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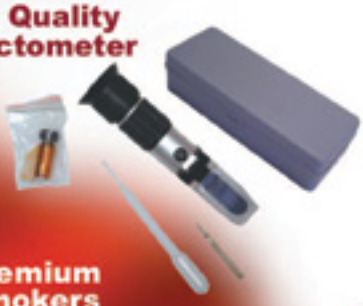

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Bee Culture

December Features . . .

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The opening of the new building at the Kelley Beekeeping Company. See page 59. From left to right Greg Frandsen – Owner Frandsen; Sam Ruckriegel – General Manager; Buzzy; Dan Ferrise – COO; Jeannette Frandsen - Owner; Dennis Frandsen – Owner; Mariet Dennison – HR Manager.

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1 John 5:11

Merry Christmas!

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Bee Culture's Best . . .

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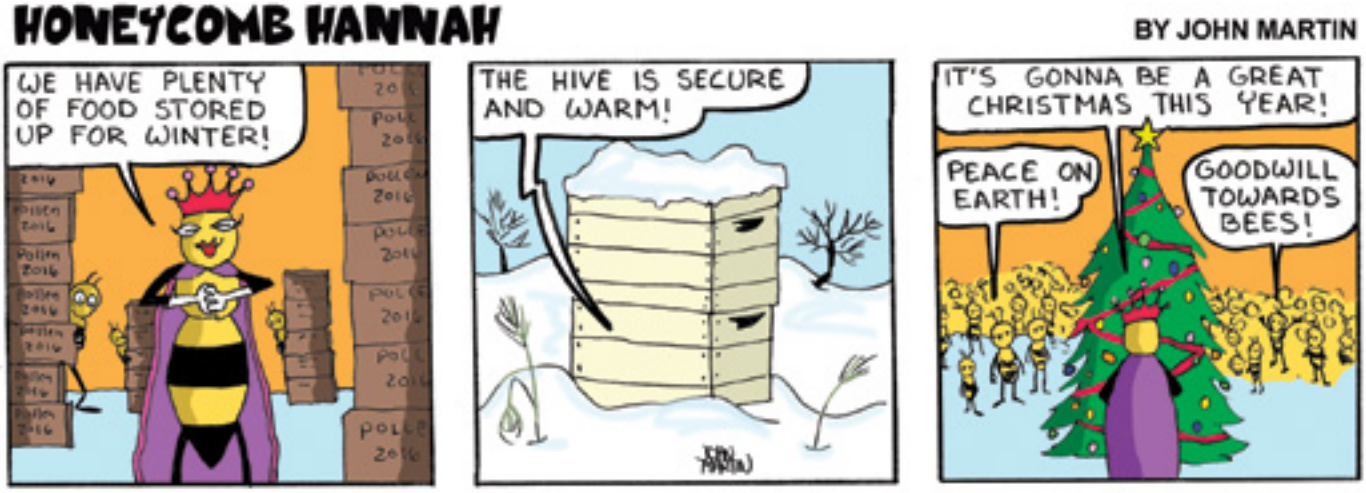
In Every Month –



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Honey Bee Science

I have been helping one of the students in our program with a project for her science class on honey bees and their importance to the environment. I wanted to send a big thank you for your page, **http://beeculture.walsworth.solutions/honey-bee-science/universities**

It had really helpful information on honey bees and I am sure it will be a huge help to Addie with her project. We also found this page, **www.avasflowers.net/flowers-as-food-a-guide-to-honey-bees**, and thought it would make a good addition to your resources. It has some great information on why honey bees are so important. Addie and I really appreciate the information you shared. Have a fantastic day!

Christina Nill

Loves Bee Culture

First let me thank you all for the hard work you do producing such an amazing publication. My partner bought me a subscription a few months ago and coming home to see that in my mailbox is like finally getting to the toy in the cereal box.

I recently read a letter in *Bee Culture* from Dwight Wells regarding Queen Rearing Cooperatives. I was hoping I might take some time to speak with anyone on your team who is knowledgeable on these projects, and possibly put me in touch with a few more groups around the country? I've reached out to Dwight but I know he's incredibly busy and want to speak with as many people as I can!

Alex Klug
56 Armor Place
Dayton, OH 45417
AKlug@thefoodbankdayton.org

Editor's Note: *We are aware of several groups working on this. Why not contact each other and join forces?*

IPad Kudos

I wanted to say thank you for using the most friendly & easy to read iPad magazine solutions I have run into. I subscribe to several iPad version magazines and the platform that *Bee Culture* uses is by far the best. Thanks for a great magazine too! I'm brand new to beekeeping and learn a lot from your articles every month. Keep up the great work!

Mark Wilson

Confused Bees

I noted with interest your sighting of bees on the wall of your garage (September 23, 2016, Page 19).

I had a similar experience when on July 23rd I brought supers home from about two miles to extract the honey. The fume board didn't work very well and there were a lot of bees which I shook off the frames. The bees were confused but eventually landed on the redbud tree by the sidewalk and stayed there until gradually about six weeks later they died out because they had no queen.

I tried enticing them onto a wet comb and managed to get a few which I returned to their place of origin. Some took the bait and landed on the wet frame only to return to the bark with the others. I even smeared some propolis on the bark. Initially, they were attracted to that, but every day as I walked by the sidewalk, I saw them simply moving about with an occasional bee flying in or out and seemingly they had no intention of leaving the bark.

On 23 August, I placed the honey strainer about 20 feet from the tree. That's when the flurry of activity began as scouts danced to tell the others where the honey was.

There was no queen and most of these bees were workers, and like yours, every day they moved back and forth and one might fly off and then another might join them. I have a very healthy hive located about 200 feet away from these bees which seemed content to hang out on the redbud tree. I really felt sorry for these bees because I guess the only home they knew was the honey super.

Rose Lee
Atchison, KS

Bees & Pepper Plants

I'm a big fan of growing hot peppers in my vegetable garden.

Bee Culture
623 West Liberty St.
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mailbox@beeculture.com

Each year I either start seeds indoors in late Winter or buy plants in the spring to plant out after all danger of frost has passed. Here in New England pepper plants are grown as annuals. I have learned, however, that in their native habitat pepper plants are perennials. Based upon that bit of information I have found that peppers plants can be grown year round in cold climates if they are moved from the garden into containers and kept inside safe from the cold. Of course it's not that simple. The plants have to be kept warm, watered, fed, pruned, kept in a sunny location and treated as needed with insecticides, and fungicides. Oh, it should be noted that despite all efforts about half of them die by Spring anyway. Even if you have never grown a pepper plant in your life isn't there something familiar sounding about the process outlined above?

As beekeepers we have transformed the feral honey bee into a domesticated creature needing our support and nurturance in order to survive. We feed, water, insulate against the cold and drench them in noxious chemicals and despite all our efforts 30 to 40 percent of our hives perish on a yearly basis. Each Spring In response to our losses we buy packages and nucleus hives, make splits and start all over.

Once again it seems that how we view and consequently treat the honey bee is changing. We have gone from feral to domesticated. Is the next step to see honey bees as annuals to be replaced on an ongoing basis like pepper plants?

Hal Boretz

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These stands go beyond piecing together items you have on hand or can find in your local hardware store. The fabricated, all-steel construction is painted with agricultural and commercial-grade paint to withstand exposure to the elements for years to come.

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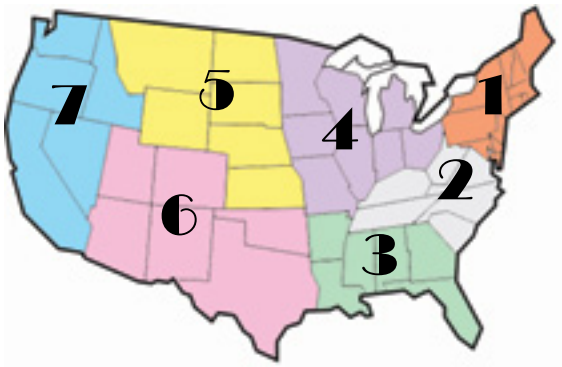
DECEMBER – REGIONAL HONEY PRICE REPORT



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 2015 and below that this month's report. On the next page we offer a very different way of looking at the data we produce each month. But below 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 - 2015

	1	2	3	4	5	6	7	SUMMARY Range	Avg.	$/lb	History Last Month	History Last Year
EXTRACTED HONEY PRICES SOLD BULK TO PACKERS OR PROCESSORS												
55 Gal. Drum, Light	2.00	2.07	2.15	2.48	1.90	2.16	2.40	1.82-2.95	2.18	2.18	2.23	2.27
55 Gal. Drum, Ambr	1.80	1.99	2.21	2.48	1.80	2.04	2.35	1.65-4.00	2.16	2.16	2.14	2.14
60# Light (retail)	225.63	176.60	187.14	216.67	171.00	179.25	295.00	145.00-300.00	205.33	3.42	204.42	190.09
60# Amber (retail)	226.25	175.83	186.67	198.20	205.48	180.50	245.00	135.00-290.00	198.45	3.31	203.73	191.15
WHOLESALE PRICES SOLD TO STORES OR DISTRIBUTORS IN CASE LOTS												
1/2# 24/case	85.75	74.95	91.40	55.25	51.84	87.45	110.00	48.00-132.00	83.20	6.93	85.86	75.69
1# 24/case	124.17	104.80	124.76	103.67	127.16	101.40	146.88	45.00-216.00	119.87	4.99	117.90	113.61
2# 12/case	115.36	92.33	105.49	96.70	97.44	95.50	130.00	76.80-168.00	107.71	4.49	105.80	101.40
12.oz. Plas. 24/cs	103.71	82.67	93.60	88.77	74.40	108.00	106.00	64.80-144.00	95.99	5.33	96.06	86.78
5# 6/case	132.48	103.75	111.18	109.80	102.30	105.00	126.00	49.75-180.00	118.72	3.96	115.86	116.40
Quarts 12/case	174.99	122.82	134.30	121.00	145.82	128.20	141.00	105.00-225.00	139.10	3.86	142.50	130.63
Pints 12/case	102.86	85.00	76.56	105.00	111.00	75.80	101.00	60.00-138.00	88.44	4.91	89.10	85.06
RETAIL SHELF PRICES												
1/2#	4.90	4.12	4.14	3.35	3.81	4.32	5.50	2.90-7.75	4.36	8.72	4.53	4.08
12 oz. Plastic	6.10	4.67	4.92	4.42	5.30	6.10	7.06	2.99-8.99	5.40	7.20	5.49	5.18
1# Glass/Plastic	7.24	6.55	6.88	5.65	6.52	6.40	11.80	3.00-16.00	7.06	7.06	7.09	6.52
2# Glass/Plastic	12.84	10.35	10.96	11.12	10.79	9.96	17.50	6.00-18.25	11.70	5.85	12.11	10.75
Pint	12.28	8.65	8.49	13.00	8.80	9.64	12.22	4.00-17.00	9.68	6.45	10.23	10.02
Quart	18.54	15.15	14.30	18.13	15.78	15.53	19.80	8.00-27.00	16.10	5.37	15.73	16.24
5# Glass/Plastic	26.76	23.79	32.50	26.69	21.47	21.77	30.00	15.00-40.00	25.52	5.10	25.35	23.72
1# Cream	9.02	7.69	7.13	6.90	10.47	6.42	12.00	5.00-16.00	8.22	8.22	8.37	7.91
1# Cut Comb	11.19	8.98	8.21	10.33	10.00	4.50	18.50	4.50-25.00	10.35	10.35	10.41	9.21
Ross Round	9.22	6.67	5.00	9.33	8.48	9.00	8.48	5.00-12.00	8.46	11.28	8.69	7.26
Wholesale Wax (Lt)	6.73	5.63	4.57	6.41	6.00	5.40	5.42	3.00-10.00	5.75	-	6.21	5.59
Wholesale Wax (Dk)	6.35	4.47	4.30	5.90	5.60	3.00	4.00	2.00-10.00	5.20	-	5.73	5.14
Pollination Fee/Col.	93.00	64.00	58.00	66.29	95.19	93.00	131.67	35.00-185.00	80.39	-	78.39	76.00

REPORTING REGIONS - 2016

	1	2	3	4	5	6	7	SUMMARY Range	Avg.	$/lb	History Last Month	History Last Year
EXTRACTED HONEY PRICES SOLD BULK TO PACKERS OR PROCESSORS												
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
WHOLESALE PRICES SOLD TO STORES OR DISTRIBUTORS IN CASE LOTS												
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
RETAIL SHELF PRICES												
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

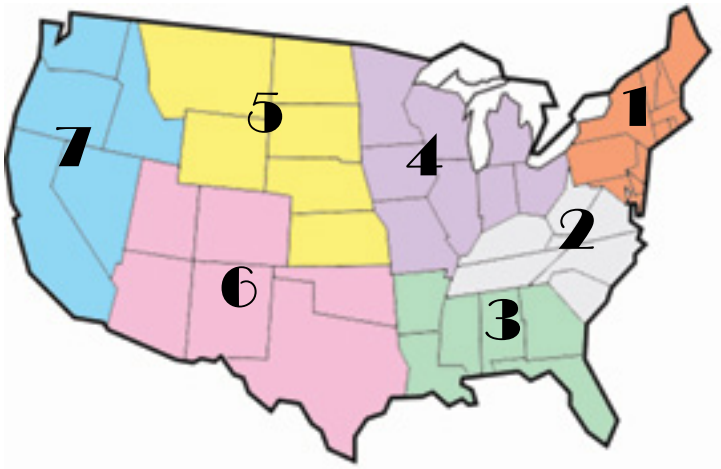
2016 Monthly Averages

The honey market is changing, and we wanted to see if looking at the average price for each unit across all regions every month told a better, or at least different story about what's going on.

Part of this to remember is that our reporters don't change much over the course of a year. Usually. When we lose one for whatever reason and replace him or her, and then look at what that individual person does to the average for that region… the blip, if any, is very minor. One person just doesn't have that much effect overall.

So, as you view prices for any one commodity over the 12 month period, you can be comfortable that the changes aren't do to new people entering, or long time reporters leaving the fold, but rather, forces greater than an individual are at play that are influencing the market.

Our market prices over the course of the year have risen 3% - 5% or so on the wholesale side of the equation, and that much, or a bit more on the retail side of equation. The cost of living increase during the same time has been less than that, so honey prices here have been healthy. This is in contrast to the bigger buyers, and sellers of bulk honey who have had to contend with a flood of much, much cheaper imported honey, primarily from India, Vietnam and South America. One factor to consider, however, is that only 20% or so of the honey consumed in the U. S. is produced domestically, and much of that is direct, local retail sales, which normally command a slightly to significantly higher price that poorer quality, imports.



2016 Monthly Averages

	January	February	March	April	May	June	July	August	September	October	November	December
EXTRACTED HONEY PRICES SOLD BULK TO PACKERS OR PROCESSORS												
55 Gal drum light	2.14	2.20	2.22	2.24	2.21	2.31	2.19	2.17	2.26	2.27	2.16	2.19
55 Gal drum ambr	2.09	2.08	2.14	2.11	2.10	2.20	2.06	2.08	2.18	2.12	2.10	2.06
60# Drum (retail)	189.23	204.84	203.68	203.88	200.91	200.46	203.74	208.34	218.59	205.81	209.50	203.63
60# Amber (retail)	189.73	204.35	205.40	201.12	197.16	201.83	200.47	204.07	217.64	202.48	205.87	202.11
WHOLESALE PRICES SOLD TO STORES OR DISTRIBUTORS IN CASE LOTS												
1/2# 24/case	80.43	83.82	81.16	84.97	77.67	83.00	80.42	79.06	81.37	83.08	84.29	84.80
1lb# 24/case	117.20	119.04	115.81	118.83	118.50	119.48	119.27	117.58	119.60	124.28	124.70	127.53
2# 12/case	105.03	106.11	104.07	108.33	105.48	108.54	110.42	104.40	104.49	110.67	107.07	117.04
12oz. Plas. 24/cs	92.92	97.15	96.23	97.76	92.91	97.84	95.06	95.91	96.47	99.08	95.91	99.48
5# 6/case	121.70	119.11	118.60	121.16	116.61	122.75	117.16	115.92	120.86	129.45	130.13	125.49
Quarts 12/case	138.59	138.22	140.00	141.24	140.01	144.41	135.48	142.72	141.21	149.32	141.63	142.72
Pints 12/case	89.15	91.32	90.37	87.87	89.98	90.44	83.11	91.05	91.70	91.94	87.25	89.21
RETAIL SHELF PRICES												
1/2#	4.30	4.49	4.42	4.36	4.24	4.57	4.57	4.20	4.44	4.55	4.61	4.74
12 oz. Plastic	5.35	5.43	5.48	5.38	5.32	5.73	5.64	5.67	5.75	5.83	5.53	5.75
1# Glas/Plastic	7.01	6.98	6.94	6.93	6.88	7.40	7.11	7.11	6.89	7.20	7.30	7.75
2# Glass/Plastic	11.59	12.16	11.73	11.75	11.90	12.31	12.03	12.02	11.59	12.35	11.97	13.03
Pint	9.67	9.65	10.73	9.73	9.65	10.61	9.91	9.91	10.43	9.84	9.67	9.84
Quart	16.14	15.92	16.00	16.10	16.35	16.76	15.82	16.48	16.63	16.72	16.89	17.13
5# Glass/Plastic	25.81	26.45	25.07	26.16	25.92	26.88	26.22	26.71	25.84	26.80	26.52	27.74
1# Creamed	7.80	8.56	8.28	8.41	7.97	8.33	9.17	8.25	8.64	8.86	8.79	8.68
1# Cut comb	9.40	10.79	10.70	10.88	10.63	10.65	10.67	10.61	9.63	10.75	10.96	11.08
Ross Round	8.36	9.92	7.77	8.73	8.75	8.74	8.70	8.10	8.90	8.94	8.84	9.68
Wholesale wax (Lt)	5.75	6.04	5.84	5.82	5.82	5.93	6.35	6.31	6.09	6.16	6.27	6.17
Wholesale wax (Dk)	5.09	5.23	5.47	5.39	5.60	5.21	5.42	5.61	5.60	5.58	5.60	5.60
Pollination Fee/Col.	76.29	81.57	86.43	84.39	87.50	90.71	84.50	81.60	80.00	79.12	84.81	85.81

INNER COVER

There's a quiet revolution going on. Quiet now anyway. If you were paying attention you saw it more or less begin back in 2013 when per capita consumption of honey leaped from 1.27 pounds per person to last year's 1.51 pounds per person. Right about a quarter pound per person increase. Too, back in 2013 we imported 70% of all consumed honey, and last year – 80%. Domestic production, meanwhile has stayed flat at just over 160 million pounds a year on average. There's a trend in the making here.

Then, you'd have to be looking in other places to note that not only have the prices paid to beekeepers for pollination services continued to climb, but the number of opportunities for beekeepers to use their bees to make money are increasing. Sometimes the opportunity is to the advantage of the orchard owner, who, say, after almonds, knows that the beekeeper needs a place to be and offers that place…in his orchard. Often for free. But even so, the number of orchards using those bees is increasing, and the number of bees in those orchards, on a per unit basis is increasing also.

Then, take a look at honey import prices. They've always been a factor in the honey market in the U.S. Cheap Chinese honey has taken its toll for years, and even with the fees applied to legally imported honey to keep the base price competitive and almost all of it out, the stuff that has snuck in unannounced, the stuff that has been off labeled and attributed to coming from other countries to avoid those fees, and the junk that just seems to get here somehow and get used in…stuff you don't want to think about, the cost of imported honey just keeps dropping. Canada has it this year, the U.S. has had it for years. Because of these off-shore barrels it's a constant struggle to sell U.S. produced honey at a profit…or even at a breakeven price.

Now don't get me wrong some honey sales are booming. The local stuff at wholesale and retail for the most part is doing quite well. Take a quick look at this month's Honey Report and watch the monthly progression of prices there. Go to a farm market or a local fair, or a mom and pop operation and you'll find local honey getting the right price for the beekeepers and the shop owners and consumers. Sometimes it works when you do things right. And sometimes the folks selling to the real big outlets do it right and the big outlets will pay higher to get better, but I'll tell you something I learned, again, this last weekend listening to a roomful of small, medium and big honey producers and packers talk about big outlets like WalMart and the like. They aren't your friends. Don't think for a moment they care one bit about you because there are a hundred other honey suppliers (foreign and yes, domestic) who will do what you are doing, and do it cheaper, faster, better and complain less. You are as expendable as the cheap help they have stocking the shelves with that cheap honey.

So, if you're running 500, 1000 or 20,000 colonies what's a beekeeper to do? The pollination business is doing OK, even excellent. Almonds, blueberries, cranberries, tree fruit out west are all expanding – some exponentially. And if you work at it you can get three, maybe five crops a season making money on those colonies every time you set them down. Beekeepers in Australia are already figuring this out, and bees into pollination and out of honey production is the rule, not the exception. You don't make much honey that way, but it costs more to haul that honey from crop to crop than you're making on it anyway, so who cares about the honey? But that constant pressure on your bees takes its toll, doesn't it?

So what's happening is that some of these beekeepers have gotten real good at making bees to keep those boxes full for all those pollination contracts they have all season long. Real good, almost, too good at making bees. So what do you do then? Well, when life hands you a box full of bees, you do what beekeepers do best. Make splits and sell them. Make bulk bees and sell them. Make packages and sell them. In fact, every one of those beginners who wants a package next spring wants some of those bees, and all those hobby folks who lose colonies every winter want bees, and all those pollinators who want to expand, who want to replace, who want to just keep up need bees. Bees, it seems, have become the crop of choice for beekeepers that can grow them. And, if you're not chasing all over kingdom come for a pollination dollar or a honey half dollar, growing bees gets easier. Less stress, more time to manage, fewer costs to consider and a steadier market. There's no rocket science involved here.

Let's look at this specialization market a bit further. All of those boxes of bees need queens. Does it make sense to have queen producers manage thousands of colonies so they have enough bees to sell with their queens? And does it make sense to have those who are good at raising just bees spend time and energy raising queens? Nope on both counts I think. Already this is happening, and I'm pretty sure it's only going to grow. Queens here, bees there, pollination out there.

Honey, sadly, has become a third world commodity. Our success in convincing the world that honey is as good as we always knew it was has led to the creation of a market that

You Say You Want A Revolution . . .

everybody wants a part of. It's good to have honey in your cereal, in your bread, in your beer, in your granola, in your anything you can put honey in it seems. And it's easy to produce, easy to manage, easy to adulterate, easy to transship, easy to hide, easy to manipulate, easy to cheat with. So almost everybody in the honey market does, on purpose, or just as part of the chain.

Now bees. That's another story. Bees are a tougher customer. You actually have to know something to make, keep and sell bees. And unlike honey, they spoil if not taken care of. They die dramatically in fact. And you can't adulterate bees, you can't water them down, you can't overcook them, you can't harvest them raw and make all manner of claims about their purity, their honesty, what variety they are, or how old they are.

So if the world has decided to dumb down honey as a product, to cheapen it, to destroy it, to essentially remove all of the glamor it had… let it. It's a race to the bottom. Who can make the worst honey, or honey-like product, for the least money. There's a game with no winners, that's for sure. The biggest sellers, the mega-marts and industrial users (that's a good name for what this has come to), those who aren't your friends, they'll check out the cheapest stuff they can find everytime because that's where they can make a quick buck. But, you can be assured, it won't last. But it won't go away fast, either.

So if beekeepers want to stay in business, what do they do? They do what their bees do best. They make food as pollinators, and they give beekeepers what they need when they supply them with the insects they want. Bees aren't a commodity, yet. And that's the game at the moment. There's more money in bees if you can raise them than honey by a mile. If you can keep them alive, and if you're not moving all over creation, this is something to look at.

But if honey is still your game, and you don't want to change because it's working for you as good or better than ever because of all the other stuff out there, what's the best way to proceed? We listened to several beekeepers talk about that issue at the A Case For Honey conference we had here in Medina in late October. Several dozen folks listened to our speakers talk about this issue, and others in their business. Producing varietal honey, buying from other beekeepers to resell, selling to small, medium and mega markets, producing a good product while marketing a good product is a job and a half most of the time because both are expensive – and labor is the biggest expense. Marketing next. The speakers simply told us what they did to stay in business, and the overall message was produce a good product, find the market willing to pay what it's worth and diversify as much as possible. Putting all your honey jars in one market doesn't work. Selling only honey doesn't work as well and having several products, selling varieties, selling sizes, selling in different places, selling retail, wholesale and bulk all at the same time, reducing costs in labor, using unique containers, better labels, more efficient equipment, reducing travel, having fewer but better bees….they all add to the equation.

