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North Carolina State Beekeepers Association

~ Since 1917 ~

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On the Cover:

2020 Bee Buzz Photo Contest Winner

Geoffrey Leister

Honey Bee foraging on a flower of Borage or
Starflower (*Boragoofficinalis*)

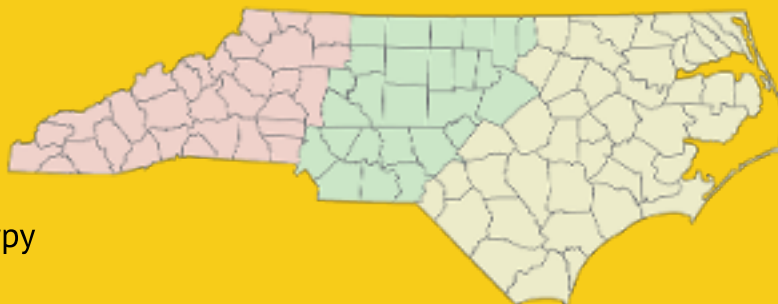
North Carolina State Beekeepers Association



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

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From the *Bee Buzz* Editors:

Bee Buzz Story Submission Deadlines: Spring : Jan 7 - 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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Message From The President

by: Doug Vinson, NCSBA President

The comments in this article are written from the perspective that human health and well-being must take priority over most all else. I invite you to read with a similar perspective.

The calendar year 2020 is nearing its end and there are plenty of comments read and heard celebrating its ending. This sentiment is easily understood considering the disruptions and difficulties associated with the Covid-19 viral pandemic. Throw in civil unrest and an election year and, wow! Even the bees seemed to have noticed: excessive swarming, hive beetle onslaughts, serious queen issues, foraging and gathering in spurts and other not-so-normal behavior.

Notwithstanding, our own Association's normal activities have either been suspended or greatly altered. Restrictions that led to cancellation of our 2020 Summer Meeting, State Fairs, suspension of MBP testing and Born and Bred training are examples. Of just as great a concern is the effect on individual chapters. Many have substituted virtual meetings for in-person meetings, but it is just not the same. Unfortunately, all this affects our bottom line as our fixed overhead continues and our income diminishes.

Currently, we are hearing that Covid-19 cases may spike in the next 12 or so weeks which will put us into the new year. This just adds to the uncertainty associated with planning for statewide meetings and other association activities.

Despite all the gloom of 2020, you can be proud that the NCSBA has not stuck its head in the sand. Read on for some examples of our accomplishments in spite such trying times.

In 2018, the membership approved a recommendation from the leadership to adopt an electronic voting process. The wisdom in doing so was not so apparent at the time but has given us a process to successfully have this year's officer elections at a time when in-person meetings were impossible. Additionally, the same process allowed approval of some much-needed changes to our Constitution and By-Laws.

Our Certified Honey Program has made great strides in 2020 with renewals and new participants. The program is showing a nice profit for the year, a testimony to the effort given it.

The GAP Program is active and continues to be popular. I am aware of several chapters working toward an entry.

The 2020 Achievement Awards are being decided and will be awarded at some point in 2021, hopefully at the Spring Meeting (?).

Our State magazine has awarded the NCSBA a \$2500 grant for future promotion of the association in that widely circulated publication. Details for this great opportunity will be forthcoming.

Publication of our quarterly magazine and membership directory continue to be business as usual.

A very comprehensive, up-to-date speakers list has been developed and is available on the website. This is a great resource for your chapter meetings.

Even with chapters unable to meet, there has been continued interest and activity in the 4-H Grant Program. Two grants have recently been awarded. Consider this opportunity for your chapter.

Vendors of beekeeping products are a large part of our activities and have been subject to restrictions as well. We are looking for ways to assist our faithful vendors with advertising. Our website, Facebook and publications are areas that we may be able to better use to satisfy that goal.

Recognizing the need to present educational material remotely, Dr. David Tarpy has given much time and energy to develop the YouTube channel "Apiculture Online: Hive Chat with NC State". This bi-weekly webinar is not a NCSBA function, but we greatly benefit from it. Watch for announcement of upcoming sessions.

Not necessarily a 2020 accomplishment, but recognition must be given to past leadership that had forethought to reserve capital for times such as these. I am aware of several state associations in dire financial straits.

Obviously, I have not included all individual and chapter efforts to support beekeeping in NC. My intent is to illustrate with a few examples that the NCSBA is alive and well! We are a resilient group and poised to accomplish much more as health restrictions permit.

Bee safe.

Doug Vinson, President NCSBA

Dues Reminder

Paying dues to join or renew may be a bit challenging this year because local chapters are not meeting in person. Some are providing a mailing address to do so. Alternately, you may elect to renew online which is quite simple to do. Your membership is crucial to the success and operation of the NCSBA so please continue to be supportive!



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BeeFeeders

North Carolina Pollinator Plants

by: Ulana Stuart, NC State Extension Master Gardener Volunteer

Like many of you, I have spent so much time out in my garden and outdoors this year. It has been truly a pleasure to speak with many neighbors walking by and hearing many comments on my flowers and the attendant insects. My favorite comments were from kids who noticed so many details on pollinators which gave me hope for our future.

This summer I was observing the two shrubs listed below whose flowers were literally covered by honey bees. I'm planning on giving both of them more space to grow next year instead of pruning back in late winter.



Rosa palustris 'Swamp Rose'

Swamp rose (*Rosa palustris*) grows up to 3 to 5 feet high by 3 to 6 feet wide. This native shrub naturally occurs in open wet meadows. It grows throughout zones 4 to 9a. Six hours of full sun is ideal but it will tolerate partial shade (but not less than two hours). Swamp rose has clusters of large 2 1/2-inch fragrant, rose pink petals with big yellow stamens starting in early June through July and possibly into August, depending on your location. It has slender reddish stems with 1 to 3-inch compound leaves of five to nine leaflets and back curving prickles that distinguish it from other native roses. Towards the end of summer, small round red-orange rose hips will form which are visually attractive. The smaller rose hip size can make it easier for birds to handle and eat. Swamp rose also provides year-round cover for songbirds with the leaves often turning red in the fall.

As the common name indicates, swamp rose likes damp soils but tolerates some soil dryness after establishment. It works well in a rain garden or pollinator garden and attracts butterflies besides bees. It spreads slowly by suckers but is also easy to maintain to a certain size by pruning it back in late winter. Honey

bees collect a large amount of pollen to feed their brood and some nectar.

Shrubby St John's wort (*Hypericum prolificum*) grows to a height of 1 to 4 feet and width of 1 to 4 feet. This small native deciduous shrub grows well in NC zones 4 to 8 in moist to dry, well-drained soils and tolerates clay soils. It grows in full sun to part shade and it is one of the most adaptable, hardiest and underappreciated of our native shrubs. The showy buttercup yellow flowers are about 3/4 to 1-inch in diameter consisting of 5 petals with a "powder-puff" of yellow stamens borne in a cluster of other flowers that cover the shrub. Shrubby St John's wort can bloom for the entire summer. They have interesting fruits which form 1/2-inch cone-shaped dry pods that attract birds. As they age, they develop an attractive exfoliating bark. This shrub will provide a compact shape in the sun but in shade, they are more open and spreading. Due to its availability as a native ornamental shrub Shrubby St. John's wort are ideal to plant in a shrub border.



Hypericum prolificum 'Shrubby St John's Wort'

Bloom period for the native St John's wort is late June through July and August depending on the location. Honey bees love them for both the pollen and nectar but they will attract other pollinators as well.

