

# North Carolina **Bee Buzz**

The Official Magazine of the NCSBA

**4-H Beekeeping  
A Closer Look at Propolis  
Horses & Honey Bees  
And Much, Much More...**

**Spring 2019**





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# North Carolina **Bee Buzz** Spring 2019



**North Carolina State Beekeepers Association**

*~ Since 1917 ~*

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**ON THE COVER:**

**Remembering the Beeman:**

The late Bill Sheppard teaching during an Anson  
Beekeepers field day

*Photo: Aimee Colf*



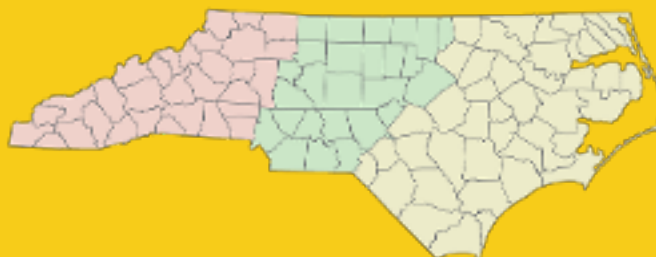
# North Carolina State Beekeepers Association



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.

## 2019 Executive Committee

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*Contact information for the NCSBA Officers and Regional Directors  
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Webmaster Jessica Mjelde [webmaster@ncbeekeepers.org](mailto:webmaster@ncbeekeepers.org)

## From the Bee Buzz Editors:

**Bee Buzz Story Submission Deadlines:** Spring : Dec 21 - 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](mailto:beebuzzeditor@ncbeekeepers.org)

Dr. Lane Kreitlow, *Content Editor*  
[beebuzzcontent@ncbeekeepers.org](mailto:beebuzzcontent@ncbeekeepers.org)

## NCSBA Communications - Stay Informed!

Beekeepers, please reference the text portions for the following announcements at [www.ncbeekeepers.org](http://www.ncbeekeepers.org)

11/18/18	Honey Bee Health Workshop for Veterinarians in Monroe, Laurinburg
12/7/18	McGrady Discusses Honey Bees on Local News
12/8/18	Spring MBP testing announced
12/14/18	Need more practice for the Master Beekeeper Program exams?
12/27/18	Updates on 2019 Spring Meeting





## Message From The President

by Paul Newbold NCSBA President

**In this, my first message** as the new President of the NCSBA, I encourage each of us to explore and participate in the many opportunities that the NCSBA has to offer. We have a lot on the schedule for 2019. Continue on reading in this edition of the *BUZZ* to get an overview of the many events and programs coming up. You will also get to know the many dedicated people involved that make these things happen.

Perhaps the best place to begin to know your NCSBA is the Association's website: [www.ncbeekeepers.org](http://www.ncbeekeepers.org). The website has recently gone through a complete makeover. If you haven't been to the website lately, you will be pleased to see a whole new look: easier, faster navigation, "old favorites" information pages, and updated clarifications on the Association's numerous programs and events.

This should be your first stop – the "go-to" place - to find out what's happening, how to contact Committee chairs or Regional Directors, local chapter information, interesting facts, and helpful links.

Thank you, Jessica Mjelde, for a smooth transition from the old site to the new one!

The NCSBA Facebook page is also a great way to connect with beekeepers. Here, new beekeepers are interacting with more experienced beekeepers for advice, as well as sharing current conditions that are happening throughout the N.C. beekeeping community.

Under the welcoming yet watchful eye of Debbie Horne, the Facebook page along with the NC... "for sale" page adds new users daily.

Among the many things to look forward to is the Spring Meeting. This will be a joint meeting of the NCSBA and the SCBA (South Carolina Beekeepers Association). NCSBA is hosting this year's joint meeting March 1st thru March 2nd in Monroe, Union County, N.C. You can sign up for this on the NCSBA website.

Watch for the agenda of speakers and workshops; look forward to the comradery.

A highlight of this event will be the Carolina Bee Bowl, a challenging contest between the North and the South set up by the MBP committees of both states. You won't want to miss this, and we need you there to cheer on our team!

Due to the short duration of this event, there will not be testing for any levels of the Master Beekeeper Program at the event. Instead, the MBP Committee has scheduled testing at two locations for April 27th, 2019 in New Bern and in Morgantown. You will be able to pre-register for one of these locations on the website.

Thanks again to MBP Chairman Doug Galloway and his committee, often referred to as his "clue-crew", for their efforts on these challenging opportunities!

Another educational program that is in full swing is the BORN AND BRED Queen Rearing Program, headed up by Etienne Nadeau. There are classes scheduled for Fayetteville and Statesville for this spring. Sign up early for these, as space is limited. Check out Etienne's message in Born & Bred on page 14 of this issue for all the details.

The Golden Achievement Program (GAP) record books from the chapters are due and need to be turned in at the Spring Conference. Remember, there is a \$300 bonus for new chapters that earn enough points to qualify. If you aren't ready to turn one in for 2018, start now for 2019 and help your Chapter be involved. I'd bet your Chapter is already doing things that would garner GAP points!

Melinda Miller heads up this Committee, and you can find rules, details, and helpful information under Programs on our website.

Are you listed on the map for the NC Certified Honey Producers? You should be. Discover the Goodness of Real NC Honey and the NC Certified Honey Producer Programs offer a wealth of guidelines concerning how and what to do, or what not to do, with honey, labeling, and much more. There is even an interactive map on which those who are signed up for the program can advertise their products or services. We should strive to see those eye-catching labels on every jar of honey sold in N.C., especially those from NCSBA members! Kenny Jones heads up this Committee. Contact him for more information.

Watch for the Wolfpack's Waggle in your emails and on page 10 of this issue. This update from the NCSU Entomology Department, headed up by Dr. David Tarp, is sure to keep you impressed with the honey bee research going on there. You'll get introduced to the new researchers that we likely will be hearing from in years to come. Of course, we should keep our eyes peeled for that flashy red truck that the Department was able to purchase thanks to YOUR DONATIONS. Well done!

*Continued Next Page*



The NCSBA Yellow Book, the "Official Directory of the NCSBA", is scheduled for publication in April of 2019. Make sure your membership dues are up to date as ONLY MEMBERS of the NCSBA will be listed in the 2019 Yellow Book. Chapters should already have updated all their officer information for the year. Remember, per our constitution, only members of the NCSBA can serve as officers of a state chapter.