I think you see the trend here, too. You can make a living making honey. But mostly it's not honey in the barrel. The importers own that market. You, however, can own the one pound market, by offering tastings, having a good label that tells a story, by being the person who deals with the customer, by being honest, and being proud of your product.

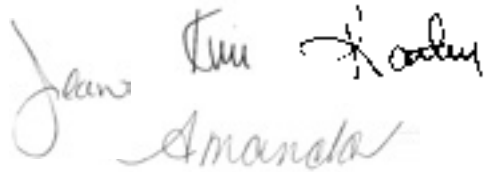
The world is changing. Change with it or suffer the consequences. But you can make those changes. Lots of beekeepers here are. Be the one that succeeds, not the one who tries to out-compete the importers.

•

Wow! Take a look at the interviews we have this month in our Annual Interview Issue. I'm impressed with the great people our writers found, and the good information they managed to uncover in their discussions. In case you haven't already looked at the table of contents, get a load of these good folks to have a chat with…

Charlie Brandts, the White House Beekeeper; Randy Oliver, Scientific Beekeeping and commercial beekeeper in California; Sam Comfort, migratory top bar beekeeper; Tammy Horn Potter, KY Apiary Inspector and author; The new Kelley Beekeeping folks; Dr. Dave Tarpy, NC State researcher; Mark Bennett, Dadant dealer in Virginia; Dave Goulson, UK Bumblebee Researcher; Valerie Strachan, Strachan Queens in California; Bear Kelley, past GA Beekeepers President; Denzil and Sheila St. Claire, QueenRight Colonies Bee Supply in NE Ohio; and Buzz and Nancy Riopelle, River Ridge Honey, from right here in Medina county. We are quite pleased with our selections this time, and all of us hope you enjoy meeting these fine folks.

And finally, another year has come and is almost gone. It's been hectic with lots of travel, wonderful progress (we started a new magazine for goodness sakes), too, too busy because of staff changes to get anything close to all of it done, but still a fantastic year for us here. We are blessed this year, and all of us here at *Bee Culture*, *BEEKeeping* and Root Candles wish you and yours a wonderful and Blessed Christmas, an incredibly Happy New Year and a GREAT beekeeping season in 2017.



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It's Summers Time –

The first half of 2016 was extremely busy for Kim and I, with the normal *Bee Culture* schedule, but also a lot of travel. The Mother Earth News Fairs alone took up a chunk of our time and energy. We went to five of the six that they held in 2015. We started out in Belton, Texas in February, Asheville, NC in April, Albany, OR in June, West Bend, WI in July and I missed the last one – 7 Springs in September. Kim gave two or three talks at every one of these. It was a great time, but exhausting. Not sure we'll do that many in 2017 – I'll keep you posted.

Travel finally slowed down and allowed us to concentrate on things at home. Our garden was pretty successful this year – lots of tomatoes, lots of zucchini and lots of hot and really hot peppers. No cabbage in the garden next year after the whole snake event!

We also had two very special *Bee Culture* events during the second half of 2016 right here at our home at the Root Candle Company.

In August we held our second annual Pollinator Day to show off our expanding pollinator gardens on the property. They all did exceptionally well this year. We had about 75 people who visited us that day.

Swallowtail in the Pollinator Garden (photo by Loucinda Main)

We had several groups such as the Soil and Water Conservation; the Master Gardeners – who have a garden space that they maintain on Root property; The Ohio State Beekeepers; Pollinator Stewardship Council; Pollinator Protection; Medina County Beekeepers and more. It was a very warm, but beautiful day. Hot dogs and ice cream were available and our friend, Buzzy Bee was dancing on the sidewalk helping to attract folks to the gardens.

In October we held our fourth annual *Bee Culture* event in our own *Bee Culture* Conference room right here in Medina. The theme this year was 'A Case For Local Honey' with the objective of helping attendees learn from those that have grown their businesses over the years. The speakers were exceptional in their presentations. The weather was great. The food was great. And about 60 people went home with good ideas to help them grow their honey business.

Buzzy Bee waving to folks at Pollinator Day. (photo by Loucinda Main)

We're already planning next October's event. It's going to be very special. The theme – Come and Meet The Best of *Bee Culture*. We've invited all of our regular contributors to *Bee Culture* to come to Medina next October 20-22. We've already had acceptances from some of them. We're hoping to get as many of our writers as we can in one room. Each will be speaking on their particular specialty in beekeeping. It will be a real treat. If you are a long time *Bee Culture* reader or brand new – you'll want to save those dates and make it to Medina for a great weekend in October. And Fall is the most beautiful season here in Northeast Ohio. Hope to see all of you here in our backyard. Keep reading these pages for more details.

We've had a most beautiful Fall so far here in Ohio. The colors have been beautiful and I think we may have had one light frost. Otherwise it has been mild and easy to be outside. We've been busy getting everybody – bees, chickens and plants – ready for Winter. I've heard different predictions, as usual. Some say mild, some say hard. I guess we'll wait and see.

I hope you all have a wonderful and peaceful Merry Christmas with your family and friends. And blessings to whoever shows up at your Holiday table.

Thank you for your continued support of *Bee Culture* and now *BEEKeeping*. Remember, starting soon you'll be able to subscribe to *BEEKeeping*. It is doing well and sales are growing everyday.

Merry Christmas and Happy New Year to all of you!

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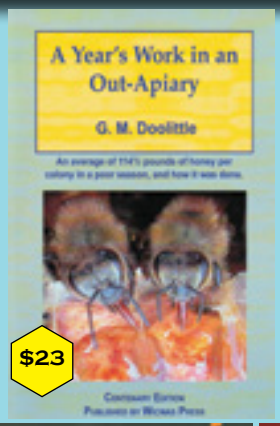

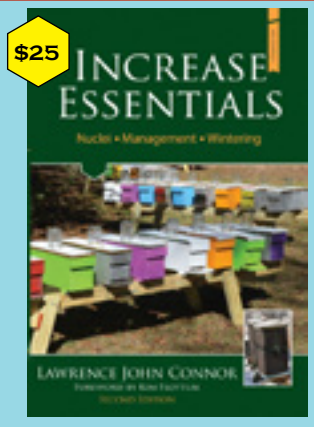

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COMPETING DOOMSDAYS

Mark **Winston**

It's long-term exposure to what were previously considered non-toxic doses of multiple pesticides that has become ground zero in assessing why pollinators are dying.

There is a remarkable story unfolding in Ontario and Quebec around pesticides and bees, rooted in two competing doomsday scenarios. Grain farmers claim pests will destroy their crops unless they are allowed to use neonicitinoid pesticides, while beekeepers point to an epidemic of honey bee colony mortality that reached 58% last year, which they blame on the bee-toxic neonics.

Honey bees and wild bees have been declining globally for well over a decade due to a perfect storm of harmful factors, including agricultural pesticides, massive single-cropped fields cleared by weed killers of the diverse nectar and pollen producing plants critical for bee nutrition, and a dramatic increase in diseases and pests.

Many beekeepers and environmental groups specifically blame the neonicitinoids, so named because of their chemical similarity to nicotine, as the primary cause of diminished pollinator populations. Not surprisingly, pesticide companies claim little or no impact. Most non-industry experts agree that the neonicitinoids are harmful to pollinators, although the severity of their impact on managed honey bees and wild bees remains a topic of debate.

Neonicitinoids are just one of many pesticides contributing to pollinator declines, alongside the non-pesticide issues. The issue with neonics, as with most pesticides, is generally not immediate, catastrophic mortality of honey bee colonies, although those directly toxic events do still occur.

Rather, concerns have shifted to pesticide toxicity on under-studied wild bees as well as long-term, slower acting pesticide effects on all bees. There are over 800 species of wild bees in Canada, many of which could be important crop pollinators, but most agricultural fields have insufficient wild bee populations due to heavy insecticide use, weed killers and disrupted nesting sites in large managed acreages.

But it's long-term exposure to what were previously considered non-toxic doses of multiple pesticides that has become ground zero in assessing why pollinators are dying. Insecticides (including neonicitinoids), some fungicides, and the miticides and antibiotics used by beekeepers themselves against mite pests and bacterial diseases have insidious interactive effects at low doses that over time wear down honey bee colonies and weaken wild bees.

It's a perfect catastrophic chemical storm when interwoven with agricultural practices. Low doses of neonicitinoids and other pesticides impact pollinators'

The question no longer is whether organic and sustainable agriculture are viable from a yield or profit perspective. They are.

immune systems so that bees are less effective at resisting diseases and pests. Many pesticides also interfere with the ability of bees to navigate to and from their nests as well as diminishing their overall activity level. And ironically, pesticide exposure also decreases the capacity of bees to detoxify pesticides, thereby increasing their susceptibility.

All of these impacts are occurring in the context of contemporary agriculture, in which pollinators are already weakened by poor nutrition and a growing array of diseases and pests. In this nutrition-poor, disease-rich and chemically intensive farming environment, multiple pesticides formerly considered by regulators to be bee-safe at low doses now appear to be contributing singly and in combination to the gradual decline and mortality of managed honey bees and unmanaged wild bees.

Still, in Ontario and Quebec the recent impact of neonicitinoids applied to grains was more immediately and directly toxic due to the application method. The pesticide was applied in a talcum-like dust used to affix the pesticide onto seeds, but which also disperses aerially on crops and into nearby habitats during planting. The dust was lethal to significant numbers of nearby honey bee colonies and likely wild bees as well.

What is remarkable about the neonicitinoid controversy is not the conflict between farmers and beekeepers over pesticide use; that's been going on for over a century. What's unusual is that provincial governments have sided with the beekeepers, whose lobbying capacity is subdued compared to groups like the 28,000 member Grain Farmers of Ontario.

Both Ontario and Quebec have implemented restrictions on neonicitinoids unusual in North American pesticide regulation, targeting an 80 per cent reduction in neonic use. Farmers can now only use neonicitinoid-treated seeds when they have a serious and independently verified pest problem that can not be managed by any other means, and then only with the approval of a registered pest management advisor, essentially mandating the desirable but largely unenforced principles of integrated pest management.

As fascinating as this story is on its own, it's just a microcosm of the much larger issue of how pesticides and farming are regulated. The mantra of contemporary super-sized agriculture has been that high chemical inputs and vast single-crop acreages are required if we are to feed the world. This assumption is based primarily on self-assured comments by lobbyists representing the corporate agricultural interests that benefit from weak pesticide regulations and strong government subsidies encouraging industrial farming.

Until recently data to confirm or deny these claims has been sparse, although the feed-the-world refrain has become a pervasive mantra driving policy in North America. But recent studies have provided science-based rather than lobbyist-spun information, and the results are clear: organic and sustainable "organic-lite" agriculture are close to or as productive as conventional farming, with greater economic returns to the farmer and considerably less environmental impact.

The question no longer is whether organic and sustainable agriculture are viable from a yield or profit perspective. They are. The questions we should be asking revolve around what levers governments should use to shift farming practices in progressive directions.

Loose regulations around pesticides as well as vast subsidies that favor conventional farming have left us awash in annual global chemical use, about 243 million pounds of pesticides in Canada, 1.3 billion pounds in the United States and six billion pounds world-wide.

Stricter pesticide regulations, such as the small but positive step taken by Ontario and Quebec to limit neonicitinoid applications, as well as modifying subsidies to favor a transition towards organic/sustainable practices, would improve farm economics and environmental integrity while maintaining high yields.

Pollinator declines are important in themselves, but more significantly are a symptom of outmoded agricultural practices. Pollinator protection could be the thin edge of the wedge driving agricultural policy towards a sweeter spot where crop yields, farming practices and environmental protection are in better balance. BC

Mark L. Winston is a Professor and Senior Fellow at Simon Fraser University's Centre for Dialogue. His recent book "Bee Time: Lessons From the Hive" won the 2015 Governor Generals Literary Award for Nonfiction. Mark Winston's website can be found at ***http://winstonhive.com***

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SCHEDULE AT A GLANCE
(subject to change)

Tuesday, January 10	
All Day:	Board and Committee Meetings
Wednesday, January 11	
All Day:	General Session
Noon:	Tradeshow Opens
Evening:	Welcome Reception & Honey Queen Candidate Entertainment
Thursday, January 12	
All Day:	Track Sessions for Beginning, Serious Sideliner and Commercial Beekeepers
All Day:	Tradeshow
Lunch:	Auxiliary Lunch/Meeting*
Evening:	Social Activity – Moody Gardens Rainforest*
Friday, January 13	
Morning:	Kids and Bees Program
All Day:	General Session
All Day:	Tradeshow
Lunch:	Foundation for the Preservation of Honey Bees Lunch/Meeting*
Afternoon:	ABF Business Meeting
Afternoon:	2017 Honey Show Live Auction
Evening:	AHPA Banquet*
Saturday, January 14	
Morning:	Commercial Beekeepers Breakfast/Meeting
Morning:	AHPA Business Meeting
All Day:	Concurrent Hands-On Workshops
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A Closer LOOK

ORIENTATION FLIGHTS AND SCOUTING BEHAVIOR

Clarence **Collison**

Scouting behavior is performed in two distinct contexts: scouting for new food sources or new nest sites.

Honey bees take repeated orientation flights before becoming foragers at about three weeks of age (Winston 1987). Foragers must learn to navigate between the hive and floral locations that may be miles away. Young pre-foragers prepare for this task by performing orientation flights near the hive, during which they begin to learn navigational cues such as the appearance of the hive, the position of landmarks, and the movement of the sun (Lutz and Robinson 2013). Bees with prior foraging experience will also perform re-orientation flights after the relocation of a colony (Winston 1987).

The reproductive castes also take orientation flights prior to mating flights. During the Spring and Summer month's drones begin to take orientation flights when about eight days old, while still sexually immature (Ruttner 1966). These orientation flights generally take place in the afternoon and last only a few minutes. Most queens also take one or two short orientation flights before leaving on their mating flight(s), most often in mid-afternoon (Winston 1987).

Capaldi et al. (2000) initiated their investigations of orientation flights by introducing one-day-old adult worker bees tagged with numbered disks into a colony of about 20,000 workers and a queen, and simply watching them as they exited and re-entered the hive. All flight activities of the tagged bees were recorded. They found that no bee became a forager (defined as a bee that returns to the hive with nectar or pollen) without taking at least one orientation flight and that almost all bees took multiple orientation flights before they began to forage. The number of orientation flights taken by bees before foraging was highly variable, ranging from one to 18 (mean 5.6 ± 0.29 flights). Equally variable was the age at which these flights began, ranging from three to 14 days (mean 6.2 ± 0.18 days). In this study the mean age at onset of pollen foraging was 14 ± 2 days. In a second study, they used harmonic radar to extend the range of their observations. Tagged one-day-old bees were introduced into a standard hive and all of their subsequent flights were visually observed and recorded. They were thus able to select bees of known age and flight history for radar tracking. Transponders were attached to bees as they departed from the hive and orientation flight tracks were recorded by the radar. Each bee was tracked only once. They analyzed 29 complete (out and back) orientation flights taken by bees of different ages (3-27, median = six days), with differing degrees of experience (1-17 orientation flights). For comparison, they also tracked flights taken by experienced foragers of unknown age from the same hive. All flights were naturally occurring; that is, all tracked bees had moved spontaneously from inside the hive to the hive entrance before attachment of the transponder. Most bees fitted with transponders began their orientation flights with a brief period of hovering facing the colony entrance before departure, just as those without transponders did and has been previously reported. The duration of the orientation flights of bees with and without transponders was not significantly different (with transponders 331.6 ± 59.2 seconds; without transponders 340.1 ± 26.4 seconds). They therefore concluded that the attachment of transponders did not significantly alter flight behavior. Significant positive correlations between flight number and speed relative to the ground (averaged over the journey), round trip journey distance, maximum range from the hive and the area covered by the convex polygon circumscribing each flight were found. There was no significant positive correlation between flight number and flight duration; as

"Nest site choice by a honey bee swarm is an impressive example of group decision making."

the bees gained experience they apparently travelled further by moving faster rather than by staying out longer.

Capaldi et al. (2000) findings suggest that bees take multiple orientation flights before becoming foragers in order to visit different and larger portions of the landscape around the hive. These flights provide them with repeated opportunities to view the hive and its surroundings from different positions, suggesting that bees learn the local landscape in a progressive fashion. Bees navigate using a combination of cues, including the position of the sun and the location of salient landscape features (Collett 1992; Dyer and Dickinson 1994), but it is not known how or whether information about these cues, obtained during sequential flights is integrated.

Scouting behavior is performed in two distinct contexts: scouting for new food sources or new nest sites. There are striking individual differences in scouting behavior-some bees act as scouts and others never do so. Food scouts, who make up five to 35% of a colony's foraging force, search independently for new food sources and continue to do so even when plentiful sources have been found. Non-scouts do not search for novel food sources and instead rely on information from scouts (communicated via "dance language") to guide their foraging. By constantly discovering new flower patches, food scouts help ensure a high influx of food to their colony, despite the ephemeral nature of each patch. Experienced foragers scout more than do novice foragers. The cost of finding a forage patch is greater for recruits than scouts, but the patches found by recruits are evidently superior to those found by scouts. The honey bees combined system of recruitment communication, scout-recruit division of labor, and selectivity in recruitment, apparently enhances a colony's overall foraging efficiency by guiding a large majority of a colony's foragers to good forage patches (Seeley 1983).

Nest scouts make up <5% of the population of a swarm, which is a fragment of a colony that has left its natal nest to start a new colony. Nest scouts search independently for potential nesting cavities and collectively choose the best one, whereas non-scout swarm members rely on information from scouts to guide them to their new home (Seeley 2010). Nest scouting is a crucial behavior; a colony's survival depends on its nest scouts finding suitable protective living quarters. To determine the consistency of novelty seeking in individual bees across the two behavioral contexts, Liang et al. (2012) determined whether nest scouts are prone to also act as food scouts. They identified and marked nest scouts in both artificial and natural swarms. They then identified food scouts with the standard "hive moving" assay (Seeley 1983; Dreller 1998), after installing each swarm in a beehive and moving it at night (when bees don't forage) to a new location outside the bees' original home range. This assay identifies food scouts as the first bees to return to their hive in the morning; under these circumstances, each successful forager must have located a food source on her own. There was a robust tendency of nest scouts to seek novel resources across different contexts, but it did not translate into every nest scout showing food-scouting behavior. In nine trials involving eight different colonies over two years, nest scouts were on average 3.4 times more likely to become food scouts than were bees that did not search for nest sites during swarming. These results demonstrate that some bees show consistent novelty seeking across diverse behavioral contexts.

Liang et al. (2012) also investigated the neurochemical basis of scouting behavior and they revealed some of the molecular underpinnings of this behavior relative to foragers that do not scout. Food scouts showed extensive differences in brain gene expression relative to other foragers, including differences related to catecholamine, glutamate, and g-aminobutyric acid signaling. Octopamine and glutamate treatments increased the likelihood of scouting, whereas dopamine antagonist treatment decreased it.

Within a swarm cluster, the bees are divided between two behavioral states. The vast majority of the bees in the swarm are inactive. Engorged with honey, these bees function as the swarm's food reservoir (Combs 1972). A small minority of the bees, however, are active. They serve as the nest-site scouts, flying from the swarm cluster to discover and inspect potential nest cavities. They then return to report their discoveries by performing waggle dances on the surface of the swarm cluster. Gilley (1998) identified the nest-site scouts by examining the age distribution of the bees who engaged in scouting activities for both prime swarms and afterswarms. Statistical differences were found between the age distributions of the swarm and parental colony, the scouts and the swarm and the scouts and the foragers. The median age of the swarm bees was lower than that of the colony bees, that of the scouts was higher than that of the swarm bees and that of the scouts was slightly less than that of the foragers. These results suggest that the nest-site scouts are primarily middle aged bees which have foraging or flight experience.

Viewing the nest-site scouting process at the group level, Seeley and Buhrman (1999) found: (1) the scout bees in a swarm find potential nest sites in all directions and at distances of up to several kilometers; (2) initially, the scouts advertise a dozen or more sites with their dances on the swarm, but eventually they advertise just one site; (3) within about an hour of the

"Honey bee scouting, where individual bees search the environment without prior information about the possible location of food sources or nest sites is notoriously difficult to study."

appearance of unanimity among the dancers, the swarm lifts off to fly to the chosen site; (4) there is a crescendo of dancing just before liftoff, and (5) the chosen site is not necessarily the one that is first advertised on the swarm. Viewing the process at the individual level, they found: (1) the dances of individual scout bees tend to taper off and eventually cease, so that many dancers drop out each day; (2) some scout bees switch their allegiance from one site to another, and (3) the principal means of consensus building among the dancing bees is for bees that dance initially for a non-chosen site to cease their dancing altogether, not to switch their dancing to the chosen site. They hypothesized that scout bees are programmed to gradually quit dancing and that this reduces the possibility of the decision-making process coming to a standstill with groups of unyielding dancers deadlocked over two or more sites.

When a scout returns to the swarm cluster after inspecting a high-quality cavity, she performs waggle dances which encode the distance and direction to the site. Since a swarm has many scouts, many potential nest sites may be discovered, and dances for several sites may be performed simultaneously on the surface of the swarm cluster. However, in time, the bees reach a consensus, and only dances for a single site are seen. Shortly thereafter the cluster abruptly breaks and the bees fly to the chosen site (Camazine et al. 1999).

Nest-site choice by a honey bee swarm is an impressive example of group decision making. Seeley and Visscher (2003) considered the mystery of how the scout bees in a honey bee swarm know when they have completed their group decision making regarding the swarm's new nest site. More specifically, they investigated how the scouts sense when it is appropriate for them to begin producing the worker piping signals that stimulate their swarm-mates to prepare for the flight to their new home. Two hypotheses were tested: "consensus sensing," the scouts noting when all the bees performing waggle dances are advertising just one site; and "quorum sensing," the scouts noting when one site is being visited by a sufficiently large number of scouts. Their test involved monitoring four swarms as they discovered, recruited to, and chose between two nest boxes and their scouts started producing piping signals. They found that a consensus among the dancers was neither necessary nor sufficient for the start of worker piping, which indicates that the consensus sensing hypothesis is false. They also found that a buildup of 10-15 or more bees at one of the nest boxes was consistently associated with the start of worker piping, which indicates that the quorum sensing hypothesis may be true. In considering why the scout bees rely on reaching a quorum rather than a consensus as their cue of when to start preparing for liftoff, they suggest that quorum sensing may provide a better balance between accuracy and speed in decision making. In short, the bees appear to begin preparations for liftoff as soon as enough of the scout bees, but not all of them, have approved of one of the potential nest sites.

Honey bee scouting, where individual bees search the environment without prior information about the possible location of food sources or nest sites is notoriously difficult to study. The use of simulation models is one way to investigate the possible mechanisms behind the regulation of scouting at the group level as well as the ways in which the swarm searches its environment. Janson et al. (2007) used an individual based simulation model to study the scouting behavior of honey bee swarms. In their model they implemented a simple decision rule that regulated the number of scouts: individual bees' first attempt to find a dance to follow but become scouts if they fail to do so. They showed that this rule neatly allows the swarm to adjust the number of scouts depending on the quality of the nest sites known to the swarm. They also explored different search strategies that allowed the swarm to select good-quality nest sites independent of their distance from the swarm. Assuming that it is costly to move to a site that is far away, the best search strategy would be to give precedence to nearby sites while still allowing the discovery of better sites at distances farther away. BC

References

Camazine, S., P.K. Visscher, J. Finley and R.S. Vitter 1999. *House-hunting by honey bee swarms: collective decisions and individual behaviors*. Insect. Soc. 46: 348-360.

Capaldi, E.A., A.D. Smith, J.L. Osborne, S.E. Fahrbach, S.M Farris, D.R. Reynolds, A.S. Edwards, A. Martin, G.E. Robinson, G.M. Poppy and J.R. Riley 2000. *Ontogeny of orientation flight in the honeybee revealed by harmonic radar*. Nature 403: 537-540.

Collett, T.S. 1992. *Landmark learning and guidance of insects*. Phil. Trans. R. Soc. Lond. B 337: 295-303.

Combs, G.F. 1972. *The engorgement of swarming worker honeybees*. J. Apic. Res. 11: 121-128.

Dreller, C. 1998. *Division of labor between scouts and recruits: genetic influence and mechanisms*. Behav. Ecol. Sociobiol. 43: 191-196.

Dyer, F.C. and J.A. Dickinson 1994. *How partially experienced bees estimate the sun's course*. Proc. Ntl. Acad. Sci. USA 91: 4471-4474.

