

INTERVIEW ISSUE



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Dec 2017

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# Bee Culture

The Magazine Of American Beekeeping

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## California Fires A Bee Cruise

Geoff Williams  
Jay Evans  
Randy Verhoek  
Luke North  
Derrick Maness  
The Ramthuns  
Michael Smith

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Kim and Kathy's backyard a few years ago. Let's hope it's milder this year.

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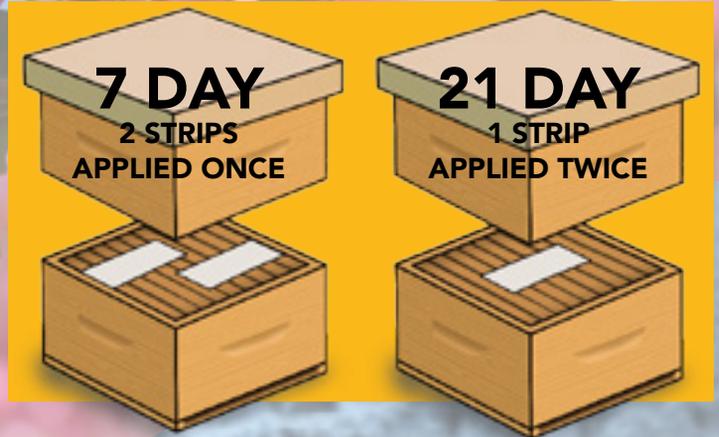
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By JOHN MARTIN





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## Zoning Challenges

Prince Georges County, MD, is undertaking a major re-write of its zoning regulations. The new document would severely restrict beekeeping in residential areas and many local beekeepers would either have to reduce their hive count or remove them. Other Maryland jurisdictions have seen recent challenges to beekeeping. Howard and Frederick counties actually reduced restrictions on beekeeping after complaints were made against one or two beekeepers. The complaints opened the door for beekeepers to lobby the public and officials to change regulations in their favor. Baltimore City and Washington, DC, recently lifted or reduced restrictions. Montgomery County beekeepers wisely managed to prevent any restrictions from being included in a recent re-write of zoning laws.

Members of the Bowie-Upper Marlboro Beekeepers Association (BUMBA), comprised mostly of Prince Georges County beekeepers, are fighting to prevent the creation of unwarranted and unreasonable restrictions on beekeeping at a time when municipal governments such as New York City and Washington, DC, are recognizing beekeeping as a safe activity. We know we are not the first county facing this problem and we won't be the last. We are writing to bring the problem to the attention of beekeepers throughout the country so that you may pay attention to your own zoning laws, and the activities and decisions of the zoning boards, as it may affect your beekeeping.

During 2016, the first draft of the new zoning plan defined beekeeping as an agricultural activity, restricted to agricultural lands and not permitted in residential zoning. Member Jeff Forbes first heard about the changes and has kept us abreast of developments. President Maggie Mills and BUMBA members became engaged in the re-zoning process, attended public hearings, wrote letters and made our case to their County Council members, that beekeeping was not dangerous and was safely enjoyed by many responsible county residents (and voters). In response, in November, 2016, the County Council unanimously adopted legislation that permitted beekeeping in most

residential areas, generally in single family detached, semi-attached and triple attached homes having 2,000 sq. ft. lots, or more, without any special requirements or limitations.

The final draft was recently released. To the shock of the BUMBA Board and members, new limitations have been added which run counter to the will of the Council as expressed last November. These new limitations include: must have a minimum of 15,000 sq. ft. to keep bees and then no more than two hives per 15,000 sq. ft. of land; hives must be re-queened following swarming or signs of aggressive behavior; hives must be maintained in movable frame hives and managed to prevent overcrowding (no tenement bee housing!); must have a 25 foot set back from the property line and have a 6 foot flyway barrier at least 10 feet from the property line.

Requirements such as “aggressive” and “overcrowded” are vague, subjective, undefined and appear to be based on unfounded fears. Requiring re-queening after swarming sounds like management for beekeeping in Africanized bee areas. Africanized bees have not been established in Maryland and are highly unlikely to ever do so. This is another pointless and unfounded requirement based on fear and ignorance. The requirement for movable hives is already a Maryland state law and thus is unnecessary. The limitations on hive numbers and yard requirements would hamper many members' enjoyment of their property. The 25 foot set back from sides of the property, plus 10 feet or more for hives and fencing, would require a 60 foot wide property, at least. This appears to be designed to keep hives out of small lots (or rooftops), such as are now allowed in neighboring Montgomery and Howard Counties and the District of Columbia. Even more nonsensical are prohibitions against keeping bees in industrial zones (but not junk yard dogs). These regulations want to control a “problem” that does not exist.

At a time when the public is embracing beekeeping as environmentally responsible, contributing to our beautiful country-side, natural woods and wildlife, as well as downright necessary and supportive of our

## Bee Culture

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own food chain, adding unfounded restrictions runs counter to the national awareness of the importance of beekeeping, not just by the big boys, but by the backyard beekeepers as well. BUMBA holds an annual beginning beekeeping class that regularly maxes out in attendance. We participate in nearly a dozen public events, such as festivals, health fairs, city celebrations, each year, promoting beekeeping and teaching the public to recognize honey bees and how they benefit the community. We are actively engaged with the public so we hope we have built a reservoir of good will and support that we can draw on.

You can review the Draft at <http://zoningpgc.pgplanning.com/?p=2251>; search for “hives” or “beekeeping”.

Comments may be made via phone, letter, email, or in-person, but must be submitted by December 15. You also can submit “real-time” feedback at <https://pgplanning.civiccomment.org/>. Select “Sub-Title 27 – Zoning Ordinance, Comprehensive Review Draft”. Email comments to [zoningpgc@ppd.mncppc.org](mailto:zoningpgc@ppd.mncppc.org).

The BUMBA Board and members enjoy and appreciate the full support of the Maryland State Beekeepers Association. We hope that, with your support, we will prevent any onerous regulations from severely limiting our enjoyment in beekeeping and sharing our knowledge and excitement about beekeeping with the public in general.

David Morris  
Laurel, MD

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## Voices

I just received my latest issue of the magazine and every article I read I can “hear” in the voice of the author. “Voices of *Bee Culture*” was such a terrific opportunity to meet these wonderful folks and ask them questions in person. The weekend started on a real high note with the tour of the candle factory led by Kim and progressed at a good pace as we met each speaker and visited with other beekeepers from all over the country. Sitting on the same porch as the Rev. Langstroth and A.I. Root was a memorable moment that another beekeeper was kind enough to capture for me with a photo - not to mention getting a photo of all the current beekeeping luminaries on that same porch!

The personalities, information, discussion and food were such a great experience. Thank you for it.

Colleen Antalek  
Tallmadge, OH



## HAS 2018

Planning continues for Heartland Apiary Society’s (HAS) annual conference July 11-13, 2018 at Washington University, St. Louis. Established in 2001 by several professional entomologists, the conference rotates through the Midwest to make it easier for Midwest beekeepers to attend the sessions and pick up on the latest beekeeping methods and research.

Among the speakers confirmed to date:

- Dr. Marla Spivak, a MacArthur Fellow at University of Minnesota’s Bee Lab;
- University of Minnesota Bee Squad, a beekeeping instructional and public outreach program to encourage collaboration and public education about bees;

December 2017

- Dr. Keith Delaplane, director of the University of Georgia Honey Bee Program;
- Jennifer Berry, University of Georgia Honey Bee program lab manager.
- Dr. Dennis vanEngelsdorp, University of Maryland Honeybee Lab, who directs the Bee Informed Partnership, the Tech Transfer Program and the annual national beekeeping management surveys, and
- Samuel Ramsey, University of Maryland PhD candidate and researcher.

More details will be posted at [www.heartlandbees.org](http://www.heartlandbees.org).

Charlotte Wiggins  
Rolla, MO



## National Honey Show

It’s actually a lovely thing you did to video the stand holders and the venue at the National Honey Show, so people who weren’t able to visit in person can get a good feel for venue and what went on there.

Well done!

Angie Sherriff  
England

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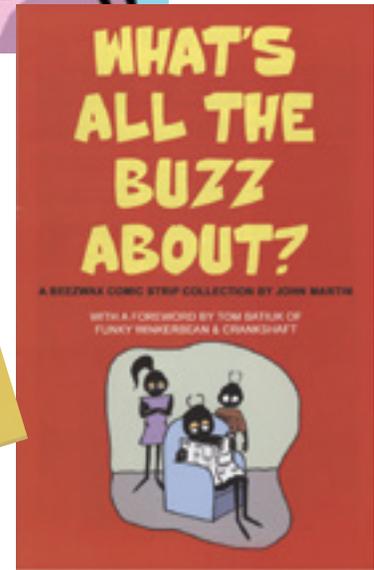
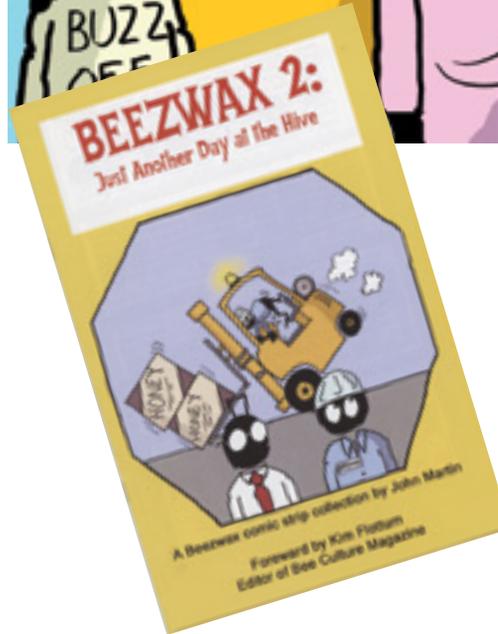
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**BeeCounted.org** is the latest offering from BroodMinder, a company conceived by Rich Morris, a backyard beekeeper with a product design background. All BroodMinder products have been developed to address a huge issue that plagues beekeepers: how to get the best decision-making data to keep their bees alive.

According to company founder Rich Morris, "Our message is simple: every hive counts and BroodMinder products have been created to give you the reliable, consistent and trackable information you need. **BeeCounted.org** is the next logical step."

It all started simply when Rich was frustrated at losing bees in the Wisconsin winter. In many Midwestern states, more than 40% of hives were lost in 2016. The real issue is that it is difficult to resolve a problem that has no solid information

from which to draw conclusions.

From his experience working on medical products, Rich knew that the answer was to develop a system that gives you data that can be measured accurately, installed economically and shared widely.

Broodminder has created these devices using Internet of Things (IoT) interconnectivity principles: first, to measure hive temperature and humidity (BroodMinder-TH); second, to measure hive weight (BroodMinder-W). Continual testing all over the United States (with new sites coming on board every month) has enabled them to evolve the devices and their operation. So far, over 5,000 devices have been installed covering more than 1,000 hives with a reachable goal of over 10,000 devices by the end of 2017.

For information, see **BroodMinder.com** or **BeeCounted.org**. You can reach Rich Morris at 608.201.6227.



**SWARM TROOPER** – Innovative and easy to use Swarm catcher has the ideal space needed for a swarm to begin a new hive. The inside volume (40 litres) and entrance size (two square inches) are from the studies done by Tom Seeley in his scientific exploration of the swarm in the *Honeybee Democracy*. The Trap Body is made from super strong and stiff CON-Pearl a new style of polypropylene board, made in Germany. The lid is made from corrugated PVC. Both are UV and weather resistant, very light weigh only four pounds. The trap has two tiers of five Langstroth frame rests. Straps included are threaded through slots in the bottom to hold the Swarm Trooper together and hang from a tree. User supplied ropes may be tied through the straps, to hoist the trap up in a tree. No ladders or tree climbing needed. Additional rope or twine may be tied to the straps on the bottom of the trap and secured to prevent the trap from swinging or twisting. We recommend putting one to three frames preferably with drawn foundation and swarm attractant

or lemongrass oil. Leave the bottom frame rests empty. No need to check the Trooper daily because, when a swarm moves in it will immediately start filling, building and laying in the frames. Checking weekly is recommended. After honey bee swarm moves in, lower the trap, in the evening after all bees are inside. Close the entrance door and open two screened ventilation windows. Take the swarm home. A pre-punched opening may be removed from the top and accessory feeder may be added until a permanent home is ready. The Trooper with new swarm may be left in a shady spot for a few days, reopen the entrance door and close the screen doors. When a permanent home is ready, frames may be lifted out of the Trooper and placed in the new home. The Swarm Trooper is ready to catch another swarm. The current record is four Swarms in one Swarm Trooper in one season. See Swarm Trooper videos on youtube. Swarm Trooper made in USA. Available from **www.beetlejail.com**.

*The Observation Hive Handbook. Studying Honey Bees At Home.* By Frank Linton. Published by Cornell University Press. ISBN 13 9781501712210. 7" x 10", color throughout, 95 pages. Soft cover. SRP \$24.95. Available from **Bee Culture's Book Store. www.BeeCulture.com**.

The Observation Hive Handbook is a comprehensive text that provides all the necessary information needed for a beekeeper to select an observation hive design, stock it with bees, maintain it, and enjoy the experience that the hive will provide. This is from Jim Tew's blurb on the back of Frank's new book. It sums up nicely what this book does in only 95 pages. I couldn't have said it better.

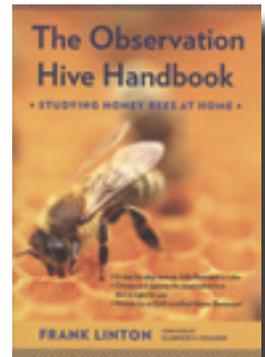
But I'll tell you, I wish I would have had this book 30 years ago when I started my first observation hive. It would have saved me a lot of time and energy and money, and if you don't already have one (and why not?), it will do the same for you.

I've managed observation hives off and on for that long, and I think I've seen nearly everything that can go wrong. Starting with which hive do you buy? That's a good question because every location has different requirements. This book reviews all the commercial models available and will save you a lot of grief down the road.

But it also looks at installation, how to work an observation hive (easier than you think if you know how), general management (like overwintering, feeding, cleaning), keeping a hive in a public place, both permanent and temporary, and fun things you can do with a hive once installed.

If you have plans for, or already have one of these, you need this book. It's worth every penny.

*Kim Flottum*





# INNER COVER

**W**e are running a tad late this month due to our trip to The National Honey Show in the UK in late October. It was an enjoyable three day event, and if you've never seen or heard of it, you can see what they do on their web page, though what you'll probably see now is from 2017 because the 2018 info isn't up yet. It's still quite a show. Their venue is the facilities of a Race Track – horse racing that is. And, if you know about horse racing, you know that the meeting rooms, display and vendor areas are really first class. Average

people like me don't get to these places often, so this was a treat.

One thing we did this time to show it off a bit was to conduct a live FaceBook show near the end of the week. Like Jim Tew and I did at the EAS meeting this Summer, we visited several of the vendors there and found out what they were up to and what was new from that side of the pond. That show remains on *Bee Culture's* FaceBook page, as does the EAS show, and you can get a feel for what's happening in UK beekeeping this season. We talked to the Show's Chairman, BJ Sherriff's people, our Root Candle Europe staff who had a stand selling beeswax candles, Thorne's Bee Supply, The British Beekeeper's Association, Bees For Development and a few others. Then we toured the honey, wax, mead, gift baskets and all the rest of the displays. It's a pretty awesome display, unlike anything you'll see here.

Take a look if you get a chance. But because of that travel and some complicated IT communication issues, we missed getting Toni Burnam's Interview articles into this issue. She has two that we'll get in the January issue, and they are special. She had a chance to talk to Sam Ramsey, from the University of Maryland, who, as a grad student there, discovered that *Varroa* aren't feeding on the hemolymph of our bees, but rather the fat body, comprised of lipids and proteins, primarily the proteins that get bees through winter. This has changed how we look at *Varroa*, and especially *Varroa* control, so don't miss that interview in January.

But Toni had another session that we missed. She was able to talk to Marina Marchese, the Champion of The American Honey Tasting Society, and the lead author of the book *The Honey Connoisseur* that I helped out with a little bit. Marina has studied honey tasting in Italy several times, conducts very professional honey tasting classes here in the states, and in my opinion is the lead person in this country regarding this specialized skill. I'd put her up against any of those snobby wine tasters any day as a matter of fact. Check Marina out next month too for a very tasteful interview.

I spent most of yesterday sorting the photos we've received for our 2018 Calendar that you will get next month. And everybody who gets a hard copy will get one – subscribers, newsstand issues will have one, *BEE-Keeping* readers will get one, and we'll have lots to give to associations who want to share with their members unfortunate enough to not get their own. We'll have packs of 50 for groups, meetings and the like, free for the asking until we run out. We hope that everybody will know the date all year long next year using our calendar. And, after sorting those photos, we know you won't be disappointed any month of the year. Beeyards at sunset was the theme and you all did a good job of capturing that moment in time when the light is right, the scene is golden and the bees are on their best behavior.

Of course this means that the contest for the best 13 photos for 2019 begins now, so get out your cameras (you still have a camera?), or your cell phones (they take fantastic photos and they are always handy, though getting propolis off the screen is sometimes a challenge), and start peeking inside for the next contest. Next year, the theme is QUEENS, EVERYTHING AND ANYTHING ROYAL.

We want to see queens being fed, laying eggs, being surrounded by attentive workers, alone on the comb, head in a cell, legs in a cell, anything and everything Royal. Gold queens, black queens, striped queens, small queens, big queens, fat queens skinny queens, emerging queens, two queens at the same time and what about three at a time? Queens. Get the picture? Good.

It's been a tough year for bees and beekeepers almost everywhere. You'll see some of that in Jessica's interview with Randy Verhoek and the drought in the Midwest chewing on his honey crop this year, and you saw some last month with a recap of hurricane damage and flooding in Texas and Florida, and again this month in our article on the California fires eating up beeyards by the dozen and leaving little for the bees to eat. Plus, what happens to a colony after 14 days of smoke? Nobody knows, yet. There are groups working to help the affected beekeepers in all those states and even in Puerto Rico and the Virgin Islands, where the storms

The National.  
2019 Calendar.  
Helping  
Beekeepers.  
Honey.

flooded beeyards, winds damaged beehives, and if that wasn't enough, there's essentially no forage left since it all was destroyed.

From the press release by the Pollinator Partnership people who are leading this –

The Pollinator Partnership has announced a disaster relief campaign designed to provide immediate assistance to help beekeepers on Puerto Rico and the U.S. Virgin Islands (USVI) recover from the devastating impacts of recent hurricanes.

“When we first learned about the desperate challenges faced by these Caribbean beekeepers, we moved quickly to help,” said Val Dolcini, President and CEO of the Pollinator Partnership, which is spearheading the campaign. “We are gratified by the tremendous response and are pleased to report that the first relief package of protein patties landed on Puerto Rico and are now being delivered to beekeepers. Relief will also reach the US Virgin Islands soon.”

The hurricanes resulted in colony losses of up to 80% as most of the Langstroth wooden hives used by beekeepers to house their bees were destroyed. In addition, natural tree cavities housing feral bees were also destroyed due to the hurricane's damaging winds. Bees that survived the hurricanes and the destruction of their homes have swarmed, taking up residence in houses, schools, electrical utility poles and other structures, creating health and safety concerns.

In addition to generous financial and in-kind contributions, a GoFundMe campaign has been launched at <https://www.gofundme.com/fund-for-puerto-rico039s-pollinators> to give citizens, beekeepers, and others the opportunity to help.

The Caribbean Bee Rescue Campaign seeks to help by:

1. Providing immediate relief and support for PR and USVI beekeepers;
2. Raising funds (\$50,000 goal) to purchase and deliver supplemental protein for 3,000 hives and 1,000 replacement hives over the next six months, while the ecosystems and floral resources recover.
3. Helping strengthen beekeeping and pollination services on the islands.
4. Assessing the impacts of the hurricanes on the islands' other pollinating species to determine how help can be provided.

#### FOUNDING PARTNERS

Pollinator Partnership, ABF, AHPA, Bayer, Blue Diamond, Dadant, Dupont, FL State Beekeepers, Honey Bee Health, Mann Lake, Monsanto, National Honey Board, PR Dept Ag, Sweet Virginia Fdn., Syngenta, Univ PR and Wonderful Bees.

For additional information, contact Val Dolcini at [vdolcini@pollinator.org](mailto:vdolcini@pollinator.org) or Tom Van Arsdall at [tva@pollinator.org](mailto:tva@pollinator.org)

There's lots more information available on the P2 web page at <http://www.pollinator.org/> if you want to learn more, see how the gofundme campaign is doing or view the list of donors so far and what they have contributed. And the entire news release was sent out as a CATCH THE BUZZ in November and if you missed it you can find that on *Bee Culture's* web page.

No place to live and nothing to eat. That's about as bad as it gets for humans or for honey bees. Take a look. See what you and your group can do to help fellow beekeepers in all those places.

Take a look at the honey report on page 20. It is a comparison of the December report for 2016 to December 2017. And if you look close, you'll see that there's actually average data there from 2015 across all regions in the far right hand column, so you can do a three year comparison of average bulk, wholesale and retail prices over that time. Just so you know, you can't find this kind of data collection anywhere. We try to make it as easy as possible when looking at what the honey market is for the country, and in your region.

When you compare the all-region data for 2015 – 2017, a three year period, what you'll see is that bulk prices have been flat all that time, but not surprisingly, both wholesale and retail prices have all gone up, for every unit on the chart. Import prices seem to be keeping down those bulk prices, but the smaller containers seem to be inching up. Not much it seems, but better than down.

When you compare 2016 with 2017 the story changes a bit. Average bulk prices are still flat. That's three years without a price increase. But the wholesale averages are mixed this time. Some up, more

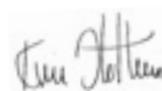
down. Interestingly, retail prices are following a different drummer. East coast retail prices this year are higher than in 2016, but generally, regions 3 – 7 are all lower than last year. Yet, the average across all regions is higher this year compared to last. The prices in regions 1 and 2 really skew the annual data, and, without careful examination could lead you to some false assumptions.

An interesting comparison, perhaps more interesting, is the range column, fourth from the right side of the charts. Bulk prices from 2016 through 2017, for the range of prices reported by all reporters across all regions are across the board down. For wholesale there's little change, except the bigger containers, the five pound and quarts, are up a bit, but the rest are down. Retail, however is mostly flat, with a few up and down bumps, but not enough to make note of.

Average prices aren't the best predictor of what your honey should be selling for, but the value of our monthly honey report is monitoring the trends you see, both short term month to month and long term, across the year, and across years.

Have you seen the newest beverage in your local grocery store? Honey water. Honey plus water plus a flavoring like ginger, lemon, blueberry, vanilla citrus and others. Honey and water. It doesn't say how much honey, but it is 100% Bee Friendly honey, and when some of the contents settle, it's Nature taking a nap. Really. And if the next bottle of water is a slightly different color or flavor it's because that's the beauty of nature – it's always changing. Really. It said so on the label. Look for it in your neighborhood grocery. Cheers.

We've saved the best for last we think. All of us here at *Bee Culture*, *BEEKeeping*, and *Root Candles* wish you and all of your friends and family the very best of the holidays. Merry Christmas and Happy New Year and all the other best wishes we can send. May your bees be happy, your honey sweet and your beeyards blessed. And thank you for being here this year. We hope next year is even better.





# AHPA 49th Annual Convention & Tradeshow

January  
10-13,  
2018

Join us in 2018 in  
San Diego, CA at the  
4-star hotel,

**DoubleTree - Mission Valley!**



**American Honey  
Producers Association**

*For more information visit  
[www.AHPAnet.com](http://www.AHPAnet.com)*

# It's Summers Time -

## Chickens, Winter, A Bit About England

Another completed year here at *Bee Culture*. It's hard to believe. We've had a good year and hope that you have too.

We've had our bumps, but we continue to be small and mighty and get the job done. *Bee Culture* and *BEE-Keeping* continue to grow in numbers of subscribers and we thank you all for your loyalty.

Here in Northeast Ohio we've had just a taste of Winter - one morning last week just a coating of snow on the car. Otherwise not bad yet. The chickens are ready. We did the Fall cleaning and closed the windows, hooked up the handy gadget that keeps the water from freezing and connected the warming lights. The young ones have not seen snow yet. I don't know if chickens have memories - do the older girls remember the snow. They still enjoy being outside, no matter how cold it gets.

We actually had some exciting weather last Sunday night - first weekend in November. Tornadoes bounced all around us. I think the weather bureau finally acknowledged 10 of them. Kim and I had actually been tucked inside all day trying to catch up from being gone for almost two weeks. We didn't even have the tv on. As I was getting dinner ready, the wind was suddenly really loud, so we turned on the weather and there was the very excited local weather guy telling everyone to pay close attention. Of course, now they can actually zero in on your street and tell you minute by minute how close the tornado is.

We had some rather large limbs down in our yard, but no damage. A lot of folks had down trees, power lines and went without power for awhile. Our Amanda, who lives in the next town over from Medina went 27 hours

without power. It was pretty cold that night.

Our trip to England was wonderful. We had a great time. It's always a little stressful getting ready for a trip like this - long flights, how do we pack, there's so much to do here at home. But once we got there and got over the jet lag the rest of the trip was wonderful.



Kathy and Peter Smith.

One of the highlights of the trip was getting to spend the day with our very good friend, Peter Smith. We've known Peter for about 15 years we figured. It was an adventure to get to Peter - a taxi and three trains. Turns out it was Peter's birthday, so it made for an even better day. He turned 87 that day.

Kim spoke at the National Honey Show and then a few nights later at the Lincolnshire Beekeepers Association. Next month, we'll have more about the National Honey Show and the rest of our trip.

A lot of people pass through our lives that we just kind of take for granted. Special people that we don't necessarily have an intimate relationship with, but we consider them a friend. We see them several times a year at all of the big bee meetings - ABF, Tri-County in Wooster, Ohio, WAS, HAS, EAS. For 20+ years we've known them and just kind of assume that they'll always be around. Then things change - for whatever reason. They leave their job, which is your connection with them, either by their own choice or maybe not. And you realize you might never see that person again. Because your connection was all of those bee meetings. You don't live close to each other and they probably won't be at any more beekeeping meetings. A good friend of ours recently made that change and we'll miss her.