Either of these low maintenance shrubs work really well for your bee feeding needs. In a more natural setting where you have the space to let it spread out, the swamp rose is very low maintenance. You will not have to worry about all the foliar diseases that are associated with hybrid tea roses. In a smaller space or an area that needs to have a neater appearance, try Shrubby St John's wort.

Remember that in North Carolina gardeners are able to plant all year round (even in winter) as long as the ground isn't frozen.

For more information on planting in NC please visit <https://plants.ces.ncsu.edu>



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Master Beekeeper Program Growth and Learning

by Doug Galloway Master Beekeeper Program Chair

It's the time of year when both beekeepers and bees are nestled in for a long winter's respite from mite monitoring, foraging, feeding and brood rearing. It's a time to focus on other activities less pressing but equally important to the success of our colonies. All the tangible, mechanical labors of a beekeeper like cleaning equipment, building hive stands, maintaining bear fencing, organizing harvesting equipment, assembling new woodenware, and so on, are a winter priority. This is also a great time to expand your knowledge and understanding of beekeeping and our honey bee.

From a growth perspective, the Master Beekeeper Program is happy and fortunate to announce the addition of Greg Wolgemuth, NCSBA Master Beekeeper, to the committee. Greg completed his Masters in the summer of 2019, has served as Co-President of 5-County Beekeepers Association for two years, is also a local member of Wilson County Beekeepers Association and serves that chapter and the MBP as the Chapter MBP Coordinator/Proctor. Greg's contact information is on the NCSBA website as a committee member. He is a welcomed addition joining Cynthia Speed, Chris Apple, and myself in serving beekeepers who wish to have their knowledge and public service recognized by their participation in the Master Beekeeper Program.

With many Beginning Beekeeper classes curtailed due to the pandemic, many are now attempting, following CDC guidelines, to offer the Certified Written test to complete those classes. Though in many locations it may be too late in the year to offer Certified Practicals, the candidates have up to 4 years to complete their certifications and getting past the written exam while bee school knowledge is still fresh in their minds is a good idea.

As our chapters are looking ahead to Bee Schools this coming year, the MBP has been working on updating the Certified Study Guide. Greg Wolgemuth has taken the lead on this and is adding reference information to help the candidates locate answers and supporting details about the different subjects highlighted in that guide. It is our hope to have this available before 2021 Bee Schools begin.

As a reminder, the MBP favors three references for Bee Schools and the bulk of the questions on the Certified Level exam. They are "Beekeeping for Dummies, 4th Edition, Howland Blackiston", "The Backyard Beekeeper, 4th Edition, Kim Flotum", "First Lessons in Beekeeping, Keith Delaplane". The Committee recognizes that "First Lessons" is becoming dated, and will move off our list in time, but it still offers quality information, is easy to

read, and a valuable resource for beginning beekeepers.

For Advanced levels, the MBP uses multiple resources for test questions. The Journeyman Level test favors content from "Honey Bee Biology and Beekeeping, Dewey Caron with L. Connor" and "The Beekeeper's Handbook, Fourth Edition, Sammartaro and Avitabile". For the Masters Level, "The Hive and the Honey Bee, 2015 Edition, Dadant Publishing" is by far the most important resource.

Your MBP committee continues to prepare monthly Quizzes and Games which are offered for your learning and enjoyment on the NCSBA website. These questions attempt to stimulate your interest and challenge your knowledge of beekeeping. They are not intended as a replacement for reading the several texts referenced above or staying current by subscribing to and reading a periodical about beekeeping. Your MBP committee continues to expand our test question database to fairly evaluate your knowledge of beekeeping, recognizing that the world of beekeeping is dynamic and to be a successful beekeeper, ongoing education is mandatory.

To expand my teaching and testing perspective, I enrolled in the South Carolina Beekeepers Association Master Beekeeper Program Journeyman Class offered via Zoom. I have been a member of the SCBA for a couple of years now, so when an invitation to participate was offered to Association members, it seemed worthwhile to participate. They are using the "Hive and the Honey Bee" as their primary text for this class and it has been very well organized and instructed. As examiners, we are influenced by our peers, predecessors, and personal perspectives. It has been very enlightening to listen to well-educated, highly motivated speakers offer their perspective and insights about their respective subjects. At this writing, there have only been two of nine classes offered, and I look forward to the rest. Thus far, I am enlightened by their careful attention to those historical contributors to the foundations of modern beekeeping. WHAT do you know of Francois Huber or Charles Butler? The next class focused on Honey Bee species and sub-species along with an interesting discussion about bee mimics and recognizing them. CAN you recognize the anatomical features that differentiate the mimicking hoverflies or "bee-flies" from honey bees?

Your NCSBA board of directors will meet in November and a discussion of future meetings and associated testing will be on the agenda. Hopefully, we will be able to offer a predictable testing schedule in the not too distant future.

The MBP committee members wish you and yours a delightful holiday season and a healthy and prosperous New Year!

In the Apiary: Winter 2020-2021

by Nancy Ruppert, Apiary Inspector, NCDA&CS



As 2020 comes to a close, many of us would say, “Good riddance!” to what has been such a different and unpredictable year, even in apiaries. There seemed to be more frequent queen events than usual this year, many of them unexplained, and there was significant variability in both honey production and in swarming. Many beekeepers are looking forward to starting a new (and hopefully better) year soon.

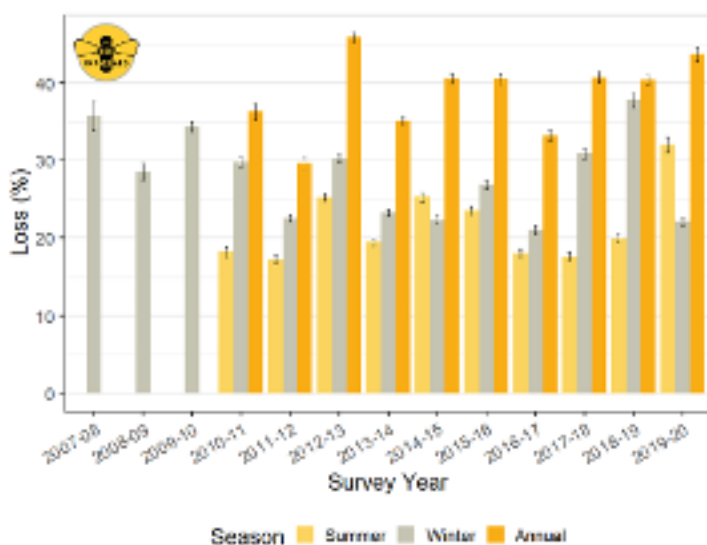
Meanwhile, we can play our part in helping improve honey bee survival during this most difficult of seasons: winter. Actually, we should have already taken steps before December (or even November) to help our bees get through winter alive. Productive queens during this past summer and fall, plentiful nutritional stores in the hives, and limited pest pressure (especially from varroa mites) will enable most colonies to sail through the winter with hardly any further effort from the beekeeper—in other words, if these three factors were successfully addressed before November, then those beekeepers can move on to other aspects of life without having to worry about whether their bees are alive or still present during the coldest weeks of winter.

which resulted in a decline in egg-laying; this can cause a real setback toward building up the eventual winter population of bees. By far the most common deficiency seen in autumn inspections has been related to varroa management, either not done correctly or not done at all. **Until we as beekeepers have a better understanding of varroa AND act in a timely and effective way as a result, we WILL continue to have unsustainable colony losses**, and the NC apiary inspectors will continue to focus on varroa mites in discussing honey bee health. Most of us (including apiary inspectors) don’t want either of those scenarios to continue!