Gilley, D.C. 1998. *The identity of nest-site scouts in honey bee swarms*. Apidologie 29: 229-240.

Janson, S., M. Middendorf, and M. Beekman 2007. *Searching for a new home – scouting behavior of honeybee swarms*. Behav. Ecol. 18: 384-392.

Liang, Z.S., T. Nguyen, H.R. Mattila, S.L. Rodriguez-Zas, T.D. Seeley and G.E. Robinson 2012. *Molecular determinants of scouting behavior in honey bees*. Science 335: 1225-1228.

Lutz, C.C. and G.E. Robinson 2013. *Activity-dependent gene expression in honey bee mushroom bodies in response to orientation flight*. J. Exp. Biol. 216: 2031-2038.

Ruttner, F. 1966. *The life and flight activity of drones*. Bee World 47: 93-100.

Seeley, T.D. 1983. *Division of labor between scouts and recruits in honeybee foraging*. Behav. Ecol. Sociobiol. 12: 253-259.

Seeley, T.D. 2010. *Honeybee Democracy*. Princeton Univ Press, Princeton, NJ.

Seeley, T.D. and S.C. Buhrman 1999. *Group decision making in swarms of honey bees*. Behav. Ecol. Sociobiol. 45: 19-31.

Seeley, T.D. and P.K. Visscher 2003. *Choosing a home: how the scouts in a honey bee swarm perceive the completion of their group decision making*. Behav. Ecol. Sociobiol. 54: 511-520.

Winston, M.L. 1987. *The Biology Of The Honey Bee*. Harvard University Press, Cambridge, MA, 281 pp.

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The Asian Predatory Hornet

Rusty **Burlew**

For years British beekeepers have known that the Asian predatory hornet could one day arrive on their mainland. Sure enough, a single specimen was discovered in the Tetbury area of Gloucestershire on September 17. Found by a private citizen, the hornet was positively identified by the British Bee Unit as *Vespa velutina*, the dreaded Asian predatory hornet. A three-mile quarantine area was immediately established and a hunt for further individuals began. About a week later the nest was found in a conifer, 55 feet off the ground.

Global trade hastened the distribution of the Asian hornet from its native homeland in Southeast Asia to many parts of Europe. It was first found in France in 2004 where it apparently arrived in a shipment of pottery from China. From there it spread into Spain, Portugal, South Korea, Japan, and earlier this year it was found on the island of Alderney in the Channel Islands[1]. The hornet can easily travel in wood and wood products, plants, fruits, and cut flowers.

courtesy of Bayer Bee Care

A threat to honey bees

In its homeland, the Asian hornet is a predator on the Asian honey bee, *Apis cerana*. Because they co-evolved, the Asian honey bee is adept at killing the hornet by heat balling. When a hornet is found near the nest, hundreds of bees surround the intruder while vibrating their thoracic muscles, thus raising the temperature within the ball of bees to about 115°F. After about 20 minutes, this elevated temperature kills the hornet.

The European honey bee, *Apis mellifera*, is not equally equipped to deal with this new threat. Although the workers surround the hornet in a similar way, they cannot raise the temperature quite as much and often resort to stinging instead [2].

Although the hornets are very territorial about their hunting grounds, as soon as a hornet snags a bee it leaves its territory and a new hornet takes its place. This switch off takes a matter of just seconds, so an afternoon of bee hunting by a large colony can wipe out thousands of bees.

Five years spent with the hornet

In southern France, beekeeper Michael Judd keeps most of his hives at an elevation of 2600 feet under a small wildflower-covered mountain near the village of St. Vallier. For reasons he does not understand, the predatory hornets have not made their way up the hillsides and his bees remain safe, at least for now. But in his backyard, where he keeps a few small hives, the hornets are vicious.

Eager to help in the fight against the hornet, Michael signed up to be part of a government-sponsored experiment to find solutions. "It ended up being no solution at all," he said. Under the rules of the experiment, Michael lost all four of his participating hives.

Shortly after the failed experiment, Michael teamed up with another local beekeeper to work on the hornet problem. "It was the best thing that ever happened to me," he says. Since their alliance, the two have been successful by using a combination of control techniques and timing each step to the life cycle of the hornet. "None of these measures on their own makes much difference," he says. "However all measures together allow me to keep the hives strong." As a result of his efforts, he has been able to harvest honey and get his colonies through the Winter.

Michael studies the hornet's behavior throughout the season, always looking for weaknesses. "The first thing to know about the Asian hornet is that, unlike its European counterpart, it hovers in front of a beehive." This behavior, he explains, can become the first line of defense for a beekeeper. "A badminton racket makes it really easy to swat them. I am fortunate that I can have bee hives in my garden, so my physical presence gives me the ability to visit often during the day. A more remote location would make it somewhat difficult."

Spring management

Like most wasps, the population of hornets is small in early spring, consisting mainly of overwintered queens. "They emerge in April and search for a place to make a

These backyard hives are each equipped with a muzzle which allows the bees to come and go while discouraging the Asian hornet. (photo by Michael Judd)

The sheet keeps the hornets from hovering below the entrance. (photo by Michael Judd)

temporary nest. This is a small nest, possibly the size of a golf ball. She lays a few eggs in there, yielding six or eight hornets." The young hornets then search for food and a suitable place to make the main nest, usually high in a tree and up to several feet around.

Beginning in Spring Michael sets out traps. "I put out a trap made out of a plastic water bottle with a special hornet attractant provided by my local bee association. A second trap contains a mixture of white wine, apple vinegar, and cassis (a black currant liquor)." Trapping is important because catching the queens in spring reduces the chance of a large colony being formed. At this early time of year, Michael traps about 10 hornets a week.

Summer management

For a while during the early Summer the hornets seem to disappear, although from time to time he sees one or two around the garden hives and has even seen bees and hornets foraging side-by-side on a single plant. But by midsummer, increasing numbers of hornets gather near the hives.

The hornet hovers in front of the hive, awaits a departing or returning bee, and catches it in midair. It takes the bee to a tree where it removes the head and wings before taking what's left to its nest. "At this time of year the hornet will only go into the hive if the bees are very weak, not flying, and unable to attack in numbers. I have seen the bees attack and kill a hornet, so generally the hornets do not like going in the hive." However, by mid to late September, the hornets are desperate for protein and become bolder.

"This year I noticed that the hornets, rather than hovering directly in front of the hive entrance, would hover beneath the hive. This made it impossible to swat, so I took a piece of old bed sheet and cut it to fit to the base of the hive and tall enough to get to the ground. This really seemed to annoy the hornets; they attacked the sheet but could not get to the bees. The result, for me, was they had to hover in front to the entrance where I could swat them easily. At the height of the rush, I was getting between 10 and 20 a day."

Fall management

Once the hornets begin hovering near the hive, the honey bees seem to feel trapped. "With the siege going on their flights are down to an unsustainable minimum. Without any action, the colony will simply reduce in strength until it fades away. In my first year, I found several very small swarms in the garden, each the size of a tennis ball. I got the impression they swarmed out of total desperation. At other times the bees ate all their stores and simply died. I have read that up to about three hornets around a hive allows the bees fly normally, but any more than that forces the bees to stay inside."

To assist his bees in the Fall, Michael reduces the size of the entrance and adds what the French call a muzzle. The muzzle is a wire contraption with holes measuring 0.5 inches square. This allows the bees to enter, but the much larger hornets are very reluctant to pass through. "This gives the bees a safe area where they can see the hovering hornet, and either go the other way or exit later."

Behind the muzzle, Michael's bees set up what he calls a "line of defense." The bees line up on the floor of the muzzle which provides a protected landing strip for the bees and positions a contingent of bees ready to attack any hornet bold enough to enter the muzzle.

End of season

Asian predatory hornet colonies die at the end of the Summer. Just before the first hard freeze, the mated queens find a protected spot where they can spend the winter, often in a tree or in the ground [3]. According to Britain's National Bee Unit, a successful overwintered queen will produce a large nest and raise as many as 350 daughter queens.

Even though the Asian predatory hornet has not yet made it to American shores, it is not too soon to plan a strategy for its arrival. A single mated female hibernating in a shipment of goods could land just about anywhere and begin her own dynasty, one more challenge for our beleaguered honey bees. BC

References

Asian hornet identified for the first time in the Channel Islands. Pest Control News. 12 July 2016. Retrieved September 25, 2016.

Egelie AA, Mortensen, N, Gillett-Kaufman JL, Ellis JD. 2015. **Apis cerana *Fabricius (Insecta: Hyenoptera: Apidae)***. University of Florida, IFAS, Entomology and Nematology Department, Featured Creatures, EENY-616. (January 2015).

***Vespa velutina In: Invasive Species* Compendium 2014**. Wallingford, UK: CAB International. **www.cabi.org/isc**. Retrieved October 1, 2016.

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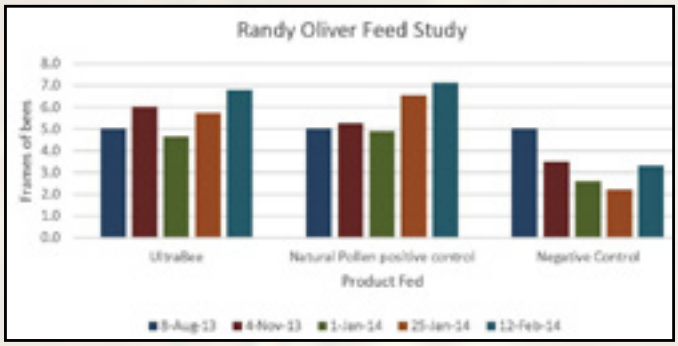

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A nature lover in Kentucky writes:

Here's something I wonder: since honey bees are an invasive species and nature in our part of the world probably did just fine before they came, how long would it take for the other pollinators to fill that biological niche if honey bees all went away?

Phil replies:

That is an interesting question, and my short answer, as it pertains to the natural world, is not long.

To begin with, though honey bees are not indigenous to the Americas, I would refer to them as non-native rather than invasive. What is the difference? I found the following United States Department of Agriculture Definition at a Nature Conservancy webpage *". . . an alien (or non-native) species whose introduction does, or is likely to cause economic or environmental harm or harm to human health."* Relationships among organisms in an ecosystem are complicated and never completely understood, but over the last few centuries, honey bees have become well integrated into our biological landscape. Though some argue that they pollinate invasive plant species which native pollinators ignore and rob nectar from some native plants without effectively pollinating them, they have not displaced native bees. We hear much discussion these days about threats to native pollinators from habitat loss, monoculture crops, and pesticides, but competition from honey bees is not on the list. Moreover, they are the primary or only pollinators of many agricultural products which enrich our diet. Most people would agree that their net impact on our environment is beneficial.

In considering the effect of a loss of honey bees in our natural landscape, we have two historical examples to judge from. First, as you note, they are not native to this part of the world, and there was a thriving ecosystem here before they were a part of it. A more recent demonstration occurred in the late 1980s when *Varroa* and tracheal mites first made their appearance in this country. They attacked both the bees in our apiaries and those in the wild – feral or, as I prefer to call them, unmanaged colonies – with devastating results. Researchers quickly came up with methods to control, though not eradicate, mites in our hives. After an initial sharp decline, the number of number of managed colonies stabilized and has begun to increase in recent years, but mites in wild colonies proliferated unchecked. The number of unmanaged colonies plummeted. How low? No one really knows, but by the time I became Kentucky State Apiarist in 1999, I was telling beekeepers that wild bees were essentially extinct. There were still bee trees in the woods, to be sure, where uncaptured swarms from beekeepers' hives would take up residence, but they brought their parasites with them: *Varroa* and, in the early days, tracheal mites as well. The unmanaged colonies could not thrive and, within a year or so, they would succumb and die out, like bees in managed but untreated hives. The best nesting sites would be repopulated by other escaping swarms, but there was no sustainable wild population of honey bees.

This is a complete reversal of the world which existed before mites. Beginning beekeeping books written before the 1980s recommend capturing swarms from wild colonies as a reliable and inexpensive way of acquiring bees. In those days anyone interested in becoming a beekeeper could just spread the word to his or her neighbors to call if they saw a swarm. Unmanaged colonies were so plentiful that it never took long to find one. After the mite invasions, this method of acquiring bees disappeared from beekeeping manuals. People my age who grew up in rural or suburban areas in the decades before mites remember not being able to run across the yard without the risk of being stung by a honey bee working the clover among the grass. (Few of us wore shoes in the summertime back then.) The bees that stung us in those days were mostly from wild colonies. Nowadays it's rare to see a honey bee in yard or garden unless you have a neighbor with hives. The current status of unmanaged colonies is unclear. Some beekeepers feel that we are seeing more bee trees recently, and speculate that they house wild colonies which have developed some *Varroa* resistance. I am not convinced. We have also seen a great increase in the number of backyard beekeepers in the last few years, in both rural and urban landscapes, and their hives are sending additional swarms out every year. Some of these are captured, and re-installed into hives, but many end up in the trees, at least temporarily.

Whatever the population of wild bees is now, the fact is for several decades they were virtually non-existent, and the effect on native flora was – negligible. There are over 3,500 species of indigenous bees in North America, not to mention other native pollinators, and these do the lion's share of the pollination work in nature. They even perform some agricultural pollination as well, especially in small gardens and orchards. My mother maintained a large garden in Eastern KY, both pre-*Varroa* and after. It never lacked pollinators, though there were no beekeepers near her, and I rarely saw honey bees there post-mites.

Commercial agriculture is a completely different story. Almonds, apples, melons, cranberries, and many others, would not be productive without large numbers of honey bees to pollinate them. Modern American agriculture has achieved remarkable efficiency by cultivating thousands of acres of single crops. It is impossible for native species to pollinate a crop such as almonds, which bloom for only a few weeks, when nothing but almond trees grow for miles around and there is no other food source to sustain the bees through the rest of the year. Only honey bees, which live in large colonies, adapt to man-made hives, and can be transported by the tractor trailer load, are capable of pollinating today's monoculture crops. That doesn't mean that we would starve without them. Grains, such as wheat, rice, corn, and oats, are pollinated by wind. Many crops self-pollinate, like beans, peas, and tomatoes. Others are important to us, not for their fruit, but for their leaves, roots, or flowers, all of which are produced whether or not the plant is pollinated. Think, lettuce, spinach, potatoes, carrots, and broccoli. If honey bees were to disappear, some of our favorite foods would be less available and much more expensive, but we would not go hungry.

However, I do not think that we need to worry about honey bees going away. Though beekeepers continue to lose too many colonies each year, they also continue to replace their losses by dividing colonies and making nucs. We have always done this. According to the USDA Agricultural Statistics Service, the number of managed colonies has actually risen in recent years – not a great deal – but definitely not a decrease. That doesn't mean that life is easy for beekeepers. Whereas I do not worry about the extinction of honey bees, I do worry about the future of beekeepers, especially commercial apiaries. While colony losses continue in the 40% range every year, it is difficult for large beekeepers to stay in business. Without them, the beekeeping supply companies would be in trouble, and that would affect small beekeepers as well. I also worry about native pollinator species. Native bees, butterflies, etc. are threatened by some of the same factors which are stressing honey bees: habitat loss, monoculture crops, and pesticides. The question is not whether native pollinators can replace honey bees in nature, but what can we do about the loss of native pollinators?

A beekeeper in New York writes:

The weather's been mild here in central NY, with today's temperature 60° and scattered showers at the bee yard. I've had the mouse guard in place for about a week (galvanized piece of corner bead with 10-3/8" holes drilled into it). I opened the hive today, and I was surprised to find the inner cover dripping with moisture. Being that there was an upper and lower entrance to the hive I thought it would have ventilated this moisture out. I was just wondering if you can shed some light on the cause and prevention. The hive sits on top of three wooden pallets so it isn't buried in weeds that might block the entrance.

Phil replies:

You are quite right to be concerned about good hive ventilation. Most beekeepers recognize the need for it in warm or hot weather, but it isn't upper most in their minds once cool nights begin to remind us that winter is on its way. New beekeepers who live up north are especially quick to worry about the cold (I live in Kentucky where the winters are much milder.), and their impulse is to seal all the gaps and holes in their hives, just as they do in their homes, to eliminate drafts. Isn't duct tape great stuff? Yes, we don't want our bees to be cold, but we also don't want them spending the winter in a damp hive. How warm do you feel wearing a wet wool sweater? If a hive is too well sealed, moisture is trapped inside. You saw the evidence of that in the condensation on your inner cover. I suppose people tend not to think of humidity as a Winter issue because conventional heating systems in our homes have the opposite effect. They dry the air to the point that we sometimes have to use humidifiers in order to be more comfortable.

Of course bees have a source of central heat: their own bodies. They crowd together in a tight cluster when temperatures drop into the 40s(°F) or below, and flex their wing muscles to warm themselves and add heat to the cluster. They can maintain a temperature inside the cluster of between 85 to 95°F even when the outside thermometer reads below zero. In fact, bees are so efficient at creating their own warmth that, in most places, a healthy colony has no problem dealing with very cold weather without any aid from beekeepers. All they need is fuel in the form of honey to power their metabolisms. But heat isn't all they produce. Bees also breathe, and produce moisture that needs an outlet. There's an analogy I like to use. The University of Kentucky (Did I mention that I live in Kentucky?) plays basketball in a huge arena, which can hold more than 24,000 people on game nights. A couple of years ago, there was an article in the local paper which said that it has to get close to 40° outside before the staff at Rupp turns on the heat. All those bodies, packed tightly together and yelling (because the Wildcats usually give them a lot to cheer about) generate plenty of warmth. However, the arena has to run ventilation fans to disperse the humidity from all that perspiring and respiring humanity. It's very much like a winter cluster, except the bees do it more efficiently and they don't need a clear line of sight to watch the game.

Many northern beekeepers, like you, add a second entrance near the top of the hive during Winter. In cold

Snow will block lower entrance.

Cracks provide ventilation.

climates, there is always a risk that snow and ice will accumulate enough to completely block the lower one. If it were also the only one, the problem of ventilation would become extremely serious. With both entrances open, as they are now in your hive, it would seem reasonable to assume that they would create a nice flow of air which would take care of the moisture issue. However, it obviously is not doing that, and the problem may get worse later on when you have a foot of snow around your hive. I don't use upper entrances myself, even in the Winter. Snow accumulations here are rarer, shallower, and briefer than in the north. Also my old boxes have plenty of cracks and holes for air to move through. What I do is to elevate one end of the outer covers of my hives to allow better air flow. I accomplish this by placing a small stick, about ¼" thick and an inch or two long (length really does not matter) on top of the inner cover, and under the outer cover. I use these props year around. In Winter the air movement keeps my bees from becoming damp and chilled in the cluster, and during the rest of the year it carries away some of the excess water in ripening honey. If moisture problems persist, the outer cover can always be temporarily propped a little higher.

Don't worry about providing too much ventilation. Honey bees' natural nesting sites are hollow trees, which are even draftier than most of my old equipment. After all, if the cavities didn't have openings, the bees wouldn't have access to them. Whether in boxes or trees, bees have a sealant for plugging holes and eliminating excessive air flow. It works even better than duct tape, as any beekeeper knows who has struggled to pry apart boxes in a hive he hasn't checked in a while. Propolis is produced from plant rosins collected by foragers. It can plug holes, seal cracks, and even block openings in inner covers and entrances. We aren't raising carpenter bees here. They aren't capable of drilling their own holes, but by using and removing propolis around existing openings, they are able to exercise a great deal of interior climate control. (There may be more to propolis than plugging holes. Bees have been known to line the inside of a nesting site with it, creating a propolis envelope around the cluster. Recent research at the University of Minnesota has shown that the presence of this envelope is beneficial to colony health.)

I can't answer the question of why your upper and lower entrances are not providing sufficient ventilation in your hive – perhaps some combination of rain, entrance reducers, and still mild weather. In any case, I think preventing the problem is as easy as using a few small sticks to prop up one end of your outer cover. Hoping for a mild Winter wouldn't hurt either. BC

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RUSSIAN Honey Bees

Malcolm **Sanford**

There have been a lot of questions recently about "Russian honey bees." The term is increasingly making its way into the beekeeping literature and discussion lists on the Internet. A Russian Honey Bee Breeders Association (RHBA) has been formed seeking to provide more information about this honey bee and attempt to deliver it to the beekeeping public. The purpose of this article is to look more closely at this association, and attempt to make some conclusions about its possible future. The information included in this report has been gleaned from a number of sources, including printed references and personal interviews.

Honey bee stock was brought by the USDA to the U.S. In 1997, from the **Primorsky** region of far eastern Russia. For over a hundred years the honey bees in that area had not been treated for any pests or diseases and were considered resistant to *Varroa*, tracheal mites and American foulbrood, while at the same time being good honey producers with excellent overwintering qualities.

Breeding, Genetics, Stock Improvement and Management of Russian Honey Bees for Mite and Small Hive Beetle Control and Pollination, **Research project Number: 6413-21000-012-00)**, began Oct 01, 2008, under the leadership of Dr. Tom Rinderer, then leader of the Baton Rouge laboratory.

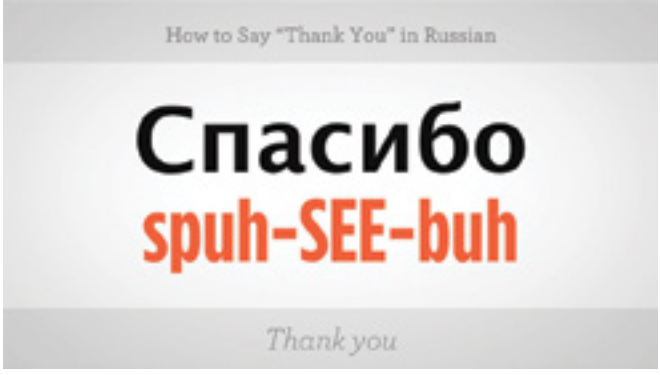
He and Dr. F. Ruttner both concluded that the actual subspecies being brought to Louisiana and quarantined on a nearby island was *Apis mellifera macedonica*, a relative of the Carniolan bee (*Apis mellifera carnica*). Both used a technique called morphometrics (structural analysis), which was in vogue at the time before substantive genetic identification techniques were developed. However, according to Dr. Rinderer, neither of these determinations were published.

Tom Rinderer

Candidate queens were thoroughly vetted for possible problems through extensive quarantine efforts by the **Honey Bee Breeding, Genetics and Physiology Laboratory**, Baton Rouge, Louisiana. They were then released via a CRADA (**Cooperative Research And Development Agreement**) to selected beekeepers.

It is important to understand that the Baton Rouge Laboratory does not actually "certify" stock according to Drs. Lilia de Guzman and Lanie Bourgeois, two USDA scientists supporting the program. The Association "certifies" its members. They clarified the situation this way:

- USDA/ARS does not certify any bee stock especially Russian bees.
- The Bee Lab does not certify bee stock as Russian or Non-Russian.
- The Russian Honey bee Breeding Association (RHBA) does not certify a stock, line or individual bee as Russian.
- The DNA test that Dr. Bourgeois performs only determines the probability of assignment as Russian or non-Russian.
- The RHBA only certifies individual breeders who have produced bees that score > 0.50 (most samples are actually scoring 0.75 and higher) on the DNA test AND produce records that show honey production and mite resistance by measuring mite growth (using soapy water wash) over time. These latter two (main) factors determine the best colonies from a member's two lines from which samples are collected and shipped to the



lab for DNA testing. Members are also encouraged to monitor for other beekeeping characteristics including defensive behavior.

The RHBA's board of directors decides who is or is not certified, according to current President Steven Coy. "The members' records are stored by the Association. However they are private and cannot be shared with non-members because they contain privileged information on specific lines. Some lines will never be released to the public. However, they contribute to the genetic diversity of the stock and its disease resistance. Thus, it is important to understand that customers buying a Russian queen are not simply buying from a specific line, which is not revealed, but instead purchasing the results of multiple years of selection from the best mite resistant and highest honey producing queens available from all certified members."

In 2008, the **Russian Honey Bee Breeders Association** (RHBA) was created with the following goal:

The long-term objective of this project is to develop the economic value of Russian honey bees (RHB) through genetic improvements and devise innovative management strategies to increase the stock's general and pollinating productivity. It focuses on multiple interrelated projects with the following objectives:

1. Develop procedures for identification of RHB as a stock certification tool, determine the genetic makeup of feral bees, and identify genes contributing to mite resistance and survivability.
2. Develop management techniques (e.g., determine economic thresholds for ***Varroa* mite** treatment, develop cultural techniques for small hive beetle (SHB) management in standard and nucleus colonies, and determine winter management and spring build-up strategies to build RHB populations for crop pollination (e.g., for almond).
3. Determine if there are genetic components of RHB response to emerging problems (such as colony collapse disorder or CCD) once syndromes and causes are identified.
4. Use traditional breeding techniques to develop RHB with improved economic traits.
5. Develop procedures for routine identification of sex alleles and determine queen relationships in multiple queen colonies.