As we write this we are just about to celebrate Thanksgiving, quickly followed by the whole Christmas Season. I love this time of year, being with kids, friends and just enjoying time together. My main goal is always to keep things simple, and concentrate on the people. Each year our holiday tables are a little different. There have been a few years where it was just Kim and I, sometimes the one local son, Grant is with us and there have been years where the table was surrounded - full and cozy. We try to make sure no one spends the holiday alone, so we check on friends and encourage our children to invite any one that might need a family to be with.

I hope that you all have a simple, stress free holiday season, that you are able to put aside your worries and concerns for a little while and enjoy your friends and family.

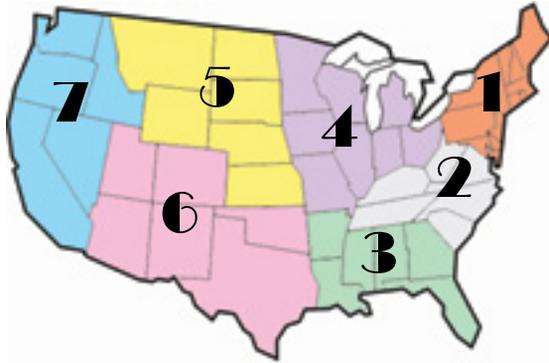
A special thank you to Amanada and Jean here at *Bee Culture*. These two ladies are delightful and support Kim and I in everything we do. We couldn't do our jobs without them. Thank you ladies.

We'll see you in 2018.



Kim at the English Root Candles Booth at The National Honey Show.

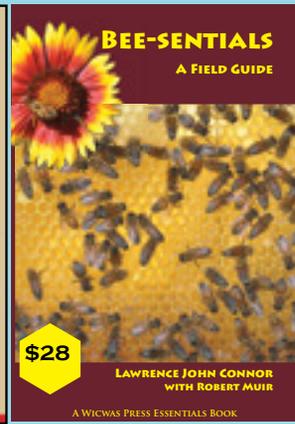
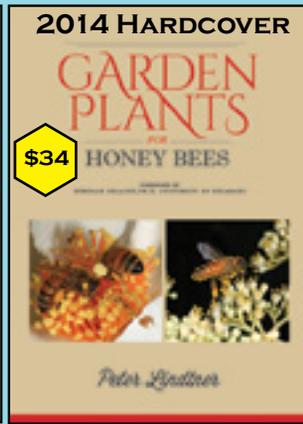
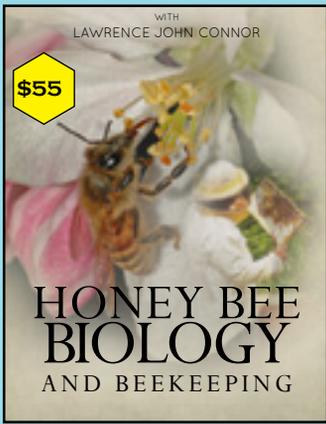
# DECEMBER - REGIONAL HONEY PRICE REPORT



We're throwing a lot of numbers at you this month but we think you'll find them useful. Below is our monthly report from December 2016 and below that this month's report. You can see the difference for each product over the course of year, by region. You can look at yours and see what's happened over the past 12 months.

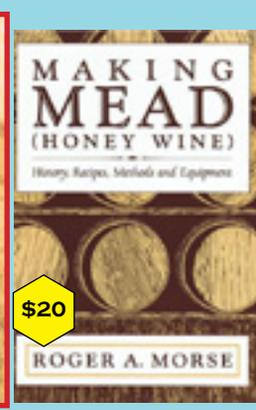
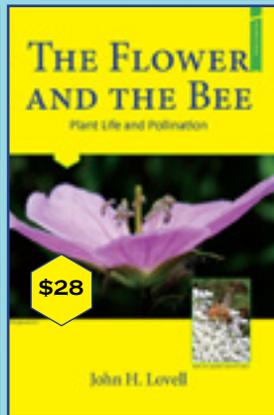
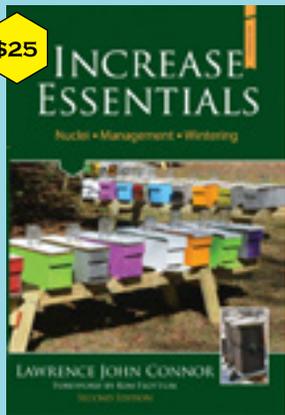
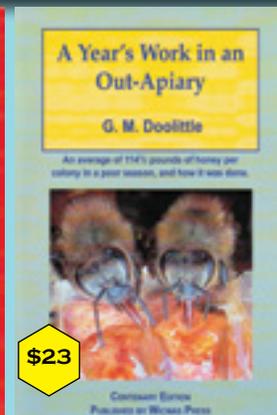
REPORTING REGIONS - 2016								SUMMARY			History	
	1	2	3	4	5	6	7	Range	Avg.	\$/lb	Last Month	Last Year
<b>EXTRACTED HONEY PRICES SOLD BULK TO PACKERS OR PROCESSORS</b>												
55 Gal. Drum, Light	1.68	2.07	2.06	2.54	2.27	2.24	2.45	1.50-3.80	2.19	2.23	2.16	2.18
55 Gal. Drum, Ambr	1.58	2.01	1.96	2.44	2.30	2.01	2.45	1.50-3.50	2.06	2.11	2.10	2.16
60# Light (retail)	207.78	149.80	205.00	199.54	171.00	190.10	262.50	90.00-300.00	203.63	3.39	209.50	205.33
60# Amber (retail)	211.11	157.37	193.33	192.79	198.56	182.28	258.00	90.00-300.00	202.11	3.37	205.87	198.45
<b>WHOLESALE PRICES SOLD TO STORES OR DISTRIBUTORS IN CASE LOTS</b>												
1/2# 24/case	87.66	73.67	80.00	56.00	51.84	105.12	125.20	40.00-134.40	84.80	7.07	84.29	83.20
1# 24/case	130.27	106.07	129.22	102.74	127.16	126.42	174.00	84.00-252.00	127.53	5.31	124.70	119.87
2# 12/case	115.64	92.70	111.11	99.86	97.44	103.74	199.67	78.00-216.00	117.04	4.88	107.07	107.71
12.oz. Plas. 24/cs	101.91	85.46	99.87	85.90	74.40	108.40	134.00	66.00-180.00	99.48	5.53	95.91	95.99
5# 6/case	134.21	111.50	134.10	110.76	102.30	125.35	140.00	71.50-204.00	125.49	4.18	130.13	118.72
Quarts 12/case	166.27	130.36	130.23	125.21	155.32	134.13	184.67	108.00-216.00	142.72	3.96	141.63	139.10
Pints 12/case	100.13	87.26	71.52	86.52	111.00	82.74	104.40	54.00-138.00	89.21	4.96	87.25	88.44
<b>RETAIL SHELF PRICES</b>												
1/2#	5.18	4.08	4.40	3.48	4.27	4.39	6.63	2.00-8.00	4.74	9.49	4.61	4.36
12 oz. Plastic	5.95	4.81	5.45	5.03	5.24	6.60	7.38	3.00-9.50	5.75	7.67	5.53	5.40
1# Glass/Plastic	7.31	6.46	7.75	6.82	6.07	6.73	11.80	3.00-15.00	7.75	7.75	7.30	7.06
2# Glass/Plastic	13.40	10.63	12.83	12.61	10.67	10.96	17.60	6.00-25.00	13.03	6.52	11.97	11.70
Pint	11.29	8.13	8.06	10.78	9.38	11.38	12.97	4.50-20.00	9.84	6.56	9.67	9.68
Quart	17.04	14.70	14.33	17.25	16.78	19.59	21.12	7.00-35.00	17.13	5.71	16.89	16.10
5# Glass/Plastic	26.93	23.66	36.24	27.80	24.59	26.45	32.50	14.48-41.00	27.74	5.55	26.52	25.52
1# Cream	8.59	7.67	7.99	7.36	10.07	6.75	13.50	2.00-16.00	8.68	8.68	8.79	8.22
1# Cut Comb	11.92	8.70	8.25	10.80	12.50	6.50	16.50	6.00-20.00	11.08	11.08	10.96	10.35
Ross Round	9.93	6.83	10.14	10.50	10.14	10.50	10.90	6.00-15.20	9.68	12.91	8.84	8.46
Wholesale Wax (Lt)	7.25	5.31	4.30	6.36	6.00	5.13	6.95	2.50-12.00	6.17	-	6.27	5.75
Wholesale Wax (Dk)	7.32	4.93	3.28	6.10	5.80	3.63	5.38	2.00-10.00	5.60	-	5.60	5.20
Pollination Fee/Col.	95.00	65.00	66.00	74.00	80.00	90.00	128.75	30.00-200.00	85.81	-	84.81	80.39

REPORTING REGIONS - 2017								SUMMARY			History	
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55 Gal. Drum, Ambr	2.20	2.12	2.06	2.22	2.17	2.06	3.00	1.35-3.00	2.17	2.17	2.14	2.06
60# Light (retail)	227.86	182.85	177.80	203.15	159.00	196.74	220.00	103.98-280.00	199.89	3.33	195.40	203.63
60# Amber (retail)	230.94	192.07	192.12	191.55	200.60	194.43	226.67	122.69-270.00	204.85	3.41	191.82	202.11
<b>WHOLESALE PRICES SOLD TO STORES OR DISTRIBUTORS IN CASE LOTS</b>												
1/2# 24/case	99.23	75.38	88.80	69.80	72.00	84.00	91.34	60.00-134.40	85.48	7.12	84.76	84.80
1# 24/case	141.49	107.15	127.92	112.48	127.16	124.88	128.40	86.40-211.20	126.50	5.27	126.27	127.53
2# 12/case	124.74	95.07	111.41	98.03	97.44	98.40	114.00	70.00-192.00	110.74	4.61	109.22	117.04
12.oz. Plas. 24/cs	108.28	87.67	91.50	88.25	74.40	104.00	97.20	66.00-172.80	96.28	5.35	94.03	99.48
5# 6/case	142.46	108.25	142.00	108.75	102.30	115.50	133.57	71.50-210.00	126.38	4.21	127.53	125.49
Quarts 12/case	172.11	134.43	134.51	129.80	155.32	130.62	132.00	109.20-216.00	141.27	3.92	153.10	142.72
Pints 12/case	108.98	88.73	77.67	75.00	111.00	73.98	84.00	65.00-120.00	87.38	4.85	96.02	89.21
<b>RETAIL SHELF PRICES</b>												
1/2#	5.96	4.33	4.70	3.84	3.84	3.85	5.31	2.69-9.00	4.77	9.53	4.96	4.74
12 oz. Plastic	7.19	4.96	5.29	4.58	4.56	6.44	6.30	3.79-12.00	5.81	7.74	5.80	5.75
1# Glass/Plastic	8.30	6.61	7.46	6.19	6.51	6.66	8.75	4.00-14.00	7.34	7.34	7.37	7.75
2# Glass/Plastic	14.44	9.68	12.48	10.76	11.52	9.87	15.00	6.00-21.00	12.37	6.19	12.40	13.03
Pint	13.32	9.55	8.67	10.88	10.00	10.69	11.13	7.00-18.50	10.19	6.79	10.17	9.84
Quart	19.87	16.52	15.28	15.54	17.48	16.46	19.24	9.25-32.00	17.15	5.72	17.31	17.13
5# Glass/Plastic	28.95	24.42	35.31	23.83	25.19	22.50	35.00	16.99-43.25	27.28	5.46	28.03	27.74
1# Cream	9.78	8.47	11.25	8.41	9.88	5.50	9.67	5.50-16.00	9.23	9.23	9.91	8.68
1# Cut Comb	12.79	10.68	9.00	8.45	10.00	9.25	14.00	5.00-24.00	10.67	10.67	11.59	11.08
Ross Round	10.49	6.83	9.94	9.75	9.94	10.50	8.40	6.00-15.00	9.37	12.50	10.36	9.68
Wholesale Wax (Lt)	8.20	5.10	5.60	4.50	6.00	5.15	5.00	3.00-12.00	6.01	-	6.21	6.17
Wholesale Wax (Dk)	7.75	4.75	4.46	4.14	6.19	3.17	5.00	2.00-12.00	5.39	-	5.56	5.60
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# FOUND IN TRANSLATION

*History Tends To Repeat Itself*

Jay Evans, USDA Beltsville Bee Lab



It can be easy to forget when working with honey bees that our human existence as their keepers pales before the time they kept themselves going just fine without us. Like other highly social insects, honey bees were widespread and important players in nature for millions of years before humans recognized them as a partner. This is not to understate the human:bee relationship; we have been friends with benefits for tens of thousands of years. Instead, picture the many millions of years honey bees have spent landing on flowers of plant species still found today. During all that time, honey bees faced diverse climate zones and seasonality similar to today's. They battled at least some of today's parasites and pathogens, and harbored versions of today's symbiotic microbes. These relationships with the living and physical world pushed bees into most of the behaviors and physical traits we see now. In other words, this evolutionary history set the stage for many of the strengths and weaknesses of honey bees as a species, baggage we humans both exploit and struggle to 'manage'.

Last month I highlighted Tom Seeley's work on the biologies of successful feral and 'alt-feral' honey bee colonies. While I have long enjoyed Tom's work and could write about it monthly, I was inspired to do that column largely thanks to a fascinating workshop Tom helped lead (with Professors Mark Winston, Marla Spivak, and an irrepressible beekeeping couple from California, Bonnie and Gary Morse, among others). This "Bee Audacious" workshop dug into some truly unique ideas for changing the beekeeping world, from Darwinian beekeeping to bees as spiritual guides

(truly all sides were at the table and in respectful conversation). A key point of these discussions was that we ignore the long history of honey bees, their food sources, and their environment at our peril.

Evolutionary thinking with respect to bees is not completely novel. Charles Darwin mused about both flowers and social insects as he built the case for evolution. More recently, Marla Spivak brought many of us to our feet with her plea for '(r)evolutionary beekeeping' almost two decades ago. What WAS novel and audacious was the effort to bring beekeepers, producers, and scientists into a secluded place and turn the screws to make them come up with some practical outcomes. A living conversation of this effort is on the web at Beeaudacious.com, including an extensive review drafted by Mark Winston and Nicole Armos from Simon Fraser University ([http://beeaudacious.com/wp-content/uploads/2017/04/BA\\_Final\\_Reportv1.8.2opt.pdf](http://beeaudacious.com/wp-content/uploads/2017/04/BA_Final_Reportv1.8.2opt.pdf)).

In a similar vein, bee researchers Berry Brosi and Keith Delaplane and two disease-expert colleagues have just published an excellent overview of evolutionary thinking as applied to honey bee disease. This review is packed with insights into why mites and viruses are bad and getting worse for bees. In particular, management practices from colony crowding to shared equipment and imperfect disease controls can actually drive parasites such as mites and viruses to fight back with increased virulence as they race to beat our controls. As one example, periodic but ineffective treatments for mites can favor those mites that grow fastest in between applications. Racing the clock by parasites often

leads to higher virulence or impacts on their hosts. This is on top of the frustrating evolution of resistance to the treatments themselves, a race that has us constantly searching for the next big thing in mite control. The review is behind a paywall at Nature Ecology and Evolution ([www.nature.com/articles/s41559-017-0246-z](http://www.nature.com/articles/s41559-017-0246-z)) but if you contact the authors they can likely give you substantial details from this important paper.

So how can beekeepers and those who want bees and their fruits take advantage of history and the dynamic field of evolutionary biology? One way is to be open to change. Listen to both the young and old beekeepers in your circles who are trying new ways to manage colonies. Maybe this involves new approaches to swarming and splits, overwintering, queen replacement, and pest control. Maybe it involves tolerating an adverse trait that has an ancient record of helping bees (like sticky propolis?). For researchers, this might mean being open to test some of the more exotic new treatments for disease or nutrition. These are often derisively called 'fairy dust', although I prefer 'magic potions' since there is a human hand in their genesis, even if it feels like alchemy sometimes. One or more of these products will indeed provide a safe and effective aid to bees and many people are hard at work trying to identify those scarce winners. They are not a quiet bunch in general so you have likely seen this. The groups with the best chance to identify 'out of the blue' winners have a firm grasp on the evolution of their plant, microbial, even mushroom, sources and they are using these insights to knock down nature's pharmacopeia to a size that works for real testing.

Evolutionary thinking can also help explain the vexing sensitivity of bees to agro-chemicals and to the rare plant nectars containing toxic compounds. As a needed partner to flowering plants, bees have historically received 'the good stuff', and their physiologies seem to reflect a naiveté toward chemical insults. One of the discoveries of the honey bee genome project was that bees indeed have fewer proteins known for detoxifying chemicals than do other insects (10.1111/j.1365-2583.2006.00672.x). Finally, to improve honey bees in the long term, breeders must build on existing traits controlled by a mess of intersecting chemical roads and protein pathways. To bring out the best traits takes care, since other less desired genetic traits can come along for the ride, or can slow down the spread of these winners. Since many genes need to be juggled to keep winning traits around, it is also incredibly hard to hang on to what you have in a breeding program. The best breeders will focus on traits that both respond to genetic pushes (e.g., are heritable) and are still expressed when the entropy of the real world hits them. In breeding and bee management we ignore history at our peril. **BC**

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## Be A Part Of Citizen Sciences, Or just Brag About Your Hive

### Introduction

Hang around an online forum for Beekeepers, and you find out fast that they can be an opinionated bunch. There's often lots of advice, but little data beyond experience. For many it feels like beekeeping is more of an art than a science. While that's good for a chuckle now and then, it also speaks to a common frustration of beekeepers. It quickly becomes clear that having some hard data and the ability to collaborate would be a big help.

Until recently the typical beekeeper had to jump through a lot of hoops to collect data from their apiary. Often that resulted in clunky homebrew setups that offered a hodgepodge of features that didn't quite check all the boxes. The level of difficulty in setup limited adoption, and made it hard to share findings and learn from other beekeepers.

From its humble beginnings, the BroodMinder project had at their heart making citizen science a breeze. The varied souls that came to make up the BroodMinder team were brought together by their desire to collect and share data from their own hives. Now, with affordable BroodMinder sensors and a robust software platform in MyBroodMinder.com to collect and display data, that dream has become reality with BeeCounted ([www.beecounted.org](http://www.beecounted.org)) displaying the data publicly.

### BeeCounted.org

BeeCounted is the new public domain portal for [MyBroodMinder.com](http://MyBroodMinder.com) (formerly Beekeeping.io), the web application designed by Dave Strickler to organize and display data collected by BroodMinder devices in the field. BeeCounted is already tracking data from hundreds of apiaries, and is now the public facing pathway to the



Areas where BroodMinder has participants in the program.

world's largest public repository for honey bee data.

With BeeCounted, beekeepers with a BroodMinder setup now have a way to point interested parties to their beehive data by sharing a unique website address for their hive. Beekeepers can also locate other nearby apiaries on a map and see how they are doing in comparison to their own hives. Researchers and Citizen Scientists are also using the data being collected by BeeCounted for their own scientific study.

So how will this data be used? It's only limited by the beekeeper's imagination. For researchers, it will be used to conduct research on honey bee populations around the world. For backyard beekeepers, it may be a way to identify best practices (overwintering hives in colder locations, for example). And for some, it may be just for bragging rights, as in, "look at how heavy my hive is with honey this year"!

While sharing your hive data has amazing possibilities, BeeCounted also understands the concern for beekeepers to be anonymous, by placing apiaries on the map by zipcode, and not by a postal address, giving only the town location. Earlier this year, **a chop shop** of nearly a million dollars worth of bees was broken up in California and officials report the problem of hive thefts is on the rise. Also, apiary and hive names are removed from the site, allowing the hive to only be identified with a random code.

### More to come!

For Citizen Science around honeybees, this is just the beginning of some exciting possibilities. The team has plans in the works for many new features and new uses for their data. There is now an active and engaged community around the BroodMinder sensors, including university researchers, commercial and backyard beekeepers, and thought leaders in the care of honey bees. This interest is only expected to grow with the ability to share and collaborate on BeeCounted. **BC**



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Microsporidiosis of adult honey bees caused by *Nosema apis* and *Nosema ceranae* is a common worldwide disease with negative impacts on colony strength and productivity. The role of the queen in bee population renewal and the replacement of bee losses due to *Nosema* infection is vital to maintain colony homeostasis. Younger queens have a greater egg-laying potential and they produce a greater proportion of uninfected newly eclosed bees to compensate for adult bee losses. Botias et al. (2012) performed a field study to determine the effect of induced queen replacement on *Nosema* infection in honey bee colonies, focusing on colony strength and honey production. In addition, the impact of long-term *Nosema* infection of a colony on the ovaries and ventriculus (midgut) of the queen was evaluated. Queen replacement resulted in a remarkable decrease in the rates of *Nosema* infection, comparable with that induced by fumagillin treatment. However, detrimental effects on the overall colony state were observed due to the combined effects of stressors such as the queenless condition, lack of brood and high infection rates.

The biological impacts of *Nosema* disease has mostly been associated with worker bees, whereas drones and queens are generally considered to be more resistant or less susceptible to infection and the dangers to them have been somewhat underestimated (Loskotova et al. 1980). Queens can be infected by both *N. apis* and *N. ceranae* (Traver and Fell 2012; Webster et al. 2004) and *N. ceranae* has even been detected in larval queens (Traver and Fell 2012). Most transmission of *Nosema* spp., presumably occurs during the adult stage, including mating, although antimicrobial molecules in drones' semen are able to kill *N. apis* spores and reduce the risk of disease transmission during mating (Peng et al. 2016). Nosemosis in queens causes aberrant physiology, as well as similar gut lesions and metabolic costs as in workers (Alaux et al. 2011; Higes et al. 2009). In addition, queens infected by *N. apis* start oviposition later than healthy ones (Hassanein 1951; Loskotova et al. 1980), display changed pheromone production (Alaux et al. 2011) and in extreme cases their oocytes degenerate leading to infertility (Liu 1992). *N. apis* infection may severely reduce queen lifespan to an average of nearly 50 days, resulting in queen supersedure (Loskotova et al. 1980). Compensatory increases in the level of vitellogenin and other antioxidant enzymes occur in infected queens (Alaux et al. 2011). These counterintuitive changes may be protective mechanisms that are too costly in the long-term for the infected queen to survive (Amiri et al. 2017).

When a queen honey bee becomes infected with *Nosema apis*, the result can be very serious indeed for her colony. The metabolic processes are disturbed by the damage done by the parasite to the epithelial cells of the mid-gut, and this apparently leads to severe damage to the ovaries, at first by the production of a high proportion of eggs that fail to hatch, and ultimately by complete cessation of oviposition and suppression or death of the queen. Although large numbers of eggs, larvae, and pupae produced by infected queen honey bees were examined, none was found to be infected with any stage of *Nosema apis* (Hassanein 1951).

Terminal oocytes (egg production) containing yolk in both healthy and nosema infected queen honey bees were studied (Liu 1992). In the healthy queens the terminal



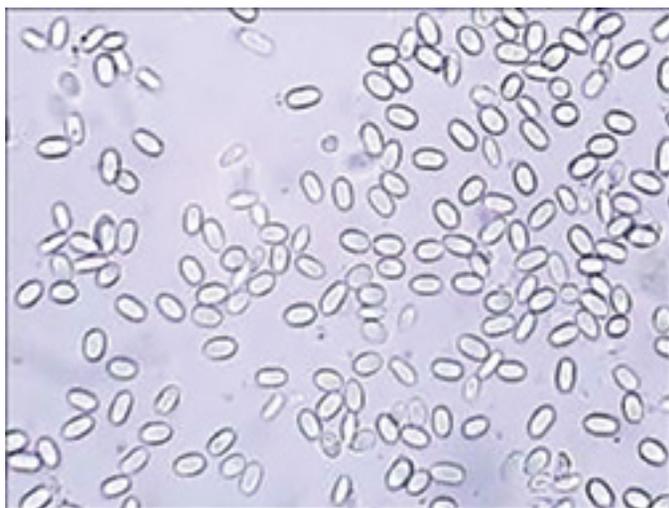
# A Closer LOOK

## IMPACT OF NOSEMA DISEASE ON REPRODUCTIVE CASTES

Clarence Collison

The biological impact of *Nosema* disease has mostly been associated with worker bees, whereas drones and queens are generally considered to be more resistant or less susceptible to infection and the dangers to them have been somewhat underestimated.

oocytes exhibited a layer of follicular cells which were covered by a smooth-surfaced ovariole sheath. In the ooplasm were numerous electron-dense yolk granules and lipid yolk droplets. The electron-dense yolk granules exhibited crystalline structure. Stacks of endoplasmic reticulum were observed in the yolk granules throughout the ooplasm. Numerous mitochondria possessing well defined cristae were also observed. Oocytes in the ovary of queen honey bees appeared degenerated after seven



*Nosema ceranae* spores.

days of infection by *Nosema apis*. The ovariole sheath was wrinkled. In the ooplasm, yolk granules were broken down into small spheres and granular substances. Numerous ribosomes without stacks of endoplasmic reticulate were observed. Lysosomes were abundant and numerous electron-dense materials surrounded by a membrane were detected. The oocytes appeared to be extensively autolysed (cell destruction through the action of its own enzymes).

Queen honey bees were inoculated with known numbers of *Nosema apis* Zander spores and introduced into frame nuclei. Inoculations with as few as 1000 spores resulted in supersedure. All superseded queens recovered were found infected. The degree of infection, and the time which elapsed before supersedure resulted, varied within a given dosage level. Some inoculated queens survived and were found free of spores, suggesting that selection for resistance to *Nosema* disease is possible (Furgala 1962).