Update any necessary information right away with our membership secretary at:  
[membershipsecretary@ncbeekeepers.org](mailto:membershipsecretary@ncbeekeepers.org).

Another high point on the calendar for 2019 is the NCSBA Summer Conference. This conference will be held August 8 through the 10th at the Hickory Convention Center, which is a great facility. The hotels are on site, and within walking distance of the Conference events. The Summer BUZZ will have more details, as will the website. Set aside the dates, and plan to attend. Even better, plan to participate in the competitions that are held at the summer meetings. You can choose from Cooking with Honey, Photography, and the important Honey Judging Competitions. I always say that I think MY honey is THE BEST. I challenge you to enter and prove me wrong!

Throughout the upcoming year, you can expect to hear from and be visited by your NCSBA Regional

Director. Please welcome them as they will be able to answer questions about the NCSBA.

We are *your* organization. When elected, you put your trust in us to do the best we can for you as a member, and the NCSBA as a whole.

***The most important detail that I cannot leave out concerns a request that each member renew either online or with your chapter. Make sure you check "yes" for consent to all uses of electronic notifications. We are asking that you verify the email address we have and check off on the new membership application that the Association can use that as an official way to communicate with you. In order to be in compliance as a 501-C-5 nonprofit organization, we must be able to communicate with our membership. Doing business via USPS is cumbersome and costly. It is not currently the most effective way for us to do this. So, we sincerely ask that you make sure we have your email address and permission to use it for official communications. Thank you.***

With all of your support, and a terrific team, we are off to a great year of beekeeping! To all of you, HAPPY NEW YEAR!

-Paul



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# Have you heard the BUZZ?

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# In the Apiary: Spring in North Carolina

by Nancy Ruppert, Apiary Inspector, NCDA&CS



**Bees and beekeepers** usually look forward to spring, when weather finally warms up and production within healthy beehives is peaking. That means a fast-and-furious pace of activity for honey bees in North Carolina, and beekeepers who don't keep up with their bees are virtually guaranteed to lose valuable products of the hive:

**Bees.** Brood-building tends to accelerate during February and March, and if there's not enough room in the hive to accommodate that growth, the hive may swarm and lose 40-60% of its adult population. The swarm consists of bees that would have contributed to apiary increases (hive splits) and/or a surplus honey crop if they would have just stayed at home! Adult bee population can also be lost if the beekeeper hasn't addressed dwindling food stores in February or early March: sometimes there is outright death from complete starvation, and sometimes the losses are more gradual, such as with an outbreak of bacterial disease like European foulbrood that can be fostered by the stress of food shortages.

**Honey.** Swarming during or before the spring nectar flow always hurts honey production. The beekeeper's failure to add honey supers in a timely way may also cause the bees to build burr comb between the boxes; this wastes valuable resources, including honey that might have been bottled if it had been stored in a super rather than between boxes. Beekeepers who move their hives to capture premium nectar flows cannot afford to be late in either preparing the bees (optimal hive health) or in actually moving them when that premium nectar is flowing.

**Drawn comb.** While a swarm that *enters* your hive can be tremendous comb-builders, a swarm that *leaves* your hive can take with it a tremendous workforce of comb-builders. Also, if a colony becomes weak during the spring or summer, the inattentive beekeeper might soon find that wax moth larvae have destroyed what used to be nice drawn comb.

On the positive side, spring can inject tremendous growth and productivity into a colony of honey bees: the best conditions all year enhance comb-building, queen-rearing, and honey production. Even if making a profit is not one of your goals in beekeeping—and if we're to be honest with ourselves, very few of us will see much financial profit from beekeeping—proper planning and working smarter (not harder!) will at

least minimize our losses. In fact, the spring season often affords a tremendous rebound from winter's sometimes-disheartening losses of colonies or colony strength, and might even allow a cushion of resources to help our hives overcome the setbacks that we (beekeepers) cause by our mistakes.

Honey bees work primarily according to their internal calendars/instincts, and working with them, on their schedules, offers the best outcomes. (Consult reliable sources for beekeeping calendars that correlate with your local climate.) For North Carolina beekeepers during spring, that means ensuring that our bees have enough food, enough room, enough fresh wax (which can be gradually introduced into hives as early as late February in most of NC), enough relief from pest/parasite pressure, and most of all, **enough attention:** our bees can be overwhelmingly productive if we properly assess hive health and act accordingly. Happy Spring!



Photo: Leigh Anna Arnold



**A while back**, the late Rob Gardner, former Director of Horticulture at the North Carolina Botanical Garden, told me that you can plant anytime of the year in North Carolina barring obvious extreme weather conditions. Rob told me he often put his plants in the ground year-round. Both the NC Cooperative Extension and the NC Botanical Garden recommend fall as the ideal time to plant. Yet, it is hard to resist spring's siren call to get out there and plant something! So, if there is a special bush or tree you didn't get around to planting this past fall, go right ahead with only one caveat: 1-inch of rainfall is required per week OR you will have to supplement with water for the first year after planting, especially in our hot summer.

I want to continue the bee-pollinated fruit-bearing plants theme from last time with the **American persimmon** (*Diospyros virginiana*). This small to medium sized long-lived (150-200 years) native tree reaches anywhere from 30-60 feet but can also be planted as a hedge. It is easy to grow, as it tolerates a wide range of soils. It prefers full sun though it will grow in part shade. Historically, the American persimmon was often used as fencerows and was considered very valuable by beekeepers for building up their colonies in the spring. It is very easy to identify even in winter with its fabulous dark gray, furrowed block-like plates bark. It blooms in mid to late spring with ½ inch bell-shaped, fragrant, cream white to greenish flowers with four thick petals that produce a lot of nectar and some pollen. Some have described mature native persimmon trees filled with flowers that positively "roar" with pollinators.

You need both a male and female plants to have a fruit producing tree. The male flowers appear in clusters, while the female flowers are solitary, producing the 1 to 2-inch diameter orange colored fruit. To guarantee the quality of your fruit you can use grafted stock plants. Some recommended cultivars are Meader, Early Golden, Szukis, Prok, Ruby, Yates, John Rick, Garretson, and Wabash.