Something called **marker-assisted selection** is a major mechanism by which much of the stock is tested by the **Baton Rouge Laboratory**. The association does not sell queens as breeder stock, but provides a mechanism whereby the beekeeping public can take advantage of the stock by purchasing daughters. The stated goal is to maintain and improve the genetic lines of Russian honey bees through propagation and selective breeding. The **website** shows thirteen members at the moment, who are committed to the following:

"We've determined that in order for an operation to produce Russian stock both with genetic integrity and in sufficient numbers it's necessary that each member must operate a minimum of two hundred colonies. Additionally, the entire outfit must be made up of Russian stock or be moving rapidly toward that goal.

"It is required that mating yards, especially those that produce 'selection' queens, are isolated, and that they have well stocked drone source colonies of the appropriate lineage and in sufficient numbers. (We've set a ratio of one good drone source colony for 20 mating nucs. So, for example, with 24 well-stocked drone source colonies representing two colonies from each of the 12 appropriate lines, one could set out 480 mating nucs.)"

Each prospective member is issued a detailed manual, which provides a good many criteria for certification. According to the RHBA web site: "To become a certified breeder for the Russian Honey Bee Breeders Association members must annually demonstrate their qualifications by producing queens from designated lines in isolated mating yards. These mating yards must be stocked with sufficient numbers of appropriate drone source colonies. Line queens must be produced in sufficient numbers so that a large number of colonies started with these queens can be monitored for further selection and additional queens can be shipped to fellow members to lead drone source colonies and also so that the lines can be evaluated by the entire membership."

Becoming certified is not an easy task. Steven Coy was one of the original members of the RHBA and did not have to jump through many hoops in the beginning. However, since leaving Coy's Honey Farm to form his own queen-rearing business, he was forced to essentially start over as a new member. He says he now has a greater appreciation for the work and planning involved in becoming a certified member, concluding: "We have had a total of 20 members since our inception. Only 12 people have been able to do this."

The Association evaluates about 800 or more colonies each year, selecting about 90 queens based on mite growth and honey production. Fifty to 60 of those are sent for DNA testing and those that pass are then used as breeders. The .50 score for DNA noted earlier was set because some were having difficulty with drone saturation. That problem has been solved and most are now coming in at .75 or higher.

Membership of the RHBA ranges from large commercial pollinators to smaller outfits selling honey and queens. Each member has their own business plan. Some are only interested in maintaining the stock for their current and future use, producing honey and pollinating, while others aspire to become queen producers.

Some prominent members of the Association are:

Coy's Honey Farm Inc., Jonesboro, Arkansas, which began in 1969 when grandfather Gene Coy brought 12 hives. According to the website, "Our primary goal is to produce honey, but we also pollinate almonds in California. Our bees collect nectar from Cotton, Soybean, and Wildflowers while also pollinating Cucurbits in Northeast Arkansas and the Delta Region of Mississippi. They also collect nectar from Spring Ti-Ti, Gallberry, and Chinese Tallow along Mississippi's Gulf Coast."

Steven Coy

Coy's Honey Farms began using Russians almost by accident. They traditionally selected their own queens and used Ohio queens and others as breeders, acquiring some Russian stock in the process. In the winter of 2000 – 2001, there were heavy Winter losses of non-Russian hives. However, 52 Russian hives were checked in the Spring of 2001, resulting in few losses. This along with recommendations/discussions by others, set Coy's honey Farms on the track to use Russian Stock. They became charter members of the Russian Honey Bee Breeders Association in 2008. Coy's is currently the only large, migratory outfit to move to Russian stock. Significantly, this was done to increase honey production and reduce losses, not to produce and sell queens to the beekeeping public.

Recently, Steven Coy started Coy Bee Company, LLC so that he can focus on producing Russian queens for distribution to the beekeeping public. Currently President of the RHBA, he serves as a board member for two national bee industry organizations, as well as the U.S. Beekeeping Industry representative to the EPA's Pesticide Program Dialogue Committee. He frequently gives presentations at national and state meetings and is also active in the MS Beekeepers Association and MS Farm Bureau Federation.

Carl Webb of Clarkesville, Georgia began keeping bees in 1959 and maintained his activity while living throughout Europe, Africa and the United States. He has a BS in Forestry and studied for both a masters degree in government administration at George Washington University and an MBA at Georgia State University. Carl served as president of the Georgia Beekeepers association and cooperated with the University of Georgia on its first *Varroa* mite threshold study, comparing, Russian bees with other Stocks in 2004 and 2005. He also participated in a project comparing Minnesota Hygienic with South Georgia honey bees.

He lists the following characteristics of his operation:

- No antibiotics
- No beetle control (traps, poisons)
- No pollen substitutes
- No stimulants such as essential oil
- No screened bottom boards

Carl Webb

- No scheduled brood comb rotation
- No scheduled queen replacement (half of queens are two years old or older)
- No feeding of sugar in any form (except for queen rearing and starter nuclei)
- No small-cell foundation
- Use Pierco pre-waxed foundation

Last year, Carl was forced to treat field colonies with Apiguard® in August, to prevent fall colony losses that had increased during five years of a no-treatment regimen. He repeated this in August of 2016 with two more treatments spaced apart. He reports that test yards from which breeder queens are selected are never treated with anything, an important distinction.

Carl Webb is a much smaller beekeeper than Coy's Honey Farms. He is not migratory, but sells honey to the public, as well as queens to other beekeepers through his **operation**.

Harry Fulton of Brooksville, Mississippi is one of the newer certified members. He started beekeeping around 1975, and was employed at Mississippi Department of Agriculture since 1971, retiring after 38 years of service. He is two-time president of Apiary Inspectors of America and was Secretary-Treasurer of the **Mississippi Beekeepers Association** for 35 years. Certified in May 2012, Harry has built up his hive count from 70 to 200 hives, which is what the Association requires of members. He states that becoming a member of the Association requires one to do "homework" and "be dedicated."

Many current certified members do not appear to be producing queens in appreciable numbers. Again, selling queens to the beekeeping public is not part of the

Harry Fulton, center with frame, teaching beekeepers.

Association's stated objectives. This might constitute a dilemma for the RHBA in the future. As the reputation of the Russian bee becomes more pronounced, the demand for these queens continues to increase. Steven Coy says: "I have shipped queens to all regions of the U.S. including Alaska (not Hawaii) and frequently get requests from beekeepers in all parts of Canada. Many of them beg me to ship them queens. Unfortunately for them the paper work and fees required for shipping queens into Canada are too much trouble for just a few queens. I have even shipped queens to the country of Jordan for a research project. It is not uncommon to receive requests from beekeepers in Europe and in particular from Italy, Netherlands and France. I have even received requests from a beekeeper in South America."

At the moment, ill-perceived behavioral differences may actually keep demand down. Russian bees have been accused of being prolific swarmers, unable to produce honey crops, and overly defensive. These bees are somewhat "different" in behavior, and require adjustments in management. That they are generally tolerant to both *Varroa* and small hive beetle, however, is a big selling point. At least one Wisconsin beekeeper sings their praises, according to a recent **news release**:

Sue Dompke hopes that Russian honey bees are the answer to the collapse of the American honey bee population, which have been decimated by mites. "They're mite resistant, they're cold-hardy, they're hygienic, and they effectively manage their resources," Dompke said. "They're perfectly suited for Wisconsin, especially Washington Island, because we're at the 48th longitudinal parallel replicating that indigenous area of Primorsky." There's a very limited supply in the United States with only 15 Russian bee breeders according to Dompke, concluding: "If you're purchasing Russian honey bees and you haven't purchased them from a Russian bee breeder, they're probably not 100% Russian."

As the experience of Steven Coy and Harry Fulton shows, assuming the responsibilities of a certified member requires a great degree of dedication. It also demands experience in managing Russian bees, which are known to be quite different than the run-of-the-mill Italian honey bee that mostly makes up the U.S. honey bee population. The significant duties and responsibilities of the certification process means that inevitably the price of queens sold by RHBA members must be greater than those generally available on the market. The Association is actively soliciting members. A limited supply and increasing demand for queens, which can be sold at premium prices, appears to indicate significant opportunities for others to enter the fray and become certified.

The distinction of "Russian" in the context of this article signifies that the name is not so much a race or line of honey bees as one might initially think, but a brand of the RHBA. Unfortunately, many breeders who are not certified members of the RHBA are marketing "Russian bees," potentially damaging the brand. Protecting it, therefore, is a major challenge for the Association as it goes forward. To do so will require significant advertising and educational efforts oriented toward both potential new members and customers. It may in fact be too late. One possibility is to instead re-brand the specific stock reared by the RHBA to something that is less generic and more specific. "Primorsky" comes to mind.

The RHBA has a unique possibility to produce and market a *Varroa*-tolerant honey bee stock that could be the envy of other queen breeders around the U.S. and perhaps the world. This opportunity has been provided to a great extent by the vision and effort of the USDA Agricultural Research Service, which continues to do the testing. It will be up to the "certified" members of the RHBA to maintain the stock's integrity. All beekeepers should be cheering them on.

To see the full article along with live links, search for "Russian bees" at **http://beekeep.info.** BC

Malcolm Sanford is the retired Extension Apiculturist from Florida and publisher of Apis Information Resource Newsletter – ***http://apisenterprises.com/vita.h****.*

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SCIENTIFICBEEKEEPING

Kim **Kaplan**

An interview with Randy Oliver

Randy Oliver is the owner of Golden West Bees in northern California – about 1,000 colonies providing migratory pollination services for almonds and producing nucs and honey for sale. But he is much more widely known as the voice of **ScientificBeekeeping.com** website, which he started as a place where he could give beekeepers an objective, understandable look at new research coming out in the scientific journals.

This year Randy turned 65, so he says he is turning management of the apiary business over to his sons Eric and Ian, although he will still keep his hand in as "in-house advisor." That doesn't mean he will be backing off from his research projects or from his assessments of new research and technology for the bee industry.

Randy grew up in a home that "abutted the rich wildlands surrounding the Upper Newport Bay in Southern California – an ideal place for a budding biologist." By the time he was in high school, Randy was also apprenticing after school to a sideline beekeeper who ran several hundred hives.

He went on to college at the University of California Irvine, at first in marine biology, but then shifting to entomology. At that time, he was keeping a few hives as a hobby, but Randy was not yet seriously into bees. Instead, he was working nights, weekends, and during the Summer at restaurants and construction to pay his way through college.

"Then toward the end of my undergrad work at U.C. Irvine, the Dean of Biological Sciences offered me a dream job – to establish a world-class insectary from scratch. In doing, so I learned to deal with the challenges involved in the mass production of insects for research," he explained of earning a graduate degree in the biological sciences. "Still fascinated by my bees, I applied to U.C. Davis to earn a PhD in apiculture, but was talked out of it, since there were no prospects for employment in that field at that time. Disappointed, I decided to turn our beekeeping hobby into a business.

Randy Oliver and his sons.

This makes **ScientificBeekeeping.com** a natural outgrowth of Randy's twin tracks in life: training as a biologist and his love of beekeeping that first began as a young teenager when he collected a swarm from a bush outside his home. His first foray into writing came much later in 2006 when a beekeeper friend Keith Jarrett became apoplectic about some of the nonsense being promulgated on Bee-L about almond pollination. He implored Randy to write an article for the bee journals to set the record straight.

"I did it, and my life was forever changed," Randy said. "There was apparently an unfilled niche in the beekeeping community for a bee biologist who could accurately translate science into lay terms, and who also enjoyed the credibility conferred by actually making his living by keeping bees."

Randy also began writing regularly for the *American Bee Journal* in 2006 and soon after **www.Scientificbeekeeping.com** was born.

Today, nearly 30,000 people from nearly every country in the world visit **ScientificBeekeeping.com** each month. Randy is known not only for his summaries of scientific papers as they are published or his own research projects but also for his outspoken, take-no-prisoners evaluations of the quality of research and his willingness to point out fashion flaws when someone in the parade isn't wearing any clothes.

In turn, Randy has also been accused of being in the pocket of big ag or pesticide companies or only being on the speakers' circuit for the money. Yet Randy is the first to tell you he doesn't run **ScientificBeekeeping.com** to make a profit; he plows the donations he gets right back into research into what may make bees healthier. He points out that with even one-day speaking dates, he's usually on the road for at least three days (plus prep time) so he says he'd earn more just staying home and putting that time into his bees.

Evidence, facts, conclusions based on repeatable data; that's what Randy is looking for when it comes to getting on board a bandwagon for causes of all of the honey bees' problems these days. He is not about to be stampeded aboard without that evidence, those facts. And that's where the fun begins.

"I've gotten it from the anti-evolutionists, the fearful anti-GMO activists, and the anti-neonic zealots [because

he won't support their position/cause as the sole or primary source of bee losses]. "Single causers" are counterproductive – the focus on neonics has diverted research away from *Varroa*, nutrition, and the impacts of other pesticides. Of course, some make the ridiculous claim that I must be getting paid by this corporation or that, which is ironic, since I am the most anti-corporate person you will ever meet," he explains.

Randy speaks of graduating high school in 1969 in southern California, right at the peak of the hippy and environmental movement, both of which were profoundly influential in his life and after college, going "back to the land," moving to a cabin deep in the Gold Country of the California foothills with wood heat, carrying water, growing his own food, and loving it. With a devotion to environmentalism, he became one of the first local promoters of organic agriculture as proprietor of a farm store in Colfax, in northern California. Not quite the model for a corporate suit.

"Probably the biggest issues – have been my questioning that the neonics are the cause of all bee problems, and my pointing out that there is virtually zero evidence supporting small cell. I've been called by some in industry leadership "the most dangerous beekeeper in America." Mention of my name or website was banned by one group in California. Several years ago one industry leader, with whom I have an amicable relationship, asked me what it would take to win me over to the anti-neonic camp. I replied, "simple – one solid piece of evidence,"" Randy said. "I'm still waiting for that single piece of evidence. There are clearly issues with the neonics, as there are with any pesticide. But I've yet to see any convincing evidence that they are the cause of either Colony Collapse Disorder or elevated Winter mortality."

While Randy builds his evaluations from a structure of unassailable scientific studies, he's not looking for other people to ride the coattails of his conclusions either just because he says it is so. He encourages everyone to think for themselves, to keep an open mind and pursue accuracy. Then based on the information they've found, he wants them to test it out, see what works in their bees, in their yards.

Beyond that, he warns fellow beekeepers to be cautious about latching onto the results of any single study. Randy thinks most individual studies are blown out of proportion, either by the media or by groups whose cause that study supports, as long as it is only considered in isolation. *Always check the facts*, is more than a mantra for Randy, it is a way of life and a doorway.

Overall though, the huge amount of media attention that has come to honey bees in the past years has probably been a good thing.

"It has helped bring the public's attention to the fact that human impacts are seriously hurting pollinators, wildlife, and ecosystems worldwide. The bad thing is that many groups are using the honey bee as their poster child for fundraising purposes. I've supported environmental groups all my life; I am a Life Member of the Sierra Club, and donate thousands of dollars to the Nature Conservancy, the Pollinator Stewardship Council, and other groups. At the same time, I am often highly critical of these same groups if they do not base their actions on good science and truthfulness," Randy explained.

"What I've learned is not to trust *anything* in the media without going deeper, much deeper, to check facts. Always ask any writer what they are being paid to do. A journalist is paid to write eye-catching headlines, an advertising consultant for an environmental group is paid to bring in donations (generally by fear mongering, rather than sticking to the facts). A corporate executive is paid to sell product and assuage the public's concerns about that product. I see little difference between the truth stretching or outright lies done by (some) environmental groups or by the chemical company PR spokespersons, although the chem companies will quickly get nailed for any lies. I often spend hours checking claims by either," he added.

Which brings us back to the calumny that may irritate Randy the most: that he won't add his voice to the call for

Randy Oliver's Future

If Randy directed a great big honey bee research budget, here's how he would spend some of it.

- Our agricultural industry is far too dependent upon nonsustainable resources and pesticides. Unfortunately, "organic" has lost its way. We need to shift agriculture to more eco-friendly agroecological approaches and Integrated Pest Management, which would reduce pesticide use.
- We could use more dedicated bee toxicologists, working with agriculture to develop pest control practices that are pollinator friendly.
- We need more nutritionally complete and regionally appropriate pollen substitutes.
- We need biodegradable and residue-free varroa management products such as botanicals, biologicals and behavioral disruptors.
- Build a better understanding of the bee internal microbial community, and how it affects bee nutrition, immunity and overall health, as well as how the microbial community is affected by food, pesticides and management practices.
- Get serious about breeding programs for locally-adapted, mite-resistant stock. After 25 years, there is no excuse for us to still be dependent upon chemical control of the mite.
- Demonstration apiaries across the country, each providing a testing ground for local best management practices.

a ban on neonicotinoid pesticides or at least support the stance that neonics are the principle cause of honey bee problems because he is on payroll of pesticide companies.

"I consider that unfounded accusation to be a reflection on venality of those who make the charge. That said, I've studiously avoided taking any money from any Big Ag company, with a single exception. I had worked with the independent startup Beeologics for two years in developing an RNAi antiviral product for bees during the CCD epidemic. To my surprise, Beeologics sold to Monsanto, and then asked me to run another trial with them," Randy explained.

Before he would agree, Randy demanded several conditions: 1) That he would get ALL of the raw data from the control group and 2) he would have their permission to share all of the data with the beekeeping community. It was an effort for Monsanto's lawyers to agree.

"For only that single trial, I charged and was paid for our time and lost hives. Since then, I have really pissed Monsanto off by submitting a formal comment to EPA on the need to carefully regulate RNAi products," Randy pointed out. "What people like that just don't realize is that I take no fixed positions, and I am always ready to change my opinion on any issue the moment that any evidence indicates I should. I plan to write soon about my current assessment of the neonics, based on recent research findings."

It would be easy to play to the crowd, and jump onto one of the anti-GMO/neonic, top bar hive, treatment-free bandwagons, according to Randy. "But I'm not concerned with popularity, and indeed have referred to some outspoken proponents as the "beekeeping Taliban" – a felicitous, but appropriate eponym, which I borrowed from a European bee inspector. What I hoped to do was to get them to question their own attitudes of self-righteousness and willful ignorance," he explained. "Unfortunately, not all got the point. I understand that they have the bees' best interests at heart. After speaking to many groups, members of the audience come up to thank me for helping them to realize that they needed to rethink their beliefs. That makes me happy – not that I've necessarily changed their beliefs, but that I've got them thinking rather than parroting." BC

Kim Kaplan is a freelance science and business writer/photographer.

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Bear Kelley

Jennifer **Berry**

Growing up, some of us wanted to be rich while some of us wanted to be famous. Some of us wanted to fly, and some of us wanted to explore the Milky Way. Some wanted to teach, some wanted to preach. Some wanted to throw, some wanted to catch. Some to stitch and some to sow. Some takers, and some givers. No matter what we wanted to be or whatever we ended up being, the givers are the catalysts that make our world a better place.

If you are from our fine state of Georgia and/or have been to a beekeeping meeting here over the years, then I don't need to introduce you to one of those catalysts, my friend, Clay "Bear" Kelley. You already know him. More than likely, you've shaken his hand or have had a conversation with him. But what you may not know is how very interesting Bear Kelley really is. You may not know how big a heart he has. Bear Kelley is the kind of folk that we need, not only in our country, our state, or our neighborhood, but we need him in our beekeeping community as well. I have gotten to know Bear over the years, so let me share part of his story (at least the G-rated version of it).

Before he settled down with his wife, MaryBeth, in Cordele, Georgia, before he had children, before he was "Bear" Kelley, he was Clay, a 17 year old boy just like any other growing up in Florida. The year was 1966, and the Vietnam War was in full swing. Most of the soldiers back then had been drafted, but not Clay. He was young, and he'd had enough of high school and the Florida scenery, so he decided to quit during his junior year. Shortly afterward he joined the Army and found himself in the midst of a very unpopular war. Yet, for almost 30 years, Bear remained loyal to the Armed Forces, eventually retiring as a Chief Warrant Officer 4. Much like

our girls in the hive working together for the betterment of the whole, Bear had formed a kinship with his fellow brothers in arms, which he loved. But his service didn't end there. Not by a long shot.

Bear's long military career took him all over the world. Along with Vietnam, he served in Korea and Japan, each for five years, as a Logistics Management Advisor. While in Japan and halfway through his military career, he decided it was time to sail around the world. But first, he needed to learn how. He took some classes, and, as soon as he received his Navy Skipper's License, he bought a 32-foot sailboat. His long jaunts took him from Japan to China, to Korea, and Taiwan, all the while teaching him about navigation, the weather, and the sea. At this point, he told me, he knew for a fact that this was what he wanted to do when he retired. This was where he wanted to be; on the deck of a boat, leisurely letting the currents guide him about. But, like I said, Bear was only halfway through his military career. There were still a few more military assignments he had to finish.

From 1990 to 1992, Bear was the President of the Czech-American Friendship Association while he was stationed in Germany. He was the first American Army Officer since Patton left in 1945 to wear a uniform in the Czech Republic Army after the wall came down. His combat tours included Vietnam two times, the Panama Invasion in 1989, and Desert Storm. He had been wounded three times and received two Bronze Stars and the Cross of Gallantry from Vietnam.

After leaving Asia, Bear served as a Logistics Advisor in the Office of the Secretary of the Army at the Pentagon. While in DC, his living quarters was a 42-foot, 23-ton trawler, which was, as he described, basically a shrimp-style boat with a large haul. "Trawlers are much more comfortable to live on than a skinny sailboat and more fuel-efficient than other cruising vessels."

He lived on the boat for several years, but the fun didn't really begin until MaryBeth, his new bride at the time, joined him. Together, they sailed up and down the Eastern seaboard and all around the Atlantic Ocean, popping in and out of sandy coves and islands that were sprinkled across that part of the world. The newlyweds loved this type of lifestyle, and they lived it for almost ten years. But one day while docked in Vera Beach, that all changed. Someone approached them and asked to buy the boat. The two talked it over and decided it was the right price and the right time. They let the boat go and spent the next few weeks figuring out what to do next. Standing still didn't appeal to either one of them, so, in 2002, they bought a motorhome and toured the U.S. for the next four years.

While touring around the country, the couple decided to stop by various National Parks, one of which was the Cape Hatteras Light House. Even though Bear had "volunteered" for his country, his service to its citizens was far from over. Eventually, he and MaryBeth came to Georgia and volunteered at the SAM Shortline Train. They both loved volunteering there so much that they decided it was time to own some dirt. They bought a home in Cordele, Georgia and have lived there ever since.

But before buying the house and settling down, Bear wasn't done traveling. On one of his visits to see his son Matt, who lived in North Carolina, Bear was introduced to his first beehives. Matt's boss kept some hives atop the roof of his home, and Bear couldn't believe it. They were able to just walk right up to the boxes and not die. How cool was that? "Just standing there, watching them come and go from the fields with the various colors of pollen in their baskets . . . was fascinating." Bear didn't know it yet, but the hook was set.

Occasionally, on Bear's many travels, the thought of beekeeping kept surfacing, but he didn't think putting bees on a boat or on top of his motorhome was a good idea. It wasn't until he bought that home in Georgia, a place that wasn't moving or floating, that Bear decided to begin his adventures in beekeeping and officially become a beekeeper.

About 10 years ago, Bear attended a Heart of Georgia bee meeting. It only took a few visits before he got stung, so to say (or at least, he was about to). He bought a hive, but he knew he still had a lot to learn. He wanted to learn all he could about bees, so he sought out a mentor. One came highly recommended: Jessie McCurdy. If you've kept bees in Georgia in the last 40 years, then you know Jessie McCurdy (he's a legend in his own right).

Bear and Jessie worked a good bit together, but one day in particular stands out in Bear's mind. It was a hot and humid day (which, for Georgia, is usual), and after having worked since sun up, the two of them were soaking in sweat. All Bear wanted was to head home for a cool glass of iced tea. But Jessie had other plans. They had to check on just one more apiary before the day could end.

At this point, Bear was exhausted, and he had already stripped down to only a t-shirt and shorts. He didn't want to suit back up and walk the distance to the hives, so he leaned back against the truck and watched Jessie hike a good 50 feet toward the bees. Jessie, being the highly recommended pro that he was, wore no veil, had no smoker, and it didn't seem to bother him at all. But Bear was bothered by it. He was bothered by it a lot.