Worker and queen honey bees were fed individually with *N. apis* spores in sucrose solution and then returned to cages containing several hundred of their worker bee nestmates. After three to seven days, the workers and queens that had been fed spores were sacrificed. Worker and queen ventriculi (midguts) were removed and examined for spores by light microscopy, and DNA was extracted. The DNA was subjected to amplification with polymerase chain reaction (PCR), using primer sequences specific to *N. apis* DNA. The PCR analysis was more sensitive than examination for spores by light microscopy, in detecting *N. apis* infection. Worker bees and queen bees were infected at similar rates by the inoculation procedure (Webster et al. 2004).

Traver and Fell (2012) also investigated whether queens from colonies with a known *N. ceranae* infection can become naturally infected and, if so, whether immature queens are also infected. They were also interested in determining whether *N. ceranae* could infect other tissues which might be involved in vertical

transmission, such as the ovaries and/or spermatheca. Queens were analyzed using real-time PCR and included larval queens, newly emerged and older mated queens. Overall, they found that all tissues examined were infected with *N. ceranae* at low levels but no samples were infected with *Nosema apis*.

Larval queens and newly emerged queens were analyzed to determine whether *N. ceranae* can be transmitted to developing queens, i.e. through brood food. Larval queens were infected at low levels and *N. ceranae* DNA was detected in royal jelly; however they could not rule out the possibility that this was due to contamination since royal jelly samples were not decontaminated with bleach. A subsample of royal jelly was used for spore counting, but spores were not observed in any sample. Because *N. ceranae* was detected in royal jelly samples, brood food could provide a mechanism for the horizontal transmission of *N. ceranae* to all developing bees; however, infectivity studies for royal jelly are still needed (Traver and Fell 2012).

In newly emerged queens, Traver and Fell (2012) found abdomens, thoraces, heads, and ovaries to be infected with low levels of *N. ceranae*. Overall trends indicated that abdomens (minus the reproductive organs from the same queens) tend to have higher levels of infections compared to other tissues; though in some cases, ovaries were found to have a higher level of infection than the other tissues examined. The analysis of mated, laying queens also indicated the presence of *N. ceranae* and these infections had spread to other tissues such as the ovaries. Low levels of *N. ceranae* in the ovaries and spermatheca suggest that vertical transmission could be involved in transmitting *N. ceranae*.

Alaux et al. (2011) analyzed the impact of *Nosema ceranae* on queen physiology. They found that infection by *N. ceranae* did not affect the fat body content (an indicator of energy stores) but did alter the vitellogenin titer (an indicator of fertility and longevity), the total antioxidant capacity and the queen mandibular pheromones, which surprisingly were all significantly increased in *Nosema*-infected queens. Thus, such physiological changes may impact queen health, leading to changes in pheromone production, that could explain *Nosema*-induced supersedure (queen replacement).

Since the prevalence of drone infection by *N. ceranae* was unknown, Traver and Fell (2011) set out to determine whether drones are naturally infected with *N. ceranae* and at what levels. Drones were analyzed for *N. ceranae* infections using quantitative real-time PCR with species specific primers and probes. Drone pupae were collected from capped cells at the purple eye stage (with body pigmentation) and were approximately 17-23 days old. In-hive and flying drones were also sampled. They found that both immature and mature drones are infected with *N. ceranae* at low levels. No *N. apis* infections were detected in drones of any age. Average spore counts were 9,436 and 13,839 spores per bee for in-hive and flying drones, respectively. Only 19.6% of in-hive drones had sufficient spore numbers to count. Drone pupae were infected at low levels and most frequently in May and June and this is the first report that has detected *N. ceranae* in immature bees. If pupae are infected before emergence, they may be infected through brood food or contamination in their cells. The low level infections found in pupae could be due

*Nosemosis in queens causes aberrant physiology, as well as similar gut lesions and metabolic costs as in workers.*



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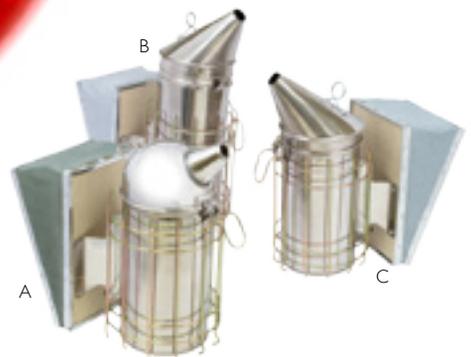


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When a queen honey bee becomes infected with *Nosema apis*, the result can be very serious indeed for her colony.

to developmental changes associated with pupation and reorganization of the alimentary canal. In-hive drones had the highest infections in June. For both drone pupae and in-hive drones, the highest levels of infection coincided with high levels of infection in the sampled hives. Mature, flying drones were also infected, but generally at lower levels and may be due to flying drones not returning to the hive or because heavily infected drones do not survive as long. Because drones are known to drift from their parent hives to other hives, they could provide a means for disease spread within and between apiaries.

Peng et al. (2015) was able to show that *Nosema apis* is able to infect drones and that these infections built up to a point where they induced significant costs for males. They found a reduction in fertility and life span as drones aged, as well as ejaculate of infected drones becoming contaminated with spores. Honey bee drones become sexually mature about 12 days after emergence and consequently maintain their maximal fertility potential over a time period of approximately 10 days. During that time, they participate in nuptial flights in order to find and mate with virgin queens. The phenotypic expression of a *N. apis* infection such as spores in the ejaculate and a reduction of drone fertility and survival therefore affects these drones during their main reproductive period.

These findings indicate that drones which become infected shortly after hatching will eventually face substantial fitness costs and pose an infection threat to virgin queens in case they mate. More research is required to quantify the risk of vertical transmission posed by males infected with *N. apis*.

Although their visual inspections both morphologically as well as histologically, did not reveal any obvious signs of *N. apis* infections in reproductive tissues or their

products, DNA of *N. apis* can be detected in both accessory glands and testes. Even though they found that *N. apis* is able to establish low levels of infections in reproductive tissues, no spores were found which would indicate that the pathogen seems unable to complete its reproductive cycle or to build up an infection. Therefore, even though *N. apis* is able to infect drone testes and accessory glands, the drones seem able to slow down or prevent this parasite from producing spores within their reproductive tissue, thereby reducing the risk of sexual transmission. This is an interesting finding, because *N. apis* infections are already known to spread to different honey bee organs such as the fat body, the Malpighian tubules or the hemolymph (Webster et al. 2004). In comparison, *Nosema ceranae* has been reported to infect drones at the pupal stage (Traver and Fell 2011), to reduce drone body weight and life span and to induce physiological changes in honey bee queens (Alaux et al. 2011).

*Nosema apis* has been reported to be present in ejaculates of honey bee drones, and artificial insemination experiments have confirmed that this pathogen can in principle be transmitted during matings (Roberts et al. 2015). They conducted a series of experiments to unravel the effects of a *N. apis* infection on a male's somatic (relating to the body) tissue, by inspecting infected somatic tissues of drones at different ages and comparing the survival of infected and uninfected drones. They also investigated whether drones are able to protect their reproductive organs and their ejaculates from *N. apis* infections to minimize the risk of transmitting infective spores during copulation.

*Nosema* was present in 69% of the drone semen samples examined. Semen sampled in 2011 had both *N. apis* and *N. ceranae*, but with much lower intensities of *N. apis*, while semen sampled in 2012 had only *N. ceranae*. No *Nosema* was detected in any of the tissue samples (spermatheca, ovary, gut) from any of the control queens that had been inseminated with sterile semen diluent. Ten of the 13 queens inseminated with *Nosema* spores were found to subsequently be positive for *N. apis* and/or *N. ceranae*. The prevalence and intensities of infections differed significantly between *N. apis* and *N.*

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*ceranae*. Infections of *N. ceranae* were far more prevalent and intense than those of *N. apis* and were found in all tissues, whereas those of *N. apis* were found only in the gut. Queens inseminated with *Nosema*-infected semen were subsequently found to be positive for *Nosema* but at a much lower frequency than found in the experiment when the queens were inseminated with *Nosema* spores. None of the 400 eggs laid by queens that were either naturally infected with *Nosema* or had been inseminated with semen containing *Nosema*, were found to carry the parasite (vertical transmission). **BC**

## References

- Alaux, C., M. Folschweiller, C. McDonnell, D. Beslay, M. Cousin, C. Dussaubat, J.-L. Brunet and Y. Le Conte 2011. *Pathological effects of the microsporidium Nosema ceranae on honey bee queen physiology* (*Apis mellifera*). *J. Invertebr. Pathol.* 106: 380-385.
- Amiri, E., M.K. Strand, O. Rueppell and D.R. Tarpy 2017. *Queen quality and the impact of honey bee diseases on queen health: potential for interactions between two major threats to colony health*. *Insects* 8: 48; doi: 10.3390/insects8020648.
- Botías, C., R. Martín-Hernández, J. Dias, P. García-Palencia, M. Matabuena, Á. Juarranz, L. Barrios, A. Meana, A. Nanetti and M. Higes 2012. *The effect of induced queen replacement on Nosema spp. infection in honey bee* (*Apis mellifera iberiensis*) colonies. *Environ. Microbiol.* 14: 845-859.
- Furgala, B. 1962. *The effect of the intensity of nosema inoculum on queen supersedure in the honey bee Apis mellifera Linnaeus*. *J. Insect Pathol.* 4: 429-432.
- Hassanein, M.H. 1951. *Studies on the effect of infection with Nosema apis on the physiology of the queen honey-bee*. *Q. J. Microsc. Sci.* 92: 225-231.
- Higes, M., R. Martín-Hernández, P. García-Palencia, P. Marin and A. Meana 2009. *Horizontal transmission of Nosema ceranae (Microsporidia) from worker honeybees to queens* (*Apis mellifera*). *Environ. Microbiol. Reports* 1: 495-498.
- Liu, T.P. 1992. *Oocytes degeneration in the queen honey bee after infection by Nosema apis*. *Tissue Cell* 24: 131-136.
- Loskotova, J., M. Peroutka and V. Vesely 1980. *Nosema disease of honeybee queens (Apis mellifica L.)* *Apidologie* 11: 153-161.
- Peng, Y., B. Baer-Imhoof, A.H. Millar and B. Baer 2015. *Consequences of Nosema apis infection for male honey bees and their fertility*. *Sci. Rep.* 5:10565; doi: 10.1038/srep10565.
- Peng, Y., J. Grassl, A.H. Millar, and B. Baer 2016. *Seminal fluid of honeybees contains multiple mechanisms to combat infections of the sexually transmitted pathogen Nosema apis*. *Proc. R. Soc. B Sci.* 283: 20151785.
- Roberts, K.E., S.E.F. Evison, B. Baer and W.O.H. Hughes 2015. *The cost of promiscuity: sexual transmission of Nosema microsporidian parasites in polyandrous honey bees*. *Sci. Rep.* 5: 10982, doi: 10.1038/srep10982.
- Traver, B.E. and R.D. Fell 2011. *Nosema ceranae in drone honey bees* (*Apis mellifera*). *J. Invertebr. Pathol.* 107: 234-236.
- Traver, B.E. and R.D. Fell 2012. *Low natural levels of Nosema ceranae in Apis mellifera queens*. *J. Invertebr. Pathol.* 110: 408-410.
- Webster, T.C., K.W. Pomper, G. Hunt, E.M. Thacker and S.C. Jones 2004. *Nosema apis infection in worker and queen Apis mellifera*. *Apidologie* 35: 49-54.

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# Neonicotinoid Pesticides: A Major Problem For Bees, Part III

*The dose response characteristics of neonicotinoid insecticides turn out to be identical to those of genotoxic carcinogens, which are the most dangerous substances we know. Such poisons can have detrimental effects at any concentration level.*

If you still think our primary problem is *Varroa*, poor nutrition, habitat destruction, etc., and don't believe that pesticides is one of the primary issues, if not **THE** primary issue, for beekeepers today...think again.

In this third installment that came about as a result of my experience serving on the Vermont Pollinator Protection Committee, we explore the:

## Impacts of neonicotinoid pesticides on honey bees (*Apis mellifera*)

As I stated in Part I of this series – all pesticides have the potential to have a harmful effect on honey bees. The reason so much focus and attention is paid to neonicotinoid insecticides is simply because they are among the most commonly used pesticides in the world.

The deadly impacts of neonicotinoids are obvious when bees are exposed to the contaminated dust from seed planting equipment (Greatti 2006; Krupke 2012; Tapparo 2012) or from the droplets of water (guttation fluid) exuded around the tips and leaf edges of plants (Girolami, 2009; Hoffman, 2012). While serious damage to beekeeping operations can occur from such exposure the primary risk to bees is not from such acute toxic reactions, but from chronic low-level exposure that may increase exponentially over time. Such exposure can make very small amounts of neonicotinoids much more toxic than previously realized.

Researchers have discovered why toxicity may occur after prolonged exposure to very low toxicant levels.

Druckrey and Küpfmüller inferred in the late 1940s that if both receptor binding and the effect are irreversible, exposure time would reinforce the effect of the toxicant. In the 1960s they produced an equation that explains why toxicity may occur after prolonged exposure at very low levels. This dose-response characteristic has recently been established for insects like honey bees, with regard to the toxicity of imidacloprid and thiacloprid (Tennekes, 2011) and clothianidin. (Alkassab 2016)

Since imidacloprid and other neonicotinoid insecticides

have time-dependent effects on arthropods such as bees, the risk of foraging worker bees consuming tiny residue levels becomes an issue that cannot be ignored. Researchers describe this paradigm shift in the field of toxicology this way: **“The dose response characteristics of neonicotinoid insecticides turn out to be identical to those of genotoxic carcinogens, which are the most dangerous substances we know. Such poisons can have detrimental effects at any concentration level.** (emphasis mine) Current pesticide risk assessment procedures are flawed and have failed to protect the environment. Traditional approaches that consider toxic effects at fixed exposure times are unable to allow extrapolation from measured endpoints to effects that may occur at other times of exposure. Time-to-effect approaches that provide information on the doses and exposure times needed to produce toxic effects on tested organisms are required for prediction of toxic effects for any combination of concentration and time in the environment.” (Tennekes, 2010)

In other words, the NEC (No Effect Concentration) for imidacloprid is estimated to be close to zero, which means that even extremely low residue concentrations of imidacloprid found in pollen or honey will have a lethal effect provided there is sufficient exposure time. This is a deadly situation for the honey bee workers that can lead to colony death during winter even when mites are under control, because the bees are restricted to consuming the neonic tainted honey and pollen stored in the hive.

Toxic effects from exposure to neonics include the finding that exposure to Thiamethoxam, damages the honey bee's ability to fly and to navigate. In addition their ability to reproduce is impaired and their ability to forage effectively is reduced. Bees affected by neonicotinoids are also more vulnerable to disease and parasites. (Tirado 2013) These findings have been confirmed and supported by numerous studies.

The microsporidian *Nosema* is endemic in hives, but normally benign. However, when researchers feed bees a minute dose of imidacloprid, at a thousand times below the lethal dose that will kill 50 percent of the bees (LD50) and exposed them to *Nosema*, all the bees exposed to neonics die of *Nosema*, while none of the control hives also exposed, show any sign of disease. (Alaux 2010)

USDA research followed up on this study and clearly demonstrated that bees exposed to levels of imidacloprid that are undetectable using modern methods of detection, are significantly more vulnerable to *Nosema* and this



can lead to increased honey bee mortality and colony decline and collapse. Follow up testing of exposed bees for imidacloprid contamination showed no traces of the insecticide. The only way that researchers could confirm that the bees in their study were exposed to the insecticide is because they exposed the bees themselves. (Pettis 2012)

Another team of researchers discovered the mechanism which triggered the immune system deficiency Pettis described. Deformed Wing Virus (DWV) is present in all bee colonies, but is normally dormant and benign. However, when colonies were fed a tiny, field-relevant dose of neonicotinoids, thousands of bees would later be born with shriveled wings and the colony died. The scientists found that in test-colonies fed neonicotinoids the Deformed Wing Virus replicated 1,000 times faster than when colonies were neonic free. (Di Prisco 2013)

Such studies show that at field relevant doses imidacloprid has a crippling effect on the bees' immune system allowing pathogens that may be present but not actively harming the colony to become deadly. This makes neonics the perfect killer. They destroy the immune system at levels that are undetectable, leaving other culprits to take the blame for colony deaths – whether it be *Varroa* mites, Deformed Wing Virus, Nosema, lack of forage and nutritional stress, poor beekeeping practices, abnormal weather –anything but neonicotinoid insecticides.

Meanwhile, a study published in the journal *Chemosphere* concluded that when bees are exposed to field realistic concentrations of the neonicotinoid thiamethoxam their lives are shortened. The “results suggest cellular organelle impairment that can compromise cellular function of the midgut cells, Malpighian tubules cells and Kenyon cells, and, consequently, can compromise the longevity of the bees of the whole colony.” (Friol, 2017)

Imidacloprid has also been shown to slow down the speed in which worker bees complete their foraging trips which creates the potential for insufficient food stores in hives. (Yang, 2008)

Additionally, recent research by Forfert and Moritz indicates that field realistic exposure to Thiacloprid significantly reduces the number of social interactions a worker will engage in with nest mates which could negatively impact recruitment of foragers. Interestingly, even though the exposed bees were less social, they transferred more food to the members that they contacted. This has the potential for serious repercussions in cases where hive diseases are being transmitted through the exchange of food. (Forfert and Moritz 2017)

In another recent paper that sheds light on neonics effect on honey bee social interactions, Papach, et. al., studied the impacts of honey bee exposure to thiamethoxam and American Foulbrood at the same time. There appeared to be no additive effect of the two stressors on larval mortality, however, they did find impaired cognitive performance (learning and memory) in honey bees fed the neonic during the larval stage. (Papach 2017)

When exposed to sunlight, neonicotinoids degrade and break down fairly rapidly. However, even neonicotinoid breakdown products are deadly to non-target organisms. One of imidacloprid's breakdown products or metabolites, imidacloprid olefin, has been found to be at least as toxic as the parent product and also very persistent. (Suchail 2004)



*Failed and supercedured queens seem to have become more common place ever since the use of neonicotinoid pesticides dramatically increased about 10 years ago.*

### **Synergistic impacts of neonicotinoid pesticides.**

Studies have also shown that bees exposed to a field-realistic dose of imidacloprid and Nosema at the same time experienced health impacts greater than either the pesticide or the disease alone. (Mondet 2009). Meanwhile, the U.S. EPA either ignores or downplays the synergistic impacts of neonicotinoids even though a ten-year old Paper Confirms USDA knew that imidacloprid had the potential for 1000-fold toxic synergistic effects when combined with fungicides. (CCD Steering Committee 2007) To quote directly from the CCD Steering Committee report: “*Regarding pesticides, a new class of insecticides known as neonicotinoids is broadly and commonly used in most cropping systems and on turf and forest pests. One of the compounds in this class, imidacloprid, was banned in France, because it is acutely toxic to bees and since sub-lethal doses have been shown to impair honey bee short term memory; short-term memory is critical to bee navigational abilities necessary for foraging flights and for returning to the hive. USDA-funded research in North Carolina suggested that widely used fungicides synergize the effect of neonicotinoids 1,000-fold.* (emphasis mine) *Imidacloprid, applied as a systemic, has been found in corn, sunflower, and rape pollen at levels high enough to harm bees. [Although bees do not pollinate corn, they do collect corn pollen.]*”

### **Queen issues**

When it comes to queens, the news is no better. Work published in Scientific Reports found that “exposure to field-realistic concentrations of neonicotinoid pesticides can severely affect the immunocompetence of queens of western honeybees (*Apis mellifera* L.)” (Brandt 2017) Just like its effects on workers, neonics can make queens more vulnerable to diseases.

Our understanding of how neonicotinoids may impair short-term colony functioning due to the adverse effects of imidacloprid on queen bee fecundity and behavior increased greatly when researchers found neonicotinoids can reduce queen honey bee egg laying by as much as two-thirds, jeopardizing the health and stability of entire colonies. They also found colonies exposed



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to imidacloprid, collected and stored less pollen than insecticide-free colonies. Exposed colonies also removed just 74 percent of mite-infested or diseased pupae that infected the hive, compared to 95 percent removal by unexposed bees. (Wu-Smart and Spivak 2016)

Then there is the finding that field realistic, sub-lethal doses of imidacloprid (0.02 ppm) and Coumaphos (100 ppm) decrease sperm viability in queens by 50%, one week after exposure. As has been confirmed by others, exposure also causes deformed wing virus (DWV) replication to increase in workers exposed to imidicloprid. (Chaimanee 2016)

The first study to identify problems with queens exposed to neonicotinoid pesticides was published in 2015 and found that exposure to field-realistic amounts of neonics compromises the reproductive system of the queen, reducing her chances of success. (Williams 2015) Subsequent research found that the synergistic combination of Imidacloprid and *Nosema ceranae* is more harmful to queens than either stressor separately. (Dussaubat 2016)

As the mother of the colony the queen can lay up to her bodyweight in eggs every day during the height of the season. It follows that she must eat close to her bodyweight in food every 24 hours. Research has shown that neonics affect the ability of honey bees to deposit acetylcholine in royal jelly and brood food. Since acetylcholine is critical to a healthy nervous system and functions as a neurotransmitter, a deficiency can have serious detrimental effects on survival of larvae. "Even field-relevant low concentrations of thiacloprid (200 ppb) or clothianidin (1 and 10 ppb) reduced the ACh level in the brood food and showed initial adverse effects on brood development." (Wessler 2016). These findings are not surprising since nicotinoids themselves act on the central nervous system of insects, causing irreversible blockage of postsynaptic nicotinic acetylcholine receptors (Ware 1999). Imidacloprid mimics the action of acetylcholine, but unlike acetylcholine, imidacloprid is not deactivated by the enzyme acetylcholinesterase and thus persistently activates the acetylcholine receptors. Chronic



*Exposure to neonicotinoid pesticides while foraging can harm the foragers ability to survive, collect food, fight off diseases and support its colony . . . all of which may lead to increased colony decline and death."*

exposure to imidacloprid by insects therefore leads to cumulative and irreversible blockage of the acetylcholine receptors in their central nervous system. This has the potential to damage many development and cognitive processes. Unfortunately we don't yet understand the full impacts on a colony when a queen is fed a diet that is deficient in acetylcholine.

Since the queen consumes much more food than worker bees, she has the potential to ingest a lot more pesticide residues than they do. We know that if a queen becomes sick or pheromone levels decline; if she isn't laying the right amount of eggs; or if her behavior becomes abnormal in any way, the bees will tend to take pre-emptive action and attempt to supercede her with a new queen. The act of supercedure is costly for a colony as it slows down the population growth of the hive and there is always the risk that the newly raised queen will not successfully mate leaving the colony hopelessly queen-less.