To ensure ripeness, don't pick the fruit off the tree. Just set a tarp or quilt under the tree overnight and collect the night's drops.

The main complaint about native persimmon fruit is the low ratio of fruit pulp to seed. When you collect enough persimmons, just run them through a food mill or sieve to separate the delicious pulp from the seeds and skin.

**Asian Persimmon** (*Diospyros kaki*) is an attractive tree that is fairly easy to grow. It is adaptable to much of North Carolina, from the Piedmont to the coast and will tolerate temperatures down to 10° F. This attractive tree is smaller in size than our native persimmon, reaching about 10 to 20 feet in height but can get up to 30 feet or more, and just as wide. Persimmons generally bloom late enough in the spring (mid-April) to avoid spring frosts. The flowers are slighter larger than the native persimmon, while the fruits will vary greatly according to the cultivar. It is usually grafted onto the American persimmon rootstock, so it will tolerate well excessive moisture and drought, and is adapted to our climate.



Photo: Geomr (Wikipedia)

**Asian Persimmon** (*Diospyros kaki*)

After Asian persimmons arrived in America in the 1850's, they eventually became more popular than native persimmons. Up to 85 cultivars were eventually introduced but many will attest to the superior flavor of the native fruit (including me). NC Cooperative-recommended Asian persimmon cultivars are divided into two groups:

Non-astringent types: Fuyu, Jiro, Hanagoshō

Astringent types: Korean, Hachiya

Both the American and Asian persimmon trees will withstand drought but fruit size and yield (flowers for bees) are reduced, so be sure to irrigate when necessary.

For more information please see:

<https://go.ncsu.edu/orientalpersimmon>

<https://go.ncsu.edu/persimmon>



# Wolfpack's Waggle: To Wrap or Not to Wrap? That's Not Even the Question

by Dr. David Tarpy

Department of Entomology & Plant Pathology, NC State University



## Wintertime is the season of reflection

for beekeepers. We had an early start to winter this year, with a pre-holiday snowfall and cold temperatures, which prompts us to question what we did last fall and what we will see come spring. Did I leave enough honey on my bees? Should I have knocked them all down into a single deep or keep them in a double deep? Were the mites sufficiently in check early enough? If spring doesn't come early, will I need to feed fondant or pollen patties? These are all important questions that we should discuss, consider, and fret about for the next few months while there's really not much we can really do.



Photo: Jody Moore

One question that need not be discussed, however, is whether or not to wrap your colonies in insular paper. In North Carolina, unless your apiary is atop Mt. Mitchell, it really isn't needed. Why? Because the biology of the bees suggest that they can handle our winters just fine. Honey bees, particularly those of European descent, are selectively favored to survive fairly long winters. So, unless you're keeping Africanized honey bees (which I certainly hope you're not!!), they are well adapted to prolonged durations of cold weather. Indeed, this is precisely the reason why they store honey in the first place—to have something to eat during extended foraging dearths, not for you to bottle up and give away as holiday gifts. So as long as your bees have sufficient honey stores and are physiologically capable of long winters, the bees should be just fine.

Honey bees have two main ways to stay warm during

cold periods: heat conservation and heat generation. Conservation starts with having a good cavity (like your beehive) with all of the cracks and crevices sealed with propolis. This is the main reason why you should never go into your hives during the winter, because it breaks those seals without the bees being able to repair them. The other means of heat conservation is through clustering, where the bees nestle together to share their body warmth. Bees begin to loosely cluster when the ambient temperature gets below 64°F, they stop foraging when temperatures drop below 50°F, and they continue to cluster more and more tightly until they reach a maximum density at an ambient temperature of 14 °F. Below this temperature, they kick into heat-generation mode, where they start to “shiver” by exercising their wing motor muscles without actually flying (imagine warming yourself up by doing a bunch of jumping jacks). It's only when the external temperature is below -20 °F for an extended period of time that the bees can no longer conserve plus generate heat enough to survive very long. This is when hive wrapping can be helpful for the bees to add a little bit of insulation.

Temp (°F)	Cluster behavior
64°F	Bees begin to cluster
50°F	Foraging activities stop
14°F	Cluster reaches maximum density
-20°F	Minimum prolonged ambient temperature

While winter can last longer or shorter from year to year and depending on where you are in the state, it almost never is severe enough to warrant wrapping. The mountain region and its higher altitudes tends to have longer winters, where the average lows can be below freezing for 3 months of the year and the average highs don't make it above foraging temperatures for December-February (according to the US Climate Data). Even yet, ambient temperatures still rarely fall below the minimum-clustering temperature in Asheville, which means that bees still have ample means to both conserve and generate heat without the need for beekeeper intervention. In other parts of the state the conditions are even more favorable, with average high temperatures in the Triad region only being below minimum foraging temperature for 1 month on average and the average low temperatures in Wilmington never getting below freezing.



As such, there should be much less of an emphasis on wrapping our beehives during the winter. Instead, we should be focusing on the three old beekeeping adages that should guide our fall management:

**1. Take your winter losses in the fall.** It is far, far better to unite a weak colony with a stronger colony late in the season than to try to nurse it through the winter. Colonies need a critical cluster size of healthy bees to make it through even short dearths, so consolidate when you can. One strong overwintered colony can often make more than two or more splits the following spring, so you're much better off overwintering with fewer but stronger colonies.

**2. Bees don't freeze to death, they starve to death.** It can be hard if not impossible to predict the severity and duration of the upcoming winter, so be very conservative in how much surplus honey you take off your hives. Err on the side of leaving plenty for your bees, and you will be rewarded. Moreover, the placement of the honey with respect to the cluster is also critical; be sure to put the honey above the cluster so that they can move up in the nest rather than

horizontally or have to move down, which they prefer not to do.

**3. Invest in winter bees and they will invest in you.**

Winter bees are physiologically different from summer bees so that they can live up to 6 months rather than merely 6 weeks. They have greater fat stores so that they have the energy to make it through prolonged dearths and, importantly, can start rearing brood when spring finally arrives. This is why it's so critical to keep varroa mites under control in the fall—that's when colonies are rearing winter bees, so if the mites are parasitizing them, they won't have the fat stores to live nearly as long.