He said, at first, it seemed like slow motion. Jessie lifted the lid off the hive like it was a long hidden treasure chest that could have been buried on one of the islands Bear and his wife had traveled to back in the day. But inside, there were no gold coins or sparkling rubies. Instead, as the lid was lifted, a swirling, black cloud of bees darted out and flew straight toward Bear.

Now, the one thing you're not supposed to do when a mass of bees comes flying at you is panic. And, having spent all those years in the Army, Bear didn't panic. He did, however, start to run, but it was to no avail. The bees were on him like wet on water. Bear got stung on his legs and on his arms. He was stung on his hands, his neck, his face, and on the top of his head. After several minutes (that felt like hours) of doing the I'm-getting-the-crap-stung-out-of-me bee dance, the attack was finally over. Once the buzzing left his ears, the only sound he could hear was that of Jessie laughing hysterically.

Bear still wanted that iced tea, but now he also wanted a shower and some ointment as he removed all the lingering stingers from his exposed skin. Jessie was still tickled, letting out a soft chuckle here and there as they hopped into the truck and headed home. The breeze of the open window as they drove down the Georgia road

Bear and MaryBeth on the open seas.

almost made Bear forget the trauma he had just gone through. Almost. But like any trauma, it doesn't just go away, it has a way of creeping back, and back it did, with a vengeance. Bear was really hoping it wasn't what he feared as he felt that ominous tickle of six tiny bee legs with an attached venom sac and stinger crawling up between **his** legs. But it was!!!

By the time he realized the perilous situation he was in, there was nothing he could do. He had no time to even pull down his pants and rescue a certain body part from the torturous pain he knew was coming, no time to even reach down and grab the attacker, no time to even – BAM! He just got popped in the worst place a man could ever imagine to be popped.

For the next few minutes, it hurt worse than anything Bear had ever experienced (and he'd been wounded three times). But, he had to laugh. He couldn't help it; Jessie was laughing so hard, he nearly drove them off the road. "Call MaryBeth! Call MaryBeth!" he said. Once she was on the phone, Jessie told her, "As soon as Bear gets home, make sure you ask him where he just got stung!" His laughter filled the truck and spilled out onto the roadside as they drove the remaining miles home.

"That day working bees," Bear said while explaining his early years of beekeeping, "Well," he smirked. "It swelled up my pride, so to say." We all have to start somewhere. And thank God it wasn't enough to dissuade him from the world of beekeeping. He worked through the painful experience of learning a new skill and continued working the bees so that only one year later, Bear became President of the Heart of Georgia club for two terms and earned his certification as a UGA Georgia beekeeper. Keeping with his style, a few years after that, he became President of the Georgia Beekeeper's Association, serving two one-year terms. It was a good thing that Bear showed up when he did. The GBA had become stagnant and needed some new direction. It didn't take long for him to turn the association around.

When he took over as president, there were 187 members and only 13 clubs in the state of Georgia. He knew there were some awesome beekeepers and great energy here in the state, but something wasn't connecting. Word on the street was: I've been a member for years, but I've never received anything; I don't know what's going on; how do you join? That's when he realized there was little in the way of communication between clubs and between beekeepers. Bear made it his objective to get folks talking.

He started off by contacting beekeepers and club officers around the state about getting involved either locally or with the GBA. He worked on getting the newsletter in shape and out to folks each month. During Bear's first year, he visited almost every club in Georgia and spoke with them personally. It was important for them to see his passion up close. Next, he encouraged new beekeepers that wanted to start a club by setting into policy and then making start-up funds of $350 available per new club. He also made it a point to recognize each member, letting them know that someone cared and that they were not only a part of a club but a part of something important. Something big. And, boy, did he do his job! Now, the GBA is up to 750 members, there are 36 local clubs, and it's still growing. "We need to keep up the momentum and the enthusiasm, and I hope whoever becomes president won't drop the ball but keep it rolling." I agree; there have been too many excellent plays with this ball, it would be a shame to drop it now.

Bear's other goal is helping to create a better life for bees by educating folks about them. "Once someone knows more about something, they are less fearful." Hollywood and the media have stereotyped bees into these ferocious, attacking insects that will take over entire football stadiums. According to the media, the only role of bees is to invade homes and Volkswagens. So, as more and more folks learn how important (and cool) bees really are, they will hopefully want to help protect them. There are roughly 3,500 beekeepers in the state of Georgia, but Bear figures there is still plenty of room to expand. According to the national statistics, every person consumes 1.5 pounds of honey each year, however, we are importing 1.2 pounds per person. So the beekeepers here in the US are only providing a third of a pound per person. That's a US grown honey deficit of, again, 1.2 pounds that we should be supplying. This is why Bear has gotten involved in the American Beekeeping Federation; he believes there's a lot of work that needs to be done to help bees and beekeepers on a national scale!

Another project close to Bear's heart is the Georgia Beekeeping Prison Program. Several years ago, Rhett Kelley, beekeeper and cousin to Bear, contacted him about helping to certify inmates that were in the beekeeping program at Smith State Prison. Years prior, an inmate had started teaching beekeeping but wanted the students to become certified, if at all possible. This would not only help them while they lived behind bars, but it could also possibly help them once they were outside. More importantly, it could help them **stay** outside.

So, Bear headed to Smith State, a maximum security Prison in Glennville, Georgia, to meet with Roy (the inmate responsible for starting the program), Mr. Roberts (a retired school superintendent who taught and was in charge of the agricultural program at the prison), and the students. After meeting with the students and observing their commitment and dedication to the program, and, of course, the bees, Bear realized something. "These inmates were working towards bettering themselves, their lives, and, once released, they deserved a chance to thrive. And if beekeeping can help them achieve this goal, then I'm here to help them become better beekeepers."

Since Bear's involvement in the prison program, five prisons have developed beekeeping programs behind bars, and 39 inmates and two prison guards have been

certified through the UGA Georgia Master Beekeeper Program. There are 25 hives and 1.25 million bees doing hard time. The goal is to eventually have the program be self-sustainable, with inmates building hives and rearing bees and queens to supply other prisons the opportunity to beekeep. But the other goal is to educate the inmates. Education is very important to Bear. Even though he quit high school, he worked very hard while he was in the Army. After 11 years of night school, he attained a Master's Degree from Michigan State University. His philosophy is, the more they learn, the more they'll want to learn, and the more they want to learn, the more doors will open!

Another door that opened for Bear was honey judging. That was yet another passion of his. While attending the Young Harris Bee Institute a few years ago, he completed his training and became a Welsh Honey Judge. "I've enjoyed digging into all the details about honey," he said. And, when you learn, you want to teach, so Bear also enjoys lecturing about honey and its many properties, not only around the state, but also with the American Beekeeping Federation. One day, he hopes to become more involved in the National Honey Board since he sees there's a lot more he can do to improve our honey industry.

"Public education as well as educating beekeepers about honey is desperately needed. Most of the beekeepers that produce honey certainly know what honey is but don't really get into the nuts and bolts of what it is. Honey is a marvelous work of nature!" In his own words again, "Our society and culture have placed so many barriers up for the honey bee from the constant bombardment of chemicals in our daily life to restrictions in neighborhoods to keeping bees. We need better management practices all around to ensure that the little bee survives. I applaud all those who are serving in these positions to help save the bee and the bee environment. It's time the public knows more about all that goes on in the bee world."

As you can see, there are many facets to Bear Kelley. I've gotten to know him over the years, but one day, it finally hit me. His passion is all about helping others. It always has been. That's what makes Bear the soldier, and the traveler, the teacher, and the skipper, the husband, and the father (and the grandfather), the volunteer, and the beekeeper, the president, and the honey judge. That's what also makes him the friend. Bear wants to help, especially those in need. He did it for our country, for our neighbors, for tourists, for beekeepers, for inmates, for family, for friends, and especially for our bees. His passion is our reward. How fortunate for us that Bear grew up the giver that he is. I say this from the bottom of my heart and for all of those you've helped and will continue to help: Thank You, Bear!

Be good to you and your bees! BC

Bear with one of his students.

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Sam Comfort

Ross **Conrad**

Sam Comfort of Anarchy Apiaries is on a mission – two missions to be precise: 1) Make more hives than televisions, and 2) Have a good time, all the time, with bees.

After watching a hive inspection being conducted in 2002, Sam got his feet wet working with bees by getting a job working for a 1000 hive operation in Vermont in May 2003. As Sam tells it, "Mostly I bummed around several beekeeping jobs and learned what I could while I could take it. Kirk Webster was the first I guy I met who made any sense. He was the only person I knew who trusted the intelligence of insects and told me that both they and I would be ok if I didn't medicate them. I copied a lot of his methods of wintering the Summer splits to back up the operation, 'expansion beekeeping.' Then I visited Dee Lusby in Arizona and witnessed 'shotgun beekeeping' with these intense, huge hives that had each raised their own queens for decades and were always five deeps tall. I draw some elements from both of these treatment-free operations.

"I haven't treated for anything since acquiring my own bees and learning to graft queen cells in 2005. I think of genetics, management, and nutrition. The Anarchy stock has a broad genetic base – I mean it hasn't been messed with for the hundreds of generations to be productive like typical Italian bees. I think viral resistance is way more important than breeding for hygienic behavior and low mite counts. We want bees that can host any number of mites and still not get the diseases. Viral assays are still too expensive, so the only way to do that is let them run their course and don't breed from the dead bees. This is the only way out of the mite problem – stop seeing it as a problem that a beekeeper can fix.

"I use to break the brood cycle by requeening everything with queen cells or letting them raise their own queen, or letting them swarm – but my hives have never swarmed before (ha, ha). Now, hives seem to handle what life throws at them as long as they have the resources. It seems you can take about any kind of bee, and do about whatever to them – as long as they are in a really good area, they have a chance of pulling it off. I buy clover and buckwheat seed every year for the farm that hosts the mating yard in NY, the headquarters that the Whistle Down Farmers call Bee Village. This year I provided them 200 pounds of buckwheat – about $150 – to cover crop about three acres for the late Summer dearth, as well as 100 pounds of yellow sweet clover seed – total of $260 – that was spread over about six acres. It will bloom next year and lookout! I got another 300 pounds of buckwheat I passed out to other farms, and I plan on broadcasting at least 200 pounds of Dutch clover myself in Winter months. It will total about $1000 in seed and it makes a noticeable difference in bee health, honey production, and overwintering. These areas have the best survival rates. I think we've spent the last 25 years talking about *Varroa* mites (and breeding them to be nastier) while the bee forage has been swept from under our tarsal segments."

According to Sam, "I realized my first day on the job that beekeeping was the hardest thing I had ever done, and that's why I wanted to stick with it. I still keep it a challenge, honing the methods of raising bees – weekly I get to try to see how many queens can be caught, and how plump they will be, and in general, how I can make this operation replicable in other areas for other beekeepers.

"I believe the golden era of beekeeping is yet to come. We have great beekeepers and great bees here. They just need the respect they are due from the rest of agriculture. The forage needs to be cleaned up. Non-chemical farmers ought to be treated like rock stars."

Sam believes that, "Beekeeping for a living can in fact be enjoyable, not just profitable and grueling work. I like to keep the sense of wonder every day. I focus on input/output in the apiary and how different parts work together, basic permaculture. The mating nucs provide super-nourished, clean brood for the cell raisers, and weekly there is a huge surplus of brood and queens to stock out yards if needed. I support the baby hives, then once they are teenagers they have to find jobs of their

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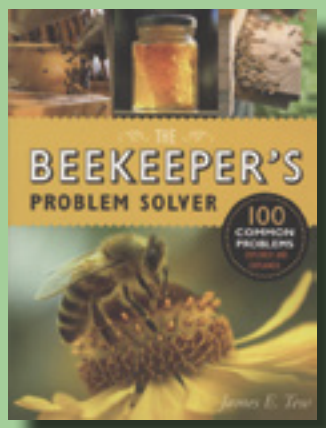

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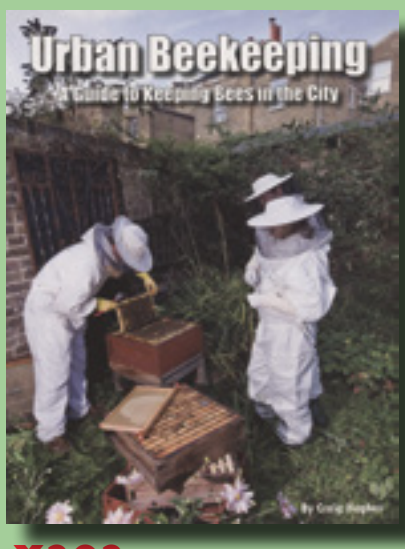

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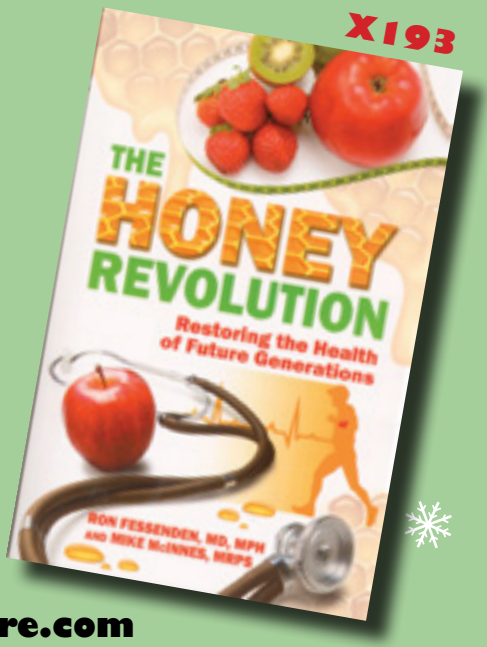

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own. I don't feed anything that's bigger than a nuc. I don't wrap for Winter. I do still complain plenty, I'm good at that."

Sam divides his time between New York and Florida and manages about 600 full-sized colonies and about 360 mating nucs. Half of the large hives live and stay in the Hudson Valley, in New York state, and half live and stay in southeast Florida. The mating nucs are stocked and then combined with the seasons (January to April in Florida, and May to September in New York).

As Sam puts it, "These produce several thousand queens a year. I try not to make honey- sticky, awful stuff it is – but end up harvesting a few thousand pounds each year, as well as a lot of wax." Sam brings breeding stock for queen mothers and drone producing hives from New York south to have early winter-hardy queens with as much control over the genetics as possible.

In the past Sam has sold nucs and produced package bees, both from southern and northern locations. "Now I like focusing on producing quality queens and have a network of friends who produce the bulk bees to support them. We catch from 120 nucs a week. Queens are caught three weeks after cell placement, with their own capped brood present. The mothers are marked, three to four year-old New York survivors," he says. Sam goes on to explain, "We have Florida-based bees, certified European by the Florida Department of Agriculture and Consumer Services (FDACS), but we focus on and sell northern stock. We bring in some new breeding material every couple of years. We have Russian-based bees from Kirk Webster and Andrew Munkres, Russian bees from Bob Brachmann and Charlie Harper, Carni-mixes from Michael Palmer, as well as survivor mutt stock from Zia Queen Bees, Olympic Wilderness Apiaries, and Tim McFarline in Benson, Vermont. We've mixed these with established NY wild colonies from removals, which are likely adapted Italian mixes. Basically we call them survivor mutts, or Zombees- 'cause without treatments the bees are obviously dead but still flying around."

As Sam describes it, he works with alternative hives, though he has tried out many styles and variations. "The very best kind of hive design to use is – you ready? – the one you make yourself. I've experimented with odd shaped Langs, top bar hives, Warres, log hives, skeps, Quinby box hives, the Nutt's Collateral Hive, little clay pots, five gallon buckets. I started my own operation selling bees born and raised in Kenyan top bar hives, but these days I mostly like box hives that are 13" by 13" by 6". It's a great size for a nuc to be constantly messed with, or we can stack them up to be honey producers that get minimal attention. The bees make their combs off of bamboo barbeque skewers. I can make the entire hive quickly, cheaply, and without the use of a table saw. But really if you just show me a dumpster I can make a couple of beehives out of the contents," says Sam.

As you can see, Sam is unique among beekeepers, and it's not just because he doesn't have grey hair (as far as I can tell). So what is the best thing Sam likes about keeping bees? "Aside from getting stung, which is my favorite part, I like the crazy people. Beekeepers are a bunch of incredibly diverse weirdoes. To promote beekeeping is to promote making the whole world weird. And that diversity just might come in handy someday." When asked what the most difficult part of beekeeping is for him, he says, "Making time every six or seven years to update my website. And getting back to people's emails, calls, and texts in a timely manner. It's social insects, not media, around here. He goes on to say, "Picking up the dead in the Spring is always tough, specially knowing that they might have made it if I fed them or moved them to greener pastures. Seeing the survivors thrive is always exhilarating, and typically 70-80% make it through Winter without any help from us, and rebounding from heavier losses would also not be a problem."

Some beekeepers wear their heart on their sleeve – not Sam who sports a 'Zombie' forearm tattoo.

What does Sam see in his future? As Sam puts it on his website, he learns from the hives. "Years ago, I used to think I was saving the bees when we started breeding with Russian stock without mite treatments in Vermont. Now I find that idea of 'saving' presumptuous. To let things bee wild, I had to start all over. And get out of the way." His website goes on to say, "Let's help each other change the sheets on the deathbed of industrial agriculture. Promise yourself to slow down when you eat and savor your food. Support a network of bioregional wisdom, and keep it simple enough to teach a child. What we teach our children is the next world to be. A place where the wild things grow." BC

Anarchy Apiaries mating nuc.

Tammy Horn Potter

Barbara **Gillette**

Kentucky State Apiarist and author Dr. Tammy Horn Potter blazed a trail across literary and beekeeping circles in 2005 with the publication of *"Bees in America: How the Honeybee Shaped a Nation"*, a masterful compilation and study of fact, folklore and history of the honey bee. She hasn't stopped since. She followed with *"Beeconomy"* (University Press of Kentucky, 2011) exploring the relationship between women and bees around the world along with the impact and potential of the female aspect intrinsic to beekeeping.

In her newest release, *"Work I Knew I Must"* (Root Press, December 2016), Horn Potter juxtaposes the journal of A.I. Root, an 18th century beekeeper, innovator and entrepreneur, with the autobiography of Jane Cole, a Root employee of 41 years. The genesis for *"Work I Knew I Must"* came during a west coast book signing for *"Bees in America"*, when Horn Potter was handed a copy of Cole's book. The writing dated to the 1870s and detailed Coles career as a "hand" at the A.I. Root factory. "Her story was so compelling because it mirrors the experiences of so many women currently in the 21st century," says Horn Potter. In collaboration with "*Bee Culture"* Editor, Kim Flottum, who suggested including excerpts from *"Gleanings in Bee Culture"* and additional journal entries from A.I. Root, the book began to take shape. "A.I Root was by all accounts a very progressive person in many ways," adds Horn Potter. He had never seen himself as the owner of a beekeeping company just as it was really transitioning into an industry. The two of them unbeknownst to each other are writing about the struggles of making this factory a success."

Readers may scratch their heads and chuckle at Root's description of his first attempt to keep a "swarm." But the book goes much deeper with relevance for today's entrepreneurs, business owners and their employees. "Initially I just wanted her story to come out again," says Horn Potter. "A lot of the struggles don't need updating . . . divorce, post-traumatic stress syndrome, trying to find a job, trying to keep a job, being laid off. . . Her (Cole's) devotion and loyalty were to the company and Mr. Root."

Horn Potter was born in Harlan County, Kentucky in the 1960s, to parents who taught history and English. Her grandparents were beekeepers on both sides of the family tree. Uncles and cousins worked in the Eastern Kentucky coal mines. Early formative years spent on a pig farm left her with a determination never to become involved in anything remotely agricultural. Instead she embarked on a successful university career which eventually led to a PhD and teaching positions in English and literature at the University of West Alabama, Eastern Kentucky University and Berea College. As time and events began to unfold, her life's work would take her back to her roots, leading to parallel paths that, in the end, would embrace both her love of literature and beekeeping.

Following a year of conceptual and abstract thinking completing and defending her doctoral dissertation, an opportunity arose for her not only to return to Kentucky, but also to plant both feet firmly on the ground. She hit it running. "I came home to take a breather as was much needed," explains Horn Potter. Her grandfather needed help with his beehives and, not without reservations, she agreed to give it a try. Describing her grandfather as a "sometimes difficult man," she adds, "His whole personality shifted while we were getting ready to go into the bees. He became more patient – his tone changed as he was talking to the bees . . . I had never heard this side of him before. There was a tenderness. I thought we were going to war. We were suiting up and lighting the smoker. We were planning our attack, but that wasn't what was happening that morning . . . As soon as we opened that

first hive, I realized that I should have always kept bees. After we finished the rest of the day, I went back the next day and the next. I went back all Summer. That was in 1997 and next year will be 20 years."

In 2008, while exposure and outrage over coal mining industry practices of strip mining and mountain-top removal were approaching a fever pitch throughout much of Kentucky and other coal mining regions, in her role as National Endowment for the Humanities (NEH) Chair of Appalachian Studies at Berea College, Horn Potter turned her attention to solutions. Reaching out to like-minded organizations, she founded and spearheaded Coal Country Beeworks (CCB). With a private grant of 30 mite-free hives and the support of the EKU Center for Economic Development, Entrepreneurship and Technology, (CEDET) along with International Coal Group (ICG) Hazard, James River Coal, and TECO mining companies, CCB initiated a reclamation effort by placing apiaries at surface mined locations with native plantings.

Appointed Kentucky State Apiarist in 2014, it became necessary for Horn Potter to step down from her hands-on role, however she remains closely involved with Coal Country Beeworks and continues to reach out to other organizations seeking active solutions. Under her stewardship CCB continues to develop and expand with the scheduled 2017 groundbreaking for an Appalachian Wildlife Foundation center in Belle County, Kentucky slated to include an apiary. A current and ongoing grant provides for a 4-H and FFA program in the area focused on honey bees. An early grant continues to fund the Eastern Kentucky Winter Bee School held in January which kicks off a round of bee schools across the state. A partnership in West Virginia with Green Forest Works (GFW) and their non-profit, Appalachian Regional Reforestation Initiative (ARRI,) includes plans to renovate an old 4-H camp in Lewisburg into an apiary and nursery for growing the trees needed to support apiaries on selected Eastern Kentucky reclamation sites. A second federal grant provides for hiring and training veterans to manage the facility. According to CCB, coal companies have currently created more than 33,000 acres of reclamation land through the planting of native trees and flowers.(http://cedet.eku.edu/coal-country-beeworks)

"We all know the Midwest is saturated with pesticides," says Horn Potter. "That's my hope for the state, within the next four years, to really develop this Appalachian area because it has practically no issues with the ag chemicals or even the urban insect control problems like we see in South Carolina and Miami. What I want is for our region to really hunker down now and focus on queen production. We can produce good quality queens."

Creating a Queen Breeders Association and developing a solid breeding program in Kentucky are high on her priority list. Earlier this year Horn Potter traveled to Purdue University for a first-hand look at a breeding program targeting bees that destroy *Varroa* mite by tearing the mites apart. This promising new strain of honey bee is referred to as the "mite biter." Under the leadership of Greg Hunt, the Purdue program focuses on research and selective breeding, farming the "mite biter" queens out to neighboring states as part of each state's queen breeding program.

Back in Kentucky Horn Potter is working quickly to establish four distinct areas for breeding across the state with a goal of receiving "mite biters" into a newly established Queen Breeder's Association program by 2017. "And not just the mite biters," adds Horn Potter. "We need to get the New World Carnies and the Russians. We need our own Appalachian line . . . That too is a commitment and it's going to take long term education which sometimes I feel is a challenge."

On the national level, she believes one of the industry's biggest challenges is to achieve a federal definition of honey, adding that until that happens, beekeeping won't be taken seriously. "We're not going to have one until we get serious about shipments of honey from China and Brazil," says Horn Potter. "We are importing 350 million pounds of honey every year and that really depresses the market for local beekeepers."

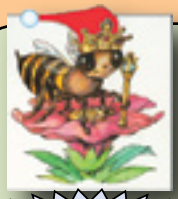
In her appointed role as Kentucky State Apiarist, Horn Potter's typical day may involve speaking and teaching at bee schools and workshops, honey tastings and judging, and hive inspections, along with planning and strategy meetings. On the side, when she isn't writing (she has at least two more books in her back pocket), preparing grants and working on business plans, or traveling to research facilities and labs across the country to learn about the latest discoveries and technology in the industry, she and her husband work side by side, supporting their 100 hives on her grandfather's original farm.