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For about a decade now, beekeepers have complained about queens that are not as vibrant and long-lived, are superseded more often, or just plain lousy. Are today's queen problems the result of exposure to neonicotinoids? Given that neonics are proven to negatively harm honey bee health at high levels of exposure, as well as at levels below what our modern testing techniques can detect, the answer to the above question while difficult to answer definitively, appears all but certain given the evidence so far. **BC**

Ross Conrad is the author of *Natural Beekeeping*, Revised and Expanded 2<sup>nd</sup> Edition

## References

- Alaux, C., Brunet, J.L., Dussaubat, C., Mondet, F., Tchamitchan, S., Cousin, M., Brillard, J., Baldy, A., Belzunces, L.P., Le Conte, Y. (2010) *Interactions between Nosema microspores and a neonicotinoid weaken honeybees* (*Apis mellifera*), *Environmental Microbiology*, 12(3): 774-782
- Alkassab, A.T. and Kirchner, W.H., (2016) *Impacts of chronic sublethal exposure to clothianidin on winter honeybees*, *Ecotoxicology* 25(5):1000-1010
- Brandt, A., Grikscheit, K., Siede, R., Grosse, R., Meixner, M.D., Buchler, R., (2017) *Immunosuppression in Honeybee Queens by the Neonicotinoids Thiacloprid and Clothianidin*, *Scientific Reports* 7, Article Number 4673 doi:10.1038/s41598-017-04734-1
- Girolami, V., L. Mazzon, A. Squatini, N. Mori, M. Marzaro, A. Dibernardo, M. Greatti, C. Giorio, and A. Tapparo (2009) *Translocation of neonicotinoid insecticides from coated seeds to seedling guttation drops: a novel way of intoxication for bees*. *Journal of Economic Entomology* 102(5):1808-1815.
- CCD Steering Committee, *Colony Collapse Disorder Action Plan*. June 20, 2007. [https://www.ars.usda.gov/ARSUserFiles/oc/br/ccd/ccd\\_actionplan.pdf](https://www.ars.usda.gov/ARSUserFiles/oc/br/ccd/ccd_actionplan.pdf)
- Chaimanee, V., Evans, J.D., Chen, Y., Jackson, C., Pettis, J.S., (2016) *Sperm viability and gene expression in honey bee queens* (*Apis mellifera*) *following exposure to the neonicotinoid insecticide imidacloprid and the organophosphate acaricide coumaphos*, *Journal of Insect Physiology* 89:1-8 doi: 10.1016/j.jinsphys.2016.03.004
- Di Prisco, G., Cavaliere, V., Annoscia, D., Varricchio, P., Caprio, E., Nazzi, F., Gargiulo, G., Pennacchio, F., (2013) *Neonicotinoid Clothianidin adversely affects insect immunity and promotes replication of a viral pathogen in honey bees*, *Proceedings of the National Academy of Sciences* 110:46 pp 18466-18471
- Dussaubat, C., Maisonnasse, A., Crauser, D., Tchamitchian, S., Bonnet, M., Cousin, M., Kretzchmar, A., Brunet, J.L., Le Conte, Y., (2016) *Combined neonicotinoid pesticide and parasite stress alter honeybee queens' physiology and survival*, *Scientific Reports* 6: Article number 31430 doi:10.1038/srep31430
- Forfert, Nadège and Moritz, Robin (2017) *Thiacloprid alters social interactions among honey bee workers* (*Apis mellifera*). *Journal of Apicultural Research*, 56(4):467-474
- Friol, P.S., Catae, A.F., Tavares, D.A., Malaspina, O., Roat, T.C., (2017) *Can the exposure of Apis mellifera* (Hymenoptera: Apidae) larvae to a field concentration of thiamethoxam affect newly emerged bees? *Chemosphere*, 29;185:56-66
- Greatti, M., R. Barbattini, A. Stravisi, A. G. Sabatini, and S. Rossi. (2006) *Presence of the a.i. imidacloprid on vegetation near corn fields sown with Gaucho® dressed seeds*. *Bulletin of Insectology* 59(2):99-103.
- Hoffmann, E. J., and S. J. Castle, (2012) *Imidacloprid in melon guttation fluid: A potential mode of exposure for pest and beneficial organisms*. *Journal of Economic Entomology* 105(1):67-71.
- Krupke, C. H., G. J. Hunt, B. D. Eitzer, G. Andino, and K. Given. (2012) *Multiple routes of pesticide exposure for honey bees living near agricultural fields*. *PLoS ONE* 7(1):e29268.
- Mondet, F., (2009). *Nosema and imidacloprid synergy affects immune-strength-related enzyme activity in the honey bee, Apis mellifera* (Rapport de stage, Université Claude Bernard (Lyon 1), Villeurbanne, FRA). <http://prodinra.inra.fr/record/36474>
- Papach, A., Fortini, D., Grateau, S., Aupinel, P., Richard, F.J., (2017) *Larval exposure to thiamethoxam and American foulbrood: effects on mortality and cognition in the honey bee Apis mellifera*. *Journal of Apicultural Research*, 56(4):475-486 DOI: **10.1080/00218839.2017.1332541**
- Pettis JS, VanEngelsdorp D, Johnson J, Dively G. (2012) *Pesticide exposure in honey bees results in increased levels of the gut pathogen Nosema*. *Naturwissenschaften*. 99:153-158. doi: 10.1007/s00114-011-0881-1)
- Suchail S, Debrauwer L, Belzunces LP (2004) *Metabolism of imidacloprid in Apis mellifera*. *Pest Management Science* 60: 291-296 [PubMed]
- Tapparo, A., D. Marton, C. Giorio, A. Zanella, L. Soldà, M. Marzaro, L. Vivan, and V. Girolami. (2012) *Assessment of the environmental exposure of honeybees to particulate matter containing neonicotinoid insecticides coming from corn coated seeds*. *Environmental Science & Technology* 46(5):2592-2599.
- Tennekes, H.A., *Systemic Neonicotinoids: A Disaster in the Making?* (ETS Nederland BV, 2010).
- Tennekes, H.A., Sanchez-Bayo, F., (2011) *Time-Dependent Toxicity of Neonicotinoids and Other Toxicants: Implications for a New Approach to Risk Assessment*. *Journal of Environmental & Analytical Toxicology*. S4:001. doi: 10.4172/2161-0525.S4-001
- Tirado, R., Simon, G., Johnston, P., (2013) *Bees in Decline: A review of factors that put pollinators and agriculture in Europe at risk*, Greenpeace Research Laboratories Technical Report, (Review)
- Ware, G.W., (1999) *An Introduction to Insecticides (3<sup>rd</sup> Edition)*, University of Minnesota. Accessed August 2017 - <https://www.boerenlandvogels.nl/sites/default/files/2016-11/Ware2002IntroductionInsecticides.pdf>
- Wessler, I., Gartner, HA., Michel-Schmidt, R., Brochhausen, C., Schmitz, L., Anspach, L., Grunewald, B., Kirkpatrick, C.J., (2016) *Honeybees produce millimolar concentrations of non-neuronal acetylcholine for breeding: Possible adverse effects of neonicotinoids*, *PLoS ONE*, 11(6):e0156886. doi:10.1371/journal.pone.0156886
- Williams, G.R., Troxler, A., Retschnig, G., Roth, K., Yanez, O., Shutler, D., Neumann, P., Gauthier, L., (2015) *Neonicotinoid pesticides severely affect honey queen bees*, *Scientific Reports* (5)14621: doi:10.1038/srep14621
- Wu-Smart, J., Spivak, M., (2016) *Sub-lethal effects of dietary neonicotinoid insecticide exposure on honey bee queen fecundity and colony development*, *Scientific Reports* 6, Article Number 32108 doi:10.1038/srep32108
- Yang, E.C., Chuang, Y.C., Chen, Y.L., Chang, L.H., (2008) *Abnormal foraging behavior induced by sublethal dosage of imidacloprid in the honey bee (Hymenoptera: Apidae)*, *Journal of Economic Entomology* 101(6):1743-1748

# Meet Dr. Geoff Williams



Jennifer Berry

Legend has it that back in the 17<sup>th</sup> century, an “aha” moment occurred when a young scholar, Sir Isaac Newton, was struck on the head by an apple while sitting under a tree. That is supposedly when gravity was discovered. Think about all the other amazing “aha” moments that have happened throughout time that have changed so many lives. I’m sure everyone has had at least one of these moments in their lifetime; mine occurred the first time I lifted a frame out of a honey bee colony. Geoff Williams’ was a little more entertaining.

Geoff and I both agree we’ve met at some beekeeping meeting years ago, but which one, who can remember? We got reacquainted earlier this year when I approached him about collaborating on an East Coast trial testing this oxalic acid extended release method that Randy Oliver has been chatting about over the internet. After much discussion, between us and others, plans were put into place for a large field trial. With the size of the study (400 colonies), it was great news that Geoff agreed to be a part of the study. He and his crew, Selina Bruckner, Emily Muehlenfeld, Augusta Thumond, Cody Hill and Adler Salem were awesome and really fun to work with. However, there was just one problem, they were from that other little university in Alabama. Yet, for the sake of the bees, I overlooked this one issue, and concentrated on the study at hand. And technically, Geoff wasn’t from Alabama, so that helped a bit. He actually grew up in Alberta, the Western Province of Canada, in the small, “misnamed” town of Red Deer. The town was named after the “red deer” that inhabited the area; however, this red deer turned out to be elk. Guess the European explorers who named the town weren’t up on their Elk-ien taxonomy.

Geoff’s beekeeping story began after he received his undergraduate degree in Biology from the University of Alberta. His area of interests were ecologically based, including entomology and parasitology, but

upon graduation, he was still wondering what to do next. “Maybe I could study parasitology and investigate tape worms in gorillas, or entomology and study ticks on giant elk, but that’s probably not going to happen, I’ll end up just studying something boring like lice on birds.”

As you can see, he had lots of interests, sure, but what was the path that would lead to a job, an amazing career and fulfillment in life? Since he was struggling with his future prospects, it sounded like the perfect opportunity to take some time off from school and travel the world. That’s when he and a buddy headed off to Europe and Africa; where his appreciation for entomology grew, while watching massive dung beetles traverse along the road sides.

After his year-long travels, he decided it was time to buckle down; he met up with Nova Scotia’s former provincial apiarist, Dick Rogers. Dick had started his own company which conducted studies for private labs, investigating new crop protection products for registration purposes.

Geoff decided to give this new job a try for a month and see if he liked working in the back woods of Minnesota, while staying in cheap hotels and eating random, local cuisine. But shortly after he started, he received the NSERC Industrial Post Graduate Scholarship, which ended up being a pretty sweet deal for Geoff. The money to support graduate students came from private industry and the government. The company

in which he was working kicked in a percentage as well. The scholarship provided the perfect opportunity for him to start his Master’s program in which Dick became a co-advisor.

Geoff decided on Acadia University, in Nova Scotia, with his thesis work comprising of comparative studies between the effects of *Nosema apis* and *Nosema ceranae*. Only catch, the university he was planning on attending, was 3000 km away from his hometown. For us “United States” Americans, that’s roughly 1800 miles. So, he packed up his old 1990 Dodge Ram 50 truck (basically an El Camino), headed east while listening to tunes, sleeping in dubious camp grounds and eating Spitz, you know those lovely flavored sunflower seeds (which I had never heard of, must be a Canadian thing, eh?)

During Geoff’s time at Acadia University, he continued working for Dick. This work provided all sorts of experiences, one in particular was the Summer he worked in Yuma, Arizona. Now 75% of all honey bee colonies in Canada are located in the Prairies, where he grew up, but prior to Yuma, he had never been stung. That was about to change.

The study involved working with Africanized Honey Bees (AHB’s) along the border of Mexico. For those of you that have not had the privilege to work these bees, I can tell you from experience, it is not easy. First, you must park miles away from the apiary, otherwise the vehicle you



*Geoff inspecting a frame in Thailand. ‘I’ve been very fortunate to travel to many locations because of honey bees.’*



*Geoff with baby mating nuclei in Switzerland.*

arrived in, will be full of bees. Next, you must duct tape every and any possible opening, otherwise the bees will find it and light you up from the inside. Your boots are taped to your legs, your gloves are taped to your arms, and you better have a veil zipped to your jacket or suit, with the end of the zipper taped as well. A tie down veil is no match to the aggressive and industrious behavior of AHB's.

Ok, that's bad enough, but it's summer time in Yuma, Arizona where daytime highs only top off around 110 – 120°F. Even the most dedicated of southern beekeepers would find that difficult working conditions, but for two snow birds from Nova Scotia; I'm surprised they survived. Aha, but of course they figured it out. Alarms would go off before sunup so they could be in the apiary first thing in the morning. Then they could only work for three hours before being completely bagged (Canadian

word for worn or wiped out, totally exhausted or done). However, they would always be able to regain their strength after eating several tacos in the comforts of AC at a favorite Mexican restaurant. Once full and rehydrated, it was time for a siesta. Then later in the day it was back at it till sundown.

Now, occasionally there was time to take field trips across the border to visit flea markets and such. One thing Geoff noticed while walking around the streets of those small towns, was the number of dentist offices. They seem to inhabit every corner. Another observation he made, was the number of pharmacies peppered about, all advertising this bluish-green liquid. It dawned on him one day what this concoction was – liquid Viagra. As he explained this little section of the story he repeatedly laughed while saying, “but I never tried it.”

Even after the grueling Yuma



*During my graduate years working AHB's in Yuma (L-R): Bee Researchers from Acadia University Cate Little & Lise Charbonneau and Dick Rogers (Bayer Bee Care Centre).*

experience, Geoff continued working with bees and commercial beekeepers. One study in particular, he would assess the quality of bees after pollinating certain crops. Meanwhile, he was still involved with his studies, and after two years decided to convert his Master's research into a PhD program at Dalhousie University, in Nova Scotia.

The next two years he continued with his studies, but as before, another cross road was about to occur, graduation. Then what? Geoff began exploring possibilities prior to his completion. Randomly, he sent an email to Dr. Peter Neumann, about a post doctorate position at his lab in Bern, Switzerland. Six months later Geoff and his wife Stephanie (who he had met back at Acadia University and had just completed her Master's degree), were heading to the Swiss Confederation. They decided to live in Fribourg, but they formed a pact first. Since Fribourg was close to where Stephanie was going to pursue her PhD, and Geoff would have to commute an hour each way to Bern, the deal was, Stephanie would have to cook. Not too bad of a deal, I guess.

Sending that email to Dr. Neumann proved to be an excellent move on Geoff's part. For the next five years, his career in honey bee research would blossom. He started his Post Doctorate work for Agroscope, a Swiss bee research center funded by the federal government. His work would eventually lead into a position at the University of Bern.

He couldn't believe his luck when he first walked into the bee research facility. This was an actual “world class” lab, equipped with all the normal “world class” lab stuff, plus, there were technicians and personnel there to assist. Lots of folks, lots of diverse backgrounds, which was awesome. But best of all, there was an apiary with bees. While in Nova Scotia, Geoff worked with lots of beekeepers, since an apiary didn't exist at the university. This wasn't a bad thing but now he had easy access to bees in the backyard.

While in Switzerland, his research focused on the interactions with parasites and pesticides on honey bees. He not only conducted his own research but also helped graduate students, Gina Retschnig, Aline, Troxler, Lars Straub and others, with their projects as well. He was

also instrumental in coordinating COLOSS (Prevention of honey bee colony losses).

After five years working and studying, which was an amazing opportunity for both Geoff and Stephanie, it was time for Geoff to make another life decision. An assistant professor position at Auburn University had become available. What a huge break, a full time, tenured track job, researching bees. Since he was unclear how long his contract at Bern University would last, the timing was perfect, yet, leaving Switzerland was going to be tough. The lab and all the amazing friends, the awesome mountains, rivers, landscapes, people, swimming, skiing, were all going to be missed. But, with instability hanging over his head, and both of them missing North America and the English language, they realized it was time to go. The timing was also perfect for Stephanie as well. She had just completed her PhD, so, not only did Geoff get the Assistant Professor position, she acquired a teaching position in the Geosciences Department – just icing on the cake!

Geoff's lab is located on campus at the western isolated edge of Auburn University. The lab looks like most university buildings built back in the 60's: classic cinderblock. Years back it housed bee researchers George Bake and Jim Cane but no one since. Right now, Geoff shares the space with a fire ant researcher, but the lab is located on "Bee Lab Road", so it's only a matter of time before the more socialized of the hymenopteran clan takes over. Plus, Auburn has kicked in money for new windows, painting etc. to help out their new professor.

Another plus, while in Switzerland, he worked with Selina Bruckner who was wrapping up her Master's program about the time Geoff was heading to the US. He was able to convince her to move from Switzerland, her home land, to the hot, humid, southern state of Alabama. Selina is now Geoff's PhD student and has been very instrumental in our oxalic acid project (which I will write about next year since we are still trying to sift through 400 colonies worth of data). Anyway, he still scratches his head on how he worked that deal.

As Geoff put it, "If I have any say,

*A very studious  
Geoff during  
graduate school.*



I'll continue with honey bee research. Bees are so charismatic and amazing. I love working with them and those that keep them as well." He feels this job at Auburn has given him a wonderful chance to not only to work with students, but to work with other folks (research and commercial) in the industry, as well.

There are many future projects on Geoff's mind, several of which include extension work, however, his appointment at Auburn only comprises teaching and research. There is no extension appointment, but working with beekeepers in the past was a real highlight for Geoff, so he plans to keep that in the mix. It's a good thing that Geoff had that "aha" moment years ago, not only for the bees, but also for the beekeepers.

Ok, so what was that "aha" moment? When he was backpacking through the wilds of Africa, he and his buddy would find themselves traveling in the back of pick-up trucks. One day, while hanging on, and peering over the top of the cab, BAM! Geoff was struck in the forehead

by a huge dung beetle. As he wiped his forehead he thought for sure he would need stitches, but instead, the beetled beast only left a large welt. While interviewing Geoff for this issue, I thought, maybe that was his "aha" moment, since that trip, those beetles, the overall experience, may have been what cemented in his mind the idea that bugs were going to be an instrumental part of his life.

Alabama, you should be thanking those dung beetles for smacking "entomology" into the head of Geoff Williams. From what I've observed at meetings and getting to know him better while working in the field and over the phone, he's a good guy. He's enthusiastic, intelligent, and generous with his time, plus, his heart is in the right place. He truly cares about beekeepers and these little creatures we call bees. I hope you support your new Apiculturist because he's an amazing addition, not only to Auburn University and the south, but to our little world of beekeeping. Aha! **BC**

*The Auburn Bee  
Lab Crew.*



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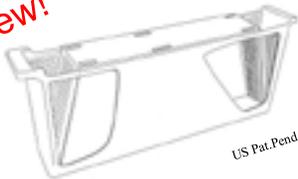
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# Meet Christian & Stephanie Ramthun



David MacFawn

In late August I had the chance to visit Christian and Stephanie Ramthun's honey bee operation which is based out of Hillsborough County, Florida. Both come from non-agricultural backgrounds but have enjoyed working with the bees. The Ramthun's have been keeping bees since October 2014 and now have about 70 colonies with most located on the property of Cee Bee's Citrus Farm, to which they are the exclusive providers of honey.

The Ramthun's entered the apiary business when Christian retired from the military and was looking for another line of work. They were interested in the honey bee business after being introduced to the many wonders of this industry through Daniel Dumler of Wisconsin, the brother of Stephanie. Daniel had been keeping bees for almost a decade and after a visit to Wisconsin, Christian was able to gain practical knowledge of both the business and the beauty of beekeeping. They were attracted to bees since everything bees produce is a potential revenue source.

Though the Ramthun operation is a family affair where everyone is involved, Stephanie and their son Titus do most of the work and Stephanie is the head apiarist. She has a Bachelor of Science degree in Biology from Mary-Hardin Baylor University. However, most of her bee knowledge has been hard gained from hands-on experience as well as from attending Florida beekeeper events such as those hosted by the Tampa Bay Area beekeepers' association, the Ridge Beekeepers association and the Florida Beekeeper Association annual meeting. She also has attended the American Beekeeper Federation annual convention which she found useful as it allowed her to come together with practitioners from throughout the United States and learn from some of the leading experts who speak on the most current and cutting-edge information available.

Christian gained his initial knowledge by apprenticing in 2013 with commercial operations in both Wisconsin

and Florida. Their dream goal is to grow the business to 1000 colonies.

Initially their focus was on providing pollination services to Hillsborough County, Florida as the county has many farm crops produced throughout the year. This initial focus was driven by two factors; the need to grow the number of colonies in a sustainable manner that they could handle, and secondly the economic realities that startup costs for an apiary business are expensive and you cannot do everything all at once.

Being new to the business, they needed to focus their funds on the most basic of necessities such as the bees, the woodenware and only the most absolute necessary tools. Anything else would come second.

As they have gained apiary experience and sales, they have diversified operations to include pollination contracts, honey sales, and sales of other bee products.

In 2015 and in anticipation of contracts, the Ramthun's built four-way migration pallets, but they had to discontinue their use as they did not have a means to lift the pallets. Initially their thought was to sub-contract the physical movement of hives to the pollination contract or rent a lifting platform, but they realized that the cost outweighed the benefit and they discontinued utilization of the pallets. They went to individual hives on hive stands.

In 2017, to get their bees to the pollination contracts they moved hives by hand using a two man lift system

to get the hives on/off a flatbed truck. Once they have over 100 hives, they plan on reintroducing palletization.

October 2017 marks the end of three years in business and while the Ramthun's current hive count stands only at 70, it is not due for a lack of trying. Around 50% colony losses were incurred last year with light losses so far this year. Each year their operation grows a little more, but growth is a constant battle.

They started out small to learn how to manage bees, especially with respect to *Varroa* mites, Small Hive



*Ramthun's home location in Odessa, Florida.*

Orange tree grove.



Beetles, ants, and other diseases like Foulbrood. For the Ramthun's, bull ants are an issue. In their experience, they have found that a bull ant colony can kill a weak honey bee colony overnight. They have tried several homeopathic remedies to try and combat the ants and they have found the use of Cinnamon can discourage them. Bull ants also seem to be able to go across water but not oil. Hence, some beekeepers with stationary hives place stands with the legs in oil, but even then, ants sometimes create a chain of bodies and will walk over the chain to get to a colony!

To help with disease control, specifically mites, the colonies are typically treated twice a year; with Apivar in the Spring and Oxalic Acid in the August time frame. Sticky boards are used to test the mite levels prior to treating.



Stephanie working the colonies.

Typically, they pollinate in early Spring and Fall in and around Hillsborough County. In 2017 they pollinated blueberries, oranges, and cantaloupe. Oranges and Blueberries bloom in the end of February to April time frame.

The orange trees are having disease issues which causes the fruit to drop before maturity, commonly known as citrus greening. Currently, there is no known cure. The farm managers are diversifying their orange crops with several blueberry varieties that are heat tolerant.

Colonies are typically split up to three times a year. They split twice in the Spring; in February, and again in June time frames. The colonies are split again late in the fall to take advantage of the cool weather and the last flow of the year.

While the Ramthun's main beeyard is on Cee Bee Citrus, they also run four other yards. Three are in Hillsborough County and two are in a county about 75 miles south of their home base. Following what is in bloom was recommended to them, and by spreading out their colonies they hope to maximize honey production of each colony by keeping the pressure on forage light.

The Ramthun's are full supporters of the state of Florida beekeeper inspection program, run through the Florida Department of Agriculture & Consumer Services. In Florida beekeepers are encouraged to follow Best Management Practices and the Ramthun operation fully supports this. They receive apiary inspections from the state and to date they have yet to experience Foulbrood.

Initially all honey processing was done on a hobbyist scale, but in 2016 they purchased a 20 frame Maxant extractor, spinner, and other honey processing equipment. By mechanizing their operation, they have been able to add to the pollination focus and have been selling their honey both wholesale and retail.

The Ramthun's are licensed by the state of Florida as a commercial bottling operation and hold a commissary license through "Easy Pro Kitchen". "Easy Pro Kitchen" holds the primary license and the Ramthun's bottle at the facility as necessary. Easy Pro is a corporation that fits the niche between small operators who are just starting out, and operations that can go alone. Using Easy Pro allows small operators like the Ramthun's to utilize a shared kitchen to help lower cost of operation.

They are starting to produce their own queens via walk-away-splits, swarm cells, etc. With their own queens, they notice their die outs are less. About 75% of their cells produce queens.

The Red Maples bloom in January with the Citrus blooming in the end of February to April timeframe. June through August there is a bloom dearth, with Brazilian Pepper and Spanish Needle blooming in September and October. Second week in November through December there is another dearth. In December, the extra supers are removed from the colonies and the colonies taken down to their minimum configuration. The colonies will swarm year around.

Anticipation and visualization of "what if" is crucial when finding beeyards and placing hives. In Sarasota the Ramthun's have been able to capitalize on Saw Palmetto and Orange Blossom availability. Even though they had prepared their yards for eventualities, a series of heavy rainstorms proved that you cannot control the weather and are at the mercy of it. The initial yard was in a low

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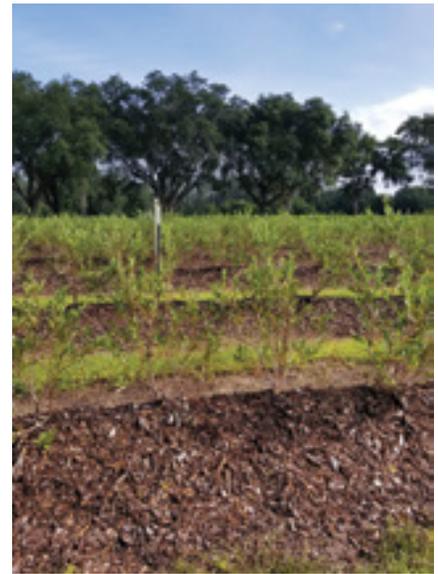
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*Working the colonies.*



*Note outer cover.*



*Blueberry orchard.*

lying pasture area, but the land owner had assured them that the area never had a water depth of more than 6" in his 20 years of owning the property. The last weekend in August, the low lying yards in Sarasota flooded.

Receiving a phone call late one night and a photograph from the land owner which showed that their bees were in danger of being flooded, they realized that sometimes the best laid plans are not enough.

Upon inspection the next day they found that their contingency plan to add a few bricks to elevate the hives which were already over two feet above ground and atop perches was going to be inadequate. The worry was that while they could add to the height of the perches, they would not be able to access the bees if the water continued to rise.

On to plan B, which was to call another beekeeper who lives in the area so they could move the bees to higher ground. Using a 4x4 truck they were able to get close enough to the yard to allow them to pick up the hives, the cinder blocks and the support beams. The move itself was not difficult, but with the temperatures soaring above 95° and moving through water while wearing protective gear meant safe hives at the expense of being wet from the water, and drenched from perspiration.

Christian and Stephanie are enjoying their bee business. While the bees are having issues such as diseases and pests, they are looking forward too many more fruitful years. **BC**



*Hives flooded.*



*Hives moved to higher ground.*

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# Meet Michael Smith



Sarah Red-Laird

## The Weirdest Place Michael Smith Has Been Stung and 36 Other Facts About Him

Winners of the Ig Nobel Prize are awarded for their ability to make people laugh, and then think. I can't think of a better recipient than Next Generation Beekeeper Michael Smith. You will know him as "the guy who stung himself for science." Michael made international news in 2014 when he quantified pain from honey bee stings in 25 places, including his armpit, fingertip, and yes, "there".

A couple years prior to international fame, I got to know Michael as being the impossibly kind and funny grad student in Professor Tom Seeley's lab. He's been studying comb building in honey bee colonies at Cornell's Department of Neurobiology and Behavior since 2011. Prior to working with Dr. Seeley, Michael studied molecular biology at Princeton. While he didn't specifically study honey bees at Princeton, his love of bees and beekeeping inspired him to start the Princeton Beekeeping Club, which is still thriving today.

Keep rewinding the tape, and you can see that Michael's love of honey bees actually started in luscious and picturesque Wales, UK. There he attended the United World College of the Atlantic. He had previously kept hives of stingless bees (*Tetragonisca angustula*) in his native Panama. A colony from his teenage years still thrives in a cooler under his mother's deck today! But until a run-in with a honey toting beekeeper, Chris Adam, Michael hadn't experienced *Apis mellifera*. Honey bees are Africanized in Panama, and beekeeping is not a casual urban affair. After a lengthy chat with this local beekeeper, Michael insisted that Chris give him a tour of his honey beehives. Chris happily agreed, and took down Michael's contact information on a scrap of paper. Sadly, Chris lost the paper scrap.

All was not lost, however! Local beekeeper Chris Adam rediscovered Michael Smith after spotting him on the BBC. Michael was part of an attempt at the Guinness World Record for fitting the most nationalities into a swimming pool at once. Yes, that's a thing. Chris found Michael, Michael found honey bees, and Chris and Michael founded the United World College of the Atlantic Beekeeping Club. From there launched Michael's current love affair with our sweet honey bees.

Although Michael has just earned his PhD from Cornell, he's not leaving bee research anytime



soon. He'll be Europe bound this Fall, with a post doc position at the University of Konstanz in Germany, as part of Iain Couzin's group. This lab has the technology to barcode and track individual bees in the hive, and Michael will be again focused on comb building.

So while I'm not sure if Michael will be putting bees up his nose for science anytime soon, with his lifelong passion, and genuine fascination for bees, I am positive that he will have a significant impact on our understanding of everyone's favorite charismatic minifauna. Read on for 37 facts about Michael Smith.