OK, I made up that last one, but it's also perhaps the most important and really *should* be an old adage. Just think of mite control as thinking ahead to the winter, when you can reflect back and feel as confident as possible that you've done everything you could to minimize your winter losses. If winter is the time of reflection, then be sure that your fall management reflects positively upon you and your bees.

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# Master Beekeeper Program

## Growing the Program

by Doug Galloway Master Beekeeper Committee Chairman

**The New Year signifies** the advent of annual beginning beekeeping classes offered by many of the NCSBA Chapters. These classes provide folks interested in the honey bee an opportunity to decide if beekeeping is right for them. We all know beekeeping has many rewards, but it also has several challenges. As the chapters serve the needs of their beginning beekeeping students, the Master Beekeeper Program Committee offers these ideas in hopes they will benefit our chapters and their students:

1. Chapters should take advantage of the Certified Level Curriculum and the Certified Level Reading List offered on the MBP page of the NCSBA website.
2. Encourage your new students to become familiar with the NCSBA website and the MBP page to take advantage of the learning opportunities they can find there.
3. Chapters are encouraged to delay offering the Certified Level exam on the final day of their beekeeping class in favor of offering it prior to a Chapter meeting. This allows new students time to study their bee class notes and texts. Then, after their exam, the student can stay to attend the chapter meeting and see firsthand the many wonderful learning and social opportunities our Chapters and Association has to offer.
4. Orange County has, for the last 3 years, offered what they term "Cluster Mentoring". This program reduces the demands on the Mentors by offering beginning beekeepers in the same geographic area the opportunity to work with a mentor or mentor team. The Cluster meets on a regular basis either at the Mentor's apiary or the apiary of one of the new beekeepers. This allows the group to be exposed to a variety of colony conditions. In some instances, this Cluster, with or without their mentor, continues meeting after the first season of beekeeping, building upon their experience. There is also a very beneficial social aspect to this process; everyone is in this together, striving to support each other and maintaining healthy bees. Your Chapter may have a similar mentoring program but if not, the MBP Committee recommends that you consider helping your beginning beekeepers succeed with a support/mentoring effort similar to this one. If you're interested in learning more, go to [TheOCBA.org](http://TheOCBA.org), on the

left column, click on "Volunteer to Mentor a First Year Cluster".



**At the NCSBA/SCSBA Spring Conference in Monroe, NC on March 1 and 2, 2019, The Master Beekeeper Program Committees of both state associations will be sponsoring a Bee Bowl. The event will be held on Friday evening, March 1, 2019, from 7:30 to 8:30 pm. So, grab a bite to eat after the conference sessions, and return to enjoy some evening entertainment.**

As the NCSBA Master Beekeeper Program matures, the committee is continuously fielding questions to provide clarification of both the Public Service Credits and the Sub-Specialties. On a timely basis, these advanced MBP level requirements are reviewed and when appropriate, updated. Please review these requirements on the MBP page of the NCSBA website regularly.

The MBP Committee regularly evaluates the level of knowledge required by a candidate to achieve each level in the program. To that end, the following changes will be made:

- A. Effective January 1, 2020, a passing grade for the written exam of the Master Beekeeper Level of the MBP will be an 80% or better.
- B. Effective January 1, 2020, a passing grade for the written exam of the Journeyman Beekeeper Level of the MBP will be 75% or better.

For those who have taken the Journeyman or Master exam at a testing event prior to 2020, and need to retake that exam, the old grading standard will be applied to their exam one time in 2020 only. After that, the new standard will apply.

These changes make our program stronger and fairly reflect the standard and knowledge that your fellow beekeepers expect as you work your way through the advanced levels of the MBP. Please continue to monitor the individual MBP levels as described on the NCSBA website, additional requirement and clarifications are being evaluated and will be applied when appropriate.



# NCSBA Born & Bred Program Update

by Etienne Nadeau Born & Bred Committee Chairman



**The winter months** are the off season for queen rearing. It's a time for the beekeeper to regroup, evaluate his/her previous season and plan for the upcoming year. There are two planned Born & Bred clinics in 2019. One is in Fayetteville, NC on Feb 16th and one is in Statesville, NC on March 16th. Visit the NCSBA website for information and registration. This is a great advanced-level class, for those wanting to learn how to raise local queens in their area.

As we experience these wet North Carolina winter days, I like to spend time in the wood shop getting things ready for the next season. It's a great time to assemble hive bodies and supers and in the case of the Born & Bred program, prepare mating nucs for the upcoming season. There are a variety of mating nucs on the market, from Styrofoam mini nucs to queen castles to two-frame deep nucs, and so on. Many successful queen breeders have raised queens in various style nucs through the years. Beekeepers can quickly compile a wide variety of equipment that may complicate the process, be ineffective and increase the price tag of rearing queens.

The preferred mating nuc system of the Born & Bred program is that of a divided medium nuc. The nuc consists of a solid bottom board with a standard 10 frame medium hive body. The hive body has a solid divider down the middle, thus creating two separate compartments. An entrance is placed on opposite sides and covered with a lid. Ventilation holes are drilled and covered with screen. For the convenience of the beekeeper, paper is usually placed on top, creating a flexible inner cover, so each side can be individually inspected (see the included photos).

This mating nuc allows the beekeeper the ability to pull frames from standard colonies to stock the mating nucs and eventually return those frames when no longer needed. Each nuc customarily contains three medium frames and a medium feeder. The colony has enough room to store resources while maintaining adequate space for the queen to lay, thus making the nuc fairly self-sustaining. A well-stocked mating nuc will be

able to support the mating of multiple queens throughout the season with some basic intervention by the beekeeper.



Photo: Etienne Nadeau

**Preferred Mating Nuc:  
10 frame medium with solid divider board**

Other successful mating nucs include the use of standard five frame nucs. These work well for apiary growth as the beekeeper will conduct a queen less split into the nuc and provide a queen cell for the colony. Once the queen is successfully mated, the nuc can be managed for growth into a full-size colony. Again, all equipment is standardized and can easily be interchanged with the production colonies one has on hand.

So, as you're in the wood shop this winter, itching to work your bees, think about your future mating nucs and the queens that you are going to want this spring and summer. Now is the time to build and assemble equipment and have it available for the season.