So, now what? If you’re behind schedule in ensuring adequate food for your bees, you still have time to catch up. In parts of NC, there may still some warm days that you can try feeding thick syrup for the bees to easily store, but once December arrives, most of us will have to convert to solid carbs (candy boards, sugar cakes/patties, or fondant). This not only gives readily-available food to the colony, but also can help absorb the unwanted excess moisture that the cluster generates as the bees generate heat to stay warm. Pollen should not need supplementation until late December, since pollen is naturally available in much of our state through the fall and bees don’t need much protein until early winter. For more details on supplemental feeding, consult your local experienced beekeepers.



If you’re behind schedule on varroa management and your bees are still alive, the odds are still against you and your bees. Winter bees are already developing as early as September, and excess varroa and the viruses they harbor can shorten the lifespan of winter bees, thus beginning the colony’s cascade into population shortfalls and subsequent freezing to death. For accurate and useful info about varroa, review <https://www.honeybeehealthcoalition.org>. During winter, we ALL can benefit from learning more and preparing equipment / supplies for what’s likely to be another busy spring. (Don’t wait until spring to prepare!!) Happy Holidays!



During my apiary inspections of late summer and autumn of 2020, it was apparent that we as a beekeeping community are still falling short of adequate winter preparation. Some colonies need very little or even no help with this, but the truth in present-day beekeeping is that most colonies need at least some assistance in securing adequate populations and food supplies for the winter. Many colonies were low on food stores during the summer nectar dearth,



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Wolfpack's Waggle:

6 Beekeeping Projects for Your Winter To-Do list - Spring Will Be Here Before You Know It!

by Dr. David Tarpy

Department of Entomology & Plant Pathology, NC State University



Winter is supposed to be “down time”

for beekeeping, but in many ways it really isn't. First, the winter season is never quite as long as you ever think, and in many places in NC things never really slow down. Second, if you want to make things easier on yourself next spring, you better get a head start on a whole bunch of things because you won't have nearly enough time to do them when the bees are buzzing again. Here are a few things that you should strongly consider doing during this off season.

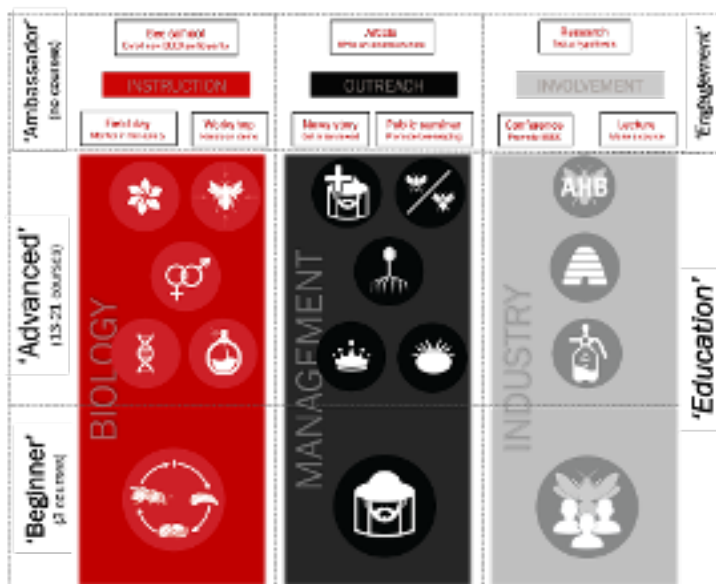
1. Break out the hammer, nails, and paintbrush. Building new hive equipment and, perhaps more importantly, repairing old or broken equipment is best done during the winter. After all, it's really hard to paint a hive when it has bees in it! Fashion wood or metal patches around broken corners, and a new paint-job can really spruce up your apiary while keeping the hives optimally weather-proofed. Culling old and darkened frames from any winter dead-outs is a perfect time to cycle through that old comb, which research has shown to really help improve colony health.

2. Frames now mean comb later. If you do them by hand, make extra frames of foundation during the winter because they're a lot more time consuming than other hive equipment. That way, you'll have extra boxes of frames to call upon if you need an emergency super, make a walk-away split, or have to checkerboard the brood nest to deter swarming. Spring is the best time for the bees to draw out new comb quickly during the main nectar flow, so you can't wait until the summer dearth to build up a ready supply of foundation frames.

3. Brush up on your notes. Review your notes from last year and learn from them. After all, those who do not know their history are doomed to repeat it, so use any problems from this past year as a learning opportunity for the next year. Beekeeping is full of trial and error, but it's often hard to see patterns if you don't look at the results over a longer period of time. Ideally, you should keep track of what you do to each colony and when, as well as its current condition. That way, you can connect the dots between how your bees look at any given time with what you did with them 2-3 brood cycles prior. Don't have notes from last year?! Then this is easy—make a plan for how you will take regular notes next season.

4. Curl up with a good book. There are so many good texts on beekeeping it can be hard to choose, but that shouldn't stop you. Challenge yourself by learning some new material or even reviewing topics you already know but can benefit from a different perspective. My mantra has always been to shore up your understanding of bee biology rather than beekeeping per se; the more you understand about how normal healthy bees are supposed to function, then it makes their management all the easier. The annual national beekeeping conferences have been cancelled this year, so all the more reason to catch up on some reading.

5. Life has gone virtual, and so has beekeeping education. It is unclear what the future holds with bee schools this winter and spring, but many have done a great job with moving to the online environment. This can make things a lot easier in some ways and more of a challenge in others. We have recently re-invested in our Beekeeper Education & Engagement System (BEES) by developing new courses at both the 'Beginner' and 'Advanced' levels, updating all of our previous courses, and liaising with local extension agents and beekeepers to hold online BEES schools. To date, our BEES network has served 2,473 students who have collectively taken 13,015 lectures for a total of 4,605 hours of online instruction. Check out our full course offerings at go.ncsu.edu/BEES or get in touch with us if you'd like to collaborate on an online short course this winter.



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Urgent: Bee Lab Condemned!

by Charles Heatherly Chair, NCSBA Legislative Committee

We have just learned that the NCSU Field Bee Lab off Lake Wheeler Road in Raleigh has been condemned and the staff working there has been told they will have to move. Where will they go? Nobody knows at this point.



Current Apicultural Field Lab

Four years ago, the University was warned that the building had significant problems and was in jeopardy of just this severe outcome. There are several problems with the existing building. The roof sags and leaks. The leaks have resulted in mold. The foundation is in need of repair. Plus, the building is inefficiently designed to accommodate the needs of a modern lab. For example, the storage room is in the basement, accessible only by a steep, narrow staircase.



Storage room accessible only by a steep, narrow staircase

When we first learned about problems at the lab, the North Carolina State Beekeepers Association (NCSBA), meeting in 2016 in New Bern voted unanimously to begin a campaign to raise funds for building a new, modern and state-of-the-art lab.

“We are committed to see that a modern new field honey bee lab is funded and built for the excellent research program that Dr. David Tarpy has put in place at NCSU,” said Doug Vinson, NCSBA President, “Dr. Tarpy and his staff have gained worldwide recognition for the splendid work they have done on behalf of protecting

the honey bee. It’s a shame that they are about to be thrown out on the street.”



Proposed Apicultural Field Lab

That effort in 2016 by the NCSBA led to the appropriation of \$2 million for a new lab by the North Carolina General Assembly in its budget last year. Unfortunately, the budget was vetoed by Governor Roy Cooper. When the General Assembly was unable to override the Governor’s veto, that ended the lab fund for the time being. Acknowledging that \$2 million is not enough to build and equip a modern lab, the NCSBA committed to leading a fundraising drive for the balance of funds needed.