In addition to her books, Horn Potter has given numerous interviews and written numerous articles about bees and beekeeping. She is the recipient of several state and national awards for her efforts on behalf of the industry. (www.tammyhorn.com)

Her literary success along with years spent in the halls of academe give her a formidable skill set when it comes to consensus building and organizational ability. Her early years growing up in Kentucky and nearly 20 years of working with honey bees likely are more responsible for the down to earth, straightforward quality that Horn Potter brings to work every day. All added up, the beekeeping industry gains a powerful advocate for the future of the honey bee and related enterprises.

Beekeepers in Kentucky and even across the country will need to keep their running shoes handy if they want to keep up. BC

All The Buzzzz in...



Hello Friends,

Have a very happy holiday season. May all your drems come true!

Bee B.Queen

Bee B. Queen Challenge

Paint a design on the front of your hive.

Beatrice and Frieda in Slovenia

Beatrice and Frieda Bilezikian, age 10 and 8, live in Watertown, Massachusetts. Since their dad has been keeping bees for over 30 years and their grandmother is Slovenian, the family decided to travel to Slovenia, a country well known for beekeeping. Beatrice and Frieda talk about their trip.

How is beekeeping different in Slovenia?

They kept bees in little sheds with doors. Inside was a big wall of beehives with little drawers to pull out. Inside the drawers were frames. On the outside of the beehive, they painted pictures of folktales so the bees could find their home. They could sit on a bench when doing their work and pull out the drawers.

Sometimes inside the bee house or the shed is a bed. Sometimes they do massages there. They believe that bees help you live longer if you would just listen to them and smell the smells.

The beekeepers harvest honey in May, June, and July. August is a bad time to harvest honey. They use giant mushrooms in their smokers so the fire burns more slowly. Three honey plants in the spring are spruce, linden and acacia. In the fall is goldenrod, buckwheat, and sunflower.

All the hives are turned southeast because it warms the hives in the morning and is cooler in the afternoon.

The beekeepers keep Carniolan bees.

Frieda and Beatrice standing inside a bee house.

The countryside in Slovenia.

Honey bread or ginger bread is made into heart shapes to be given to loved ones.

There was a beekeeper near Lake Bled that had a hive of bees in a tree. He cut the bees out and put them in this box.

Anything else you would like to share?

They put a lot of honey in their water. So whenever we went to a beehive and we wanted water, they would always give us honey water or mint water. We really didn't like the honey water because it was very sweet.

Slovenia is clean. You can't see a single speck of trash anywhere. We had fun and we learned a lot!

... Bee kid's corner

Produced by Kim Lehman -www.kim.lehman.com
www.beeculture.com December 2016

Tell us about the beekeepers you met.
When we were with the beekeepers it was really fun tasting the honey. They had little squirt bottles filled with honey. We would put the honey on a little spoon and eat it. We had fun tasting the pollen. (Beatrice enjoyed the pollen tasting. Frieda? Not so much.)

One of the beekeepers played the organ for us. One beekeeper had a hammock. One beekeeper was also a potter. She made us a bee lunch with some really good chicken, a buckwheat salad, homemade lemonade and mushroom soup. They had a lot of mushroom soup there. They have lots of grasshoppers too. If we caught a grasshopper then we got dessert.

A fun thing about meeting one of the beekeepers was that he told us a tablespoon of honey before you go to bed helps you to stay healthy!

Beatrice and Frieda in front of a bee house decorated with beautiful painted boards.

This is just one of the designs Frieda drew to decorate their hive.

This magnet, with words in Slovenian, says, "Work hard like a bee."

Beatrice created artwork for the front of their family hive.

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Honey!

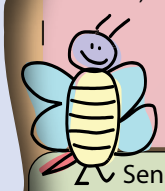
Find some of the different varieties of honey in Slovenia. The starred honeys are the ones Beatrice and Frieda tasted while on their travels.

*ACACIA
BUCKWHEAT
CHESTNUT
*CLOVE
GOLDENROD
*IVY
*LINDEN
*PINE
SPRUCE
SUNFLOWER

Beecome a Bee Buddy

Send two self addressed stamped envelopes and the following information to: Bee Buddies, PO Box 2743, Austin, TX 78768.

Name
Address
Age
Birthday Month
E-mail (optional)



We will send you a membership card, a prize and a birthday surprise!

Send all questions, photos and artwork to: beebuddies@hotmail.com or mail to the above address.

QUEEN RIGHT COLONIES

James E. Tew

Denzil and Sheila St. Clair and their daughter, Lacey.

I can't say just how long it has been, but I have known Shelia and Denzil St. Clair at Queen Right Colonies (QRC) in Spencer, Ohio, for many years. Though all those years, Queen Right Colonies has steadily grown and evolved into a diversified education and supply company. From a simple early start, the company has now grown into a complex that readily serves as both a supply stop and a tour stop. Equipment, bees, education, and an eclectic collection of products and animals are main attributes of this business.

Things are always changing at QRC. For a while, meetings were conducted in a vintage Ohio barn with room for animals, farm equipment, and beekeepers. They even included a premier parking space for visiting speakers. This remains the only time in my career that I was allocated a special parking space. I will not forget this experience.

Denzil –

QRC Philosophy

I will never forget making my first trip from Cleveland to the A.I. Root Company. I remember the excitement and expectations about a new adventure. Arriving at Root, the sights and smell of wood and wax, and actually seeing and touching beekeeping equipment plus the wonder and the possibilities seemed endless for a young and novice beekeeper. I want to give people that same feeling of awe and wonder as they arrive and continue to come to QRC, the feeling of a kid in a candy shop. To do that, we continue to change the appearance of QRC. When you arrive here, you will never know what to expect in the product line, livestock, or buildings.

QRC Commitment to Beekeeping

I have been president of the Lorain County Ohio Beekeepers Association (LCBA), an organization that was founded in 1919[1]. I started the Greater Cleveland Beekeepers Association[2] (GCBA) and support all local organizations. GCBA conducts a free Field Day in conjunction with LCBA every year at QRC. We have several free classes throughout the year and speak regularly whenever possible. Primarily QRC is a retail facility and teaching business. While we maintain about 30 colonies on site, these are for instructional purposes only.

QRC the Business

QRC is a five generations beekeeping family and four generations of St. Clairs have worked at QRC. I have told many that my wife's grandfather is responsible for QRC. When we were married in 1971, Benjamin H. Campbell gave us two colonies of bees. We moved these hives in the back of a Ford Fairlane from Kentucky to Brunswick, Ohio.

The business itself is unlike any other. Where else can you go to buy an item whether it is a hammer, car, washing machine, or hive tool and walk with Fallow and Muntjac deer, cattle, horses, and other creatures great and small. In the past three years, we have demolished two buildings and built three new structures. We have added five acres of land and a new warehouse (which is already packed with bee supplies).

QRC Bees

We have had a great opportunity for the last 10 years to work with Ray Olivarez in northern California and supply beekeepers with what we think to be the best package bees in the industry, but, of course, we are very biased. We supply several semi loads of bees every year to experienced and novice beekeepers alike; and we still ship bees anywhere east of the Mississippi. This is becoming a greater challenge as more and more bee supply companies and package bee operations drop the package bee shipping aspect of their business.

A Bit of History

In March, which is usually mild in Kentucky, Shelia St. Clair's grandfather, Mr. Campbell, was an older beekeeper who walked with a cane. When he learned that Denzil liked animals and was curious about bees, of course, he immediately had to show Denzil his bees. As they reviewed the apiary, he decided to check to see if his hives had survived the Winter.

[1]Lorain County Beekeepers Association http://www.loraincountybeekeepers.org

[2]Greater Cleveland Beekeepers Association http://www.greaterclevelandbeekeepers.com

Mr. Campbell had a tiered setup in his apiary. When working his bees, he had just enough room for a walkway for himself. As Denzil followed, Mr. Campbell would rap on each hive to see if bees would come out. As the two of them – in single file – stepped forward from hive to hive, Denzil was required to stand in front of the hive that had just been disturbed. More and more bees took flight with Denzil – knowing nothing about bees – in the middle of the fracas. He told me that as he and Mr. Campbell moved farther down the narrow row with more and more bees in the air, he moved in closer and closer to his grandfather-in-law until he was breathing down his neck. Because Mr. Campbell blocked him, he could not move forward. Since the path behind him was a cloud of bees, he had to see this journey through. Remember, neither had veils or smokers. It ended happily. This was Denzil's very first experience with bees and the beginning of his interest in honey bees.

A partial view inside the store. Products and arrangements change frequently.

When the St. Clairs married in 1971, Mr. Campbell gave the newlyweds two hives of bees. The bees were loaded into the trunk of the car and hauled home. As has happened to so many of us, the St. Clairs were novice beekeepers. As it worked out, Sheila's dowry was two beehives.

As young couples often do, they moved a number of times, and it was not long before the two moved back to Cleveland. At that time, bees could not be kept within the city. By the time he and Shelia were in Cleveland, the *bee bug* had hit him. He gave the two hives to his brother for safekeeping. To meet his bee needs, he set up an observation hive in his upstairs apartment and ordered his bees through the mail.

The day the bees arrived, Denzil happened to see the postman make the delivery. He waited a bit for the doorbell, but no ring. What he saw was the postman departing, he opened the door. The postman said that he did not knock because he did not care if anyone was home or not – he was *out of there*!

The couple continued to move and the observation hive went with them. Eventually, they settled in an upstairs apartment at his parent's home. In the early Spring, a neighbor began to complain. Because the sun struck the wall of his house, bees would fly from the shaded side of the St. Clairs' apartment to the sun-warmed wall of this neighbor's house, *"making the neighbor crazy."* Denzil's Dad felt bad for the neighbor, so he bought him cans of insecticide spray to control the bees on his house.

The observation hive became too much of an issue so the next move was to put a beehive on the top of the flat-roofed garage away from the house. Of course, this was not legal at the time. The rooftop apiary grew to two colonies. When the St. Clairs moved to their present location in Spencer, Ohio, the bee operation mushroomed to 200 colonies. These were used for pollination and were trucked all over the state.

Once he was late for a pollination

A view of some of the interesting hive equipment available at QRC.

The QRC Small Hive

The St. Clairs have developed a small hive concept with smaller accessories.

Ostensibly, it would be for children who are a bit older, but I could see where it could used for senior beekeepers, queen breeders, or beekeepers who are putting together a display at fairs or farm shows.

The unique hive is available as an ornamental hive. Simpler versions of the hive are also offered. As with other QRC standard hives, pastel wood stains are available that give the hives a pleasingly colorful look.

How would it work during and after Winter? Will swarming be a problem? How tall can it be stacked? Some basic answers are not yet available, but the challenges that may be presented are none that beekeepers have not dealt with when managing traditional hives.

A small portion of packages for pickup. Of course it rained heavily that day.

colony pickup. Since he had bees scattered in several pollination locations, he abruptly decided to move these late colonies from an orchard. The evening was late without light, and interestingly, Denzil planned to do the job with no protective gear and smoker. No, the hives were not closed up. He said he did not move colonies closed up.

It is important for you to know that the orchard owner did not know that Denzil was coming for his bees. Indeed, the owner was not even home. Denzil moved his trailer to the vicinity of the hives and went about his work.

It became hard dark, but the ramp was down, and colonies could be rolled up onto the trailer – when without warning he heard a shout, ***"Who's out there!! Who's out there!! Boom! Boom!"*** (12-gauge shotgun retort). Denzil shouted that he was only picking up his bees. The dogs were going crazy. After calming down and stowing the armaments, the owner offered to help but that was neither practical nor safe. In general, it seems that a lot of shooting, shouting, stinging and barking was ongoing; just a typical beehive move.

After the excitement ebbed, almost immediately, Denzil dropped a colony and having no gear, he was being crazy stung. Bees were everywhere. He reestablished the colony and dropped it again. The bees were disgusted while Shelia stayed in the truck. Much like his earlier experience with Mr. Campbell where he could not turn back, Denzil could only suffer through this episode. To this point today, Denzil feels that this was the worst bee night of his life. Shelia concurs.

During this phase of his bee life development, Denzil began to have the conception that selling bee equipment might have potential. At that time, the Root Company in Medina had stopped manufacturing bee supplies. This required many Ohio beekeepers to purchase equipment to be shipped to them. His initial idea was to buy equipment in volume, use what he needed, and sell the remainder. A corncrib was his first bee supply building. On his first order he bought 50 deeps and worried about selling it; but it did sell, and demand grew and grew. Denzil and Shelia began building (and building) new facilities and adding to others. Additional property was acquired and a large warehouse was purchased. With each addition, it was felt that this would be the last. Not so. Even now, all buildings are filled, and customers come in steady streams. The next initiative may be to perform in-house milling and manufacture wooden equipment. This advance is still in the idea phase. Additionally, office space may be increased.

No matter what time, the semi from California is unloaded and the drivers immediately head back. The trailer is custom built with digital information concerning the load. The packages travel in humidity and temperature-controlled environment. The bees arrive in beautiful condition.

The St. Clairs are very complimentary about the relationship they have developed with many of their customers. Customers who come in share their experiences, their backgrounds, and their beekeeping stories. The couple has served as president of the Lorain Beekeepers Association, a one hundred year old organization. Additionally, they have been instrumental in initiating other bee organizations and establishing educational programs at their facility.

QRCs staff now sells 3600 to 3800 packages and about 2000 queens per spring season. Denzil and Shelia now keep about 30 colonies for training, experimentation, and demonstration. This couple made a conscious decision to move to equipment sales rather than pursue the honey production/pollination aspect of beekeeping.

Denzil's overview comment is that Queen Right Colonies does a lot more than sell bee supplies. They provide tours, have developed an impressive menagerie of animals, carry a complete line of books, and conduct educational programs. They change a lot, too. QRC is constantly evolving and changing. The St. Clairs hope their operation will always be an enjoyable stop both for beekeepers and anyone interested in animals, bees, and a unique and diversified inventory of both practical and whimsical items[3]. It is a very pleasant stop for anyone interested in bees and specialty barnyard animals. BC

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

Approximately 2,000 queens are sold per year. If desired, they are hand-marked with the proper color at the facility.

[3]For more photos, see: https://onetewbee.smugmug.com/organize/Bee-Culture-November-2016

THE KELLEY BEEKEEPING COMPANY

Phil **Craft**

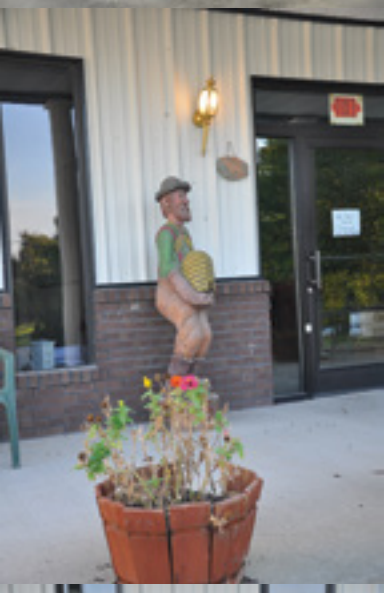
Exciting New Things Are Happening At Kelley

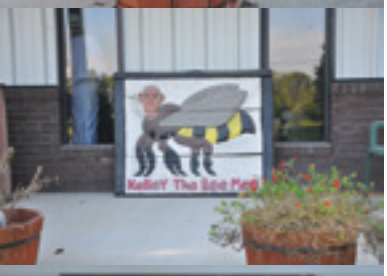
A loud buzzing overhead attracted the attention of the group assembled at the Kelley Beekeeping Company in Clarkson, KY. As people glanced around the cavernous woodworking shop and then up towards the lofty ceiling they saw, not an errant late season swarm of honey bees, but a camera-equipped drone. The occasion was the official opening of the Kelley company's new building which houses the woodworking shop, offices, a warehouse, sales floor, and more. The ribbon cutting was held on September 23rd during Clarkson's annual Honeyfest. The ground breaking ceremony had taken place just a year earlier during the 2015 festival. Things have been moving quickly at Kelley.

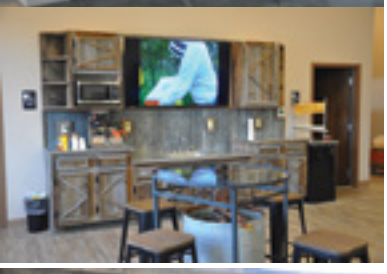
Readers of *Bee Culture* are familiar with the company, known until recently as the Walter T. Kelley Company, as a manufacturer and distributor of over 3,000 beekeeping products. It is a small business success story with a long history interesting enough to deserve an article of its own. (Check upcoming issues.) Between Mr. Kelley's death in 1986 and September of 2014, it was owned first by a trust, then by the local Twin Lakes Regional Medical Center, and most recently by a private partnership. That is when the Frandsen Corporation entered the picture. Frandsen, another success story, is a family owned business with its headquarters in North Branch, Minnesota. Begun as a one-man operation by Dennis Frandsen in 1951, it now owns a family of companies in various fields from banking to plastic injection molding. In 1996, it acquired Miller Manufacturing, a manufacturer and distributer of farm, ranch, and pet products. Frandsen decided in the Fall of 2013 that beekeeping supplies would be a good fit with Miller's customer base and distribution network.

After considering several potential suppliers, they began purchasing equipment from the Walter T. Kelley in January of 2014. By March of the same year, Kelley products were being distributed and sold in retail stores by Miller under the brand name Little Giant®. Within a few months, Miller's demand exceeded Kelley's production capacity. Frandsen made the decision to purchase Kelley in order to expand. An agreement with the owners was reached, and on September 10th, 2014, the Frandsen Corporation announced its acquisition of the Walter T. Kelley Company and its new name: Kelley Beekeeping Company (KBC). According to the press release announcing the transaction, "Although formally an acquisition, the intent and spirit of the transaction is to create a partnership among KBC, Frandsen, and Miller." It refers to KBC as "a sister company" to Miller Manufacturing. "The beekeeping industry has exploded with growth in recent years and is expected to continue growing and evolving rapidly," said Dan Ferrise, EVP of Frandsen and CEO of Miller. "We will provide the KBC team with resources that will allow them to continue to grow to meet the needs of beekeepers throughout North America."

One on those resources is the new building. At 82,000 square feet, it is far larger than is necessary to meet KBC's current needs, but Dennis Frandsen, CEO and president of Frandsen Corporation, announced at the opening ceremonies that they hope to double and then redouble KBC's production capacity in the next few years. To that end, they have included room for expansion in the new warehouse, office area, and woodworking shop. Much of the equipment in the latter is new and state of the art, and the whole facility was





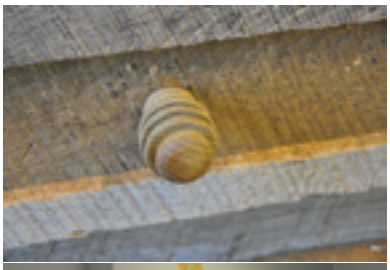


designed to be environmentally conscious. An enormous air handling system, equipped with fire safety features, vacuums up sawdust at the point of creation and stores it in outside tanks to be recycled into animal bedding, fire logs, and composite material for decking and outdoor furniture. The warehouse is cooled in the Summer by air pulled through the open truck bay doors and out ceiling vents by two large fans. In Winter, the air compressor room is vented into the woodworking shop next door to provide heat. LED bulbs are in use, and additional light is provided by hexagonal (of course) windows near the ceiling.

The new building not only consolidates some KBC departments which had been dispersed among several older structures, it also incorporates space for new activities. For instance, the company now has an extracting room and equipment for the use of local beekeepers at harvest time. Some of the older buildings will be put to new uses. Former retail space will become the Walter T. Kelley beekeeping academy, and used for beekeeper training and for field day seminars. Not all manufacturing processes were moved to the new facility. Wax foundation is still made on the property at a site where, in the past 60 years, two earlier buildings have burned.

That 60-plus-year association between Kelley's and Clarkson is important to the city. With over a hundred people now working at the company, it's the largest employer in town, but that isn't all there is to it. The entire community seems to have embraced everything related to honey and bees. The Clarkson Honeyfest, held every year for three days during the last weekend in September, celebrated it's 22nd anniversary in 2016. The web site for the festival proudly proclaims, "We're all about the HONEY BEE!" In 2006, the Kentucky General Assembly designated it Kentucky's Official State Honey Festival. It has everything you would expect to see in a small town festival: a parade with fire engines and politicians and floats, a beauty contest to crown Miss Honeyfest, live bands, rides, food, and craft booths. But there is also a honey bee themed flag on literally every street light in town. Homes and businesses are decorated with a bee theme (there's a contest), and costumed children make some of the cutest honey bees you'll ever see. Needless to say, the vendors in the craft booths include several selling honey and bee-derived products. The Honeyfest board estimates that several thousand people a year visit Clarkson for the festival – in a town with fewer than a thousand residents.

In scheduling both the ground breaking and ribbon cutting ceremonies for the weekend of the Honeyfest, the officers of the Frandsen and Miller companies demonstrated a sensitivity to the close relationship between company and community. Frandsen Corporation's investment in the expansion of the KBC was significant



enough to bring representatives from the offices of the state's Governor, both senators, and the Kentucky Secretary of State to the ribbon cutting, but none was more enthusiastic than Clarkson's mayor, Bonnie Henderson. Negotiations for Frandsen to buy the eighteen acre property on which KBC is located were complex. Though the Frandsen Corporation had purchased the company from the partnership, the land and buildings were still owned by the hospital. During the process, Mayor Henderson told the city attorney, "We need to do whatever we have to in order to keep Kelley in Clarkson, as long as it was legal. We are Beekeeping USA and there's a lot of reasons to keep the company here." After the successful conclusion, Dan Ferrise, CEO of KBC, stated, "We are pleased to continue to invest in the community and further strengthen our roots in Grayson County."

The new facility is not the end of Frandsen's plans for Kelley. New construction and new machinery are part of them. They hope to continue to increase production and sales. Asked if they intended to expand their marketing to commercial beekeepers, a spokesman said, "We are focused on optimizing our service model to efficiently serve and grow with all types of beekeepers." Mr. Frandsen indicated in his address that a second distribution center in the western part of the country is a future possibility. Best of all from the community's perspective, KBC expects to expand the number of its employees by 30% in order to achieve its projected sales growth.

Amidst new construction and plans for the future, it's reassuring and touching that nods to the history of the Kelley Beekeeping Company are so much in evidence. During the speeches inaugurating the new building, both current and past Kelley employees were recognized – particularly those who have been with the company since the days of Mr. Kelley. In the woodworking shop, state of the art computerized manufacturing equipment operates alongside ancient, one-of-a-kind machines designed and built by Mr. Kelley and his metal working specialist in the 1940s. The flat screen, hi definition TV showing beekeeping videos in the very modern sales area is flanked by cabinets made of wood recycled from the old barn which was torn down to make room for the new headquarters. (The handles and drawer pulls are made from the heads of honey dippers.) Even Mr. Kelley's old truck still sits in front of the building, on permanent display. BC

Phil Craft is one of Bee Culture's *regular contributors with his Ask Phil column.*

ALL ABOUT LABELS

Beekeepers Tend To Be An Experimental Lot.

Michele **Colopy**

Label directions provide valuable information. Label directions protect us, our honey bees, and our environment. There is a direct correlation between properly following label directions and the health of our bees. The application of pesticides in and around the hive, along with other products beekeepers use to support the health of their honey bees requires vigilance. Products can become problematic if the label directions are not followed. Synergisms can be unexpected, but created when products are used in tandem, mixed together, or in-hive products are miss-applied, including use of expired products. The label will clearly state the expiration date of the product. Beekeepers have a choice of using an expired product or not; your bees are at your mercy. Beekeepers do not realize what "new product" they are creating when they combine "great grandpa's age old fall treatment for bees" with Terramycin, and another in-hive treatment. Even if "great grandpa's age old Fall treatment for bees" is comprised of "naturally occurring" elements, it could still cause unhealthy synergisms with the other products or cause those products to fail completely. I interviewed a number of manufacturers of in-hive products regarding concerns of product label comprehension, possible synergisms created when directions are not followed, and their experiences with the real-world use of their in-hive products.

Kathleen Ireland of Mite Away Quick Strips® (MAQS® Beehive Strips) made by NOD

Mite Away Quick Strips® are Formic Acid polysaccharide gel strips for the treatment of honey bees infested with *Varroa mites*. When Mite Away Quick Strips (MAQS® Beehive Strips) are placed in the brood chamber of a honey bee hive they act as an organic miticide that kills the *Varroa* mite where it reproduces, under the brood cap. MAQS® technology eliminates the risk of residues as beekeepers can use it safely during the honey flow.