# Like Son, Like Father

by: NC State University Development Communications

**Oftentimes, it's the parent** who leads a charge and their offspring follow. When it came to supporting NC State through a planned gift, the Caubles – among several examples of multigenerational planned-giving philanthropy at the university – did things in reverse.

"I don't know if I've helped lead by example on this one, but I'd like to think that I did," Lewis Cauble said of his father, Jim Cauble. "He has definitely led by example for me his whole life."

When Lewis decided to create a bequest to benefit NC State's Apiculture Science Fund (<https://www.ncsuapiculture.net>), housed within the College of Agriculture and Life Sciences (<https://cals.ncsu.edu>), one of the first people he told was his dad. "I could kind of see the wheels spinning in his head," Lewis said with a laugh. "About three months later, he said he was thinking about changing his will, and asked how I'd feel."

Jim then set out to establish a scholarship. The Jim and Joan Cauble Scholarship is a need-based scholarship to be awarded to an undergraduate in the College of Engineering (<https://www.engr.ncsu.edu>). It's also meant to honor his late wife, Joan. The two got married just two weeks after Jim graduated from NC State in 1953 with a degree in mechanical engineering. "I was really proud of Lewis – he made the decision before I made mine," Jim said. "I was just really proud of his thought process."

The two have distinctly different ties to NC State, and each has given to the university over the years. As a graduate, Jim said he has always felt that attachment to the university that alumni often do, keeping up with sports and with several classmates over the years. An advocate for providing education to those who might not otherwise be able to afford it, Jim thought a scholarship was an important way to lend his support. "My feeling is, education is the number-one key to improving people's station in life," Jim said.

Lewis didn't graduate from NC State but was drawn to supporting the university by the research of Dr. David Tarpy, an apiculture specialist and a professor and extension specialist in the Department of Entomology and Plant Pathology (<https://tinyurl.com/yap35859>).

Lewis enjoyed a career as a field scientist for the Research Triangle Institute before deciding to take some time off to find his real passion in life. A stint as a carpenter led to an introduction to honeybees, which

quickly became his life's work. Today, he is one of six apiary inspectors for the NC Department of Agriculture and Consumer Services, serving beekeepers in the 21 counties of North Carolina's Western Region.

Lewis was introduced to Tarpy through the North Carolina State Beekeepers Association (NCSBA). He knew that Tarpy's work researching the science of beekeeping was vital, and something he wanted to support. He designated NC State Apiculture Science as the beneficiary of one of his 401k retirement accounts.



Photo: Becky Kirkland

**Jim Cauble with daughter Chris Roof and Lewis Cauble at the 2018 Pullen Society induction ceremony**

"My motivation is to set an example for other beekeepers to support NC State Apiculture, so that they can continue to lead the country with their groundbreaking research," Lewis said. "Our state association is probably the largest in the US, but there are other associations that support research and give more money to research."

"So if I can help bring the state association up to that top-tier level, I would feel good about that."

Jim's wishes upon his passing will expand the tradition of family giving. His will establishes a charitable remainder unitrust, a portion of which goes to the Jim and Joan Cauble Scholarship while his two children – son Lewis and daughter, Chris Roof – had the option to select a recipient of the remaining portion of that fund. Lewis asked that his portion be directed to the Apiculture Science Fund, while Chris' portion is earmarked for the VetMed Companion Pet Assistance Fund (<https://tinyurl.com/ycvbpqox>).

Continuing to lead by example one more time, Lewis was inducted in 2017 into the R. Stanhope Pullen Society, which recognizes those who follow in the footsteps of NC State's first planned giving donor – R. Stanhope Pullen (<https://tinyurl.com/y8urkhn4>) – by making a deferred gift through their estate. Jim got inducted this past spring and his son was there for the ceremony.

"Being inducted in 2017, and then watching Dad follow in 2018 was very special to me," Lewis said.



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# A Closer Look at Propolis

by: Lane Kreitlow

## Propolis is the sticky resin

honey bees collect from trees or other botanical sources and bring back to the hive for multiple household uses. Propolis is an antimicrobial, multi-purpose product used inside the hive to seal cracks, strengthen structures, repair comb, seal up any alternative entrances to the hive, and serves as a preserving or repellent agent. The wide use of propolis inside the hive is, in fact, one of the reasons why bees can stay healthy, in spite of living in a crowded space where germs can spread rapidly.

Bees collect propolis by scraping it off trees with their mandibles and packing it into their pollen baskets (corbiculae), where it is carried back to the hive. Propolis is not stored inside cells in the hive but is brought in and used as needed. It is widely used on hard surfaces inside the hive. Because propolis has antimicrobial properties, a thin layer painted over the inner surfaces serves to keep microbes in check.

Propolis is collected from a wide variety of sources, but some of the best sources include poplar, willow, alder, conifer, elm, horse chestnut, beech, and birch trees. Propolis ranges in color from dark brown or black, to reddish, and even green, depending on the source from which it was collected.

(who shall remain anonymous) was to scrape off the propolis from the inside of the inner covers and tops of frames of all of the hives in our research apiary, using a hive tool. Here is where I learned two important lessons about propolis: 1) propolis is, indeed, very sticky and almost impossible to remove while in this state but is much easier to remove when it is old and brittle and, 2) bees do NOT like it when you scrape off propolis from their home! Not surprisingly, we frequently got stung during those exercises, and thus approached it with dread. (I always got the feeling that our “propolis duty” was more about testing our bee fortitude than anything else.) But I digress.

Bees have many uses for propolis, including the following:

### Sealant

Inside the hive, bees use propolis to seal up cracks and crevices that are smaller than bee space. *Bee space* is the amount of space needed by a bee to move around easily inside the hive. Roughly 3/8”, bees seal with propolis anything smaller than bee space. Bees typically build comb in spaces larger than bee space. You will notice this phenomenon if you ever leave a spacer or partially filled hive body on the hive too long.

Like all insects, honey bees are cold blooded, though they have mechanisms that allow them to regulate the hive temperature. One of these behaviors is the tendency to reduce potentially deadly drafts by sealing cracks with propolis. Beekeepers should remember this during cooler weather and refrain from unnecessary and too-frequent hive inspections, as every time you remove the inner cover, you are breaking the propolis seal.

In addition, left unsealed, cracks and crevices can create rough edges, which irritate or tear the delicate wings or exoskeleton as a bee rubs up against it. A layer of propolis will smooth out surfaces to prevent this from happening.