The NCSBA began its campaign with a meeting with Dr. Richard Linton, Dean of the NCSU College of Agriculture and Life Sciences who suggested that we begin with a “scoping study” to ascertain the extent of the need for a new bee lab, what it would entail and how much it might cost. Immediately, the NCSBA contracted with a local architectural firm to do just that and paid \$7,500 for the effort.



Proposed Apicultural Field Lab Floor Plan

Dr. Tarpy and his staff worked with the architectural firm and developed a comprehensive plan and design for the new lab that would meet the program’s needs for the next half century or so. The plan was enthusiastically received by beekeepers across the state

and by members of the North Carolina General Assembly who without any opposition included funding in their budget.



Dr. Tarpy with Sen. Brent Jackson during a tour of the existing bee lab last year. To the right is Sen. Jackson, legislative aide and peeking over the shoulder is Dr. Richard Linston, Deal of the NCSU College of Agriculture and Life Sciences.

So, here we are being evicted out of the existing facility and with no money to build a new lab. Where do we go from here?

First, there must be an adequate alternate location for a field bee lab to operate. Honey bees are necessary for the success of North Carolina's \$84 billion agriculture economy. It is essential that we stem the 30-40% annual losses in recent years. Dr. Tarpy's recent research shows great promise for solving that problem. He needs a place to continue to work.

Second, we should re-evaluate the cost of a new lab. The \$2.5 million estimate of four years ago has been diminished by inflation and will obviously cost more due to the delay. We should adjust the figure and go back to the General Assembly and ask for an emergency appropriation.



Past President Paul Newbold presenting a plaque making State Senator Brent Jackson an Honorary Member of the North Carolina State Beekeepers Association for his work on behalf of the \$2 million appropriation last year for the new bee lab.

Third, the NCSBA should commit to a substantial fundraising campaign to provide the difference.

With that in mind, we should start calling our local members of the General Assembly and alert them to the challenge.



NCSBA Library Update

- Watching DVDs -

BEE CULTURE magazine has a monthly column called "Bottom Board" by Ed Colby. In the August issue, Ed talks about watching a video called "Honey in the Comb" by Eugene Killion. Ed had seen it before and made some very positive comments about seeing it again. So, I checked it out from the library and watched it... several times.

Eugene Killion's son Mark made the video and did a fairly good job. However, it was a little disquieting to only hear silence for about eight minutes near the beginning. What is most interesting is to see Eugene Killion's techniques with the colony to get perfect honeycomb with minimal bee footprints on the comb. He uses follow boards (hard to distinguish upon first viewing), queen excluders, and a piece of wood topping the brood box. The slat is needed because boxed-comb honey supers that are added atop the brood box are not 10-frame size.

This coming year, I am tempted to try producing some cut-comb honey (cut-comb uses regular 10-frame supers) by using some of Killion's techniques. It is a little scary since the colony is condensed to one deep that is very full of bees, queen cells are removed, and the colony queen-less for eight days. A new queen is put into the hive on the eighth day. But the hive could swarm.

Do you have a favorite DVD that you would like to comment about? Send me an email!

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

Bob Kemper, NCSBA Fred Deer Librarian kemper27530@gmail.com 919-731-2146

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Master Craftsman Project Summary

Queen Supersedure: Caused by Queen Pheromone or Brood Pheromone?

by Eric Talley NC Master Beekeeper

Over the years that I've been keeping honey bees and studying the problems associated with keeping bees alive and healthy, I have read numerous references that state that queen supersedure is based on the amount of queen pheromones. For instance, in Dewey Caron's book, *Honey Bee Biology*, page 117, "Cause of Supersedure – Queen supersedure results when the bees and queen herself perceive a failing queen. If a colony raising replacement queens is reduced in size such as by dividing, the smaller colony often discontinues attempts to raise new queens. Since the bees and the queen determine whether the queen is healthy or failing by the level of production of queen pheromone, queens may produce enough queen substance to satisfy the population of a smaller colony, at least until the colony gets bigger again. Removing eggs alone does not lead to queen replacement behaviors."

In the summer of 2015, I read an article by William Hesbach entitled "Splits & Varroa: More Colonies, Fewer Mites, New Queens – What Could Be Better", *Bee Culture* July 21, 2015. In this article he states "One way to accomplish a brood break is to capture her and leave her in the colony but restrict her laying to a very small area under a "push in cage".

Thinking that his method would allow a small amount of brood to be available for the varroa mites to still be able to reproduce, I caged the queens in a few colonies to confine them. I manufactured cages from 1/8" hardware cloth and didn't allow the queen to lay any eggs for 16 days to break the brood cycle completely. The problem is that when I released the queens on day 17, just as soon as the nurse bees had larvae of the appropriate age, each and every one of these queens were superseded.

I have also received calls from numerous beekeepers asking my opinion as to why the queens that were in the packaged bees they purchased were superseded almost immediately after they began to lay. I believe it is important to look at the timeline. For instance, if the bees are shaken into the package on a Thursday, picked up on Friday and driven to somewhere in North Carolina, a new beekeeper might pick up the package on Saturday morning and install it on Saturday afternoon. The queen should be released by the bees 3 days later and she may start to lay on that day but probably the next. The egg ecloses (changes to a larva) 3 days later, and at this time brood pheromone is present. Therefore, it could be from 8 to 10 days since the nurse bees detected brood pheromone.

My hypothesis is that queen supersedure is not based solely upon a decrease or the lack of queen's pheromones, but a combination of the presence of queen pheromones and brood pheromones. The lack of brood pheromones during the process of package preparation, shipping and subsequent installation (8 to 10 days) causes the supersedure of a queen of any age, young or old.

The Research Study

This study included three groups of 15 colonies each: one Control Group, and two Test Groups. The study was completed over a period of 12 weeks from the installation of packaged bees into hive bodies on 21 March 2020. Packaged bees and queens were purchased from Gardner's Apiaries in Baxley Georgia. Six-frame nucleus hive bodies were used during the study. Synthetic brood ester pheromone was produced and supplied by Dr. Brad Metz in the NC State Apiculture Program, who also provided a vile containing the solvent that the synthetic brood ester pheromone (BEP) was carried in.

Synthetic brood ester pheromone or the solvent alone was administered to all 3 Groups using a 3 3/4 X 6-inch piece of tin-foil on a cardboard backer (herein referred to as a tin-foil plate). All tin-foil plates were replaced (synthetic brood ester pheromone, or solvent) in the respective groups daily between 8 am and 10 am for the first 10 days of the study.



Figure 1

I traveled to Baxley Georgia the day before bees were to be shaken into packages. On the day bees were shaken I was allowed to go to the apiary to mark 15 empty package cages with a "P" and place a tin-foil plate containing 1.0 ml of dried synthetic brood ester pheromone into these 15 three-pound packages that comprised Test Group 3 before the bees were shaken into the package and the queen included in the usual manner. The other two groups of 15 three-pound packages (including the queen) each that were to

become the Control Group 1 and Test Group 2 were supplied with bees and a queen in the usual manner.