MAQS® is a brood treatment. Frequently, monitor mite levels and when local thresholds are met, treat colonies during the population increase, peak, and decrease phases. Target the periods when mite levels increase and overtake colonies. As is captured in our registered EPA product labelling, special conditions to follow at the time of treatment are: **proper application** (two strips for seven days or one strip applied on Day+0 and again on Day+14 for 21 days total), **temperature** (50-85°F during the first three days), **hive strength** (minimum of six frames of bees, with a mite count), **configuration** (standard Langstroth or equivalent) and **ventilation** (minimum entrance 1.3 cm or ½" full width of the hive). Taking all of these conditions into account are key to a successful treatment.

At NOD we value input from our customers. Based on our customer interactions and data analysis we can make clear, concise decisions to change product labelling, or investigate new research and development opportunities. From this process we can advise that the *only* adverse events reported to us always include an element of off-label use. The most common issue involves the removal of the Mite Away Quick Strips® outer paper wrap, which acts as a slow release wick. Most beekeepers are upfront when contacting us, notifying us that they didn't read the instructions until *after* they had already applied the product. The other top inquiries or concerns come from beekeepers who are observing the cleansing affect that Formic Acid has on sick and weak bees. Typically, they are concerned that this is abnormal or something is wrong with the dosage. We take the time to help beekeepers understand the life cycle of the *Varroa* mite and its effect on the honey bee immune system; specifically how mites expose bees to viruses and disease. MAQS® will highlight weakness in a colony and cull sick bees. Results post treatment include healthy, prolific brood build-up for honey flows and winter clustering. It is normal to observe around one to two cups of dead bees within the first 72 hours of the treatment.

NOD has changed the label directions since Mite Away Quick Strips® was approved in 2011. The first change referenced the need for more detailed information on entrances and ventilation, all of which was conveyed to us by many loyal commercial users. When the outer paper wrap removal was trending, we immediately approached EPA with a change to include a warning on the label; "DO NOT REMOVE OUTER PAPER WRAPS." Dosage additions were implemented in 2014, and our next step is to further clarify the dosing based on recent user requests. As part of our due-diligence, we monitor acceptance and concerns regarding label directions, and take the appropriate steps to enhance the consumers' experience with our products. View NOD's Proper Application videos that reflect the EPA registered labelling on Youtube at Nod Apiary.

MAQS® is available globally, therefore we collect a variety of data on how beekeepers use it and interpret the label directions. NOD markets Mite Away Quick Strips® as a bio-pesticide in Canada, New Zealand, and the USA. MAQS® Beehive Strips is marketed as a Veterinary Medicine in Bulgaria, Cyprus, Estonia,

France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Malta, Portugal, Romania, Slovenia, Spain, Switzerland, and the United Kingdom. MAQS® is sold in 21 different countries and 14 different languages, so it is up to us, the manufacturer to adapt to an ever changing global environment, and focus on making sure the consumers are experiencing the product as intended. The differences in real-world use of our product between U.S. beekeepers and beekeepers in other countries is a really interesting one. The U.S. isn't alone in their lack of enthusiasm to read labels, and there are many variables that can compound and create major issues. First and foremost is the absence of attention to hives, (i.e. no monitoring for mites or overall health). The next, is applying mite treatments without reading the label or doing any research. Then the cycle repeats itself. In New Zealand most beekeepers treat prophylactically in Spring and Fall, and monitor post treatment (checking for synthetic resistance concerns). Their proactive approach to IPM makes for a more successful program with better results nationally.

In-hive products are best used as a management tool rather than a reactionary tool. Monitor mite levels monthly during the active beekeeping season, and treat when thresholds for your area are reached. Prevent *Varroa* transmitted viruses from overwhelming your colonies. Highly infested colonies have weakened queens and bees and may require more than one treatment if they can be saved at all. Bees are healthier and more productive when mite levels remain low, have access to good feed and forage, and are protected during winter.

Earl and Carol Hoffman of Strong Microbials, Inc.

Over the last four years we have worked with scientists researching, field testing and evaluating several "Direct Fed Microbial" (DFM) in-hive microbial supplemental products. Some of them are currently in Beta testing and are not currently available for retail sales. Two of the current products that are being sold retail by distributors are Total Nutrition (TN) and Super DFM honeybee (S DFM HB). Both of these products are U.S. Food and Drug Administration (FDA) approved as Generally Recognized As Safe (GRAS) ingredients per our Material Safety Data Sheet (MSDS) records. The product contains "live concentrated Lactobacillus" bacteria.

Per the U.S. Food and Drug Administration (FDA) approved guidelines; microbial (DFM) products are able to state "microbials promote intestinal wellbeing." NO references to curing diseases or other claims for health improvement are allowed. Our Total Nutrition (TN) product has amino acids (proteins), fatty acids and lipids that help maintain colony strength by boosting hive populations, which results in better crop pollination and honey crops. From a purely microbial reference; Lactobacillus Bacteria (LAB) suppresses pathogens using anti-microbial substances, like peptides. This effect has been clearly demonstrated in the laboratory. Last, DFM is safe to use at all times including during the honey flow!

Because many of the DFM are anaerobic (require low oxygen environments) they must be applied in the DRY state. DFM Microbials should never be applied during antimicrobial treatments such as with Tylosin, and Fumagilin. Microbials should be applied directly to the target audience (nurse bees) in the brood chamber, dusted on the frame top bars. Do not mix the microbials (DFM) into pollen patties or add to sugar water/bee feed. Agricultural Bellows style dusters are the quickest method to apply microbials (DFM) to hives without opening the hive lid.

Super DFM Honeybee (S DFM HB) is currently set at 10 grams per hive application. This is about one (1) tablespoon of microbials (DFM). The directions suggest adding the DFM to a carrier to aid in applying the product. Customers have had concerns measuring the correct amount of carrier to the microbial (DFM) product. Since a carrier like powdered sugar is not required for the microbial (DFM) to have efficacy, some customers have forgone this step.

To correct that error state, the other DFM product called Total Nutrition (TN) is premixed and the directions call for ¼ cup to be directly applied to the nurse bees in the brood chamber super. Agricultural Bellows style dusters may under or over apply the desired amount of microbial (DFM) per hive. Neither of these conditions is detrimental to the hive.

Strong Microbials Inc. continually evaluates how customers interact with microbial (DFM) products. We have added the guidance that cold storage extends shelf life, and we have used all caps for the word "dry" (DRY). Based on microbial data and analysis we have updated and changed the cadence (frequency) that microbial supplementation should be applied. Strong Microbials Inc. does sell direct fed microbials (DFM) globally, and beekeepers from other countries have *not* misinterpreted the English version of the directions. No difference has been detected in worldwide use of Direct Fed Microbials (DFM) products based on our label directions, and real-world use. "Feed DRY" is understood as "feed DRY" no matter the country.

The best practice for beekeeping management is to be proactive and engage with your hives to provide the best conditions and care that you (the beekeeper) can give.

Phil Craft for Apivar made by Veto-pharma.

Phil serves as the United States technical adviser for Veto-pharma, a French pharmaceutical company, who developed the product, Apivar,

Phil Craft

to control *Varroa. Varroa* mites continue to be the greatest challenge to beekeepers today. Apivar is an amitraz based product. The specially designed polymer strip of Apivar slowly releases amitraz to kill up to 99% of the mites in a six-week period, enough time to cover several successive generations of *Varroa* mites. Apivar strips can be used year round when honey supers are not on the hive, but most beekeepers use them in the Spring, prior to placing honey supers, or later in the year, after supers are removed. Three points should be followed to ensure the best efficacy of treatment:

- **Proper dosage:** The recommended dosage is two strips per deep brood box full of bees. One strip is placed in the brood boxes for every five frames that are covered with honey bees, or two strips in each brood box if they are full of bees. A strong two story hive will require four strips for treatment. Effectiveness is not guaranteed with a lower dose, and a higher dose may increase the risk of leaving residues.
- Proper **placement of the strips:** strips need to be in the bee cluster, which is also the brood area of the colony.
- **Proper duration of treatment:** Strips must be left in the hives for six weeks (42 days), and removed within 14 days after the 42 day treatment period.

"Read the label" for complete instructions, though supplemental directions, and additional information is available at **www.veto-pharma.com**. While the directions on the Apivar label are unchanged for now, we have produced a supplemental "directions for use" pamphlet which contains more detailed directions in order to make the label directions more graphic and easy to read. These can be found at beekeeping conferences where Veto-pharma team is present, and also at our webpage. Beekeepers can also email me at **phil.craft@vetopharm.com**, and I will email them a digital printable copy of these directions.

What happens when the directions are not followed? With Apivar, beekeepers have sometimes failed to use a sufficient number of strips, sometimes only inserting one strip in a brood box full of bees, or failing to put strips into both brood boxes. Undertreating colonies with any miticide will likely result in a failure to control *Varroa*. Beekeepers should also remember to leave the strips in the hives for the full 42 days (six weeks), Apivar is a slow release product, and the full six weeks of treatment is essential.

Apivar is available in more than 20 countries around the world. The common issue between all countries is beekeeper failure to follow directions with respect to the duration of the treatment, especially by leaving strips in the hive after the end of treatment. We believe that is because beekeepers know Apivar and know that the product did not affect bees or brood and leaves no significant residues in honey. Though there is no evidence of mite resistance for amitraz after 15 years of continued use, we believe that leaving the strips in the hive after the end of the treatment is a dangerous practice in a long term and should be avoided.

Comparing application practices of the product in the U.S. and other countries we have found, "Failure to use the proper dosage is more current in the U.S. compared to other countries." Also, new Apivar customers tend to be concerned about the visual effect of a slow released treatment. Most of the currently available *Varroa* products are short-acting treatments that deliver an immediate 'knock-down' effect in which many adult mites are killed quickly. A quick kill may look impressive, but most of these treatments only kill phoretic mites (the mites on the bees) and the next generation of mites can quickly re-infest the colony. With a slow release action, Apivar will kill mites during the six weeks treatment, and it's normal to see less mites fall in the beginning of treatment compared to a knock-down treatment. Be aware about this is very important because some beekeepers consider stopping the treatment before the six weeks, thinking that it will not be effective. Results of Apivar treatment will be seen after the full six-week treatment period. In other countries, where Apivar is present for a longer time, beekeepers are aware of this and beekeepers outside of the U.S. have excellent results in efficacy and Winter survival, they don't have doubts about it anymore.

Knowing what is going on in your hive is the basic hive management issue that I stress to beekeepers. Beekeepers are aware of this from my "Ask Phil" question & answer column in *Bee Culture,* and from my beekeeping talks throughout the country. Good beekeeping management is not calendar driven, though like all farmers we use the calendar as a guide. With *Varroa* monitoring we learn what *Varroa* mite infestations are like prior to treatment, and after treatment results are essential as well, for determining the effectiveness of our treatment. While we may use the calendar as a guide for determining the best time of the year to treat for *Varroa*, monitoring can determine the urgency for treatment, or may tell us we can wait and treat at a later time.

Randy Oliver-Understand how the products work and follow the label

Quality products will post their studies and data on the manufacturer's website. Beekeepers should understand how the products work, and review the manufacturer's studies, as well as independent research; "a single study means little." "Thoroughly reading and understanding the label on any product should be the starting point for every beekeeper. A number of bee products are sold in countries in addition to the U.S. There is often a great deal of good information on the testing of those products from Canada, New Zealand, Australia, and the E.U." "For most (but not all) products, details of application method for best efficacy will be on the label. That said, beekeepers tend to be an experimental lot, and often

Randy Oliver

experiment to cut corners or figure out ways to improve efficacy. They should be aware that if their methods fall outside the restrictions on the label, that they will be in violation of federal law."

"Some products may interact with other products, or with management practices (such as the feeding or transporting of hives). Miticides (or their residues) may well interact with agricultural chemicals or other residues in the combs. Look to the label, but there is no way for the manufacturer to test every conceivable possibility. In general, the application of many products causes some degree of stress to the colony – avoid adding additional stressors during the period of application. Ask the manufacturer if they have field test data on potential interactions."

"Manufacturers may change their label from time to time to update it in response to new findings (such as temperature limitation adjustments, required protective gear, restrictions if honey supers are on, etc.). One of the biggest mistakes is for a beekeeper to try a new product for the first time on all of his or her hives. There is often a learning curve involved with a product – I suggest asking other beekeepers in your locale for their experience, and testing a product on only a portion of your hives the first time." BC

Buzz & Nancy Riopelle

Kim **Flottum**

Buzz Riopelle is the first beekeeper I got to know when I moved to Medina for my job here. The Medina County Beekeepers Association met in the Root Company's office lunch room at the time since there were only about a dozen or so members and three or four were Root Company employees. It was one of those employees, Walter Thomas, who invited me to the meeting, held on a Sunday afternoon.


Driveway into the farm.

When it was time for the April meeting, I walked in and looked around. There was one fellow there who looked to be about my age – 40 something. Everybody else was older – much older it seemed. A couple of wives were there as I recall, but is was mostly a gathering of old men.

I took a seat in the back, intent on watching and learning, but Walter made me introduce myself and tell a little about my background – since even he didn't know anything about me – and then they got on with the meeting, which was a discussion about an article in The American Bee Journal. And that was it. No coffee, snacks, pretty much a one topic discussion, and done. They stood around in the parking lot afterwards, like every beekeeper's meeting and eventually drifted away.

I stayed to lock up, and the last person to leave was that guy who looked to be about my age. He introduced himself as Russell, but everybody calls me Buzz he said. A guy named Buzz at a bee meeting – who would have thought. We chatted a bit, found out we lived kind of close to each other in the north part of the county and he invited me over to see his operation when I had time.


The Bear.

New job, just moved, on the road – time got away from me for a bit. I missed a couple of meetings and suddenly it was Summer. I came over. We looked at some of his bees – he had close to 100 I think, with some in his yard – nucs to grow and feed mostly. And his honey house – as nice a piece of work as you can imagine.

We got to know each other a bit more, and he was telling me about those splits in his yard, and I asked about going along on his beeyard run and watching.


The barn.


Unloading door, outside.

"Might even do a story on this", I said, and he was game. I went, did the story, and we've been doin' stuff ever since. I've done several stories on Buzz and his operation over the years. It's just too easy. He had a truck – a 53 Ford Flatbed when I met him, a 88 Chevy 1 Ton duel wheel now, and used to use a bee blower, has a Maxant vertical flail chain uncapper and a great big Maxant extractor. His extractor is a 30-frame radial with serial number 0017, so he was one of the first Maxant customers. There wasn't, and I'm guessing still isn't a beekeeper in Medina county with this size operation. He wasn't huge when I met him, and he's downsized over the past 30 years, but he was, and still is, big enough to be interesting.

Buzz had a day job when I first met him. His was a firefighter and Paramedic. That's one of those jobs with hours, even days of complete boredom, followed by a short burst of extreme, very extreme excitement. Car accidents, other kinds of accidents, sick people, house fires, auto fires – that was his life. But it was those hours of boredom that got him into beekeeping in the first place. A swarm landed near the fire station he was at one day and somebody asked him if he wanted it. How many people do you know got started that way? He got the swarm, got it home, got some equipment and suddenly was a beekeeper. Well, not quite. But his free time at the firehouse let him get caught up assembling equipment and getting started. That was 43 years ago.

Another thing his job did was give him several days off in a row, which made building his house easier, keeping bees easier, and it made becoming a county inspector easy, too. You have to understand how the Ohio Department of Agriculture's (ODA) Inspection system worked at the time to see how this came about. A county inspector actually worked for the county as a seasonal contract employee. But the inspector answered to and was trained by the ODA Regional or State Inspector. The county advertises the job, then vets the person through the Inspection folks in Columbus, Ohio where the HQ for the ODA is. If that person looks good, they attend training classes held by ODA and learn the ins and outs of inspection, of handling colonies, of dealing with beekeepers, of finding where bees are hidden, of working with beekeepers to get their colonies healthy – of how to be a good inspector.

Roller, uncapper, scratching table.

Unloading door, inside.

At the time there were three or four Ohio Regional Inspectors and a State Inspector. Today, there's only a part time State Inspector remaining. But back then there were a lot more beekeepers to inspect. So for three of the first four years he kept bees, he got to see everything that can go wrong in a beehive, and had to learn pretty much how to fix it.

Pail warming.

Bottling tank.

Extractor, sump and filter.

He got to know most of the Medina County beekeepers, too, and he came to find that back then, lots of people had bees, but didn't do much with them.

"Lots of folks had bees, back before mites, and you didn't have to do much to get some honey", he's told me several times. But what he did was to offer to help some of these folks – widows who had lost a beekeeping husband, like that – and split the honey those bees made. Pretty soon he was managing over 100 colonies, owning about half of what he was managing.

It was 38 years ago he and Nancy got married. Nancy is a numbers person and at the time was working in the world of taxes and such. What with the added income and financial details from all the honey Buzz was making, it was a good thing somebody was paying attention. Nance still takes care of the business side of the business, dealing with tax issues, income, expenses, forms and the like. A pretty smart lady is Nance.

Pumpkin and apple pollination made their way into the business in the 80s. With a truck and a few strong friends Buzz would load up at night and head out to one of Medina's more progressive nurseries, that grew and sold pumpkins around Halloween time, and sponsored hayrides all Fall to get kids, and parents into an off-season buying frame of mind.

Nancy says the secret to doing well at any festival is to look good and make an outstanding presentation. Done well, price is seldom an issue.

Getting set up. Buzz, left and Terry start to unload.

First the tables and a clean pressed table covering.

Buzz and Nancy in period costume at their stand.

Honey and lotions and creams.

Apples were a spring time pollination job, and a local, fairly large orchard hired his bees for that. He sold them his honey but they put their own label on the bottles, but they put it on a lot of his bottles. This went on for some time, until one spring the orchard manager picked up some of his bees and moved them in the daytime. All those colonies were lost essentially, so Buzz and the orchard parted company.

Early on Buzz was making a lot of honey and bottling it in his kitchen. At first he made his own extractor by buying the guts for a Root Extractor right here at the company, and getting a galvanized garbage can to hold what he extracted. But after a while his operation grew to the point where on a good year he'd make a really good crop of honey. After not too many years, however, this began to wear thin and something had to change. Sticky floors finally won. They were making way more than the kitchen could handle so they moved their harvest operation out to the garage for a time, and eventually built the barn to handle crops up to 10,000 pounds on a good year. Nancy was making hand lotions, lotion bars, lip balm and candles first in the kitchen and that moved out of the house to the garage also. They were selling all this at several festivals, selling to some grocery stores, doing several seasonal and year round farm markets, and selling to some who used his honey in gift boxes.

Buzz had put up what he calls his barn just a year before we met. It's a workshop, with his table saws and such in one end, and he parks his tractor in that part of the barn too. In the middle there's storage for pails, boxes of bottles and the like, plus a desk. At the other end of the building is the garage door he backs his truck up to when unloading supers and drops them off right onto a conveyer belt that slides his supers right over to his uncapper.

Frames are dug out of the supers, dropped into the uncapper then moved onto a large stainless table to be loaded into the extractor. His Maxant uncapper is old enough that it doesn't have a wax spinner

Candles.

below it, but there is a container that catches the wax and honey that drops down. When on the table they can be scratched with a fork if needed before loading, making everything run smooth. Honey drains off the table in the center and is caught below.

While the frames are spinning, Buzz moves the now-empty supers from the uncapper area to the other side of the extractor and stacks them there until the frames are done. Frames are removed, placed back in the supers and then back on the conveyer and back on the truck. He puts one or two wet supers right back on the hives. They aren't off the hives more than a day, ever, and often back on the same day.

Honey runs out of the extractor into a sump that separates a lot of the floating wax from the bulk of the honey, which is then pumped up and run through a straining sock and drips into a pail. The sock is pretty coarse, and what he catches are the really big chunks of wax and any bees or other extraneous material that made it this far. His honey is stored in these pails.

Buzz uses a Maxant bottling tank, just barely warming the honey before bottling. If a pail crystalizes (his barn is only heated when he's working in there, ambient temperature the rest of the time), he'll put it in one of his warming boxes. These are made from two inch Styrofoam covered with foil that sit on a platform that holds a 50 watt bulb. The insulation and the heat will melt two pails full of honey in about 24 hours without overheating the honey.

Buzz and Nance run River Ridge Honey Farm, which is the label they sell. But one of the things about Buzz that I've always liked is that he listens to folks who have good ideas. Buzz harvests three times a year so he has three crops of seasonal varietal honey. On the top of the early season crop they put a sticker that says 'Ohio Spring Tree Honey', on the summer harvest they put Ohio Wild Flower Honey' and on the last crop they put Ohio Fall Flower Honey'. This immediately tells his customers that it's Ohio honey and they can identify it when they come back and want some more of one or the other.

Buzz still helps out at the Medina County group. He runs a field day at this house, showing anybody who shows up anything they want to see. I've been there a few times helping and it's an intimate, casual learning experience for our beginners. He also helps at our field days in the beeyard the Medina group has on Root property here, and he's always in attendance at our pre-meeting beginner's class each month.

Buzz and Nancy have just this Summer retired from running the Medina County Beekeeper's Fair Booth, which they did for 24 years. Getting honey sellers organized, wall displays hung, shelves cleaned, everything ordered on time, video displays up and running, the honey show organized, tasting jars organized for every kind of honey that gets sold at the booth by club members, prices sorted out, and then just working the booth mornings and evenings and in between selling honey, candy, lotions and the like for the whole week of our fair. Then after the fair they took it all down, stored it carefully away in the garage attic and did it all again next year. Not too long ago Nancy retired from being the Newsletter Editor, which she did for 18 years And for those of you who have done this, you know the difficulty in getting information from the people who have it to the people who need it. I was one of those for some time when I served as Program Chair and then as President of the group. And she put up with it for all that time.

So – River Ridge Honey Farm. Buzz and Nancy Riopelle. Good folks who make beekeepers and beekeeping look good. BC

River Ridge Labels

Observation hive.

TASTING! The secret to selling honey.

Meet David Tarpy

Ann **Harman**

Today David Tarpy is well known in the honey bee world. He was interested in science as a youth but his work with honey bees came later, after studying birds and fruit flies. Although he grew up in the same town as Dave Hackenberg he did not meet honey bees there either. Dave Tarpy's parents were professors at Bucknell University, a place that later shaped his future with honey bees. He also spent some years in Switzerland and England when his father had sabbaticals there.

While working on his B.S. at Hobart College, he took his junior year abroad in a world-famous lab at Oxford University where he studied the behavioral ecology of birds. Here started Dave's interest in the interaction of evolution, ecology and behavior. This theme will be transferred to his work with honey bees, but not for a while. He completed his studies back at Hobart with an honors research project on the mating systems of a particular fruit fly, the Hawaiian picture wing. Since Hobart was a small liberal arts college the faculty only had one behavioral ecologist on the faculty, David Downey. So far, no bees yet.

David then attended Bucknell for his Master's studies under Professor David Fletcher, noted for his work with bees. Now honey bees entered Dave's life. Books by Mark Winston and Tom Seeley had made him realize that bees were perfect for his interest in the interactions of ecology and behavior. So the topic for his M.S. thesis was the behavior of the fatal fights of virgin queens and what determines the winner of those duels.

Dave then moved across the country to do his PhD thesis under Dr. Robert Page at the University of California Davis. Here again his thesis investigations concerning multiple mating of queens and their mating flights fit perfectly with his interest in the interaction of evolution, ecology and behavior. Immediately after obtaining his PhD in 2000, he was awarded a USDA postdoctoral fellowship. This brought him back to the east to work with Dr. Thomas Seeley at Cornell. Dave continued his work with the multiple mating of queens that gave genetic diversity within a bee colony. His thesis investigations focused on how that diversity could prevent disease from overwhelming a bee colony.

When his postdoctoral work was finished he then was selected to be a professor at North Carolina State University in Raleigh, NC. Here he has three different focus areas in the Entomology Department to keep him incredibly busy. Research time is 65%, extension 15% and teaching 20%. He does have some help with four technicians, four postdoctoral scientists, three graduate students and eight undergraduate researchers. He, with his students past and present, have an impressive record in the bee science world with 84 published scientific papers (40 of those in the past five years) and together they have given 163 scientific conference presentations.

The research program is actually divided into five parts that, combined, cover much of the honey bee colony's activities. Dave does collaborate with other bee researchers around the country who are also conducting investigations to benefit bee health. One part of the program concerns the genetic diversity within a colony that comes from the multiple matings of the queen bee. Looking deeper in queen biology, studies focus on how virgin queens, ready to mate, become egg-laying queens that never mate again.