### Bee Glue

Propolis is commonly referred to as *bee glue*, a name of obvious appropriateness to an experienced beekeeper. Bees seal with propolis gaps formed between the inner and outer covers, hive boxes, frames and anywhere else that might make the hive drafty or let in water. The familiar “cracking” sound created when you pop off the covers of a hive occurs when you break the aforementioned propolis seal. It is nearly impossible to open a hive or remove frames without a

Photo: Lane Kreitlow



**Sticky propolis on a hot day**

At or above room temperature, propolis is sticky, soft, and pliable, and can be easily manipulated by bees to fill gaps or varnish surfaces. Propolis becomes hard and brittle as it ages, or when the temperature drops below about 75°F. My first experience with propolis was early in graduate school many years ago. One of the duties imposed on us “lowly” students by our lab’s technician

*Continued Next Page*



hive tool, due to the widespread use of propolis within the hive.

### **Disinfecting**

Propolis is well known to have antibacterial and antifungal properties. Bees commonly spread a thin layer of propolis on hard surfaces of the hive to keep down the level of microbes inside the hive. Annoying as it may be, it is best for the bees for the beekeeper to leave the propolis inside the hive, even if it makes hive inspections more difficult.

### **Embalming**

One of the many remarkable qualities of honey bees is their keen sense of sanitation. As individual bees die, they are carried out of the hive so that their decomposing remains- and the ensuing reservoir of germs- do not remain inside the hive. In fact, one of the telltale signs of various brood diseases is the presence of dead, diseased larvae or pupae outside the front of the hive. Bees with a high level of hygienic behavior are more disease resistant because of this propensity to remove decaying and potentially infectious matter from the hive.

Sometimes, though, small animals that are too heavy for the bees to remove die inside of the hive. The highly antimicrobial properties of propolis make it an ideal substance with which to embalm dead creatures that are too large to be carried out of the hive. It is not unusual to find a mouse that has been entombed in propolis inside a hive.

### **Medicinal Uses by Humans**

The medicinal properties of propolis have been known for centuries. The ancient Greeks, Romans, and Egyptians knew about it. Pliny the Elder knew about it. Aristotle knew about it. Even Hippocrates, the father of modern medicine, is said to have used propolis to cure internal and external wounds. The first recorded human use of propolis dates back to 300 BC and continues to this day. Its use is particularly popular in herbal and natural medicine.

Advocates believe that propolis has antiseptic, antibacterial, astringent, anti-inflammatory, antioxidant, anesthetic, and possibly even anticancer properties in humans. Though scientific evidence is sparse with some of these claims, it is well established that propolis has antimicrobial properties. Propolis is often included in ointments, creams, and tinctures in a variety of products used for skin problems, burns, and wound healing.

Propolis is particularly popular in the natural products industry, though the medicinal use of propolis tends to be more popular in Europe than in the United States.

### **Harvesting Propolis**

Propolis is usually harvested with a propolis trap, a thin, plastic sheet that is perforated with narrow slits just slightly less than-you guessed it- bee space. They look similar to queen excluders, but with smaller gaps.



Photo: Lane Kreilow

#### **Bee Glue: Two frames stuck together with propolis**

The idea is that bees will propolize the gaps in the trap when it is used in place of the inner cover. The outer cover can be propped up just a bit to allow light into the hive. Bees will readily seal the trap with propolis in order to block out the light, as well as drafts created by the holes in the trap. When the trap is full of propolis it is removed from the hive for harvesting.

For propolis that cannot be easily scraped off, the trap can be placed in a bag and frozen, and the residual propolis removed from the slits by banging it onto a hard surface. Autumn is a good time to trap and collect propolis, since this is the time of year when bees seal drafts in preparation for winter.

To some beekeepers propolis may be an aggravation, but it is a crucial hive product that helps bees stay healthy. Think about this the next time you have difficulty removing your frames, and it might curb your frustration. As for my fading memories of scraping propolis all of those years ago, it did indeed instill a sense of bee fortitude but even more, an unwavering appreciation for all things honey bee.



# 4-H Beekeeping

by: Lynn S. Wilson

## Union County

Beekeeper Association's (UCBA) Jason McBride used an NCSBA grant of \$500 in 2018 to apply lessons learned from the Born and Bred workshop and give 14 nucs to young people. Thirty different youngsters, their parents and UCBA mentors have taken observation hives to "Ag Day" at three high schools, farmer's markets and local ice cream shops. The 4-H project reached more than 2,500 students and community members with information about the importance of bees. In addition to the 14 new beekeepers earning nucs, nine dedicated 4-H club members began with 5 colonies and entered Winter 2018-19 with ten. Hands-on classes, like a varroa mite sugar roll test taught by UCBA member Robbie Hargett, have engaged parents with their children.

Photo: Becky Baucom



**First students of the day are nervous, but excited**

Hargett, a close friend and UCBA member, opposed the project initially, because he feared it would drain energy and resources from the local chapter, but he has changed his mind:

"I've met some wonderful people as part of the 4-H program, and I now understand how much we gain by having an organization as powerful as 4-H to back us in teaching *everyone*, not only children, about beekeeping. We now have more committed members, volunteers, mentors, committees, and teachers in our bee club as a result of the 4-H program, and I'm proud to be involved."

Hargett said, "I'm also proud to say that we have the youngest state Certified Beekeeper at 9 years old. He and his father are actively involved in both clubs (UCBA and 4-H Beekeepers)." "He can light his own smoker!" added McBride.

The interest is there. Mecklenburg County Beekeepers Association (MCBA) also mentored a challenger for the youngest NC Certified Beekeeper. MCBA member Libby

Mack said: "We had a family in bee school last year with 3 home-schooled kids, 10, 8 and 6." Mack reports that all three kids passed both written and practical tests to become Certified Beekeepers. Person County Beekeeper Whitney Barnes said that while the 4-H beekeeping club for Person County stalled after the PCBA mentor for the group re-located with his employment, this grant could help motivate a potential leader to re-start the group.