**Age:** 30.

**What do your parents do:** mom, dad (and both grandpas and one grandma) all work/ed for the Panama Canal.

**What career path would you be on if you weren't studying/keeping bees:** Undoubtedly something in the science realm still.

**Hobbies:** Gardening, planting trees, cooking, cider brewing.

**Hidden talents:** Can put both feet behind my own head.

**What song is on repeat:** David Bowie - Jean Genie.

**Favorite app:** What's App for texting internationally.

**Favorite show:** Don't watch TV.

**Favorite museum:** National Portrait Gallery in DC.

**Favorite thing bees do:** Build comb!

**Most favorite part of a bee's anatomy:** Nasanov gland.

**Favorite honey:** Blends!

**Favorite book:** The World According to Garp.

**Favorite author:** Roald Dahl.

**Favorite bee suit:** Veil and casual clothes with a Panamanian tipico hat.

**How do you keep cool in your bee suit:** The lab standard of flyweight quick dry long sleeve button up and pants (think fly-fishing attire).

**Most painful place you've been stung:** Nostril.

**Weirdest place you've been stung:** Knee hole (the place behind your knee, see even explaining it is weird).

**Person you text the most:** Ladyfriend Cissy Ballen.

**Traditional or J-hook tool:** Traditional all the way!

**What item do you bring to potlucks:** Flan, always flan!

**Best beekeeping conference you've been to?** EAS (Vermont and Delaware are a tie).

**In 140 characters, or less, what does bee conservation mean to you?** Conserve habitat for honey bees, and by doing so, protect all bees.

**Who do you look up to most?** My family, I see them like one big colony.

**Favorite beekeeper/researcher icon?** Tom Seeley.

**Childhood celebrity crush:** Bernadette Peters! 1) I'm not ashamed, and 2) it's persisting.

**Spirit animal:** Raccoon.

**Words to live by:** If you're not doing anything, you might as well do something, and if you're doing something, you might as well try to do it well.

**Money being no object, where would you travel to:** Australia.

**Weirdest bee tchotchke someone has given you:** No bee tchotchke is too weird.

**Favorite website:** Wikipedia.

**Last google search:** Harry Belafonte, Jamaica Farewell.

**Pets:** I have unintentionally adopted my neighbor's ginger cat named Dave.

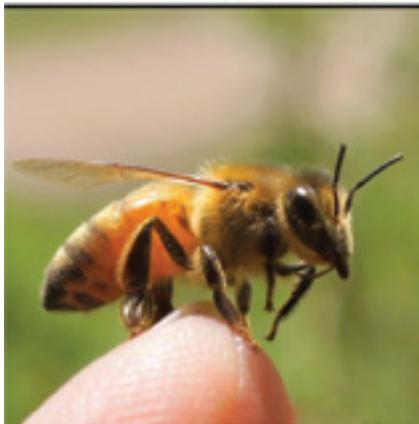
**How do you feel when a colony dies, in one word:** Despair.

**How do you decompress:** Gardening.

**Weirdest thing you've put honey on:** My face. **BC**

*Sarah Red-Laird is the founder and executive director of The Bee Girl Organization. Find out more at [www.beegirl.org](http://www.beegirl.org).*

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# Meet Dr. Jay Evans



Ann Harman

## From Washington . . . To Washington

Jay is originally from Seattle in Washington State. Since his mother worked in a natural history museum Jay was introduced to the natural world at an early age. Fortunately his family enjoyed outdoor activities. He discovered the fascinating ocean world of the Northwest coast while fishing, exploring along the coast and bays and also working, as a teen, in a family shellfish operation. So the clams and oysters, along with other ocean life inspired him to become a marine biologist.

With that goal in mind he went East and became a student at Princeton, an excellent university but one with absolutely no courses in marine biology. That was an incredible disappointment. (There are none there today either.) Fortunately he discovered the ecology courses. In those Jay found some excellent mentors. One introduced him to the world of insects, in particular social insects. But these were ants, no honey bees yet in his life.

After graduating from Princeton, Jay went West, to the Rocky Mountain

Biological Laboratory, a field biology station in Colorado. Here in the western mountains Jay spent the next ten years working on his PhD and subsequently as a post-doc. His PhD is actually from the University of Utah and his research was on a particular ant, *Myrmica tahoensis*. It has no common name. It is rarely mentioned in scientific literature even today. But Jay found its biology of raising multiple queens, something that occurs in some species of ants, fascinating. Fortunately during his research there Jay was able to work with some top evolutionary biologists and geneticists in a collaborative project with their Human Genetics program.

With his knowledge of ants Jay headed East to the University of Georgia. Here he would be involved with a project to study the red imported fire ant. This ant can build large nests that have high mounds and can contain hundreds of thousands of ants. Their sting can be very painful and even dangerous to anyone allergic to their venom.

It is an ant of the warmer regions and traveled here with cargo. The University of Georgia, as well as other southern institutions, does research on this ant. The ant does eat the small hive beetle larvae, our beehive pest. So although it itself is a formidable pest it does help beekeepers control the small hive beetle population.

Although the fire ant is considered to be a destructive and dangerous pest, Jay did not wish a career involved with finding ways to eradicate it. After all he had spent some years studying the interesting world of ants, a social insect. So he proposed and started a program at the University of Arizona (back to the West again) with a professor who was also an ant expert. However ants were not to be the insect of choice for this program. This time the investigation would focus on the production of queen honey bees. The bees were chosen because the topic should be easier with bees than using ants. It actually was, thanks to significant help from Dr. Gloria deGrandi-Hoffman at the USDA-ARS lab in Tucson.

Jay had actually met honey bees only once before the project started. He had visited some beehives in Georgia with a friend. Although he did not participate in the actual caring for the bees at the university, at least he now owned a bee suit with a veil. This project only lasted nine months. Jay had a new wife waiting for him back on the East Coast. He had met her when they both were at a summer camp for biologists. However they were connected to different universities. So it was time to return to the East.

At that time Dr. Hachiro Shimanuki (known to many as "Shim") was Head of the USDA's Beltsville Bee Research Laboratory (BRL) at the Beltsville Agricultural Research Center (BARC).

This laboratory, the oldest of the federal bee labs, was established in 1891. Then, as now, it is primarily



*The Arnot Forest is an old-growth forest that belongs to Cornell University. It is known to beekeepers from the studies Dr. Tom Seeley has done on survival of honey bee colonies that are nesting in trees. The trees with suitable hollows for honey bees have provided researchers an opportunity to study those bees in their natural environment. Jay was visiting and saw the sign to the forest but was not able to explore it.*

concerned with honey bee diseases and pests, their identification and controls. USDA has several other bee labs throughout the U.S. that focus on other topics. Beekeepers may be familiar with the Beltsville lab's services in diagnosing diseases such as American foulbrood. Beltsville, a town in Maryland, is only a short distance from Washington, DC. So when Jay was hired by Dr. Shimanuki, Jay had arrived at another Washington, but quite a bit different from the state out West.

Jay's first project was to investigate how honey bees respond to American foulbrood as a disease in order to find controls for this and other bacterial bee diseases. However honey bees also have other pests so Jay's work expanded to those and how honey bees react and combat them. Since he was now a part of this research team he was fortunately able to participate in the Honey Bee Genome Project. Jay appreciated the experiences he met on this project – the teamwork and coordination necessary for such an undertaking. He feels that the knowledge gained

will help the honey bee confront diseases, mites, small hive beetles and environmental issues such as pesticides. Since the focus of the Beltsville Lab is bee health, the scientists there, in cooperation with others, are focusing on developing safe products for reducing bee diseases and also other stresses.

Jay enjoys his trips where he can meet not only with scientists from all over but also with beekeepers. One trip took him to England where he was able to travel to a number of local beekeeping clubs. One special visit was to Buckfast Abbey and the associated area of Dartmoor where Brother Adam developed the Buckfast bee. Another trip was to Brazil where Jay met with Dr. Warwick Kerr who brought the African bee, *Apis mellifera scutellata*, to his county for research.

Dr. Kerr admonished Jay for speaking too fast during his lecture to Kerr's students. But after that all was well between the two bee scientists and Jay enjoyed his visit.

Bees are only a part of Jay's life. He does enjoy running. Back in the

1980s he took up rowing a sculling boat, which he still does occasionally. He describes his Maryland home – a "hobby farm" complete with about 20 sheep and goats, chickens, five beehives and three teenagers. He admits they all eat a lot but are endlessly entertaining.

Since the Lab is part of the U.S. Government, Jay is following in his family history of civil servants. Although he is the only beekeeper, others were in politics, local issues, National Parks and county engineers.

Jay truly enjoys meeting all those involved in the world of honey bees – beekeepers and fellow scientists. All who keep bees need to thank Dr. Jay Evans and his team for the desire and hard work to improve honey bee health. **BC**

*Ann Harman lives, writes and enjoys life in Flint Hill, Virginia.*

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# TAKE ME ON A BEE CRUISE

Katherine Kiefer

In January 2017 at the joint meeting of the ABF, AHPA and CHC in Galveston, the University of Minnesota Bee Squad began to spread the word of their inaugural Bee Cruise. What?!? A Bee Cruise? It happened and I was on it.

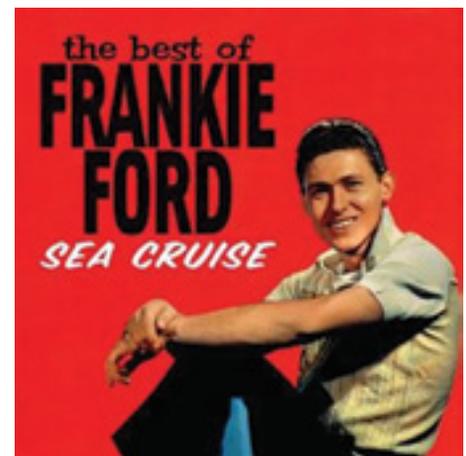
A moment here to introduce the Bee Squad – The University of Minnesota has as a community building and community outreach program called the Bee Squad ([www.beelab.umn.edu/bee-squad](http://www.beelab.umn.edu/bee-squad)). These folks work as beekeepers for corporate sponsors and they work with individual hobby beekeepers. They charge fees to maintain hives around the campus and around the St Paul/Minneapolis locale. They answer questions (often by asking them), they publish and publicize issues, they educate and are educated. They take pictures; they encourage logical and clean beekeeping techniques. They organized this cruise. Becky Masterman got the idea off the ground and her Squad made all the details fall into place. They were wonderful, never lost their tempers – and we knew when to move because the leader of the moment would call out, “WALKING” while holding up a sign – we beekeepers, though not instinctively obedient would follow along to the next destination and next new thing. And we were always glad to get there.

I have to admit that I never even considered going on a cruise until I heard about this one. Then I considered it only because of the three part agenda. The base line that played under the seven days aboard ship was “Bee Health and Conservation.” The other two headings were Excursions and Symposium Presentations. On the days when we were traveling to our excursion sites, there were symposiums – with speakers from our group. Marla Spivak spoke about how she became interested in apiculture, her life and work in South America and her early work there with Africanized bees. She spoke of her observations about honey bee genetics, and her work at the University of Minnesota with students, co-workers and honey bees. She stressed how much can be accomplished when ecological issues in the world are considered in relation to individual beekeepers, whether they keep two colonies or 32,000 colonies.

The symposium speakers usually started their remarks with something like, “It is quite difficult to decide what to say to an audience with the knowledge base that you all have . . .” We loved hearing that and then we listened hard, because I at least, always learned some interesting things from each person.

John Miller, from Miller Honey Farms told of his family’s history as beekeepers (presently at five generations) and talked at great detail about storing bees in buildings as a wintering technique in Idaho. Beekeepers have tried using potato barns in Idaho for wintering, and have developed ideas and theories about reducing moisture build up and monitoring carbon dioxide levels around the hives. Potato barns are, after all, built for potatoes not honey bees. John shared some interesting observations about the relationships between temperature, humidity, carbon dioxide, mite drop and air circulation in new buildings as compared to actual potato barns. Miller Honey Farms ([www.millerhoneyfarms.com](http://www.millerhoneyfarms.com)) has been building, using their own designs, buildings for honey bees. John said that over the next decade, large ideas are being fulfilled and that the health of the northern wintered honey bee colonies will improve because of these building environments. He also said that two important components of his family’s success are (1) the ability to do what is necessary at the right time for the bees, and (2) to always be thinking 180 days out in front of the present day’s work.

Dennis vanEngelsdorp, from the University of Maryland ([www.vanengelsdorpbeelab.com](http://www.vanengelsdorpbeelab.com)) spoke twice – once on the mainland before we boarded the ship and another time during a symposium. He is a





Queen Elizabeth II Botanic Park.

east Texas (link through Facebook, Rufers Apiaries) spoke of the hard work and deep family connections in his business. He shared how the business grew over his lifetime, and how honey bees and beekeeping became his life work. His dedication is an inspiration. His humor is infectious.

David Mendes, formerly of Headwaters Farm and a retired commercial beekeeper, shared his annual calendar of moves and splits. He was originally from Massachusetts and now is from Florida, where he keeps as a hobby, about three hundred colonies. While he owned Headwaters, David focused on pollination and was very involved with cranberries in Massachusetts. Any beekeeper thinking of developing pollination services as part of their business plan would do well to consider the issues raised by David. David kept up banter with all on the excursions and aboard ship, and was more than ready to teach ANYONE (even me) how to play poker. He kept telling me that when I put money on the table, I would learn quickly. That is likely how he learned to keep bees alive through pollination services!

Elaine Evans, PhD, from the University of Minnesota spoke about wild bees, which included stingless bees and bumbus. Our first excursion off the ship was in Cozumel, Mexico. Elaine's talk set us up to know what to look for with stingless bees. Their colonies are in hollow branches, have small populations and their honey is high in moisture. The honey is primarily used medicinally. We sampled the honey and it was not overly sweet. "Very expensive," we were told. "Very expensive." Stingless bees require the same environmental considerations of clean forage and adequate blooms as honey bees.

The next day, we went ashore at George Town, Grand Cayman. We got very close to, but not into, colonies of Otto Watler, the best known and perhaps the only Cayman beekeeper. All the commercials in our group wanted to get out hive tools and get into "it" to see whether there were mites, etc., etc. We did see and walk through the Queen Elizabeth II Botanic Park – 65 acres of garden, habitat and blue iguana restoration. It is spectacular – we walked "through a multicoloured mosaic of hundreds of species of tropical and sub tropical plants spread over

founding member of the **Bee Informed Partnership (BIP)**. Dennis's talks were utterly engaging and informative for all levels of involvement with bees. He spoke about insects, their evolution over time, the complexity of their reproductive cycles, their diet, their behavior and of course, he described the organism called "colony" and its best practitioner, the honey bee. He had many short videos to share. Just remembering the visuals stimulates my memory of the points Dennis brought to us.

Larry Conner of Wicwas Press ([www.wicwas.com](http://www.wicwas.com)) had a reading list for us, shared thoughts about research, THE footnote, pitfalls of the World Wide Web and the importance of source materials for research and in social media. Mis-information helps no person, and more importantly does not help the honey bee. Larry talked of queen rearing, gave a guide for organizing your first (or tenth) book on beekeeping and was available for questions throughout the cruise.

Darrel Rufer, beekeeper of Waverly, MN & deep in



Looking out at tropical storms. Looking from EcoFarms.



This is the Jamaica Deaf Village. An equipment infusion would help them.

approximately 2.5 acres. Flowering plants and shrubs, succulents and cacti are arranged by color in nine distinct displays.” ([www.caymanislands.ky/activities](http://www.caymanislands.ky/activities)). I also walked through the native plant section and was the last person back on the bus (sorry Becky!) It was spectacular. For a while I walked with Larry Conner who was naming all the plants he recognized, with scientific names. I was also naming plants that grow in green houses and plant rooms in New England. Larry knew more than I did.

Thursday the 12<sup>th</sup> was our Jamaican day. We got on to two smaller busses and went up from Falmouth to visit the Jamaica EcoFarms Project ([www.ecofarmsjamaica.com](http://www.ecofarmsjamaica.com)) and on Facebook Buzz by EcoFarms Jamaica in Mandeville. The ride up and down the steep mountainsides was spectacular, nerve wracking and definitely worth doing again, but more slowly. There seems to be a lot of high lime ground in Jamaica with very little topsoil. On the steep, steep hillsides, “air potatoes” (a yam) and bananas are grown. Burros are used instead of tractors because of the steepness, and the island is also seismically active – there are geologic plates shifting and earthquakes happen frequently. ([www.sfmgeology.com/JamaicaGeology3.html](http://www.sfmgeology.com/JamaicaGeology3.html)) It is an exciting place. Our first stop was Jamaica Deaf Village. It is located in Coolshade on the outskirts of the town of Mandeville. A deaf man opened a hive for us, moving slowly, with smoke and grace. The school needs an infusion of new equipment, probably to be built on site as part of the learning.

The next part of EcoFarms to be visited was high on a hillside with about 45 colonies on metal stands. It was a classic bee yard that requires all hand work, and lifting and transport on foot. The view across the small valley was breath taking – we could see tropical rain showers moving around and toward us.

Back to our buses and on to EcoFarms store and honey house. They had also packed us a local lunch of chicken or pork jerk, bread fruit, rice and beans, and a salad. We bought honey – I skipped the flavored with tamarind one and stuck to floral sourced honeys only. Grace Foster-Reid is the principal of this project (Managing Director, EcoFarms (Jamaica’s honey innovator, [gracefr@alum.mit.edu](mailto:gracefr@alum.mit.edu) Engineering Project Manager, EnvironMed Limited (Sustainable engineering & medicine).



David Mendes in the EcoFarms bees.

Any one wanting more information or wanting to help the educational part of the program to grow, please contact Ms Foster-Reid. One small observation – many of us on the bus back to the ship tried to imagine what it would be like to be a deaf beekeeper – to not have any of the sound cues that we all honor and learn from. It was yet another great day.

More Symposium talks: Katie Lee, also from the University of Minnesota shared her work on Tech Transfer Teams ([beelab.umn.edu](http://beelab.umn.edu)) – how information from beekeepers about honey bees and beekeeping is processed. Her work is enormously helpful to scientists and beekeepers alike.

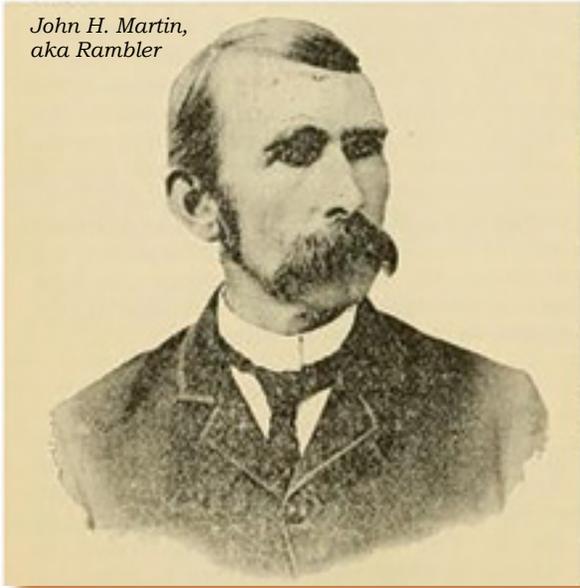
Pat Heitkam, from Northern California and a queen breeder, spoke primarily about Project Apis m and the Bee and Butterfly Habitat Fund. My take away from getting to know Pat on the trip is that we, on the cruise, have way more in common than not. For our bees and businesses to survive and thrive we beekeepers need to share information, encourage everyone’s interest and most importantly we ALL need to support Ag Extension activities, 4-H, bee clubs and consumer interest in American honey in what ever state or states are home(s) to our bees.

There were also a couple of panel discussions where we all could ask or share, and experts in the room would respond or ask even more questions. These sessions encouraged us all – and inspired us.

Cruise details, for those who have never done one. We were on the Liberty of the Seas, part of the Royal Caribbean Cruise group. There were about 80 people in our group, with departure from Galveston, Texas on Sunday October 8, and return the 15<sup>th</sup>. We had a stateroom with its own view of the water from our balcony. The room was so QUIET – remarkable and a gift. The bed was comfortable; sleep was deep. Room service was included in the amount pre-paid, so as long as we stuck to the continental breakfast definition, fresh coffee, milk, granola and fresh fruit arrived and we enjoyed same on the balcony. For dinner, the Bee Squad members had tables reserved, so we mixed and matched. Every evening we sat with different people, every evening we talked bees, honey, mites, clean forage, trucking expenses, pollination, California almonds, neo-nics, and queens. And of course relived the days excursions, complete with jokes and laughs – it was wonderful. After dinner some played poker, or played on the water slides or danced. Some retired to some of the bars and lounges aboard the ship and talked and talked into the night. Some spent time in the open bow of the ship, high above the Gulf of Mexico and watched thunderstorms close and far away. Some went to their rooms and enjoyed the quiet and privacy.

Is this the first annual Bee Squad Cruise? We don’t know; but it was a great first. Oh – one final thing I would like to acknowledge is that, according to Larry Connor, honey bee is always two words. **BC**

John H. Martin,  
aka Rambler



# BEEKEEPER FRED ANDERSON OR THE MYSTERY OF CRYSTAL MOUNTAIN

Peter Sieling

In 1896-1897, *Bee Culture* magazine, then called *Gleanings in Bee Culture* published its one and only serial novel. A few complained that they should stick to beekeeping, but most readers found it a welcome diversion from black and pickled brood diseases, cellar wintering vs. chaff hives, and automatic swarm catching devices.

The mystery starts when Fred Anderson, bachelor, beekeeper, Sunday school teacher, and teetotaler, travels to California to seek his fortune. He overhears two men talking about an abandoned cabin and some bee hives along the Sacramento River. Thinking he could do something with them, he takes a steamer upriver. On the boat he encounters a group of drunken ruffians who offer him a swig from their whiskey jug. Discovering that he would rather not, they attempt to force some down his throat. Fred, rather than allowing the foul brew to touch his lips, smashes the jug against the capstan and leaps overboard. He is rescued from the river by the beautiful but demented Miss Alfaretta Buell who lives with her aunt and uncle.

Of course they fall in love, in spite of her mental condition. Alfaretta has some sort of psychic connection with Fred and turns up to save him from a variety of perils.

Fred settles on the ranch of an old Dutchman and acquires an Irish business partner. He has a dangerous run-in with a drunken wife-beating neighbor and survives a flash flood by riding the torrent on top of his workbench. He meets Alfaretta's long lost father, a misunderstood explorer, scientist, and beekeeper who has discovered a secret valley that, with its hot mineral springs, is a perfect Paradise for a large apiary.

Swashbuckling adventure, humor, romance, science fiction, Sunday school, and beekeeping all in one book – did I mention wild Indians? How about passing messages using honey bees like homing pigeons? *Fred Anderson or the Mystery of Crystal Mountain* reads like a nineteenth century boy's adventure story. If you occasionally pull

out and dust off your old Hardy Boys mysteries or Jules Verne's science fiction, you'll enjoy this book.

The author, John H. Martin, AKA Rambler, was one of the most popular columnists for *Gleanings in Bee Culture* in the 1890s. He was born in Hartford, NY in 1839 and married in 1868. He managed 200-300 colonies on the family farm. After thirteen years his wife died, and his parents shortly thereafter. He pulled up roots and began to wander across the country, meeting beekeepers and writing about his experiences.

All across the country, beekeepers recognized him by his large moustache, his "long lank appearance, his striped pants, his characteristic long-tailed coat, his ever

present umbrella and camera." He settled in California for several years, but lost his colonies in a long drought. He eventually traveled to Cuba and off the pages of *Gleanings*. By 1912, a writer in *Gleanings* refers to Martin in the past tense.

The life of Fred mirrors Martin's. When you know the author's history, how poignant is the passage when Alfaretta's long lost father meets our hero: "Ah, Fred! Little do you know the sorrow in losing one so near and dear as a wife. No more the face greets you at the window; the

smile that gave the heart a stronger throb of joy is now only a memory – when I retrace my steps to that desolate home, an unrest seizes me and I would haste away to the far corners of the earth."

You won't find this book at your library or on the *Bee Culture* Bookshelf. But it is available for free on the internet. Go to :<https://archive.org/stream/gleaningsinbeecu24medi#page/336/mode/2up> or type "*Gleanings in Bee Culture* 1896" into your search bar. Choose either the Internet Archive or the HathiTrust website and scroll to page 336. The serial starts in the May 1, 1896 issue and ends August 1, 1897. While you are there, read some of the other articles. You'll learn how much beekeeping has changed in 120 years and how much it has remained the same.

One last warning, before you get to page 783, strap on a life jacket. It's a wild ride down the Sacramento River in a flash flood, and you can't count on Alfaretta to save you. **BC**



Quaint Victorian illustrations  
accompany each chapter.

# Meet Randy Verhoek



Jessica Louque

## South Dakota Native Managing 10,000 Colonies

In the past year or so, I've spent a bit of time with Randy Verhoek. Based on my area of the bee culture, I don't know the bigger names in commercial beekeeping, so I wasn't as familiar with Randy as perhaps I should have been upon meeting him. After getting to know his history a bit, I felt like he was someone that maybe you guys should know better too. He is doing a lot of work to assist in creating healthier bees and habitats, and lends his own hives for research purposes. Some of you may recognize him as the past President of the American Honey Producers Association, or perhaps you have met him recently with his support of The Bee & Butterfly Habitat Fund. Either way, here's a close-up look at Randy and his operation with the questions I had that weren't too nosy to answer (because some of them were).

### Randy's Background:

Randy is a South Dakota native, with his wife Roberta started keeping bees in 1990 and Harvest Honey was formed when an opportunity arose to purchase 750 beehives from Roberta's grandfather in North Central Kansas and be mentored from his 60 years of experience. By 1993, the operation was expanded to 1,500 hives and also began to move bees to central California for almond pollination.

