen and package resources to meet the needs of the state's beekeepers" - NCDA&CS

The Born and Bred queen rearing workshops are potentially one of the means to achieve an objective outlined by the NCDA&CS Africanized Honey Bee Action Plan- a viable in-state supply of honey bee queens and packages. Local queen rearing would be the cornerstone of the achievement of this goal. Beekeepers on all levels would have a role: the hobbyist beekeeper that produces queens in small splits as well as the beekeeper that operates a continuous queen rearing operation. Chapters could get involved with queen rearing and nuc production programs in order to supply bees to their members. A network of North Carolina micro-breeders would be required. These are objectives that would take time and effort to realize; the sooner we move the better. The AHB is already in motion.



#### Want to learn more?

Please read the NC State Cooperative Extension publications entitled, *"Africanized Honey Bees: Where Are They Now, and When Will They Arrive in North Carolina"*, and *"Africanized Honey Bees: Prevention and Control"* by Dr. David R. Tarpy, Professor and Extension Apiculturist, NC State University.

These two publications and the *North Carolina Africanized Honey Bee Action Plan* can be read at www.ncbeekeepers.org under the heading Africanized Honey Bee





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# This is Not Your Grandfather's Beehive

by: David J. Little President Iredell County Beekeepers

Beekeeping has many challenges. With its complexity, constant learning curve, and the onset of new diseases and pests, successful beekeeping falls into the realm of art. Beekeeping is more than just having a box of bees, maturing them into a fully functioning colony, and enjoying their work and all the benefits that follow. It takes education, good management skills, and a little bit of luck. What bees add to our society by way of pollination of our fruits and vegetables and golden honey far surpasses a mere insect that some simply tolerate. Many take for granted the abundant values provided by the tireless honey bee, especially those who have had only an unpleasant encounter with the business end of the bee. We as beekeepers must educate the public as to the value of honey bees, and what we can do to aid its survival. For starters, we must educate about the safe use of pesticides and encourage bee-friendly practices in agriculture. Hive existence awareness to farmers and local gardeners, and acquiring cooperation between their needs and ours is also a must for the bee's survival.

Our environment has a direct effect on honey bees. Industrial pollutants and harmful chemicals weaken the species quicker than it can evolve ways to withstand it. Much research has gone into developing a bee that can tolerate the pests that invade it, *but no gene manipulation can fully overcome intrusive threats in the surrounding environment*. The sum of all these elements are stressors that can add up to the weakening of the species.

Bees have been on Earth for millions of years and have survived many challenges without man's intervention. In placing them in artificial containments for our own benefit, we have taken upon ourselves as their keepers to ensure their survival. Bees are not meant to be pets, but function as a community whose own survival, not what they provide for mankind, is the sole purpose for their existence.

In the past, keeping bees required little intervention by the beekeepers. It was standard practice to simply allow the bees to be bees, and collect honey in the summer. Hives swarmed, and the beekeeper caught them and hived them up, or split them and ordered a queen from Sears<sup>®</sup>. Sure, the beekeeper faced threats: foulbrood, skunks, and bears. But with more globalization of commerce and increased imports we exposed ourselves to pests not native to our country. These new threats came on quickly, and it is difficult for the bees' genes to catch up fast enough to control the issues. Indeed, nature has a remarkable way of evolving protective mechanisms. Yet, evolution takes time, and the honey bee has not had time to catch up, especially when it comes to varroa mites.

With honey bees, the quest for survival takes several forms. Honey bees may swarm due to overcrowding in the hive, but they also might swarm in order to ensure the future of the species. Diversification of genetics aids in the evolution of a more adaptable species to withstand the pests and diseases that are rampant in today's world. The spreading of genes is the cornerstone of survival by any species.

A colony's imminent survival hinges mainly upon worker bees, and their many functions that contribute to the survival of the colony. The loss of one function may be the result of a failure within the hive or of a disease or pest affecting the colony, but it may also be the result of inferior genes of the bees.

When possible, maintaining a hive without using unnecessary chemicals in the hive is the most desirable choice. Creating a better environment for the bees without sacrificing colonies would be a more productive strategy. It serves no useful purpose to create more havoc while trying to control a pest. Minimal introduction of beekeeping-specific chemicals in a responsible manner is the most intelligent choice for the beekeeper and for the colony. Sometimes you have to intervene to save the hive, but do so in a constructive way.

We must make a choice in our beekeeping: how will we save our bees and contribute to the continuance of the species. The key is responsible bee managementkeeping bees rather than just having them- that will determine whether they flourish or perish.



Ben Jones and 6 year old Granddaughter Carys extracting honey in Watauga County



My second grader is learning math, hard

math, at least as far as a 7-year-old is concerned. Luckily, he is "mathy", breezes through the standard work and even tackles the extra credit Math Genius challenges every week. Good for him. (Thankfully, he has not yet ascribed to the when-will-I-ever-need-this mentality.) And while math leaves some of his classmates running for the hills, he likes it, and in tackling the optional challenges his math skills are sharpening at a surprisingly fast rate.

If you ask me, beekeeping is like one long Math Genius challenge. We can choose not to partake, but our skills may lag, and we might even lose bees as the direct result of opting out. But in doing the extra credit math, we position ourselves to become better beekeepers.