Photo: Becky Baucom

**Benny Stegall and daughter Jenna Stegall, Levi Baucom and Goose Castellana are ready to get their hands in this hive**

"This grantmaking link with 4-H opens an opportunity for collaboration among chapters working with young people and for better use of existing 4-H resources", said Dr. David Tarp. He reported in December to the NCSBA Executive Committee that 76 people responded to his recent survey of beekeepers and extension agents. Tarp said, "One very telling finding was that 58% of the respondents were keenly interested in pursuing some type of beekeeping education among youngsters." Check with your 4-H agent to find out if your county is among them.

Liz Driscoll, 4-H Youth Specialist with North Carolina Cooperative Extension at NCSU, (919) 513-7346 or [liz\\_driscoll@ncsu.edu](mailto:liz_driscoll@ncsu.edu), is also a resource for starting a 4-H Beekeeping project. Driscoll has facilitated North Carolina's participation in the National 4-H Beekeeping Essay through the Foundation for the Preservation of Honey Bees, for several years. The 2019 essay topic is "Honey Varietals, State to State", particularly relevant as NCSBA's Certified Honey Producers strive to raise the market value of varietal honeys.

"Please let me know if you have any questions", said Hargett. He can be reached at (704) 214-7227.





Photo: Becky Baucom

Elizabeth Hargett explains the sugar roll test for Varroa mites

And Jason McBride? He's just joined the NCSBA's Executive Committee to complete a term as the Senior Regional Director for Piedmont NC. The Regional Directors plan to visit every chapter two times in 2019. Perhaps on one of those visits, chapters may want to invite McBride to talk about the Union County 4-H experience. Members may apply for grants from an NCSBA 2019 budget of \$2,500, approved at the December 2018 Executive Committee meeting, to help launch 4-H beekeeping projects. Letters requesting a grant must outline the purpose of the project, and proposed use of funds should be addressed to Chris Apple, NCSBA's 2019 liaison with Cooperative Extension at [chrisapple1231@gmail.com](mailto:chrisapple1231@gmail.com). The applicant must apply first to a local chapter of the NCSBA. Project expenditures and results must be reported by a date determined when funds are accepted.

## ~ Dr. Tarpy's Survey ~

### What led you to do this survey?

I kept hearing about all of the great work that beekeepers are doing out there with young people and 4-Hers, but it was always sporadic and anecdotal. I also know that NC Cooperative Extension has an entire subdivision for 4-H with many excellent agents located on campus and in the counties, but I wasn't sure how (or even if) the NCSBA was tapping into these excellent resources. So, my intent of doing this survey was simply to try and get a rough idea about who was doing what and where when it comes to 4-H/youth beekeeping education. I set up a simple GoogleSurvey page and sent it to the NCSBA county listserv, the Wolfpack Waggle listserv, and all of the CES 4-H and Agriculture agents.

### Can you summarize results?

We had an amazing 78 people fill out the survey, which was higher than I had anticipated. Most (42%) of the respondents were beekeepers, with 31% being 4-H agents and the remainder being a mix of other interested groups. While there were many explanations of the dozens of different initiatives that are ongoing, one very telling finding was that 58% of the respondents did not know if there were any programs in their area but were keenly interested in pursuing some type of beekeeping education among youngsters. This seems pretty clear to me that there is a large yet-untapped potential for harnessing this willingness to conduct 4-H or other education for young beekeepers.

### Opportunity for NCSBA?

I see this as an opportunity in two ways. First, there is a terrific incentive for the NCSBA to compile the efforts of those in the counties who are already conducting 4-H beekeeping initiatives, form a network of interested individuals, and help each learn from each other. Right now, individuals are conducting these initiatives in a vacuum, but the NCSBA board is currently discussing the possibility of creating a position at the state level who could serve as a liaison ("4-H Tsar"). Second, I think it would be a true lost opportunity if the NCSBA did not harness the excellent resources of the 4-H agents, their experience, and their expertise. Many of those agents seem poised to collaborate with beekeepers at both the local and state levels, so it would be a great opportunity to start those discussions and see what possibilities might become a reality.



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# Balancing the Needs of Horses & Honey Bees

by: Darryl Gabritsch



**The balancing act** of managing the needs of honey bees while managing the needs of horses is challenging. Many articles have been published on the management of horses or the management of honey bees, but it's difficult to find an article addressing the coexistence needs of both. Honey bees need suitable locations to live, water for hive cooling and honey dilution, and nectar and pollen producing food sources. Horses need suitable locations to live, water for drinking, and food source areas free of toxic plants. The challenge for the beekeeper is how to provide support for the needs of the honey bees without harming the horses and still meeting the horse's needs.

The first challenge is a good location to live. Horses need large fields with lots of sun with patches of shade, ample room to run, a water source and, in a perfect world, some sort of overhead shelter. Honey bees need to have their hives facing South, an area that is preferably in full sun to combat the greater wax moth (*Galleria mellonella*), small hive beetle (*Aethina tumida*), and some diseases. The hive also needs to be relatively near water and not in low areas where night temperatures drop too low. Hives should not be located in the horse paddocks since horses are naturally curious and might knock over hives, thereby creating coexistence issues for both the horses and the honey bees. One possible scenario is that a horse knocks over the hive, the honey bees become defensive and sting the horse. The honey bees are at a loss until a beekeeper puts hive back in order. The horse is at a loss because it gets stung, and possibly gets more severely injured by slipping and injuring a leg, possibly running into a fence and getting a laceration, etc. (let your "what if" imagination run wild) as the horse runs away from the threat. Calling a veterinarian out to suture a laceration is an expensive lesson that's best not learned the hard way. A farm call for a veterinarian to suture a minor laceration could cost well over \$200 in initial costs, plus any follow-up visit costs that may be needed. The location challenge is further complicated by water needs of the honey bees and the water needs of the horses.