In 1997, the operation was running 4,000 hives due to an increased demand for bees for pollination. This same year, the business started a transition to move the operation to Bismarck, ND – finishing the move in 1998.

In 2003 with a further need of expansion, a separate business founded as IntegriBees LLC was formed with the purchase of a bee operation in Danbury, TX. The Danbury operation is now the base operation for raising queens and bees for Texas and North Dakota. Texas also serves as a wintering site for the bees until they are sent to California for almond pollination. The two operations currently operate 10,000 colonies producing honey in Texas and North Dakota with 11 full time and 24 seasonal employees.

Randy served many years on the executive board of the AHPA and is the immediate past President of the American Honey Producers Association. He also served on the board of directors of the National Honey Bee Advisory Board. Randy is also a member of the Honey Bee Health Coalition as a representative for the A.H.P.A. Randy has been serving on the task force for the National Pollinator Protection Plans. He is also the secretary for the Brazoria/Galveston County Farm Bureau and is the Honey Commodity Chairperson for the Texas Farm Bureau. He has been honored to serve the agriculture community with a desire to bring all of the many stakeholders together to work out solutions for long term sustainability.

When Randy is able to take time off from his busy schedule he enjoys muscle cars, especially his 69 Corvette

convertible. He also enjoys going to the NHRA drag races, car shows, pheasant hunting and spending time with family in South Dakota. Randy has two daughters Rochelle and Rebekah.

### Q&A

**JL:** How did you get into commercial honey bee services?

**RV:** When I first got into the bee business, it was for honey production only. Honey prices were very low and I soon found out we could not produce enough honey to make a profit. So we looked at pollinating almonds as another revenue stream with the bees.

**JL:** How do you choose your contracts?

**RV:** We first went through almond brokers until a chance meeting with an almond broker seeking bees for an expansion in his almond acreage.

**JL:** What made you get into the bee business?

**RV:** I would help my wife's family out on holidays upon occasion and the bees were fascinating to me. The bee business also seemed like a good opportunity to work outside with different seasons. It was also something that we could do as a family.

**JL:** How much honey do you produce a year? How much is specifically canola or from North Dakota?

**RV:** We produce around 1.5 million lbs. per year on average between the two outfits. ND used to produce that by itself but due to changing farming practices, different sunflower hybrids that don't produce nectar and overcrowding of bees into the state production has been reduced. About 25% is Canola honey.

**JL:** When you pollinate almonds, do you haul them out yourself or do you hire people to haul them? What does your preparation consist of (like fumigation of





pallets, having how many frames of brood per frame, how many do you take, how long does it take you to prepare hives, etc)?

**RV:** We hire all of our trucking out with a SD company that specializes in hauling bees. They are literally an extension of our operation. They have all of their own nets and equipment. Their drivers have their own bee suits. They literally take a load off of our mind when it comes to transportation. For shipping from Texas to California, we have extra pallets that we power wash and switch out before shipping. We also carefully inspect every colony for dirt, debris, especially ants and weeds, and make sure every colony is absolutely clean before loading. We carefully inspect each pallet again as they are being loaded.

**JL:** Do you do any other pollination besides almonds?

**RV:** We have dabbled with apples in the past but found out for our operation in was not a good fit. Where do your bees go through the year? Our bees spend most of the year South of Houston where they winter. We ship them to California to pollinate almonds just prior to bloom and we truck them back to TX immediately following petal drop. We then ship them to Bismarck, ND starting around the 20th of May and again truck them back to Texas around the 15th of October.



**JL:** Have you ever sold pollen?

**RV:** No.

**JL:** What's the best or worst year you've had for honey production by weight/volume?

**RV:** This year was the worst as it was a cool wet spring in TX and a extreme drought in Central ND.

**JL:** What do you do for hive health as far as disease and *Varroa* treatment?

**RV:** We feed a lot of pollen supplements in the fall and winter as well as feed medicated with essential oils. We also feed probiotics and drench with products such as Nozevit complete. I still believe *Varroa* is our enemy number one and it is very, very important to keep the mite counts at less than three mites per 100 bees at all times. It is mind boggling how fast these little predators can multiply.

**JL:** How many queens do you produce a year?

**RV:** We raise 5,000 queens per year and all of the rest are purchased from good reputable queen breeders whom we have good relationships with.

**JL:** Have your overwintering management decisions changed after some of the research projects that involved your bees? (This question was based off of a presentation



by Gloria DeGrandi-Hoffman at NABC in January this year, where she used some of Randy's bees and they overwintered in a cold storage facility with great success)

**RV:** I have always been intrigued with research concerning the bees. So yes, I have changed overwintering management strategies based on solid research.

**JL:** How do you feel about the pesticide research being done for registration? (This question was totally biased since it's what I do for a living)

**RV:** Being involved with some pesticide registration research trials, I am quite amazed to what stringent testing is done for new pesticides. I really believe that the biggest risk to the bees come when labels are not followed and there is not enough communication between the beekeeper and the applicator. If the applicator is being responsible and taking their job seriously, they will communicate with the beekeepers in the area.

**JL:** Tell me about your work with The Bee & Butterfly Habitat Fund/Pheasants Forever.

**RV:** I really like the concept of the Bee & Butterfly Fund. I am personally involved with this project as it is another way for beekeepers and growers/farmers to work together and understand the challenges each one faces in remaining profitable while maintaining sustainability. There are ways where beekeepers and farmers can work together in a manner where one doesn't extrapolate their costs on to the other. Honey bees are an inherent benefit to the landscape and they must be protected.

**JL:** What is your favorite shotgun for pheasants?

**RV:** Believe it or not I have an old Coast to Coast 12 gauge pump that I have been using and abusing that I purchased not long after high school. It is about wore out now so I bought a Beretta automatic that has been growing on me now.

**JL:** What are your future plans in the honey bee spotlight?

**RV:** Honestly, I am at a point in my life where I am ready to step out of the spot light and get back to simply enjoying the bees and my family. I am thankful for the time I spent serving the industry and I have met many good people from all sectors of the Agriculture and scientific community. **BC**

Jessie Louque is the co-owner of Louque Agricultural Enterprises, LLC and Red Roof Agronomic Services, LLC with her husband, Bobby. Her career as a honey bee research scientist began in 2009 and has grown into a family business of bees. Their businesses run out of Francisco and Mount Airy, NC, with the help of their four kids, a lone dog who is scared of birds, two cats, and an uncountable number of chickens, guineas, turkeys, and quail. Jessie has her B.S. in Botany and her M.S. in Entomology, both from North Carolina State University. Future expansion plans include peafowl, pheasants, cows, and goats...probably.

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# Training Hives

Branson McKay

usually out of anyone's control. These ideas were just not feasible, but the need for hands-on instruction for so many new beekeepers was more pressing than ever.

Last Fall, after a season of driving, emails, panicked phone calls, and long discussions with club members, the idea came to me – why not bring the new beekeepers to a training yard? One trip to a central location for everyone on scheduled days seemed to make more sense than random solo trips to students' bee yards. What was observed at these training hives could be discussed and the knowledge taken back and applied to the student beekeeper's hive. Questions could be asked and answered with the group learning from each other's input – the one-room schoolhouse concept!

In April of this year, my bee club donated two complete hive sets (I opted for eight-frame equipment) and two packages for the training yard. It was a leap of faith on everyone's part. I found the perfect place for these hives and reached an agreement with the site's management

team. The hives are located on a large property that is primarily used for agricultural training and the staff includes people from the state's land-grant university.

I wrote a brief synopsis of the training yard plan and distributed it at the club meetings. I kept to the same schedule new beekeepers were facing: woodenware in March and packages in April. The first step was to assemble the two new hives and get them onto the stands. The club sponsored field days to demonstrate

hive assembly and hive management. New beekeepers were introduced to the training yard plan and given contact information. Woodenware was distributed and the final schedule for package delivery was completed. The well-oiled club process kicked in and new beekeepers had their assembled hives and packages.

In the training yard, I installed one package the normal way, and it went well. As luck would have it, the second package had a dead queen. "Better me than a new beekeeper who was just getting started," was my first thought, followed by "now what do I do?" The club normally has extra queens just for this problem, so back I went to the package distribution site to pick up a replacement queen. The training yard had only had the

When I wanted to set up training hives for people new to beekeeping, there was a bit of uncertainty within my local beekeeping club. The club's standard mentoring procedure of matching more experienced beekeepers with new beekeepers had been the normal practice for more than 10 years, even though its efficacy had diminished. Change is never easy.

I had been the club's mentoring coordinator for a number of years. The beekeeping training program had expanded from one class of 10 students to four classes with 15 students in each. Because of classroom space limits, people had to be turned away. This growth is primarily due to the expanding interest in beekeeping specifically and the "know your food" movement in general. It is a great time to be involved with beekeeping!

My local bee club is very good at classroom training, woodenware procurement, hive assembly instruction, providing spring packages, and holding various field days to link all of this into a logical beekeeper education package.

The original approach of the mentoring program was to pair experienced beekeepers with new students. As the beekeeping classes grew in size, it became impossible to supply enough mentors to cover all the mentees. New students were missing the hands-on engagement that is a key to successful beekeeping. I had learned beekeeping from an experienced mentor and recognized how important this experience was. Beekeeping skills are best learned by working with bees.

As the mentoring program became less functional, a number of ideas were discussed and discarded. All of these concepts involved the mentor driving to many new beeyards, matching mentor to mentee, and juggling travel distance, experience levels, and several other factors



bees in it for an hour and already we had a new learning opportunity! We picked out a live queen from the extras, leaving the dead one with the distribution team as an example of what to look for. In the rush to get their bees installed, many new beekeepers would not think to look at the caged queen to be sure she is alive.

Back at the training yard, we installed the live queen just as one would for any re-queening. Lesson number two and we were only three hours into our training yard program. We agreed to give the two hives a week and meet back with the goal of checking to be sure the queens were out. Because these hives were set up as the new beekeepers would be experiencing, all the frames were foundation.

As this training yard experience progressed, I got a swarm call and was able to capture a reasonably-sized swarm not far from the training yard. Since the swarm was in a five-frame nuc hive, I thought it would be a perfect teaching element to add to the training yard.

By this time, the group was obsessed with beekeeping! Everyone was having fun working as a group, sharing ideas and questions, and generally bringing a cooperative dynamic to beekeeping. Since the bees are for training, there appears to be less hesitancy to pull frames and look at brood conditions. What the bees are doing and how the comb appears is better determined than if the new beekeepers were conducting the same inspection at their personal hives with no guidance.

All was going well! One day after checking the hives, we were standing around talking (beekeepers love to talk bees) when a swarm flew over! It disappeared but inspired the next logical adventure – the installation of a swarm catch box in a nearby tree. I have no idea where the swarm originated, but it worked and I was thrilled to see that our swarm box had become their new home.

The first swarm was moved into a regular eight-frame hive and the now empty nuc hive was repurposed for the new swarm. Hive number four was up and flying! The group added this additional experience to their growing comfort level with beekeeping and bee behavior.

We now meet on a regular schedule, managing the hives for the progression of the season and resolving issues as they appear. Everyone has the opportunity to look at the frames, describe what they are seeing, and ask questions.

This experience has been more enjoyable and beneficial than anyone would have guessed. We are discussing what to add to next year's training yard and planning what will be demonstrated for the balance of this year. My personal goal is to teach nuc production and swarm control in 2018. I would like new and seasoned beekeepers to have less reliance on packages and more instruction and success in making their own replacements. The regular training yard participants have made suggestions for changes that should improve local beekeeping and continue the interest that has made all of this possible. **BC**



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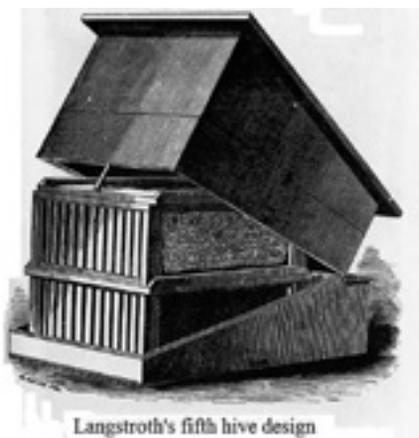
# The Evolution Of Beehive Covers

Jim Thompson

I have found it interesting to look at the types of different beehive covers or tops that have been used over the years. I began my search with the first beehive that was patented in the United States but had a problem because the patent office burned in 1836 and many of the early written patents were destroyed.

My records show that there were 1,131 beehives patented up to 2009. Some of these hives were the same hive with improvements to keep the patent in effect. The very first beehive patented was developed by J. Sweet, April 11, 1810, in Bethlehem, MA, but that record was destroyed in the fire.

I found patent X 5,872 was granted to Ebenezer Beard in 1830 and most of the written part was recovered from the fire and had a flat attached cover. Sixty eight patented bee hives later, in 1853, Lorenzo L. Langstroth was granted a patent for a hive. Reverend Langstroth had actually developed five different models of beehives and most of his hives had flat tops. However his fifth



hive was a glass hive within a hive and the outer top could be tipped forward. So it might be classified as a telescoping cover because it covered an inside hive. During the 23 years in between the Ebenezer Beard hive and the Lorenzo L. Langstroth hive there were 44 flat topped hives that had covers that were hinged, attached or simply rested on the bee hive.

There were four beehives that had covers sloping in one direction and two telescoping covers. Eleven hives had unusual shaped covers with projections and seven hives had pitched or gable tops. When you stop and think about it, it isn't really that unusual, as the trend in the early times was to convert a piece of furniture into a bee hive and have drawers or a side panel that could be opened.

The lumber in the 1850s was available in wider widths so you could get a single piece that would cover the entire hive. However you would encounter the problem of warping or cupping, allowing the top to have gaps between the top and the super. The gaps could be viewed as being good or bad.

The gap would provide upper ventilation and an upper entrance to the hive. However, if you wanted to move the hive there was just another place for the bees to escape from the hive. Thus to eliminate the warping, the boards could be cut in narrower strips, the grain reversed and cross pieces used to hold the boards together.

This style of cover is very much like the today's migratory cover. A problem arose, what do you do with a flat top once it is removed? You can't just lay it on the ground in the same orientation as it would smash bees. Your best choice would be to prop it up against something else. Once a bee is smashed, the alarm pheromone is released and the other bees are now on alert. If you reverse the top and lay it on the ground, you can't use it to stack equipment on it because it may violate bee space and squash bees.

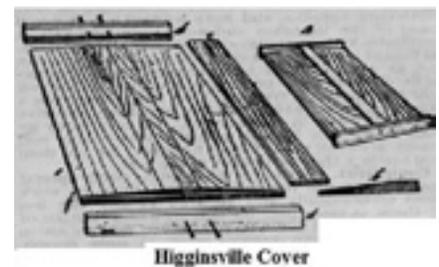
If the top was attached by a hinge to the side of the hive some of this warping might be reduced. The hinging of the top would mean that the hinges may bind in time and you must have a little over 90 degrees movement of the top to allow frames to be removed. The covers that had

projections or finials risk damage, if they are reversed and used as temporary bases for supers.

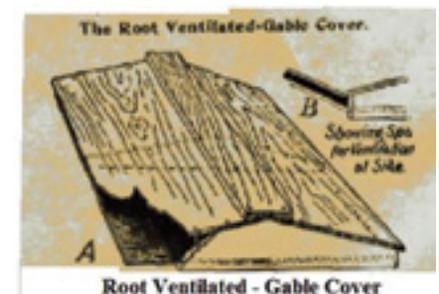
The pitched roof could be set on one side of the roof, but when you go to stack equipment on it, the equipment will be an angle and limit the amount of supers that can be stacked.

By 1895, there were three types of covers offered for sale by the A.I. Root Company. They were the Higginsville cover, the Root Ventilated Gable Cover, and the Dovetailed Chaff Hive. A Dovetailed Winter Cover was available, but it was similar in construction to the outer part of the Dovetailed Chaff Hive.

The Higginsville cover was the standard cover supplied with the purchase of a hive, unless another type was specified by the purchaser. The Higginsville cover replaced the plain flat cover with two 7¼ x 20-7/8 x 7/8" boards that were tapered to 3/8" along their width to allow water to drain off the roof. There was a filler strip of wood between the two side pieces and the entire top joint was covered with a 2" strip of wood. The top boards would be inset to the end pieces of wood. The end pieces of wood would allow the top to lie flat on the ground and supers could be stacked on it.



The Ventilated Gable Cover was advertised as being a cover that could be used in hot climates and places where shade was not available. It also boasted that the use of the 20 pound stone was not necessary. The intermediate top of the hive was made of ¼" material and cut into





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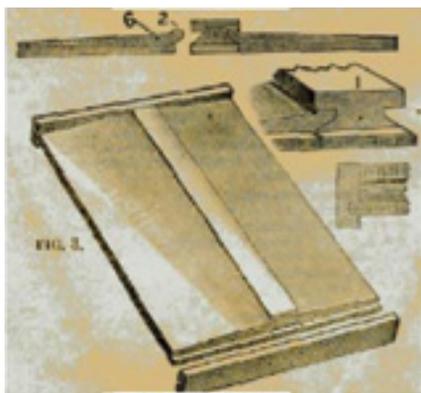
the end boards. The top pieces of wood were of 3/8" material and the highest point of the cover was two inches above the top inside board. The special feature about this cover was the 1/2" ventilation gap along the sides of the roof.

The Dovetailed Chaff Hive was rather unusual as it was a hive that was encased by another box which allowed the beekeeper to stuff leaves or straw into the gap between the hives from the bottom of the super. The top would telescope down over the hive but it had extra long sides. The long sides permitted an additional "box" to be inserted over the hive that could hold leaves or straw to act as insulation. In 1917 the double walled hive became known as the Buckeye Hive, sometimes it had the insulation box, but usually it was omitted.



The Dovetailed Winter case was simply the shell of the chaff hive that one could purchase to put over a single hive to protect the hive during the Winter. It was made of 3/8" thick lumber.

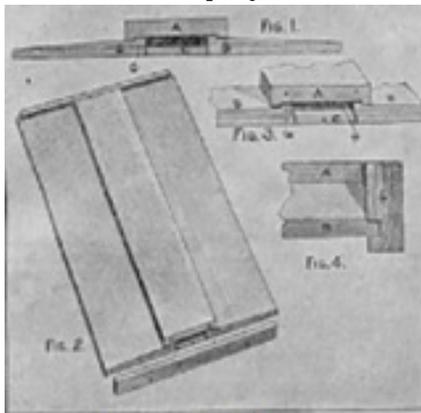
In 1897 the Danzy Cover was added to the Root line. This Cover was developed by Mr. Francis Danzenbaker and was similar to the Higginsville cover in that it replaced the slopping side boards with two



The Danzy Cover

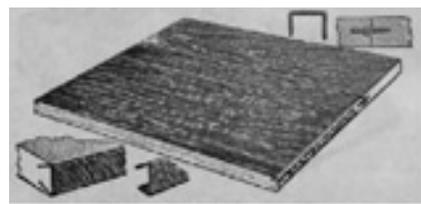
boards that provided a flat bottom and a slopping top. Rather than a filler board and a cap in the center, the center board was grooved to accept the side boards. The end board had a straight dado so the cover would fit on the hive without any adjusting. The recommendation to prevent warping was to use lots of lead paint. It is interesting to read that the center piece was made of fine quality White Pine. When wood is exposed to the weather the softer woods tend to rot faster than the harder woods, so that may be the real reason of suggesting lots of lead paint. Lead paint is not sold today.

In 1900, the Excelsior Cover replaced the Danzy Cover, because the Excelsior Cover is better suited to warmer climates. It was mentioned that the shrinkage of the wood is less with the Excelsior Cover and that is probably due to the smaller size pieces and the construction that allows less expansion and contraction. It was a much easier cover for the company to machine.



The Excelsior Cover

An improvement to the Root Ventilated Gable cover was to put holes near the gable to allow air to circulate within the cover without any other air entering the hive.



New Danzenbaker Nailless Cover

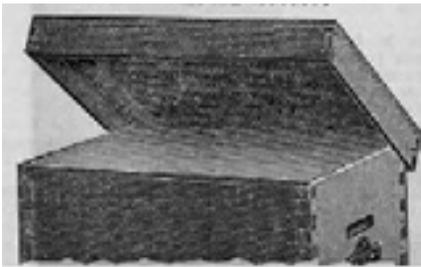
In 1903, a new Danzenbaker Nailless cover was listed in the Root Catalog. It was a cover that consisted of several tongue and grooved boards that were held together by paint, but for additional insurance, staples were used on the ends of the boards. To keep the boards from warping, a metal strip was inserted in the saw kerfs. These covers were perfectly flat on both sides. Further testing on this top was recommended.

Also announced in the 1903 catalog was the double air spaced cover, which had been in testing for 12 years and was giving favorable results. The cover was made of 3/8" boards which were held together with 3/8" cross boards on both sides. The end cleats were put on for added rigidity. The sides were covered with a special paper and tacked with five large headed tacks. It was recommended that the paper be painted so you would get results similar to what their tests were giving. However for five cents more, you could get metal instead of the paper.



Double Air-Spaced Cover

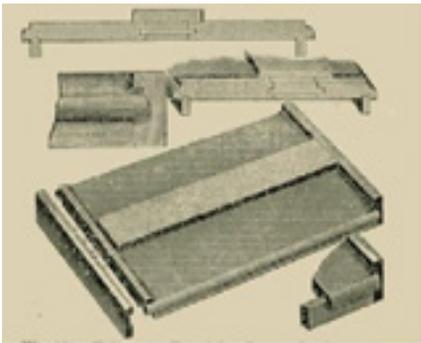
The 1906 catalog stated that many of Root's customers preferred the metal-roofed Double cover. Several beekeepers had expressed concern that the wood in the hive was developing checks and splits so the metal covers were developed to help their situations. An additional inner cover was needed to correct ventilation problems. These tops were available in either eight or 10 frame hives and are very similar to



**Metal-Roofed Cover**

the telescoping covers of today. The inner cover had a relief cut in the edge that provided ventilation in the Summer time when the slot was in the up position. In the Winter, the inner cover was reversed to provide ventilation and an upper entrance for the bees.

1909 saw an improvement in the Excelsior cover in that sides were added to the top. To avoid confusion the new cover was named the Colorado cover.



**New Excelsior or Colorado Cover**

By 1915, the A.I. Root Company was offering only four types of cover for the hives. The metal-roofed Double cover was the standard cover supplied with their hives, but the Root Ventilated Gable cover, Excelsior cover and a flat hive cover were available. The Flat Cover had been discontinued years before, because clear lumber was hard to obtain, but it is being made again with three top boards instead of one and an option to have redwood as the top board. In later years the flat cover will be known as a migratory cover.

The Root Ventilated Gable cover was not available in 1924 from



**The Flat Cover**

the A.I. Root Company, but other companies are making Gable type covers. Some of the hives using the Gable type covers are the decorator hives and the Garden Hive which have copper coverings.

The Root Company continued making the Buckeye Hive, the Excelsior cover which became known as the inexpensive all-wood hive cover, and the Metal roofed Double cover which became known as the metal cover up to 1933. For three years a metal top flat cover was offered and then dropped from the line. In 1940 the Buckeye Hive was dropped from the A.I. Root line. In 1944, The Root Company went to making 10-frame equipment only. From 1944 to 1955, the A.I. Root Company sold only the metal top and the inexpensive all wood top. Then the all wood top was discontinued.

It seems ironic that in the beginning of wooden beehives that the least popular type of cover became the most popular type and the most popular in the beginning became the least popular cover produced today. Perhaps I am just looking at this from the hobbyist beekeeper point of view. The Migratory Hive Cover is primarily used by beekeepers that are hauling bee hives for pollination purposes and by eliminating the two sides of a cover, allows the hives to be stacked closer together on the truck. The numbers of hives operated by commercial beekeepers far outnumber the hives of the small beekeepers.

It is also interesting to see that the problems that were facing beekeepers long ago keep being addressed today, such as the ventilation, insulation, Gable type cover, and shade issue. I remember seeing beehives that had a 1/2 sheet of plywood sitting on top

of the hive and held in place by two concrete blocks. This was done to provide shade for the hives and ended up being more work for the beekeeper in removing blocks and plywood to get to the hive. Covers were designed so that the use of the 20 pound block wasn't needed, but where are we today? Many beekeepers put blocks and bricks on the top of their hives to hold the covers down. However the placement of the bricks might be an indicator as to the condition of the hive. Some people have designed a catch to anchor the top to a bee hive, while others use a banding machine. I have used rocks and sticks to prop up inner covers and covers to provide hives ventilation. When I have used covers with vent slots, I have experienced spiders living in the slots. If a screen is attached over the slots, the bees will fill the screen with propolis.

There is always the search for new materials and sometimes what looks to be a good solution could end up being a disaster. Very wide stable lumber is hard to get and expensive, people have used particle board or plywood in the construction of tops. If you don't have a waterproof glue in those materials, it is just a matter of time until they fall apart. The use of plastic seems ideal, but be careful when you need to move the hive. Plastic tops tend to have many gaps and do not hold up well if you place a hot smoker on them.

It is very hard to beat the telescoping cover as the common practice is to place it on the ground to stack equipment on when you are working the hive. If the honey supers drip honey, the honey will be caught by the cover and returned to the hive when you reassemble it. Sometimes you may wish that you had an additional cover or something else to stack equipment on, as you may want to switch supers around. Also there may be a time that you wish that you didn't have to take a heavy super all the way to the ground but had a higher stacking point, like another short hive close by or the tail gate of a truck. **BC**

**References**

A.I. Root, *Various Years of Bee Supply Catalogs*, starting in 1895 to 1996

L.L. Langstroth, *Langstroth on the Hive and the Honey Bee a Bee Keeper's Manual*, 1853.

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for someone.

## Luke North, a Life-Long Learner

Luke North, age 16, lives in Alabama with his parents, Billy and Erika along with brothers and sister - Jesse age 8, Naomi age 11, and Jakob age 14. A self-described history nerd, Luke reads about 3-4 books a week. Not only is Luke in 11th grade (homeschool) but he has also been collecting genealogical material to write a family book. Luke is constantly seeking to learn new things every single day. He has developed construction skills through working on building projects and just finished a seminar on how to build dome houses.