The apiary was organized to achieve random placement of test groups and appearances of the hives to reduce drifting by using four colors of hive bodies: Blue, yellow, orange and green (Fig.1). Numbers in varying shapes were placed on the hive bodies starting with 1 and in sequential order through 45 (Fig.2). Hive bodies were spaced five feet apart and replicating the color pattern. Packages were installed starting with a blue hive body, number 1, Group 1. The first Group 2 was installed into a yellow hive body, number 2 and the first Group 3 was installed into an orange hive body, number 3. Green hive body, number 4, received a Group 1 package, blue hive body number 5 received a Group 2 package, repeating this pattern of three test groups in four different color hive bodies throughout. In this manner, colonies in any group would only appear in the same color hive body every 60 feet.



Figure 2

(Control) Group 1: Fifteen 3-pound packages of bees, complete with a queen, were each installed into 6-frame nucleus (nuc) boxes, 1 frame of drawn comb, 3 frames of wax foundation, 1 frame feeder and a tin-foil plate containing 1.0 ml of dried solvent only. This control group was set up as though a new beekeeper had installed their first package of bees in the usual manner. These nurse bees were without brood pheromone for 8 to 10 days from the time they were shaken into the package at the supplier until this queen's eggs eclosed into larvae and supplied natural brood ester pheromone.

(Test) Group 2: Fifteen 3-pound packages of bees, complete with a queen, were each installed into 6-frame nuc boxes, 1 frame containing open brood (larvae), 3 frames of wax foundation, 1 frame feeder and a tin-foil plate containing 1.0 ml of dried solvent only. These nurse bees were without brood ester pheromone for only the period of time since they were shaken into the package at the supplier until they were installed into the nuc with a frame of open brood, approximately 36 hours.

(Test) Group 3: Fifteen 3-pound packages of bees, complete with a queen, were each installed into 6-frame nuc boxes, 1 frame of drawn comb, 3 frames of wax foundation, 1 frame feeder. The tin-foil plate placed at the time the package was first created in Georgia was replaced. These nurse bees were exposed to synthetic brood ester pheromones continuously from the time of removal from parent colony until the queen's eggs had eclosed into larvae and supplied natural brood ester pheromone.

Colonies in all Groups were inspected weekly for a period of 12 weeks (Fig. 3). Information from each frame of each colony, every week, was carefully recorded on a Field Data Collection Sheet. Photographs were taken of frames containing the queen, queen cells, and/or both. The following is a list of the data collected each week:

- 1) Number of frames of equipment
- 2) Estimated number of frames of adult bees
- 3) Queen status, (QS- Queen Seen), (VQ- Virgin Queen), (QC- Queen Cells), (LW-Laying Worker), (DL-Drone laying queen)
- 4) Number of queen cells: (Status; presence of larvae, nurse bees feeding, capped, hatched or the side torn out)
- 5) Estimated number of frames of capped brood
- 6) Estimated number of frames of open brood (larvae)
- 7) Estimated brood pattern (0 to 5); (0 = very poor, 5 = excellent)
- 8) Estimated number of frames of eggs



Figure 3

Results:

Growth of the colonies

Over the course of the 12-week study, estimates were made each week as to the number of frames of eggs, open brood and capped brood. All packages grew at

about the same rate, with the exception of the colonies in Group 2 (open brood). This would be expected since the colonies in Group 2 received a frame of open brood when the packages were installed, thereby starting out a little stronger but evened out over the course of the study. There was not enough difference in the sizes of the colonies at the end of the study to say that the size of a colony had any effect on the desire of the colony to supersede the queen.

Propensity of queen rearing

I observed that of the 45 colonies in this experiment, over half (51.1%) raised queen cells within the first 12 weeks of colony establishment (Fig. 4). The likelihood for a colony to raise queens was dependent on the experimental treatment, with Control colonies having a higher likelihood (73.3%), Brood colonies having a lower likelihood (26.7%), and BEP colonies being intermediate (53.3%). Interestingly, 59% of colonies that raised queens replaced the original queen, which means 41% "recovered" from their supersedure attempt (that is, they initiated queen rearing but did not follow through on raising a new queen and eventually accepted the originally introduced queen).

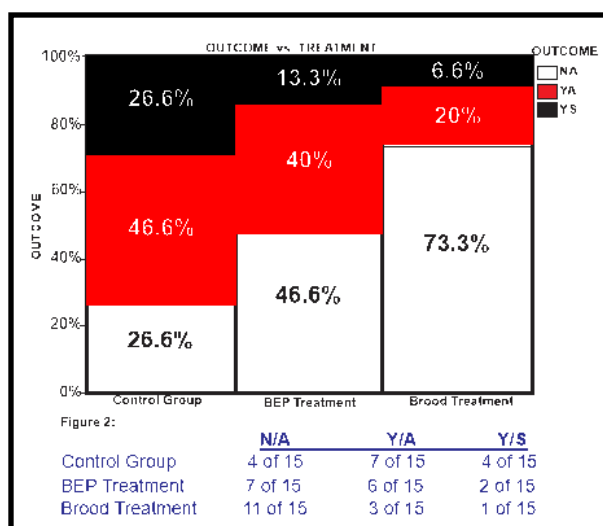


Figure 4

As such, we had three separate 'outcomes' for the initially installed queens in these packages: those that did not ever raise queen cells and accepted the original queen (NA, white); those that initially reared queens but still accepted the original queen (YA, red); and those that successfully superseded the package queen (YS, black), (Fig. 5). While more Control packages raised queens, a high percentage of them did not successfully supersede the original queen. The Control and BEP groups had an overall ~60% successful acceptance of the package queen. Colonies started from BEP packages did not attempt to rear queens in as many colonies, but the majority of those that did ended up replacing the original package queen. Installing the package onto open brood (Brood treatment) resulted in ~90%

acceptance of the original queen.

Numbers of queen cells

I also observed that of the 23 colonies that raised queen cells at some point during the 12-week experimental period, there was high variation among them as to the total number of cells recorded each week. Colonies that built queen cells constructed on average 11.26 cells. One colony built an amazing 32 cells, while 2 colonies only built 1 cell each. I should note that because a simple count of cells per colony was summed across the weeks, some cells may be double-counted in this total and thus inflate the overall number. Since the development time of a supersedure queen cell (from larvae to emergence) is less than 2 weeks, it is not possible that cells were counted more than twice and data collection was consistent for all colonies throughout the twelve-week study. Many cells were torn down before virgin queens emerged (see above), but each individual cell was not tracked so we do not know the specific fate of each.

During the twelve-week study, 5 colonies that built supersedure queen cells tore them down before a queen was produced and built new supersedure queen cells 2 to 3 weeks later, only to tear them down before a queen was produced and again 2 to 3 weeks later build new supersedure queen cells.

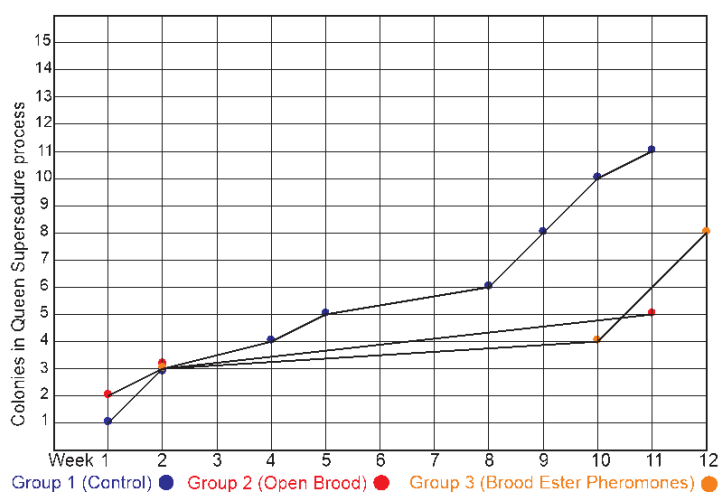


Figure 5 Number of colonies rearing Supersedure Queen Cells

Conclusion:

That the hypothesis appears to be correct in that this study shows that queen supersedure is not based solely upon a decrease or the lack of queen's pheromones, but a combination of the presence of queen pheromones and brood ester pheromones. The lack of brood ester pheromones during the process of package preparation, shipping and subsequent installation (8 to 10 days) raises the possibility of the supersedure of a queen. The data collected in this study demonstrate the likelihood for a colony to raise queens was dependent on the

experimental treatment, with Control colonies having a significantly higher likelihood (73.3%), Brood colonies having a lower likelihood (26.7%), and BEP colonies being intermediate (53.3%).