Math and its sidekick, numbers, are everywhere in beekeeping. It starts with our very first classroom introduction to honey bees. We learn that bees have 3 body parts, 2 antennae, 6 legs, 4 wings and 5 eyes. (We fail the question about eyes on our MBP exam because, really, *five* eyes?) We are fascinated to learn that a single queen can lay over a million eggs in her lifetime. *A million*. We are enthralled, and concurrently have a frame of reference with which to monitor the health of our queens. It's not enough to simply see eggs; we have to see the right number of eggs (a lot!) to confirm that a queen is healthy.

As our biology lesson continues we are presented with more numbers. We are introduced to complete metamorphosis, which has 4 life stages: egg-larva-pupa-adult. We learn that an egg takes 3 days to hatch, and depending on whether it is fertilized, will become a female or a male. If the egg is unfertilized and becomes a male, we know that he will only have ½ of the number of chromosomes of his sisters and mother. We delve a little deeper into genetics and discover that honey bee females have 32 chromosomes, while males only have 16. We wonder about this whole *haploid/diploid* thing for about half a second before moving on to less complicated things.

Heck, the entire beekeeping industry, as we know it, rests largely on one little number: 3/8". "Bee space", that highly specific amount of space that bees need to be able to move around freely within the hive without propolyzing it or building comb. Enter: the Langstroth hive. Instead of muttering, "Ugh, *fractions*!" we should marvel at the Rev. Langstroth's keen observation that truly revolutionized beekeeping. Let's not forget about the hexagon, the six-sided wax-celled testament to the genius of evolution. The geometry of honeycomb has long fascinated mathematicians and number lovers. And while we don't necessarily need to understand it, there is something to be said for an insect that inspires us to look up the meaning of *tessellations theory*.

Indeed, even if we are not particularly "mathy", we find solace in knowing that at least the bees are good at it!

Numbers and math innervate the very essence of our beekeeping, rule our decision-making, and even dictate whether or not we will continue this all-consuming hobby/business/passion. They determine whether to treat for mites, whether to split or combine hives, how many frames to purchase and endless other applications.

Take honey production, for example. In the spring, we look at dates on the calendar to determine when a reliable nectar flow starts for the season. That is the time we want to have the most foragers- the ones who will collect all of that nectar and bring it back to the hive to make honey. We look at the number of days it takes an egg to become an adult worker (21), and then we add to that the number of days until that worker reaches the age of foraging (around 21). We now know that it may take over 40 days before we will have the work force required to collect all of that nectar, and should plan our supplemental feeding accordingly. (Exhale.) True, we could opt out of those unappealing Math Genius challenges and still get plenty of honey, but in taking the challenge, we can *maximize* the amount of honey for the same amount of effort. Score!

If instead of honey we want to split our hives, we calculate just the precise time when we want to "blow up" the population of our colonies so that they will be strong enough to split when the resources are plentiful. Too much supplemental food too fast can create the situation where the population outnumbers the amount the stored food can support, the beekeeper can't keep up with supplemental feeding, and there is not yet enough nectar in the field to support the exploding population. Miscalculate, and the result: the colony overpopulates, and then crashes; or, the colony overpopulates and you have to deal with swarming. The math is tricky.

The calculations may be tedious but come springtime, let us silence our inner second-grade voices that scream, "Yuck, math!" and tackle those Math Genius challenges in order to become better beekeepers.

#### NC Bee Buzz - Spring 2018



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**Marla Spivak** - Marla Spivak is a MacArthur Fellow and McKnight Distinguished Professor in Entomology at the University of Minnesota. Her research efforts focus on breeding bees for their natural defenses against diseases and parasites, and on propagating floral rich and pesticide-free landscapes to support the nutrition, health and diversity of all bee pollinators.

**Paul Kelly -** Paul Kelly is the research and apiary manager at the Honey Bee Research Centre at the University of Guelph. His primary role at the centre is to care for honey bee colonies used in research projects and for teaching purposes. He provides training for students and beekeepers, conduct facility tours for the general public and generally won't stop talking about bees. Paul graduated from the University of Guelph in 1983 with a BSC Agriculture, Environmental Biology major.





**Daniel R. Schmehl, Ph.D** - Daniel (Dan) Schmehl is an ecotoxicologist in the Pollinator Safety group at Bayer Crop Science, where he has worked since 2015. He received his Ph.D. in entomology from Penn State University in 2013 and his B.S. in biology from Messiah College in 2007. Dan's primary responsibilities include pollinator safety evaluations of crop protection products and research support for the Bayer Bee Care Center.

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Fees listed below are **ADVANCE** mail-in fees. WALK-IN fees at the Spring Meeting will be \$10.00 higher for Individual and Family registrations.

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\*Includes 2018 Annual NCSBA membership for the primary registrant. South Carolina & Virginia Beekeepers do not need to join the NCSBA to attend the 2018. Spring Meeting but are welcome to do so. If you are a SC or VA and do not wish to join the NCSBA, select the NCSBA Member rate. †Family registrations include 2 adults and their children under age 18.

NCSBA Members: If you have <u>NOT</u> paid your 2018 Annual Dues (\$15.00), you may do so during registration and receive the NCSBA Membership price. You may register as an active NCSBA Member by providing your membership card or number when registering for the Spring Meeting. 2018 Annual Commercial Memberships are \$30.00.

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Rules and information are posted at www.ncbeekeepers.org Contact Suzy Spencer at ncsba.black.jar@gmail.com

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