Bee B. Queen had the pleasure of talking with this young man about bees and beekeeping.

### How did you get started keeping bees?

My family thought about doing beekeeping for many years. We have a produce farm. One day a beekeeper came along and said, "You need bees on this farm." Then someone from the East Alabama Beekeepers Association drove by and saw the bees. They stopped by and asked us to join the club. I've been a member for two years.

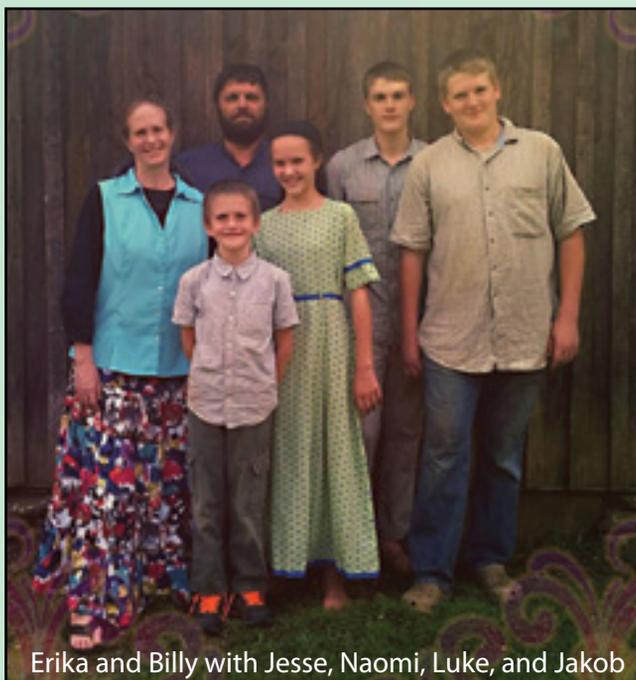
### Tell us about the leadership roles you have taken on?

I teach beekeeping classes and I became the vice-president of the East Alabama Beekeepers Association at age 15. Just one month later the president had to resign for personal reasons. So I became the president of the organization. Then I was elected to be the president for two more years.

Our major project is a honey extraction trailer which we received grant funding to develop. Another member, Jeff Monroe, came up with the idea. We talked to many beekeeping experts during the development stages. It is now up and running. We took it to our state convention.

### Share your experiences about teaching beekeeping.

I've taught beekeeping to students from the University of Alabama, The National Agricultural University of Honduras and to missionaries from Haiti, Africa and around the world. When teaching, I start with the basics of bees and beekeeping. When writing lesson plans, I have to think how I'm going to explain each step then I have to make it interesting. I want to give them enough information but not be too overwhelming.



Erika and Billy with Jesse, Naomi, Luke, and Jakob



# Beeyard Thoughts, Observations, and Updates

*Hey look! I see some beehives.*

## True beekeepers just can't help looking . . .

While traveling, my much younger family and I never watched for cows – much less counted them. We looked for beehives. It could not be just a kid shouting, *I see hives!* The sighting had to be confirmed by someone else in the car. Depending on how frustrated the parents were with three energetic young girls confined in a packed car, the reward for the confirmed sighting would range from \$1.00 - \$5.00. At the \$5.00 mark, parents were obviously tired and stressed.

As a quick note, this beehive-sighting game does not work with my grandchildren. The game simply is not needed. They will stay totally glued to any electronic device. *(In my own way, I have the same problem.)* I suppose that change is sad, but my daughters clearly remember the rules of the game.

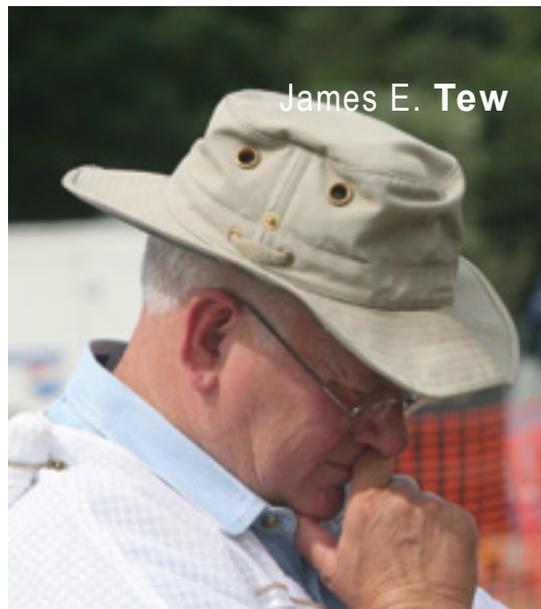
True. It is not all that often that beehives were sighted, but you would be surprised at how often we would sight things that looked much like beehives, but in fact, were not. These “almost hives” spurred discussion. If possible, I photographed them anyway – just because these things looked like bee hives. That results in an odd collection of photos.



*Scratched and abused old photo. From afar, I thought this was a large beeyard. I climbed fences and struggled through fields of growing crops to determine that it was a cemetery. I photographed it anyway. This photo is rarely used.*



*However, this really was a beehive in a cemetery. Though I snapped the photo, I don't know the story behind the “Cemetery Hive.”*



James E. Tew

## Okay, where is this going?

As have you, I have never missed the opportunity to take a photo of a bee yard – any beeyard. I have acquired such photos all of my career. As do you, I now have hundreds of photos of static apiary shots – many of which have never been used – and probably never will be – but you just never know. So – snap. Some of these pics have a story. I hope it is okay with you if I bring a sample of these old and new beeyards for your review. Some photos are battered and low quality.

## Some old apiary shots . . .

I've never used lantern slides in the correct way. I don't have the proper antique equipment. They were mostly large glass slides that were about four inches squared. Due to depth of the glass, they are hard to reproduce with common copiers or to reshoot. I know it can be done, but I don't have enough of these antiques to acquire the ability and the equipment.



*A Lantern Slide circa 1920.*

Unfortunately, in the photos that I am presenting, I can see more than you. The boxes to the far right, near the building, appear to be larger hive designs or possibly out shells for use during Winter. They are under something indiscernible – maybe felt paper.

Deepes are the majority of the equipment. The colonies to the rear are much taller. Some are as high as eight to 10 hive bodies. There is a raised walkway from the apiary house to the end of the colony rows. One of the aspects

that I like about these old photos is that the grass is not mowed. No herbicides and no needless mowing. It was a time when tall, unkempt grass had not yet become sinful. Due to other labeled photos that I have, I suspect that these are Iowa State University beehives.



*Hopewell, Kansas, 1920.*

I enjoy doing forensic analysis on these old photos. Firstly, note the beekeeper to lower left. He is wearing an Alexander veil. This type of veil was a cylinder of metal screen that would bend, crimp and rust. But when new, they were so-so veils. Upon storing, one would roll the veil into a tight cylinder for packing away. It's difficult to see, but right in the middle of the photo is a simple smoker – probably of A.I. Root manufacture.

This is an early commercial beeyard – not a hobby operation. The beekeeper is fully suited. I can't explain why he is so far from his smoker. His left arm is on an A.I. Root Excelsior outer cover. It was a utilitarian cover made of five parts – two roof board, two end slats and one ridge slat. To allow for wood expansion, the two top boards did not touch each other in the covered center; hence the center board. On the hive cover next to that hive, where you can see the cover characteristics better, you can just discern that the simple cover top boards are slanted to the edge to facilitate rainwater dripping from the edge. These top boards were dadoed into the end piece – not butt jointed. Since the hive in question is wildly unlevelled, that feature is lost.

Though I fail to see much use for it in the crowded, rocky terrain, there is a utility cart just behind the large pair of Cottonwood trees. Only one wheel shows. The bees in the yard are primarily producing comb honey – probably basswood section honey.

*Does anyone know why there are so many comb honey hives with a deep super on top of the section supers? I have seen that in other old photos. The top deep appears to be separated by a wooden rim. That rim could be a hint for any number of other devices. (Inner cover, escape board, queen excluder or some kind of feeder bottom.) I don't know why these top deeps keep turning up on top of section supers.*



*The Ohio State University apiary circa 1930.*

This photo always reminds me of how much people and their fears have changed. Today's fans would go goofy on game day if bees were still there. The stadium is much, much larger now and all the space you see between the hives and the stadium are parking lots and access roads. Even so, many years ago, I showed OSU President Gordon Gee this photo and whimsically asked if I could put bees there again. He immediately responded, "*Absolutely not!*" also whimsically but also very truthfully.

The hive to the front immediate left is an insulated Buckeye Hive, manufactured by the A.I. Root Company. That is how I estimated the date of this photo. Due to an insulating chaff box just beneath the outer cover, the outer cover sat tall. I am surprised to see metal fence stakes used rather than wooden posts.



*This was normally a good, honey producing yard. Then this . . . (Jones photo)*

Of course, this yard had never flooded before. The main waterway is in the far distance. Yard disasters don't always have to be flooding. In other yards, wildfires, falling trees, or vandalism may be the traumatic issue. Occasionally, bad things happen in good apiaries.

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*Beautiful hives on an overloaded hive stand.*

These beautiful colonies encountered a strong nectar flow. The colonies belonged to a good beekeeper who was on the job supering and maintaining colony health. Clearly, at some point, the hive stand became overloaded. The operation was recovered, but there was a setback period to get the bees resettled.



*Some serious Winter preparation sometime in the 1930s. Probably in Iowa.*

I have used this photo in earlier articles to show the wintering preparation that beekeepers used at one time. None of that kind of thing now for us. It's too much work. (*Hum. 40% winter kills are average now. Hum. I wonder?*)



*Neglected colonies.*

The owner of these colonies developed Alzheimer's disease. Having been a vibrant, career military officer, his rapidly advancing condition was unexpected by him and his family. During this stressful time, his bees were increasingly neglected until they were finally essentially forgotten.

Ultimately, the family asked my beekeeper Dad and brother to clear the mess and to organize the remaining equipment for selling. Soon afterwards, as Dad was accomplishing this task, the beekeeper wandered into the storage room. He was confused and frustrated. His wife and daughter were able to distract him from the area so the work could continue. The situation was both awkward and sad.

The photo is low resolution and has never been used. I doubt that it will ever be used again. Sometimes bad things happen to both people and to bees.



*A secured hive in the 1970s. (D. Caron photo)*

Was this setup to prevent bee robbers or people robbers? (*grins*) Actually, the beekeeper was having problems with someone taking honey frames from his hive but otherwise, there was no damage – just missing frames.



Alabama regulations required IDs in remote yards.

I had four of these signs hand-lettered to identify my first apiaries. I thought “Target” was a great name for my little business. (“I was right on Target!” or some such.) My problem is that hunters felt that I had posted these signs for their range practice. I am so lucky that a single one survived and that I still have it. The other three were shot to oblivion. I would argue that my remaining old sign is commercial art. Each sign was slightly different. (This poor-quality picture was derived from a low-quality paper photo. Sorry.)



A modern Tennessee yard on leveled hive stands. Great equipment and strong bees. (C. Pardon photo)

A modern yard tends to be neater and better organized. Most apiaries are easily accessible with trucks and loading equipment. Packages are about to be installed in this equipment. In the far background, along the fence row, another yard has been set up. This is a nice apiary location.



It's not always about honey crops, Varroa, pollination or whatever.

This the dawn of a new day in the 1980s. It's not always about bees as work animals. Sometimes it about bees and beekeepers sharing the same space at the same time. In this photo, there's no smelly smokers and no sticky honey loads. There is just a quiet moment when the keeper can reflect while the bees ignore you.

I suppose that this is a Zen moment in beekeeping. I have spoken to a few beekeepers who have experienced extreme traumas in life. These quiet periods were why they kept bees – not honey or pollination. Calming and quietness are good thoughts in which to end this photo article. Thanks for looking at a few (of the many) rarely used photos that you and I have. I enjoyed reflecting. **BC**

Dr. James E. Tew, State Specialist, Beekeeping, The AL Cooperative Extension System, Auburn Univ; Emeritus Faculty, The OH State Univ. [Tewbee2@gmail.com](mailto:Tewbee2@gmail.com); <http://www.onetew.com>; [www.onetew.com](http://www.onetew.com); [One Tew Bee RSS Feed \(www.onetew.com/feed/\)](http://www.onetew.com/feed/); <http://www.facebook.com/tewbee2>; [@onetewbee](https://www.youtube.com/user/onetewbee/videos) Youtube: [www.youtube.com/user/onetewbee/videos](http://www.youtube.com/user/onetewbee/videos)



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# Hands On Mentoring

## After The Classes There's Very Little Formal Education For New Beekeepers

Buddy May

Dedicated mentoring of the new and inexperienced beekeeper is perhaps the single most important aspect of successful management in beekeeping. I and others are witnessing, in some cases, approximately 70% loss of beekeepers in first two (2) years. Additionally, we are seeing higher than normal loss of colonies during a season (South Carolina loss 42% of colonies in 2015). I attribute such losses to the lack of experience and practical knowledge by new and inexperienced beekeepers.

Acknowledging that there are exceptions, in the South, and I presume over much of the North as well, our beginner beekeepers are given an eight-week course in "Beginner Beekeeping", then a full day (if they are lucky) of practical experience followed by a practical exam. After that, there is very little formal instruction to educate the new beekeeper. They are then left to deal with the day to day problems without additional training. This is the role where mentors can make a difference

### **CURRENT APPROACHES TO THE MENTOR/ MENTEE PROCESS**

Let's pause for a moment and discuss the many ways new beekeepers are being dealt with in actuality today. The majority of beekeeping associations and beginning beekeeping courses today do not have a regimented and formal Mentor/Mentee program. Yes, there is quite a bit of lip service but when you get right down to it, most programs are very informal. Some of the issues may be derived from the fact that mentors are not trained in the "preferred method" of managing a colony of honey bees. All of us have heard, "speak to 10 beekeepers and you will get 10 different answers". True, there are many good ways to reach a particular beekeeping objective, but Mentors need to be trained in a "preferred method" (explanation forthcoming) when dealing with a beginner beekeeper.

In most instances, the association just announces that a list of mentors has agreed to serve and it is left up to the mentee to make the contact. Little or no control is maintained with regards to performance of either mentor or mentee. Ideally a mentee should be placed with a mentor. Pairing of Mentee to Mentor is best performed at the beginning of a new class of beekeepers. This way the mentors and mentees become accustomed to each other.

### **A SUGGESTED APPROACH FOR A MENTOR/ MENTOREE PROGRAM**

Assuming your association has agreed upon the need for a Mentor/Mentee program, the next step is to formulate guidelines. The good first step is for the

mentors to select a mentor coordinator from among themselves, who is charged with coordinating the efforts of the individual Mentors. This group of individuals will compile a list of tasks or activities that new (1<sup>st</sup> to 3<sup>rd</sup> year) beekeepers should perform in the bee yard and will agree to debate and discuss the most preferred method for the performing each activity. A list of these activities starting with equipment basics on upward to more complicated management is illustrated in Appendix A.

With respect to the "preferred method", mentioned previously, it has been my observation that new beekeepers become dis-oriented and confused when beekeepers start talking and give the new beekeeper five (5) ways of doing a particular task in the bee yard. I suggest we teach the new beekeeper one way, thus the



"preferred method", until he or she is completely familiar with what is trying to be achieved and how to achieve the desired result. Yes, there are many ways to do a task, but once the beekeeper is familiar with one method, they can certainly investigate other methods to obtain the desired results.

Let's take an in-depth review of one method of Mentor/Mentee training for consideration and adoption. The preferred method is a tool to teach beginners, one (simplest, easiest, least expensive) way to accomplish a goal, say, removing honey. Most acknowledge that these are four good ways to remove honey filled supers. For beginners, the shake and brush is low tech, easy, inexpensive and works under all circumstances. The repellent has some qualifiers, the blower is expensive, the bee escape works if conditions are right.

## APPENDIX A

### Equipment

#### BASIC HIVE

personal protective

tools

Ancillary

Using used equipment – pros and cons

Making your own-equipment pitfalls and precautions

#### Apiary

Urban-always neighbors first

suburban

siting within apiary

how many colonies?

#### Starting bees

Easy methods for beginners

packages

nucs

Swarm captures (including baiting swarms)

More experienced beekeepers

Splits/divides/making nucs

cutouts

#### Biology

essence off bee as superorganisms

bee family (with female caste worker/queen & drone and duties)

brood stages (including rearing)

Communication (hive is dark smelly place) + Dance Language

Nest basics (natural and man-made)

#### Inspection

Starting outside

Getting inside

inspection of brood frame

Looking into supers - decisions to add more

getting practice

Seasonal differences (what to expect when)

Handling the bigger colony after the first month, 2<sup>nd</sup> month

#### Management

Seasonal spring, summer, fall, and winter

Swarming

Advanced managements

#### Maladies

Id of the nasties

Control of the those needing (how determine, how control)

Or another example, feeding – the new beekeeper can spend a lot of money for a bee feeder, but feeding right on top of brood works in all circumstances – the feeder should be easy, inexpensive and accessible (either feed over the inner cover hole or over frames- if inner cover is used, the beekeeper doesn't need to be exposed to the bees.)

It is recommended that "Satellite Apiaries" be chosen to accommodate the mentees, geographically. The use of satellite apiaries is a radical departure from the existing methods of Mentor/Mentee activity, where the mentor visits the mentee. The number and location of satellite apiaries is determined by the number of new beekeepers in the class as well as the location of mentors geographically. The Mentee is assigned to a satellite apiary which is geographically suited to each Mentee and is organized to accommodate the activities that will be exhibited. In most cases, it will be the apiary of one of the mentors or it could be a community apiary. The size of the class will determine the number of satellite apiaries, but for simplicity, let's choose four (4) satellite apiaries. Now, these apiaries will be supported by three or four mentors available to assist the mentees (a minimum of one mentor will be available for each session of mentoring).

A certain day of the week and hour of the day will be chosen as the mentoring time. (I personally mentor to, on the average, about six mentees each Tuesday and Thursday from 10 am till noon. Some mentees have been attending for up to three years and I have witnessed their progress from new beekeeper to Certified to Journeyman and preparing for their Master certification. Most of these individuals are now mentors and help mentor to the mentees!) Each session, with dates, times and activities is to be reviewed and is emailed to each satellite apiary attendee. It is recommended that each Satellite apiary have as minimum two classes monthly for two hours each.

### ROLL OF THE MENTEE

The primary reason for the Mentor/Mentee association is to further the practical experience of the mentee. The mentee should have completed his or her certified classes and passed a certified written exam. Upon completion, the mentee should enroll in the nearest Satellite apiary class for hands on practical experience which is the objective of each session.

It is noted at this time that the mentor/mentee

association is primarily designed to give the mentee the practical knowledge which comes only from hands-on experience. The class room sessions give support to the understanding of the bee biology and history, but cannot give the hands-on experience necessary for understanding colony activity.

The mentee should consult their texts for refresher information prior to each session in the apiary and be prepared to ask any questions which are not clear from the text material.

The mentee should be punctual for all meetings, bring the necessary equipment to the apiary, and expect to sign a hold harmless agreement upon arriving for the first visit.

### ROLE OF THE MENTOR

Meet with other mentors who are certified Masters and Journeyman beekeepers and agree to defining the most preferred method of each activity presented to the mentee during apiary activity.

Agree to the location of each satellite apiary (recommend four) and select the mentors for each location.

Plan the beginning of satellite apiaries activities after bee classes are complete. The first might be just as package bees/nucs are available to be installed. In the South, bee classes are held in Dec., Jan., Feb., and Mar. with package bees arriving in latter part of March and early part of April.

Activities should be videoed and discussed at mentor meetings, which should be on a quarterly basis, to discuss progress and possible modifications to the any preferred method or performing an activity.

Some associations may want to charge a fee to the mentee for the satellite apiary activities; however, it is my belief that there should not be a monetary charge. The mentors can use their action as a credit for their next certification to Master or to a Master Craftsman level of certification.

I would like to express gratitude to Dr. Dewey Caron for his comments during my preparation of this paper, as well as to all the mentees of the last three years, some of which are now mentors. **BC**

---

*Buddy May lives in Greenville, SC. He is a SCBA Master Craftsman Beekeeper, and EAS Master Beekeeper, and this year's EAS VP.*

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# Keeping *VENOM* Out Of Your Bee Club

Becky Johnson

*By Involving All Members In The Good  
And The Bad, Listening To Concerns  
And Forever Adapting To New Ideas And  
Ways, We Lessen Our Chances Of Being On  
The Wrong Side Of Heated Debate*

It is a gorgeous day as you decide to go into your hives to do an inspection. You don your equipment, grab your tools and head to your apiary. You've done this several times before, yet you stand in awe watching your girls as you approach. They are heavily laden with pollen baskets filled to the brim as they make their decent towards the entrance. You carefully crack the outer cover, and slowly start to remove frames to look for healthy brood pattern and stores. Using your hive tool, you scrape the propolis and burr comb- cleaning up the frames to ensure stability and ease for the next inspection. Suddenly, you notice a queen cell.

As a leader in your bee club, from time to time you must crack the cover and do an inspection. You arm yourself with the protection of your by-laws, mission statement and opinions of the members as a whole. Standing in the back as your friends and fellow members come in to the meeting; you watch in awe as your club socializes and talks about their hives, their bees and their personal lives. They each bring knowledge, experiences and advice to the meetings to share with others, and every single one is valuable. Having a personal relationship with each member is essential to understanding their background and ensuring ideas as well as issues are brought to your attention early. Encouraging words go a long way with most members, but sometimes, it is necessary to inspect more frames to satisfy stating it is a healthy hive.

Just like the different options that beekeepers have with their frames, hive bodies and bee breeds, local bee clubs can be completely different from one another in all aspects, or similar in some ways. Clubs can operate with a handful of members to hundreds, each with their own dynamics and characteristic personality. While your objective to attend a meeting may be based on bees, others may divulge into the business and operations, or the community and volunteer aspect. While most clubs operate on a small, local level, some decide that it is in the best interest of the club to become a nonprofit with a larger reach of resources. Becoming a nonprofit can

substantially change the order of operations for any club, and if allowed-can come to the point of taking over the most common reason that members attend the meetings to learn more about bees and keeping. One reason that bee clubs dissolve or branch into smaller clubs is lack of understanding of what the membership wants out of their club and meetings. The most logical choice is to, at least yearly, if not at every meeting, review your mission statement and ask suggestions from the all its members on how the club can set goals to reflect its' core values, the mission and to further improve on operations.

Having a board set up is a major investment in the sanity of your club. Many hands make the workload light by delegating duties fairly among the officers. Using them as you would a hive tool, you can find that working on club business takes much less effort. Reports from each officer on their duties during a board meeting will help ensure a streamlined approach in the form of announcements during your club meetings while continuing to give your membership transparent views on decisions and happenings in your club. By being organized in this fashion, when dissension occurs, the board can asses the motives behind it as a unit. Then, following the mission statement and by-laws, it can make executive orders on how to move forward. This becomes complicated when one or more board members choose to overtake the club based on personal opinions or agendas. That is when following the by-laws and protecting those words that were voted on to speak in behalf of all the club is the best device to remove such propolis.

Your hive is only as strong as each bee and their assigned role. Having lots of brood and no guard bees does not fair well. Ensure that each board member takes their responsibilities seriously, especially the treasurer and by laws chair. Having a treasurer that does not organize receipts, copy invoices, keeps arranged membership information nor attempts to create documents that can be viewed and shared among the board and entire club can be seen as a dismal negligence on their behalf. If

anything were to happen and they were not available, the shrewd paper mess they left must be fixed by someone immediately. If the treasurer refused to fulfill their position properly while in it, the chances that there are many mistakes and even defiant misappropriations of money are very likely.

Also make sure your By-laws chair is someone accountable. Bylaws from club to club differ in length, depth and reach, but should focus on the actual activities the club plans to undertake and the direction required from the leaders. Outlining responsibilities for the executive board as well as a mission statement that is the primary goal of the club should be heavily integrated in the paperwork. Having only one or two people in charge of the writing and revising may create an opportunity for an individual looking to change the anatomy of the club to do so quietly and without knowledge of the club or board. Keeping the style similar but changing numbers, adding words or sentences will require diligent research to uncover, and if not foreseen before the vote; such actions need to be directly addressed to the masses, automatically repealed, then re-voted on at the next quorum.

Since nonprofits require certain wording for acceptance from the Internal Revenue Service, it is imperative that it is reviewed and voted on by the membership after thorough review. This can be done by giving ample time for their review through electronic platforms as well as having hard copies available as quickly as possible before the vote.

It starts as just a small piece of misplaced comb.

You leave it and the next time, you can barely lift the cover or the frame without disrupting the surrounding area. If you continued to leave it alone, soon the entire hive could not be worked without destruction. Same is with members that choose to create and spread rumors and continue to propolize their own ideals and misplaced intentions within the club. If left unchecked, certain devastation is imminent. It is impossible to please every member every time. That's the best reason that clubs choose a majority vote on important facets of operation. By encouraging members to ask questions, having transparency during meetings and inviting them to sit in on board meetings; Most issues that start small will never grow into a larger problem. This is especially true of newer clubs where expectations are high and there is no money available yet for the operations or start up fees.

Board members may contribute their own finances and time for the betterment of the club, usually without expectations of being repaid quickly or at all or even thanked publicly. They do these things to build strength in a club they believe in, that they want to see grow and have shown their loyalty by placing the club's needs above attention to themselves or adding to their resume. Those are the members that you want sitting in positions of authority, those that give freely and without demanding anything in return. Keeping records on such selfless devotions may seem unnecessary, but in being fully transparent, should be documented and reported if asked by any member.

When you find that queen cell, time is of the



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essence. You need to determine your next decisions as a beekeeper and also as a leader, quickly. In our hives, we know that finding this evidence suggests an upcoming swarm, a queen that is not favorable, or no queen at all. You may have a member or board member that does not agree with the arrangements or decisions that have been made. Just like in your hives, you need to examine the cause and determine the source of the issues. Reminding members of the board's transparency and inviting them to bring their issues or solutions directly to the leaders should be the first step, followed by appropriate reflections on any issues promptly.