Acknowledgements:

I'd like to thank Dr. David Tarpy for the advice, mentorship and discussions during this research project; Dr. Brad Metz for preparing the brood ester pheromones and being involved in the discussions; Rick Welton for assisting in the field, and Mrs. Marie Bowman for taking photos each week.

Recommendations:

Most packaged bees are purchased and installed by new beekeepers who have no other colonies from which to take a frame of open brood. Joining a local Beekeepers Association and having an experienced beekeeper as a mentor who could provide a frame of open larvae when installing a package would give a 50% better chance that the colony does not commit to supersedure and would grow in strength faster.

Brood ester pheromone (BEP) is not readily available to put into packages for shipment. Purchasing nucleus colonies from a local beekeeper might also be the best option to reduce or eliminate supersedure of queens in package bees.



Telling the Bees



Sarah Ann McKinney

October 17th, 1972-September 21st, 2020

Written with love:

Sarah McKinney was an amazing and bright light for NC beekeepers and beyond. A truly magical being that lit every room she walked into, never met a stranger, and always wore the most beautiful radiant smile on her face. Her pure joy for life was contagious to anyone around her.

Sarah ran the beekeeping supply store Honey And The Hive in Weaverville NC that sells a full line of beekeeping supplies, gifts, honey, bees, and has always focused on education and community. It was her focus on community and education that really set her and her store apart from many of the others and gained the respect of so many. She had been keeping bees for over 13 years and known by many, far and wide, as the "Bee Whisperer". When she was not at her store working Sarah maintained around 100 colonies of bees and was an amazing mentor and educator to so many. Sarah could often be found doing workshops at her store, at local county level beekeepers meetings across the state, and always be found with a smile on

her face buzzing around the state conferences, seeing old friends, making new ones, and giving out those big hugs to everyone that so many of us will miss. Sarah was such a bright light for so many, beekeepers and non-beekeepers alike. Upon meeting her she would make you feel like an old friend, that you had known forever.

Sarah was born in NC and had moved throughout the state with her family while growing up before finally calling Asheville home. She had a degree in Acting and Directing from University of North Carolina Greensboro and had been a story teller for almost 20 years. In her spare time, she could be found telling stories at festivals, private events, schools, and doing workshops, often with the assistance of her two beloved children Zoe and Willow to add to her performance. More than being such a huge asset to the beekeepers of North Carolina and a blessing to so many who knew her she was an amazing mother of two children, the best and most loyal friend one could have and one of the most kind, generous, loving, compassionate,

kindred spirits this world has seen. She touched people far and wide with her sweet soul. Sarah was quick to correct anyone who called her the queen bee suggesting that she was merely a worker; no doubt, she was the queen for sure!

Sarah was in a fatal car accident on September 21, 2020 just outside of Conover NC on highway 40.

She is survived by her two children who she loved so much, her parents, her only sister, lots of chosen friends and family, and her partner, soulmate and fellow beekeeper Bryan Fisher.

The message to my bees:

"Sarah is gone forever but will never be forgotten. May her blessings, wisdom, and spirit shine through us all and guide us in our future. Sarah, you will be deeply missed and always loved. The bees, their keepers, and everyone that had the privilege of knowing you are truly blessed to have had you in our lives. We will see you in every little bee "We love you babe." With love always and forever, Bryan.

"Long Live the Bees"

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Darwin's Backyard

How Small Experiments Led to a Big Theory

By James T. Costa

A Book Review by: Lynn S. Wilson

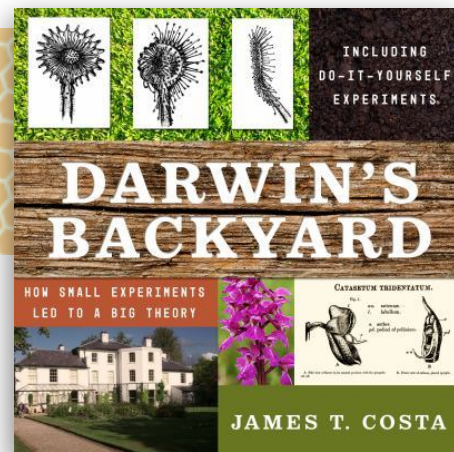
Darwin's birthday is celebrated

annually at the NC Botanical Garden in Chapel Hill, possibly spurred by Director of Conservation Programs Johnny Randall. Attendees are a group of reprobates, such as myself and my husband, who suspect there may still be those who think that we may be hell-bound. In February 2020, Western Carolina biology professor Dr. James Costa was the speaker.

Costa introduced Darwin's sense of humor... and inspired me to read this book. My favorite science books as a kid included hands-on ideas; Costa includes directions for 18 experiments... like Darwin's. I imagined that there might be something for the beekeeper who wants to be a better observer in her own backyard and a beekeeper who is constantly seeking hands-on ways to engage audiences in learning about bees. And would there be something for the beekeeper who seeks to be a Master Craftsman and to design her own research project? I'm already envisioning a future *Bee Buzz* brimming with NC beekeepers' reports of hive manipulations and results just as Darwin reported in *The Gardeners' Chronicle*.

*"Darwin's view has not always been borne out, but his tenacity and creativity in testing his ideas nonetheless provides a powerful lesson in the pursuit of scientific knowledge."—James T. Costa (p.173)**

After wading through studies of barnacles and pigeons, with detours to understand the selective breeding that agriculturists were already undertaking with domestic animals, the first "experimentising" got my attention with its botanical flavor involved. Replicating Darwin's study of the diversity in backyard lawn plots, the experiment begins by staking off a 3x4-ft plot and inventorying all the plants you find ... every other week. If you can use a plant ID guide to name them, great! If not, Costa suggests listing the "kinds" of plants you find. Darwin found 20 species belonging to 18 genera and 8 orders in his lawn plot.



Another Darwin experiment took the weed patch study a step further and Costa suggests that we too can measure seedling mortality. This study starts with a patch free of plants and involves inventorying and labeling the seedlings, as they appear, with numbered wires every 2 or 3 days. Once or twice a month, remove and record the numbered wires without seedlings. On each visit to the patch note the temperature, rainfall, and presence of any pests that may explain the missing plants. Create a survivorship table to show the percentage of seedlings that survive. (Are we so faithful in recording our bee observations?)

The conviction of Darwin's son Georgy that there was a bumble bee's nest in an oak tree led to another experiment. While it was true that one bumble bee's visit and departure was shortly followed by another bumble bee visit, there was clearly no nest and Darwin was determined to find out what these "buzzing places" were all about. He figured out that the bees were all male *Bombus hortorum*. Together he and Georgy discovered that the bees followed the same routes and stopped to buzz at several spots along the way. This called for more research associates and five of Georgy's siblings were recruited. To make it easier to see the bees, Darwin gave each bee a sprinkling of flour at his end of the bees' route. To find out if the bees were honing in on visual cues, Darwin covered one of the "buzz stations" with a net, but the bees still found it. After three years of study, his field notes almost hit on the answer: "How on earth do bees coming separately out of the net discover the same place, is it like dogs at corner stones?" Sort of, the 20th century scientists might tell him. The markers are pheromones meant to attract new queens.