The second challenge is balancing water needs of the honey bees and the horses. The honey bees need water to dilute honey and to cool the hive during hot weather. The horse needs gallons of water to survive. If the hive is too close to horse troughs the bees can intimidate the horse as numerous honey bees fly around the watering troughs as they forage for water. I recently

observed this firsthand when my wife, a veterinarian, came inside our house and told me that I needed to "do something with the honey bees". I went out to investigate the problem, and sure enough there were more than two dozen honey bees buzzing on and around the water trough as the horse repeatedly tried to get water. There stood the poor horse desperately trying to get to the water while swatting at the honey bees with its tail as the bees buzzed the horse. Honey bees might fly as far as two to six miles to get water, but they prefer closer distances. In a perfect world the apiary would be located within 300 feet of a natural water source such as a pond or creek that is located outside of a horse paddock and located between the horse paddock and the hive since honey bees make an average of 50 to 100 trips a day for water during hot weather. Most people don't live in the perfect world. Things that have worked to help solve the water challenge:

- Put a smaller water trough near the bees. You can make it more inviting by adding a capful of bleach to scent the water as long as the trough is fairly large, and by adding floats to the water such as yellow dog bone sponges or a PVC pipe float with window screen zip tied to it. The bleach scent, as well as the sponges and /or PVC float, makes it easier for the honey bees to find the water trough as they forage for water. I usually add several sponges to the top of the window screen covered float. The PVC float and window screen will keep the sponges from getting saturated and sinking to the bottom of the trough. You should change out the water in the troughs about once a week to keep mosquitoes out. You will also need to scrub the tubs (brush only, no soap) and rinse sponges to keep algae to a minimum.



*Apiary water tub with PVC float and dog bone sponges*

- Put a division board feeder with a cap and ladder system filled with water inside the hive.

- Put a slatted rack on the hive. The slatted rack is normally used with solid bottom boards, but can be used with screened bottom boards. It normally isn't needed if you are using a screened bottom board with the IPM sticky board removed. The slatted rack fits between the bottom board and the bottom brood chamber hive body. The slatted rack has the same outside measurements as the hive bodies above it. The rack is normally about two inches deep, with a solid piece of wood horizontally across the front of the rack and parallel slats at the back of the rack that align with the brood frames in the brood chamber above it. The slatted rack provides an air space between the bottom board and the brood chamber which helps keep the bees cooler in the summer.

- Active ventilation measure: Install a solar powered ventilation system on top of the hive. This is an expensive endeavor, but may be necessary if you want to keep both horses and honey bees in close proximity to each other. A solar powered ventilation system replaces an inner cover. The ventilation system goes under the telescoping top cover. Solar powered ventilators use a solar panel to power a small DC powered fan, have a screen under the fan to prevent honey bees from touching the fan, and have vents normally facing the front of the hive. Typical costs can be around \$130 or more for each solar powered ventilator system.

- Passive ventilation measure: Install a screened ventilation box in place of an inner cover. There are numerous plans on the internet on how to construct them. They are simply a frame (converted honey super, 1"x4" boards or similar size boards) with holes drilled on all sides with screen stapled to the inside of the frame covering the holes. Some versions even put screens horizontally on the top and bottom to serve as a screen barrier to keep honey bees from coming out of the hive as you pour sugar syrup through the top of the ventilation box into hive top feeders if the ventilation box is placed on top of a hive top feeder. Passive ventilation boxes aren't as effective as the active solar powered ventilation systems, but they are a cheap option for the budget conscious beekeeper. Typical costs can be around \$10 or less for each ventilation box if you make it yourself.

- Temporarily put shade over the hives. Construct a removable shed type covering that could be placed over the hive that provides air space between the shed and hive while leaving room for the bees to fly into and out of the front of the hive. The disadvantage to shade on hives is that it increases the chances of greater wax

moth infestations in weak colonies.

The third challenge is balancing food needs of the honey bee while avoiding plants that are toxic to horses. There are many great nectar and pollen-producing plants available to the beekeeper, but you must do extensive research to ensure the plant isn't toxic to the horses. I read several books and articles on good nectar producing plants and selected the black locust tree, *Robinia pseudoacacia* and Wild cherry tree, *Prunus serotina*. My wife quickly pointed out that they are both toxic to horses. She then handed a copy of her toxic plants bulletin to me and told me to do some research before I ordered any plants. Lesson learned: What's good for the honey bees might not be good for any nearby animals. You can research plant toxicity to animals from numerous sources. You should cross reference multiple research sources for information since a single source may not list your particular plant, whereas, another source might have it listed as being toxic. You need to closely verify both the common name and the scientific name of selected plant to ensure the plant you are researching is correct. For example, if you search lily of the valley (common name) without cross referencing the scientific name you would find that lily of the valley, *Pieris japonica* (a 4-8 foot tall bush) is toxic; whereas lily of the valley (also known as sourwood), *Oxydendrum arboreum* (a 20-30 foot tall tree) is not toxic and produces a nectar that honey bees convert into a sought after honey. The starting point locations to research toxicity that this author used are:

- <https://tinyurl.com/ya6pvzng>
- <https://tinyurl.com/ojasgpk>
- <https://tinyurl.com/y8q4y4bb>

- Plants Poisonous to Livestock and Pets in North Carolina, Revised Edition (North Carolina Agricultural Research Service Bulletin, No. 414) Paperback – 1994 by James W. Hardin (Author), Cecil F. Brownie (Author). ASIN: B007FCS6HU . The book is a bulletin produced by the North Carolina Agricultural Research Service, North Carolina State University, Raleigh, NC

In the end I decided to order several tulip poplars, *Liriodendron tulipifera* trees and sourwood, *Oxydendrum arboreum* trees to plant near my honey bees. The bees will get a good nectar source and the horses will get a natural shade source. You CAN have happy, healthy honey bees and horses co-existing in close proximity if you simply do a little planning and research.

*This article was previously published in Bee Culture and American Bee Journal. Darryl Gabritsch lives and keeps bees and horses in Moore County with his family.*



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*Bee Culture Magazine. The 2019 Calendar. NCSBA member Kim O'Shea's photo, 'Emergency Queens' was chosen for February. She didn't know whether to pipe, toot or quack... she shrieked! Great reminder too, that the camera is a great tool in the bee yard for inspections and observations. More as a matter of record, but, if you can share the many wonders of what you see with the Community, wonderful!*



The **Cabarrus County Beekeepers Association** proudly presented Dr. David Tarpy with a check for \$1000 to help with honey bee research at the NC State University Bee Lab. Our donation was made from the proceeds of our 2018 Cabarrus Beekeepers Present: Kim Flottum Seminar. The donation was made in honor of Kim Flottum and Kathy Summers for their going above and beyond the call of duty to help our club organize this event.



Photo: Mark Smith

Todd Eury, Cabarrus County Beekeepers President (R) presents Dr. David Tarpy with donation to NCSU Apiculture Fund





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