When all else fails to satisfy a member that is resilient on creating controversy, remember your other lessons learned as a keeper. Allow the membership to determine the course of action. Whether the timing is right for this to be done through an election or placing the option straight to the member to leave on good terms you may suggest a nearby club that more closely resembles their desires and drives in what they want out of a bee club. As a last resort, your bylaws could contain another option to remove a member or take them off of good standing. Any of these may cause other members to leave along with their "queen", but is also a natural occurrence just like in our colonies. Their absence does not determine alleviation of the issue they presented and should be brought before everyone to be considered, acknowledged and handled to allow the club to move forward, stronger in the long run.

Working with honey bees, it is well known that from time to time we will feel the sting. It is simply a piece of this addictive hobby. We may take all measures to make it happen as few times as possible, but it's never an issue of if we get stung, it's a matter of when. In our clubs, as leaders, we need to take this lesson home. By involving all members in the good and the bad; listening to concerns and forever adapting to new ideas and ways, we lessen our chances of being on the wrong side of a heated debate. The entire board is responsible for the club's actions as a unit when each has a vote in how things are decided; Whether or not individuals agree with the outcome of these decisions. Celebrations along with the issues that may arise along the way should be considered as being from the entire board with no blame placed on the shoulders of a single voting board chair. Having the privilege of being the leaders who make these decisions comes with the possibility of being in opposition with another member and at some point there is a good chance it will happen. When it does, staying calm and providing facts only go as far as your actions have proven beforehand. Let your actions speak louder than your words, always keeping the best interests of the mission statement and the members at the forefront in any decision. How we react to disagreements, slander and rumors truly determines our abilities to lead, our motives and loyalties. As leaders, we should always represent the entity that is our club by not including our personal grievances with others. Leave those at the entrance. **BC**

If you have enjoyed/learned from our blogs or if you have used the data on our website for yourself or your club meetings, please consider showing your appreciation.

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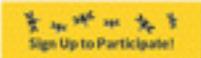
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# A Very Different Kind Of Fire

## Wild Fires Raged For Nearly Two Weeks

M.E.A. McNeil

What Californians know about tornadoes is that they happen somewhere else. Ask anyone – not here, no way. But tornadoes did come to California. They were made of fire. They blew, gyres of flame, unstoppable, igniting wildfires that raged uncontained for nearly two weeks.

Although a dozen big fires burned simultaneously across Northern California, the Tubbs Fire in Santa Rosa, about 55 miles north of San Francisco, “was a very different kind of fire,” according to Ken Pimlott, the director of Cal Fire.

“Almost horizontal. It generated so much heat that it created its own circular patterns.” Those vortices of air rose into twisting columns – fire tornadoes. Their rare occurrence has never been so devastating. They left 22 people dead and 36,432 acres burned. They peeled off roofs, lifted and flipped trucks.

It started in the hills above Santa Rosa, about 55 miles north of San Francisco on Sunday night, October 8, 2017 at 9:43 pm.

Not far away, beekeeper Mike Turner went to bed around 11:00 that night. There was a faint odor of smoke in the air, not unusual from a barbeque in his neighborhood of family homes. The weather was still warm. Unusually warm. He checked and saw nothing before he went to sleep.

At about 1:15 am, he drowsily took note that his clock was blinking. Ok, the power had gone out and come back on. He drifted off – a distant roaring sound could have come from the freeway half a mile away. The roar grew louder. A smell of smoke thickened the air. If he was not completely awake when he stepped onto his porch, he

was jolted to see the sky glowing orange.

“Go now!” screamed his neighbor.

Turner is a gentle, well-liked guy in his early 50s. He and his wife Deborah run a beekeeping business. They have apiaries in adjacent counties, market their Marin Coastal Bee Honey, extract bees and yellow jackets, teach beekeeping, and manage about 100 colonies for clients.

It’s honey harvest season. Turner has been working in his rented three-car garage, skimming the wax cappings off of frames full of honey with a hot knife, one by one. It’s tedious, sticky work. He’s finished spinning the honey out of the frames in his stainless steel centrifuge, and, to get every last drop, he’s squeezed oddly shaped comb in a fruit press. That’s done. The honey is in buckets, each labeled by apiary location within Mill Valley, San Rafael, Russian River, Rincon Valley, Santa Rosa, Tiburon. His label says, “Know where your honey comes from,” and he’s specific. After all, it’s a taste of place if anything is. Now it’s ready to bottle, and orders are coming in.

As Turner and his wife slept that Sunday night, a high pressure system over the Central Valley of California was forcing air north into a low pressure system. The systems were bent on equalizing. The contrast between the two fronts was so great that air moved fast. Really fast, up to 80 mph – hurricane force.

“Just like water flows from higher to lower elevation, winds flow down a pressure gradient as they go from high pressure to low pressure,” said Max Moritz, a wildfire specialist with the University of California Cooperative Extension. “When they get concentrated, like through



Mike Turner’s Marin Coastal Bee Honey. His 2017 harvest was nearly all burned in the fire that demolished his Santa Rosa home. Photo credit: Mike Turner



Mike T garage: Beekeeper Mike Turner used a three-car garage to extract and bottle his honey. It was a complete loss, including the specialized tools he had made, such as bee vacs and a cell incubator.



*Beekeepers Mike Turner and Thea Vierling outside Austin Creek Elementary School where they teach about bees in an outreach program for the Sonoma Beekeepers' Association. Turner lost his home, work space and equipment in the fire. Vierling is part of a taskforce organized to support beekeepers with loss. Photo courtesy of Thea Vierling*



*The fire came so close to this hive that it melted the plastic top and scorched the paint. The colony survived. It was one of the fortunate ones. Photo credit: Lizanne Pastore*

a mountain pass, they will speed up, like a river going through a narrow channel.”

Overnight, gusting winds had funneled into a steep drainage ravine down Mark West Springs Road in Santa Rosa. What happened then is best described by a phenomenon called the Venturi effect. A science teacher might demonstrate it with a pressure hose nozzle in a paper towel tube: The compressed air pulls on the room air to equalize the pressure between the two, creating an intake, a vacuum. It might vacuum up sawdust. Or, on this night, vehicles.

“I could see flames going up at the end of the cul de sac,” said Turner, “And I heard explosions.” Pop, pop, boom, bang. “We saw bedlam. People were grabbing kids and pets and throwing them into cars.”

The power was cut. In the dark, he put on jeans, a tee shirt and flip flops as Deborah grabbed her wedding rings and her purse. They searched for their black cat in the blackness, and at last coaxed it with their other reluctant cat into one carrier. Turner locked his door, thinking that soon they’d be back. He’d had his hand on the thick notebook that kept his beekeeping records, hive by hive, but he left it; they’d be back. By 1:30 a.m. they had joined a growing number of cars pulled into an empty gas station on the other side of Highway 101, their passengers standing in stunned silence to watch the inferno rage down the hills. They didn’t wait until the fire jumped the six-lane freeway.

An hour later, at 2:30 am, Hector Alvarez woke to his phone ringing. “What fire?” he said.

He is a hard working commercial beekeeper, in his 40s. His grandfather kept bees in Mexico using hollowed logs plugged with adobe. His father kept bees in Mexico, too, but when he worked in California as a migrant laborer, he’d left behind some swarms in wood apple boxes in an orchard. When Alvarez came to this country, he found those same boxes still thriving with bees – full of wax comb built out willy nilly, without frames to guide them. He came across The Sonoma Beekeepers’ Club, and members welcomed him, helped him learn and nurture

his business. One offered to transport some of his hives to a pollination customer to get him started. “I didn’t even know about doing that,” he said. Now he manages some 900 hives for honey and pollination. He has two farms and other yards where he keeps bees and a truck and trailer to move them.

That night, he stepped outside and saw orange in the sky, in the direction of his second farm, where all his equipment was kept.

“You can’t come,” his neighbor said. “They’ve blocked the road.”

Alvarez drove as far as he could. Vehicles were evacuating out, taking both of the two lanes, so he parked and walked. “At first I couldn’t see the fire,” he said. “It was dark. Then I saw the flames in the hills and heard explosions. It was like a big monster, a fireball from the top of the hill to the bottom spraying everything with fire, going down toward the farm.”



*While 20 area beekeepers lost their bees, the fierce Tubbs Fire swept to within feet of these hives and stopped, miraculously sparing them. Photo Credit: Lizanne Pastore*



A beekeeper surveys what's left after the fierce Northern California Tubbs Fire swept through the area with little notice. The squares of ash were once colonies of bees. Photo credit: Mike Turner

He spent the rest of the night defending his place. With his tractor, he tilled in a blackberry patch on the edge of the property. He put out flying sparks and embers. "By sunrise I was thinking the fire would come," he said. All he could do was park his equipment by a still-green vineyard next door. "I couldn't focus." Suddenly, about 5 am on Monday morning in the dark before dawn, the wind switched direction to the south, away from the farm. The fire stopped not 400 yards from his fence, turning to ravage others.

Lizanne Pastore expects some wind, but not like it was and not so early in the season. She has two small apiaries at the 40 acre vineyard that she and her husband farm, Old Hill Ranch in Glen Ellen, south of Santa Rosa. Early that Monday morning of October 9 the wind kicked up so fiercely that she drove out to check some hives. She keeps rocks on the covers until her last hive inspection of the year, which would not be for weeks, the end of October. At that time, she straps each one down against the winds that normally come later in the year.

She arrived at her apiary to find the rock weights blown off the hives and the covers scattered far. She scrambled to find them. She replaced the covers and strapped the hives to their stands – the wind blowing so hard she embraced a hive to keep it upright.

"I was so focused that I didn't realize the smoke," she said. "I looked up, toward the northeast, and saw orange." A blaze above the hills was punctuated with booming flashes of blue. A diagonal wall of flames was coming down the mountain, half a mile away. It was time to gather the animals and leave.

When Alvarez phoned to check on another beeyard, one in Sonoma, he was relieved to hear that the bees were ok. On Tuesday he took his truck to move them. The road was blocked by a Highway Patrol woman. He explained. He pleaded. "By the next day, Wednesday, the fire came. I was hoping that they survived but I could see it on the news, and there was a big orange cloud of fire. It was frustrating. I had time to rescue the bees, a whole day. The people wouldn't let me in the road. I tried." Hector Alvarez lost all 60 strong, healthy colonies in that yard.

Lizanne Pastore, with her husband and nephew, had

come back through neighbors' properties with a truck loaded with buckets of water. They cleared brush and put out spot fires – efforts that did not save their office, shop and guest house. But they, and the greenery of their vineyard, saved their house.

Afterward, she went back to her apiary. "I broke down crying," she said, "It was scorched everywhere around it and a hive miraculously survived." She discovered a sinking beehive, still alive, with a tree root burning underground below it.

Mike Turner found his bee yards had survived, some within a mile of the fire line. Then he went back to his house site "just to stand there and stare." He'd thought at least to salvage some metal, especially some specialty tools he uses for fitting the metal tops on telescoping hive covers. He found that the temperatures had been so extreme that metals had all become brittle. A stack of iron frying pans was welded together. He found coffee cups with the glaze melted; a ceramicist friend told him that would have taken 3000°F. A stone façade around the front door had collapsed through the garage wall and crushed his extractor. He found a wry humor in that, since the stainless steel was already a flimsy shell. "Insult to injury," he said. There was nothing but a charred ruin. But in the ashes he found a small ceramic crèche.

Alvarez, still unable to get into his burned beeyard, was told that there were some bees still flying. To the notion that colonies of bees abscond with smoke, he said, "I don't believe that. There's no way they can leave. Maybe if the fire came in the day, it is only foragers left."

Although it is widely believed that honey bees escape fire by absconding, observation by researchers concludes, with Alvarez, that they do not. The belief likely comes from the fact that bees gorge on honey before swarming or absconding in order to sustain them as they resettle. But a laying queen is too heavy to fly, and it is a suicide mission to leave without her. It takes many days for bees to prepare their queen to swarm, diminishing her feed and running her on the comb until she is fit to take wing.

If there is any consolation that a colony would be incinerated, its end would be swift. Bees would fan a hive entrance to lower the temperature to exhaustion. Fire reaching a hive, which could be two wood boxes high – three, even more if the honey has not yet been harvested – would ignite the thin wood frames inside. Even if the frames are plastic, the wax would readily catch fire, melting at around 145°F and coming to a flashpoint as it nears 500°.

At flashpoint, Alvarez's beeyard would have detonated into 60 roaring chimneys, the boxes still intact, blackening until they caught, too. Turner saw the remains of four beehives at a winery – only squares of white ash remaining on the ground.

Greater consolation is that three quarters of native bees nest in the ground, and a recent study indicates that most of those with shallow nests, like some megachilids, might survive fire, and deeper nesting bees could even be safe.

It is worth noting that wild Cape honey bees (*Apis mellifera capensis*), a South African cousin to our honey bees, create a thick propolis firewall to survive regular brush fires. Propolis is tree resins collected by bees; they are antibiotic, produced by plants to protect new shoots. Our honey bees in the wild coat the insides of



*This street, in the Kenwood area of Santa Rosa, CA, had three beekeepers on it. In the terrifying and mercurial fire that swept through, one lost only a fence, another lost her hives and the third lost her house but not her hives.*

their hives with propolis, although not so densely as the Cape bees. Because this gummy substance makes Western beekeepers' hives more difficult to manipulate, the propensity to collect it has been largely bred out of them. Although good research has been done to show the antibiotic advantages of propolis, the idea that it could have fire retardant properties in addition is worth considering.

Just as a colony of bees functions as a body, a superorganism, the same bee club that helped Alvarez has responded to this disaster as one. The first night of the fire, some members, now called The Sonoma County Beekeepers' Association, met in a taskforce – even as they had packed their cars and turned them toward exit routes in anticipation of their own evacuations.



*A beeyard burned through by the Northern California fire that raged through the Santa Rosa area in October. Photo credit: Rory Dorman Tira*

“We had already built the bridges,” said Christine Kurtz. The SCBA is divided into geographic groups called clusters. “We have smaller communities of beekeepers that know each other socially, have been into each other’s hives. We’re doing this all together.”

Over a terrifying week they learned that about 15 beekeepers in the group have suffered total loss of home and outbuildings from the fire. One, an organic farm, lost two houses, greenhouses, a barn filled with antiques, an apiary. Group members helped put up fencing for her surviving chickens. Many others, like Turner, also returned to the ruins of both home and workplace. In addition, many beekeepers in the group lost their equipment.

“People told me they said good-bye to their bees when they evacuated,” said Kurtz. What they found when they returned has varied: “Some colonies looked like an angel enveloped the hive. Fire marks all around but the hive untouched and others destroyed.”

Thea Vierling, of the SCBA taskforce, is gathering donated replacements for burned-out beekeeping equipment and has commitments from Dadant and Mann Lake. “We are a tight group and are really there for each other,” she said. “We all believe that ‘my bees are your bees.’” A bee sharing program was already in place to promote local bee stocks. The burned-out apiaries will be the first to be restocked with swarms and splits. Their website [sonomabees.org](http://sonomabees.org) is taking donations.

No one knows yet how the surviving bees will do. In many areas the smoke was so dense they did not fly for five days. Kurtz reported a dramatic drop in the population of her colonies, more perhaps than normal attrition for that time of year.

The ongoing problem will be forage. “You can’t believe your eyes,” said Kurtz, looking over the charred landscape. “Not a tree.” SCBA has an active group of about 100 gardeners, not all of them beekeepers, who propagate and distribute pollinator plants. Turner received forage seeds last year from Project Apis m. The Pollinator Partnership has extended its forage seeding program to California.

For some forage plants, the fire can even have been helpful. These plants, called pyrophytic, benefit from different components of fire. Some species need heat to germinate seeds, some depend on the chemicals in smoke, some take advantage of the openings fire creates, and some appear only after a fire and remain dormant until the next one.

Naturally occurring fires, lit by lightning or volcanic activity, have always been part of the earth’s ecosystem. American Indians regularly burned underbrush. The resulting selection pressures have resulted in some plant adaptations toward survival or reestablishment after fire.

One group of forage plants common to the Tubbs Fire area that are adapted to sprout and grow rapidly after a fire is chaparral. Many in that group, like ceanothis (*Ceanothus L.*), a large genus of nitrogen-fixing shrubs, have heat-resistant seeds that break their dormancy with fire. Ceanothus even has leaves that are coated with flammable resins that fuel fire, an adaptation to aid its seeds that need intense heat to germinate. Fire-resistant roots also help it re-sprout after a burn.

Other fire-adapted chaparral plants favored as bee forage are manzanita (*Arctostaphylos* species), chamise



A beeyard wiped out by the fire that swept through Santa Rosa, California. Photo credit Rory Dorman Tira.



Mazanita.

(*Adenostoma fasciculatum*), and scrub oak (*Quercus acutidens* x).

Some forage trees, such as eucalyptus (*Eucalyptus globulus*) and the Australian banksia tree (*Banksia marginata*), have seeds that are completely sealed with resin that require the heat of fire to melt. The ash is highly alkaline, a factor to be considered for replanting.

But planting will need to wait for an enormous cleanup, some of which is toxic. For now, the focus is

on helping with relocation and necessities. Like peace of mind. “There is something calming about the bees,” said Kurtz, talking about working a hive. “You’re completely with the bees, and there’s this extraordinary moment. A moment when everything disappears. It’s what bees can bring to people in adversity.”

A woman who lost her home and bees to the fire called to come over to Kurtz’s apiary to go into her hives with her. “People miss their bees. We’re doing this all together,” she said. **BC**



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#### RESOURCES

- Cane, J. H., and J. L. Neff. 2011. *Predicted fates of ground-nesting bees in soil heated by wildfire: thermal tolerances of life stages and a survey of nesting depths*. Biological Conservation, v. 144, no. 11, p. 2631-2636. 10.1016/j.biocon.2011.07.019.
- Fimrite, Peter, Like a blowtorch: *Powerful winds fueled tornadoes of flame in Tubbs Fire* San Francisco Chronicle, October 18, 2017 Updated: October 19, 2017
- <http://www.naturalbeekeepingtrust.org/single-post/2017/03/24/%E2%80%9CIt-is-said-that-smoke-calms-honeybees%E2%80%9D>
- Tribe, G., Tautz, J., Sternberg, K. and Cullinan, J. 2017. *Firewalls in bee nests – survival value of propolis walls of wild Cape honeybee* (*Apis mellifera capensis*). Sci. Nat. 104:29.

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# CALENDAR

## ◆COLORADO◆

The Colorado State Beekeepers Association will hold their Winter meeting at Island Grove State Park, Greeley, December 2, 9:00 a.m. to 5:00 p.m.. Meet and greet, Friday night.

Keynote speaker is Meghan Milbrath, MI State University.

More information can be found at <http://colorado-beekeepers.org>.

## ◆MISSOURI◆

Three Rivers St. Peters has a beginning bee class starting January 19, 2018 at 6:00 p.m. Contact Bob Leslie at [orchral@fidnet.com](mailto:orchral@fidnet.com). Cost is \$75.

Eastern Missouri Beekeepers will hold their annual beekeeping workshop and banquet at Maritz in Fenton, February 10.

Speakers include Elina Nino, Becky Masterman, Ana Heck, Ramesh Sagili and more. Tuition is \$85/person before January 21 and \$95/person after that.

For information visit [www.easternmobeekers.com](http://www.easternmobeekers.com).

## ◆WEST VIRGINIA◆

The Mid Ohio Valley Beekeepers' Association in conjunction with the West Virginia Extension Services will hold their 16th Annual Honey Bee Expo January 27 on the campus of WVU Parkersburg.

The featured speaker is Larry Connor. There will be workshops for beginners and advanced. Cost is \$20/adult and \$8/12 and under before January 12. After that the cost is \$25/adult and \$8/12 and under.

Visit [movba.org](http://movba.org) for updates.



# Merry Christmas

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**A**t the turn of the century, Derrick Maness and I worked together for Colorado commercial beekeeper Paul Limbach. Derrick still does. I've watched Derrick evolve from an exuberant teenager obsessed with bugs, to a successful commercial apiarist with thousands of colonies in his care.

I'm lucky, because he's a neighbor, friend and mentor, and he knows bees.

One October evening we sat around the kitchen table, and he told me how he did it. He started at the beginning.

I had a wonderful seventh-grade science teacher who had an observation hive in our classroom. The bees' exit went right out the window outside. My assigned seat was right where the beehive was, for about a month, and I didn't do well at all in class, until the teacher figured out I couldn't focus on him while the "bee TV" was right in front of me. He was an entrepreneur, and he owned all the soda machines in the school, so he worked a deal with me -- if I stocked the machines every day, he would give me a soda and I would get to feed the bees in the wintertime. That's how I got into bees.

#### **When did you start working for Paul?**

Freshman year, when I was 14 years old.

#### **So you worked bees all through high school?**

Yeah, Summers, then weekends extracting in the Fall. Then I moved away to Fort Collins for two, three years, came back, and wondered if Paul would hire me again. I worked for him for about three months, and then I called up Kona Queens in Hawaii. They said, "Can you be here next week?"

I felt so bad, leaving Paul in August, right at honey pulling season, but he said, "Go, go, go!" I was in Hawaii (raising queens) for almost three years.

When I got back, I went back to work for Paul, and that's where I've been since.

#### **Tell us about the time you almost quit beekeeping.**

The natural gas industry was very heavy at that time, and I was getting job offers for like 30 to 60 dollars an hour. I was teeter-tottering on quitting, and I was getting myself ready to tell Paul I can't do this anymore, when that stupid Wild Mountain Honey song came on the radio, and I heard those lyrics, and I just went, "All right, God." Coincidence? I don't know. But I realized there's nothing like our job. You gotta love it (laughing).

#### **What do you do in the California almonds?**

Oh man, protect our bees. That's what I feel like I try to do. We put all our bees on 18-wheelers and coordinate that circus, and it's a 16-hour drive straight from here to Chowchilla or Madeira, about an hour north of Fresno, in the Imperial Valley. From what I understand, 1.1 million acres of almonds out there. It's something to see. It's crazy. I can't explain it. It's agricultural and the city, mixed together. It's not exactly what I like, to be honest. And so that's why I go there with my bees, to experience it with them, and then get them the heck out of there. I go out there, I do mite sampling, keeping the mite numbers down and then doing the basics of monitoring for food and anything else we can see. Yeah, we go through 3,000 colonies, we grade them two to three times when we're out there, we give them three pounds of pollen each time. We go through each colony and check its individual needs, be it diseases, parasites, viruses or food. Yeah, it's a lot of backbreaking work. It feels like going back to football. And then you have to figure out how to coordinate getting the bees into these orchards. There's a lot of obstacles you just don't think of, and you're doing this in the dark. And then there's the fog. You've got 196 colonies on a 22-foot truck with a forklift on a trailer behind it. It's pretty nerve wracking.

The bees sit there in the orchards from about the first week in February until the first week in March. Then we go back out there. We'll load 'em back onto trucks and get them back to holding yards and coordinate the 18-wheelers to send them back to Colorado.

#### **So what's your relationship to Paul? Are you his foreman?**

We're more of a team. I compare it to a baseball or football team. Paul's the owner. I'm the coach. Things I see that I think we need to improve, I bring up to Paul, and he's the owner of the operation, and he can trump my ideas, or he can go along with them.

#### **And you have bees of your own.**

Right. I run 500-700 hives of my own, so I can make all the mistakes I want on my bees and do things the way I want on my bees, and I can use that knowledge to transfer back over. Every big thing I've ever learned is from making a mistake. Having my own bees gives me freedom, because when you work for somebody else, they want you to do it their way. My bees are always an experiment.

#### **A lot of our readers are backyard beekeepers. They don't have the background you do. You have any tips?**

Yeah, you know, read the Bee Journal or the Bee Culture. You'll get up-to-date information . . .

Go back to the basics. If you're trying to assess all the problems of the bee hive, you're going to lose. Like Dave Mendes said at one of the bee meetings, "Keep it simple, Stupid." That's how he was able to manage 20,000 colonies.

If you're ever letting your bees get behind on food, you're not keeping up with the needs of the bees. I just think that's a huge one. That's something I've learned through so many slaps in the face.

#### **You're talking syrup and pollen both.**

Yes, whatever their needs are. Pollen patties are great. If you're a backyard beekeeper, keep a honey super on your hive in the Winter.

And a good queen. I don't believe in requeening every year. But I do believe in knowing the age of your queen. A first year queen is great. You can make a huge honey crop off them. Same with a second year queen. A third year queen, you might not be able to split 'em. But if you don't knock 'em back, they'll do great.

The biggest thing to me is mites. Monitor, monitor. Just because a hive looks good, or just because it's making honey, doesn't mean something's not going on.

If people just focus on these three things, the rest falls together.

The fourth thing is shelter. I know it's easy to get older equipment, but when it's raining or cold, if you have cracks in your tops, especially if you're going to California with that much rain, it's just crazy how much water collects in the hives. Last Winter we had to rake out an inch or two of water in some of them.

I used to chase way too many things. Oh, nosema, or this, this, this. . . I know problems are out there, but if your bees are well fed, and the mites are low, and it's a good queen, they usually can combat the other problems.

**Ed Colby**

**Meet Derrick**

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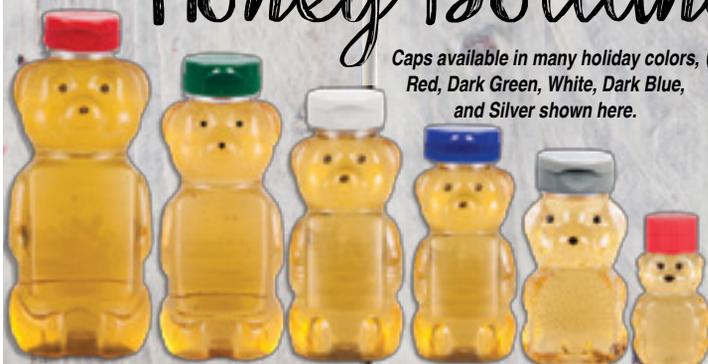


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