But Darwin was distracted by honeybees, "long celebrated as the height of instinctive intelligence in animals" (Costa, p. 122). Darwin knew that "if he could not explain such wonderful structures as ... honeybee comb in light of natural selection ... his theory would be seen as fatally flawed." (Costa, p. 123).

How did honeybees choose hexagons that just happen to be the best possible choice for maximizing

the number of cells that could be packed into a given area? How did the bees work together? And do bee ancestors build less complicated nests? A book by the Swiss naturalist Francois Huber suggested that the cell walls were angular before adjoining cells were constructed ... confounding Darwin's suspicion that the bees began the cells as circles ... as they pivoted around a single point like many other nest-building critters do. So, he experimented. Using red-tinted wax as foundation for the bees, Darwin discovered that the first thing the bees do is excavate small circular pits. A beekeeper might be able to replicate Darwin's experiment, but Costa suggests dissecting a honeycomb instead. Try to cut away cells on either side of the one or two cells to better see the shape.

To see what happens when circles intersect, try this experiment: Pour a small amount of bubble solution (2 cups water, 2 cups Johnson's baby shampoo and 2 teaspoons of glycerine) on a plastic plate and blow into a straw as it touches the solution. Observe the angles that form where bubbles intersect. Try joining three

similar-sized bubbles.

Beware of finishing the book. You may find yourself inspecting the "pollination contrivances" of an orchid, creating a "circumnutometer" or getting thyself to a wormery. For those who would design their own research, Jim Costa offers the questions as they occurred to Charles Darwin, and describes the backyard experiments he devised to answer those questions. Costa's careful explanations, of Darwin's light-bulb moments supported by "experimentising" and Darwin's network of keen observers (reminding me of the active discussions on the Orange County Beekeepers list serve), are bound to awaken new respect for a questioning mind and an accessible understanding of scientific method.

For more Darwin study and experimenting, check <https://tinyurl.com/darwinproject>

*Costa, James A. 2017. *Darwin's Backyard: How Small Experiments Led to a Big Theory*. New York: W.W. Norton & Company, Inc.



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2019-2020 Golden Achievement Program

Chapter of the Year

by: Elizabeth Towe NCSBA GAP Co-Chair & Burton Beasley III GCBA President



Every year the North Carolina State Beekeepers Association (NCSBA) Golden Achievement Program (GAP) recognizes NCSBA affiliate Chapters who have made significant accomplishments in support of North Carolina beekeeping over the past year. Points are given for various chapter activities and accomplishments. Chapters submit their accomplishments from the past year to the GAP Committee for review. The Chapter of the Year is awarded prizes consisting of a banner and framed certificate, gift certificates and prizes from our sponsors and a \$700 cost share grant from the NCSBA for an approved project. Chapters who enter and meet easy-to-reach thresholds of achievements are given a one-time award of \$300.

Please join the GAP Committee & NCSBA in congratulating and celebrating the

**2019-2020 Golden Achievement Program
Chapter of the Year**

GASTON COUNTY BEEKEEPERS ASSOCIATION!

The GAP began in 2004 to recognize Chapters exemplary commitment to the honey bee, to their fellow chapter members, to their community and to the North Carolina State Beekeepers Association. Gaston County Beekeepers Association exemplifies the NCSBA's mission to advance beekeeping through improved communication, education, and the support of beekeeping science.

GCBA has been in existence for over 75 years, making it one of the oldest bee associations in North Carolina. With an active membership of over 200, meeting attendance is tracked using membership tracking software and a North Carolina Department of Agriculture (NCDAG) inspected honey house is available for member use.

Community outreach and education are the core focus of GCBA. Each year GCBA teaches 100+ new, hopeful beekeepers through its bee schools and mentoring program. They maintain 4 club apiaries; some are partnerships with other local businesses and groups, and include introducing honey bees to The Schielle Natural History Museum's pioneer village interactive farm exhibit and a joint venture between the rotary club, Girl Scouts of America and GCBA at the Gastonia Rotary Garden. GCBA worked with Mt. Holly, Gastonia, Belmont and Bessemer City townships (all within

Gaston County) to earn their Bee City USA designations. GCBA also maintains a close working relationship with the NC Cooperative Extension by supporting many of its educational programs for all ages, including a new 4H bee club for local youth.

For all the successes and growth GCBA has achieved, it has not been without hurdles. Just over 10 years ago GCBA's Executive Committee considered moving to quarterly meetings – membership was declining and the organization lacked a volunteer base. Fortunately, new leadership took office with a vision and enthusiasm to revive the floundering organization. It was not easy, nor did it happen overnight. Many volunteer hands make light work laying down the foundation that makes this club exemplary. It's much like our bee hives – it's not the efforts of a few, but the collective working tirelessly together that has elevated this club to the top. GCBA was on the brink of collapse but it came back stronger. New chapters looking to build up a thriving hive (club) and also chapters looking for innovative ways to draw in new members and revive interest in your clubs – y'all should take notes and inspiration from GCBA's journey to GAP Chapter of the Year! This is a long awaited and well-deserved W! Congratulations GCBA! We look forward to your GAP Project!

GCBA Mission Statement

- To be a reliable resource of current knowledge about honey bees for beekeepers
- To recruit and train future beekeepers
- To be a resource for continuing education
- To actively promote and support programs about nature, natural products, agriculture and local foods to the general public

The 2019-2020 GAP Chapter of the Year banner was shipped directly to GCBA. The GAP Committee plans to hold an official 2019-2020 Chapter of the Year presentation at the next NCSBA conference.

The following vendors (in alphabetical order) supported the GAP by generously donating gift certificates and prizes for the Chapter of the Year and participating chapters, despite COVID-19 causing financial uncertainty for many businesses. Please consider supporting them when purchasing bees, beekeeping equipment and/or supplies:

American Bee Journal, Bailey Bee Supply, Beez Needz,

Blue Sky Bee Supply, Dadant & Sons Inc., Johnny's Selected Seeds, Kelley Beekeeping, Mann Lake, Midnight Bee Supply, Miller Bee Supply, Sapony Creek Apiaries, Triad Bee Supply.

It was the GAP Committee's privilege to review the GAP Chapter of the Year submissions. Congratulations to all the Chapters who submitted books for 2019-2020. Our chapters are doing a great job promoting beekeeping to their members and within their communities.

Congratulations!

Past Winners of the GAP Award

- 2020 Gaston County Beekeepers Association
- 2019 Orange County Beekeepers Association
- 2018 Beekeepers of the Albemarle
- 2017 Five County Beekeepers Association
- 2016 Guilford County Beekeepers
- 2015 Neuse Regional Beekeepers
- 2014 Onslow County
- 2013 Person County
- 2012 Tie: Orange, Chatham, Crystal Coast
- 2011 Johnston County Beekeepers
- 2009-2010 Neuse Regional Beekeepers
- 2008 Wake County
- 2007 Coastal Plains
- 2006 Forsyth County
- 2005 Buncombe County
- 2004 Stanly County



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Respect Our Speakers

by Randall Austin NC Master Beekeeper

You may have seen

Suzy Spencer's announcement in the *Bee Buzz* regarding the updated Speaker List on the NCSBA website. This is a list of people who volunteer their time to share their beekeeping expertise with NCSBA chapters across the state. It includes topics, travel limitations and other pertinent information. Chapters can contact speakers based on what they would like to hear, their location and other criteria. If we will all use it, the new list should be a valuable tool for both chapters and speakers.

I have given presentations to lots of chapters over the past few years on a wide variety of topics. I always enjoy meeting new folks, and there is always someone in the audience who teaches me a few new facts, tricks and perspectives. It's fun!

Some people are intimidated and don't volunteer to give presentations because they feel inadequate. I empathize with that completely! Every time I give a presentation where Don Hopkins, David Tarpy, Jennifer Keller or another genuine expert is in the audience, I want to fake a medical emergency and ask them to speak in my place! When I shared those thoughts of not being "good enough" with Ann Harman, she gave me a comforting smile and said that we don't have to solve all of someone's problems or give them everything that they may need; we've done well if we just help them go one little step farther down the road. Every beekeeper has some bit of experience, knowledge or encouragement to share that will help somebody else go a little step farther in their journey.

This may come as a surprise, but speakers don't do it to get fat paychecks! Even "headliner" speakers at our large annual conferences don't make enough in speaker fees, on a per-hour basis, to truly account for the time, effort and investment they have put into sharing their wisdom with us. Beekeepers are tightwads, and sometimes we can be downright inconsiderate about it. I once was asked to speak at a chapter that was an hour and forty-five minutes away from my home, each way. After lots of begging, I agreed, and I gave an A-List presentation to a group of about thirty attendees. It was very well received by the audience. Afterwards, the club president thanked me and extended his hand... which was empty. No gas money, no token honorarium, not even a Happy Meal coupon so I could get a bite to eat (I had missed dinner

because I had been driving for nearly two hours). When they asked me the next year to return with another great presentation, I explained that I don't mind making sacrifices to help out our chapters, but not if those sacrifices are totally one-sided. There is a word for that: "exploitation".

It's not just me. A friend who has developed an extremely popular hands-on workshop presentation enjoys visiting chapters in her area. The workshop requires supplies and handouts. Typically, chapters reimburse her out-of-pocket expenses as well as provide an honorarium. But one group not only didn't offer to pay for her supplies, they didn't even follow up with an e-mailed "thank you for coming" note!

I hope your chapter isn't one of those disrespectful ones. But even chapters intent on "doing the right thing" must answer the question, "What is the right thing?" While a chapter cannot afford to pay me for the extensive preparation time, practice time, travel time and presentation time at the same hourly rate as my day job, they can pay me, at the very minimum, what other chapters can pay. Some groups reimburse travel expenses at the standard government rate. Lately, more chapters have begun paying a flat honorarium of \$25, \$50 or \$100; that makes life much simpler. If there are extra expenses such as workshop supplies or handouts, those costs should be fully reimbursed by the chapter.

I'm sure many chapters think they cannot afford to treat their speakers with respect. But if your chapter is so cash-strapped that it has to rely on charity from kindhearted presenters, I suggest that you reassess your financial strategy. Consider:

1. How much do you charge in dues? Many clubs still assess the same \$5 per year membership dues that they did when they were first chartered decades ago. That's less than a snack lunch at McDonald's. Maybe membership in your chapter is worth every penny of that. But if you want to do better, doubling or tripling your membership fee can double or triple your ability to attract competent presenters.

2. Does your chapter sponsor a bee school? Not only do bee schools increase club membership and improve the management practices of the local beekeeping community, they can be cash cows for the chapter. Students take bee school much more seriously when they have "skin in the game", i.e. they've made an investment so it is in their best interest to see that investment rewarded. There is no reason to have a free

or practically-free bee school. Most bee schools in my region charge between \$50 and \$100 for a ten-week course and typically sell out every year. The proceeds cover bee school expenses and also support the ongoing cost of monthly meetings, outreach activities, contributions to the NCSU Apiculture Fund, etc. Beekeeper education is one of your State Apiary Inspector's top priorities; they can help you get a bee school started or put you in touch with someone who can. In addition, the NCSBA Master Beekeeper Program committee has lots of information on the NCSBA website packaged conveniently for your use, such as a complete bee school curriculum with topic notes. They also would love to chat with you about your plans and share advice.

Other things that demonstrate respect for speakers include:

1. Plan ahead. The best chapters schedule their speakers in the fall for the entire slate of next years' presentations. At the very least, several months' notice is expected. To be prepared in case a scheduled presenter has to back out at the last minute, line up a designated fill-in person who is willing to have a presentation "on hold" for an emergency.

2. If you want a 30-minute talk, or an hour, or 90 minutes, say so! Speakers aren't mind readers.

3. Contact the presenter a week before the presentation. This serves as a friendly reminder and is also is a good time to confirm important details. For example, will the presenter need a table for show-and-tell items? Is the meeting room's AV projector compatible with the speaker's computer output ports, and if not, do you have an adapter? Communicate to ensure there are no surprises! This is also a great time to invite the speaker to join the chapter's leadership for dinner before the presentation.

4. Give the speaker an honest description of the audience. There is a big difference between presenting to grizzled long-time beekeepers, brand new know-nothings and people who only show up for the free doughnuts.

5. Tell the speaker what other talks have been given recently and what is on the schedule for the future. A good speaker will try to integrate their presentation within your learning objectives for the year while avoiding boring repetition or potentially-embarrassing contractions.

6. Make sure the speaker has the correct address and directions for getting into the building. Many chapters meet after normal business hours, so the speaker needs to know things like, "Park all the way in the back next to the dumpsters, then walk to the third door – it's the

only one that's open." Give them your cell phone number in case they need assistance figuring all this out once they arrive.

We are extremely fortunate in North Carolina to have NCDA&CS Apiary Inspectors who are paid to come to our chapter meetings and teach us stuff. We are also fortunate to have cutting-edge researchers at our universities who often agree to give us fascinating presentations. Very few of the university speakers are funded for doing beekeeper outreach. With regard to giving a tangible "thank you", don't confuse those who speak to us in the conduct of their job responsibilities with those who do it purely out-of-pocket. If you have any doubt, ask the speaker or their boss whether reimbursement of expenses and/or an honorarium is appropriate.



Photo: John Rintoul

The author gives a show-and-tell presentation to a room full of bee school students.

What should the speaker-appreciation rules be in the age of COVID-19? Presentations are typically being given via Zoom. Does that mean we don't have to pay anything to speakers? Go back and read what I said above about how the pittance we pay speakers doesn't come anywhere near covering the time and effort they've put into preparing and giving a quality talk. Basically, we've been taking advantage of their altruism them all along... now we want to use COVID-19 as an excuse for taking advantage of them even further? If your chapter has a budget for paying speakers, then pay them. You'll still come out ahead by not having to take them to dinner beforehand!

If you aren't already on the chapter speaking circuit, why not make it a goal this year to hone up on an under-discussed bee-related topic, develop an interesting presentation and share it with others? A list of topic suggestions is on the NCSBA website under *Chapters > Topics for Chapter Meetings*. Start with your own chapter and if that goes well, branch out to other groups in your region. And for those of us sitting on the other side of the podium, let's resolve to show our gratitude to well-prepared, quality speakers. If we want them to respect us enough to come back one day, we need to give them the respect they deserve.

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Ann Worischek Harman

April 27, 1931 – May 1, 2020

"A Worker Bee Extraordinaire"

For a wonderful tribute to this extraordinary beekeeper, please visit

<https://tinyurl.com/annharman>

Rest in Peace, Ann. You will be greatly missed.