A second area involves pollinators, their diversity and the hazards they face in their surroundings. Studies are being conducted on diseases and overall health of pollinators in urban, suburban, agricultural and natural ecosystems to investigate effects of their environments. Feral honey bees do exist in many areas but little is known

about their origin – are they swarms from a beekeeper's hives or are they really survivors that are able to cope with mites, the associated diseases and also the hazards of an agricultural environment? These feral colonies are being sampled in the southeastern U.S. to determine their genetics that will give clues to their origins.

Bees exist in colonies so, as a social insect, they are subject to the stresses that exist in their lives. Dave's lab is searching for ways to help the honey bee cope with the onslaught of diseases and other problems a bee colony can encounter. Not only must the individual bee cope with stresses but also the colony as a whole must. So the ways to help bees live within a managed existence is the third area of investigations.

Beekeepers know that the *Varroa* mite seems to be the number one problem because of transmission of lethal viruses. In the fourth part of the research program Dave is coordinating with the Bee Informed Partnership (BIP) tech transfer team in various integrated pest management (IPM) systems. In addition to varroa, beekeepers now have to live with the small hive beetle and its destructive larval stage. Dave and his team have investigated the Russian bees for *Varroa* and are looking at various biopesticides for the shb larvae.

Since the queen bee is the essential member of the colony, the fifth component of Dave's research program focuses on her, her health, her success in producing a healthy, productive colony. One part of the research investigated the results of the number of matings on queen productivity. Another part showed that there is a wide variation in honey bee stocks for both quality and production.

Although research is the major part of Dave's work, extension – reaching out to beekeepers, to those who need pollination services and to the general public – does occupy a part of his time. He has initiated a number of very useful outreach programs. You might wish to visit the online program called the Beekeeper Education and Engagement System (BEES) at **https://entomology.ces.ncsu.edu/apiculture/bees** that offers a range of courses not only for beekeepers but also for those curious about bees and their place in our world. Another extension project is the Queen & Disease Clinic where samples sent in by beekeepers can be tested. Queens sent in (yes, you will lose that queen) can be tested to see the success of their matings, as well as for disease. Workers can be tested for disease and also for any signs of Africanizing. There is a charge for the tests that you can see on the website **https://entomology.ces.ncsu.edu/apiculture/queen-drone-clinic**.

Extension also means other ways of reaching beekeepers and the public. He estimates having reached over 68,000 people through articles, presentations at meetings, on radio and TV, along with web pages and numerous articles.

Dave also educates many others. Some will become beekeepers, others will not until perhaps later in their lives. But all his students obtain not only facts but his enthusiasm for honey bees and their place in the world. His course, 'An introduction to the honey bee and beekeeping' is for non-science majors. Here a room full with 200 students will find out the importance of pollination and even how honey bees were a part of human's history.

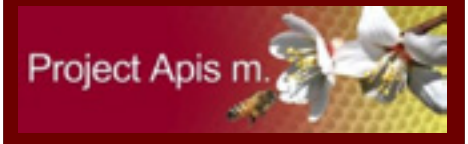
Every other year a practical course in 'Honey bee biology and management' is given for those who wish to become beekeepers. For the graduate students, every third year, he teaches a course on the evolution and ecology of social insects.

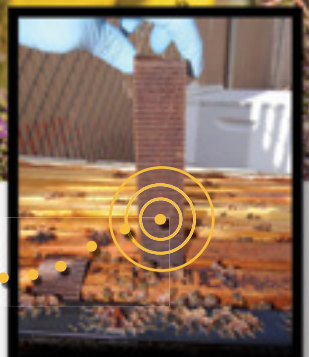
Somehow he finds time to serve or has served on various boards, such as the Bee Informed Partnership, the North Carolina State Beekeepers Association and also the Eastern Apicultural Society. This latter organization selects outstanding scientists for their annual awards. Dave has been honored twice – a rare distinction. He was awarded the prestigious Hambleton award for excellence in research. And then to recognize his work in teaching and extension he received the Roger A. Morse Award for Teaching and Extension. At the university he is now an NCSU Faculty Scholar.

Dave is in demand as a speaker not only locally but also nationally and internationally. Does he have another life? Yes, with his wonderful wife Casey (a wedding photographer) and his son and daughter. He also enjoys gourmet cooking. Other indoor activities are the New York Times challenging Sunday crossword and the equally challenging racquetball. Outdoors you might find him hiking or running. He does not have honey bees for himself, but there are always many hives and tasks to do in the bee lab.

No matter where you live, in the U.S. or in another country, I hope that you can attend one of his presentations. His enthusiasm for the evolution, ecology and behavior of honey bees is contagious and his information will make you a better beekeeper. BC

Ann Harman lives, and keeps her bees in Flint Hill, Virginia.





Charlie Brandts And The White House Bees

Toni **Burnham**

What if you were a second-year beekeeper, working for an outfit that was looking to go green, and your boss' boss heard you were a beekeeper? And invited you to bring in a beehive to their site in a major urban area? No pressure there, right?

Well, what if that beekeeper was Charlie Brandts, a careful, considerate, and meticulous professional carpenter with decades of experience in the highly disciplined, tightly scheduled environment of the White House in Washington, DC, visited by tens of thousands of people from all walks of life, every year. Well, then your boss would have made a great choice.

This interview with Charlie Brandts, probably the public's best known beekeeper today, took a look to the past and into the (very promising future) on the eve of a presidential election, which will have taken place by the time you read this. Some of you may have wondered how things have changed, and how they have grown since March 2009, when the first beehive on White House property was placed on the South Lawn and introduced to the public. Whatever you think about politics (and by now, how many of us want to think about that anymore?) this is a positive and inspiring story for all of us, and a great guy who, I promise you, you wish you knew yourself.

"When I first heard from Sam Kass (the White House chef who worked with Mrs. Obama to set up the Kitchen Garden), this was just something I was asked to do at work: I did not stress too much about it. But over the next few weeks and months, a lot of attention and questions suddenly came, and that's when the nerves set in." The White House had had some concerns about how to manage a colony full of bees on a stretch of grass where helicopters regularly land, a Portuguese Water Dog plays daily, and thousands of kids at a time roll Easter Eggs and attend picnics: not to mention a crazy hive stand (in my opinion) that he would have to access by standing on sawhorses.

This new job within a job required precise, just about error-free beekeeping, and coordination with everything from the National Park Service gardeners, the Secret Service, and the Office of Communications. Charlie is a quiet, soft-spoken man whose professional life had not included public speaking and working with the press. He was not sure he was prepared to take this on. He is the perfect guy for this job, however.

Charlie remembers going home after work in the first year, overthinking every choice and worrying about every event to come. "But you know, in the long run that is not sustainable. Bees are bees, and I will do the best I can, but everyone has to understand and learn and that is part of the experience." He got more comfortable with the public and with the media, and that was an important

gift to the beekeeping community at large, since this was the first time most of them had ever thought about the importance of bees and how they might live with them.

Today, Charlie is retired from full time work, and some of the chefs who helped him tend the hive have moved on. His own demands at home have changed, and he is active in mentoring members of the beekeeping community near him. Charlie is just as precise at home as he is downtown: "I want nothing to do with these bee-havers, people who just plop a hive down and call it 'survivor stock.' When I work with a mentee, it is usually a second- or third-year beekeeper who may have even lost a colony or two, and who has come back wanting to learn, to do better. I believe in testing and treating for mites, and I rear queens to get the health, temperament, and productivity I need from my colonies." He says he teaches mentees, but learns as well, "After a while, the good ones start sharing what they observe with you, and how they solve problems. It is important to work with other beekeepers, who sometimes have different methods and goals. Everyone needs to keep learning." Maybe this is why, over the years, some lucky beekeepers have had a chance to visit and interact with the White House bees, and to contribute and learn for themselves.

Charlie's careful and informed methods fit right in with urban beekeeping, where concern for neighbors and the increased likelihood of mite and disease transmission make survivor stock an unreasonable choice: "How much can you ask a colony to deal with at once? We have big swings in the weather now, new pests all the time. You are responsible for your bees, and you have to pay attention to them," says Charlie.

His methods pay off: it is not unusual for the single hive on the South Lawn to yield 200 pounds a year. This harvest has reached wounded warriors, school kids, the President's table, the G-20, and even the Pope. "When the Make-A-Wish kids visit the Oval Office, they get some honey, too." Hundreds of school kids who visit the garden (including the children of White House staff on "Bring Your Kids to Work Day"), as well as participants in the Easter Egg Roll, have received information on bees and beekeeping, as well as the clear personal message that bees are important wherever you find people and food.

Though no longer on site as often, he has developed additional tools and approaches for managing the White House hive, some based on his apiary in Maryland. "Since I am no longer on site every day for work, I don't have the same access to scheduling and other information about activities at the White House. It is important to open the hive when it does not interfere with the all the work that goes on there." If there is a period where he feels he needs to monitor events, like our recent three-week spate of rain during the nectar flow, he will closely observe his colonies in the Washington suburbs for success in foraging, and risk of swarming. "I can see the general trend from home, though the White House itself is a somewhat different situation for forage and temperatures. If I think there is a swarm risk, and my access is not great, I will consider moving the colony offsite to prevent any potential bad precedents with the public." So far, these problems have

When you absolutely, positively need it closed – and anyone has to be able to do it.

Charlie often closes the White House hive for densely attended events, but he's less often onsite now. So, he had to come up with a closing board that fits snugly over the front entrance and is held in place by two bolts, secured with wing nuts, that anyone with a veil can place the night before festivities occur.

The bolts are driven into the front of the bottom box: they are machine screws with wood screws on one end, threaded bolts on the other. To drive them in, Charlie screws two nuts tightly together on the bolt end ("The nuts push together and stay inplace while I screw the bolts into the wood: you can use a plyers or vise grips to do this. If you try to use plyers directly on the threads, you make it more difficult for the person closing the hive to get the wing nuts on.")

And, like every other gadget head, he has plans to improve the closing board in the future.

Toni Burnham and Charlie Brandts

not taken place, though Charlie points out, "White House or no, this is agriculture, and the bees call the shots. I am managing the colonies, not giving them orders."

Charlie has also started keeping a few colonies at a nearby business, the Sofitel. This is another point of reference, much closer this time, when planning his management of the Kitchen Garden bees, and it has shown some changes in the environment, too. "It is a bit harder to start a colony downtown than it was in 2009, though I started these from nucs a bit later this year, and I did not move in a mature hive. The cold weather hung on long enough to delay the move in, and our nectar flow was just terrible due to the rain." He has high hopes for this neighboring apiary to winter this year, however.

In the cases where the White House Honey bees have made public appearances, it has actually been a bonus for public education. Most of you may remember the April 2015 Easter Egg roll, when a bee flew by as President Obama was reading *Where the Wild Things Are* to a group of excited children. They started to freak, but the Leader of the Free World said, learned from the experience with bees that Charlie has provided outside his office window: "Oh no, it's a bee. That's OK, guys. Bees are good." In her remarks on October 5, Mrs. Obama made special mention of the apiary, "We love our bees. But that's been so much fun. We give the honey away to everybody. Christmas gifts, leaders' gifts, spousal gifts. Everybody has got honey. We've got plenty of it."

Some wonder what the future of the hive is with personnel changes, retirements, the election cycle. The administration will change, but recently the Kitchen Garden received a $2.5 million dollar grant from Burpee Seeds to invest and support its future. The White House considers the Apiary an integral part of the Garden, completing the message about where food comes from and the importance of eating healthily. While the Obamas may move on, the Kitchen Garden can be a part of a tradition of other permanent plantings on the site, including the Children's Garden established by Lady Bird Johnson in 1968, and the Rose Garden started by Edith Wilson in 1913.

In her remarks at the dedication of the Kitchen Garden on October 5, Mrs. Obama said, "I am hopeful that future first families will cherish this garden like we have." The Clinton campaign states that the Garden will stay, the Trump campaign had not commented by interview time.

One of the questions beekeepers from around the world have asked over and over is" "How do you close up the hive when circumstances require it?" Because they certainly do! Charlie explains, "The bees do not fly free during the Egg Roll: it is just too hard to keep kids out of the flight path, and they group in front of the entrance out of curiosity." As a carpenter and a true-blue gadget guy, he has come up with an easy device for quickly closing the front door, designed for use by any of the staff if necessary. Mostly, his helper is Susie Morrison, the pastry chef. (See Box)

Charlie also designed and placed a special ventilation box on the hive during the first few years (you may have spotted it in some of the older photos), aware that there would be times when the bees would be closed in, and wanting to make sure that they would not overheat. "I have had hives overheat at home, and I have lost them. I know what it sounds like, and I know what it smells like, so I have set up the hives and planned my management to ensure that the bees have ventilation and water. I use screened bottom boards and internal waterers, and I watch the temperatures to make sure that I get all the bees in before closing up, and that they get all the airflow that they need."

Over the years, Charlie has had many unique and even funny experiences around beekeeping on the South Lawn. The President had a basketball court installed early in his first term, and he asked Charlie, "Now, are those bees going to bother us while we are playing?" And Charlie said, "No sir, I don't believe that they are interested in politics." But frankly, like most staff, the White House folks talk mostly about their commitment to work, its rewards, and their hopes for the future, if they mention where they work at all.

There is so much promise for the years ahead, with Charlie on board. "I think that the apiary will continue for the foreseeable future, and I want to stay a part of that." Years of informed experience and solid connection to good advice and helping hands help guarantee that. He has become a shining example to beekeepers everywhere during his eight years on the South Lawn, and we are lucky to have him carefully, self-effacingly, so ably showing so many of us the way. BC

An Interview With Valeri Strachan

Larry **Connor**

Valeri and Philip Strachan, outside the office door.

LC – Tell me how you found yourself running a queen business in California?

VS – Long story . . . As a single mom of two boys I was trying to make a living as a hairdresser and going to college taking business classes. During that time my dad's bee business was growing and he was having difficulty keeping the books in order. I started doing his bookkeeping and also gained practical training at an accountancy firm. After a year in the office I became interested in the workings of the business and asked if I could learn more about the beekeeping and continue doing bookkeeping. He sent me to raise queens with the then all male queen crew grafting, raising cells, and caging queens. This was in 1976 and all our employees were men. My passion for the bees grew and I found myself working seven days a week in the Spring raising queens and continuing office work when time allowed. By then I talked my dad into hiring someone to work in the office.

I was creative and a little pushy and I created my position in our company from the beginning. I was determined to learn about bees and queens. I think the business could have been sold but my dad said to me he was "waiting to see if I was serious." My dad passed away in 2003 15 months after my mom died. The year prior to my mom's death he let go of most business dealings. This was the year I was California State Beekeeper's president so it was a difficult time in my life.

Pumps, pipes, and hoses provide sugar syrup to queen production colonies.

LC – You are one of a few women running a beekeeping business, and certainly one of a very few running a queen production business with the size and scope of yours. What have been the biggest challenges you have faced in running a bee business, and how has any gender inequality interfered with your ability to get things done? Has gender ever opened a door that might be closed to a man?

VS – I believe if I were a man it might have been easier for me but probably not for my dad. He was from the "greatest generation" and if I were a son we probably would have butted heads more than we did. Being female immediately puts you in another class among associates in business, especially for me in the beginning. Even today I rarely have male friends in this business call or want to "hang out" like they do with their male counterparts in the trade. That is definitely a male/female gender inequality that I actually understand though I miss out on their gossip. So, to overcome those inequities I tried to think like a man and forced myself to make the contacts, talk mostly about business, and discuss the needs of customers. It's much more acceptable now for a woman to run and own a multi-million dollar business. It's still pretty rare in most agricultural businesses but the women making strides are thinkers and more secure in themselves. It's not "Mad Men" thinking any more.

I feel the attitude of not giving up had to be prevalent in all of my thinking. I had been my dad's right hand gal since 1975 so many of his contacts I already knew. My employees knew me and were extremely helpful and wanted the business to continue and be successful. I don't want to paint a picture of it being perfect because it wasn't. There are struggles dealing with employees, customers, government, bee diseases, encroaching beekeepers, accidents, and so many things it would fill a page or two.

LC – You are working with Sue Cobey to maintain pure New World Carniolan queens in your production colonies and for sale. Tell us how you obtained stock from Sue, how you maintain the stock, and what unique challenges you have had with this program.

VS – Sue was my mentor and taught me a lot of what she knew of instrumental insemination and breeding. When she and Tim lived in Vacaville, CA we became acquainted and we purchased Carniolan stock from them. We've kept that connection ever since and she and I probably have a unique attachment to the NWC bees. I'm very proud of our success with the NWC stock. My early training and determination to learn the breeding and maintaining stock through instrumental insemination has put our product among the very best in the U.S. and Canada. The only challenge will be the future of the program. I will continue to do the I.I. of the NWC stock a few more years. I'm hoping that Sue and I will be able to train someone to continue with the effort we've put into the program.

LC – How have you structured your business? Since your son works with you, have you separated responsibilities into smaller operations or do the two of you pull the burden together? Who else is essential to the operation of Strachan Apiaries Inc.?

VS – Yes, so happy to have family involved in the business. Philip (son) began working in the business January, 2010 and wished he'd started years before. It was different from the extracting and building boxes that he used to do as a teenager. We kind of have a chain of command as far as structure goes. I have a field manager whom I've worked with since 1985 and he is mentoring Philip. We also have other managers and crew leaders that oversee the different field and office operations. But I still check on everything. I'm fortunate to have employees that have been with us well over 20 years.

LC – You explained that you instrumentally inseminate about 200 Carniolan breeder queens every June. How do you organize this? Do you have help with the insemination? Do you evaluate the new queens in nuclei or in full-sized colonies? What testing are you doing on these queens?

VS – Since I don't have a lab we turn our queen raising building into one the week after we complete the last graft which is usually the first of June. The nucs are still full of queens though. Once the queens are established and have adequate brood and bees we evaluate them and do hygienic testing. They are full size colonies by then. There is a list of character traits we look for in the Fall and again in the Spring before we determine the best. We rate them on temper, brood viability, pollen collecting, and honey stores. They're checked for any disease or poor quality of any kind including color.

I usually do the insemination myself. I have exchanged stock with Sue Cobey and am still involved in breeding the NWC with her. In recent years I've had help from Liz Frost one year and Kim Fondrk a couple of times working beside me which makes the work go faster.

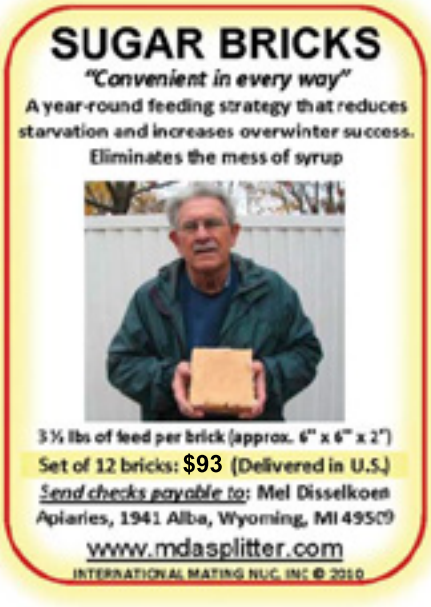
LC – What's your favorite story about helping beekeepers improve their operations by using your stock? Have your efforts to develop increased hygienic behavior in the stock been accepted by the beekeeping industry as an important step in reducing the frequency of mite treatments?

VS – I have several queen producers buy breeder's from me so they can sell the Carniolan queens. These producers use and sell mostly Italian queens in their operations where we only use the NWC stock. This year a customer shared that the packages and queens he got from us were unbelievable how they grew and produced honey. We receive accolades from many customers stating their success. I can't tell anyone not to treat for mites but there are some who say they don't treat as often. It all depends on where the bees live and how close another apiary is. A few people will seek me out at conventions to let me know how much they appreciate what we do and the care we put into our product. The fact that we can't raise enough queens to supply demand says something about our efforts. The hygienic behavior is important for more than mite control. There's practically no chalk brood and extremely little evidence of any AFB and EFB. We've burned AFB hives so now we see it so rarely it surprises us. We almost never use Tylan.

LC – What are you reading for enjoyment?

VS – Sounds like a personal question . . . I'm currently reading the Bill O'Reilly books. I read Killing Kennedy and started the Killing Lincoln and Killing Reagan books. The history is interesting to me. I read newspapers daily, bee journals, ag. alert, etc. and I study the Bible weekly.

Visit with Valarie and Larry at the Big Meeting in Galveston, TX in January. And check the books at ***www.wicwas.com.*** BC



Mark Bennett From The Chatham, VA

DADANT BRANCH

Jessica **Louque**

I've had the pleasure of working with Mark Bennett for years. Mark is the branch manager of the Chatham Dadant in Tightsqueeze, Virginia. Seriously, it's called Tightsqueeze. He has bailed me out of many emergencies in beekeeping for missing equipment, as previously written in some of my other articles. I can call him up and get a ridiculous order (like enough Apiguard to treat a few hundred hives, or 5,000 plastic frames, 300 wooden-bound metal queen excluders, AP-23 pollen patties and pollen mix for a few hundred hives, or full equipment for double deep hives for 600 colonies) sometimes as fast as next day delivery, or even the same day via Dadant personal delivery straight to our apiary if it's in stock at his place. He and his crew have all been super accommodating of all of our requests and as helpful as possible with our insanity. I figured we'd kill two birds with one stone and head up to see Mark for an interview and pick up whatever else we were missing while we were there – which was a total of four of the breathable mesh jackets and veils, 10 pails of Apiguard (or maybe 11), some of the new swarm catcher "Swarm Commander" as effectively demonstrated accidentally at the EAS meeting this year, and some really cute beekeeper keychains for our permanent technicians. I also was distracted by the super precious cat that greeted me named Boudreaux who turned out to be incredibly photogenic, along with Sissy his sister who was not quite so curious. Occasionally, Bobby got a question in too.

Jessie: Okay so first, what is the cat's name?

Mark: Boudreaux is the one out there, and Sissy is in the warehouse.

Jessie: So how long have you been at Dadant?

Mark: I've been at this Dadant since 1999, seventeen years in Virginia and another 15 years up in Michigan, so 31 years total.

Jessie: What brought you down to the south?

Mark: Weather brought me down to Virginia. I am originally from the Appalachian Mountains in New York. It's a good 15 to 20 degrees warmer in the Winter down here than in New York or Michigan.

Jessie: How did you get the Dadant job down here?

Mark: George Kelly used to be the branch manager and he retired, so I was hired to replace him.

Jessie: When you started working in Virginia, how many people did you have?

Mark: When I started, we had three people, but now we have five. John has been here for 35 years. His dad ran the Lynchburg location and John just moved down here six years ago. Emily has been the office manager for seven years. Matthew has been here less than a year to help in the warehouse, and Patrick came in as the sales manager two years ago.

Jessie: Tell me about your kids. Some of them have worked here, right?

Mark: I have five kids and four grandkids. Three of them have worked here at some point. My oldest boy is an artist and designs album covers for death metal bands. Emily

is the only one with a hive, but the kids don't really do much with bees at home.

Jessie: What's your biggest customer type here? Are there a lot of commercial beekeepers in the area or is it mostly hobbyists?

Mark: We've had an influx of hobbyists and beginner beekeepers. There are maybe only 10 to 15 commercial guys in the area. The Chatham county beekeepers was made up of only five to six people and now has around 40 people. Most of the clubs have grown exponentially in the past eight to nine years from publicity and press on honey bees. The dynamics have changed some too with a lot more women beekeepers, younger people, highly educated people like doctors, and also preppers. I sell 13 to 15 hundred packages each year to hobbyist and beginner beekeepers. It's an expensive hobby with it costing so much just to treat for *Varroa*. There're so many things you have to take watch for now. You know we have the zombie bees and Franklin County had an experience with that.

Bobby: So how did they know they were zombie bees?

Mark: At night when most of the bees are in the hive, you'll see them flying out towards light like the moths.

[At this point, Bobby and I look at each other worriedly. We had just been talking about some weird couple of bees buzzing around our porch light the night before and thought it was weird. We didn't see them again though]

Jessie: What do you see the most from beekeepers to make profit?

Mark: There's a lot more people selling bees because there's more money in it. Larry Connor's projection was that if you start with a hundred hives, you could make about $35,000 per year selling nucs if you had a hundred percent survival in your colonies.

Jessie: Do you do a lot with wax here?

Mark: We sell a lot of wax to candle makers. We have one that buys about a thousand pounds every two months up in Lynchburg. We get our white wax out of Florida where they refine it with acid to bleach it out. Some people ruin wax trying to use bleach to make a white wax.

Jessie: Tell me about *Varroa* and oxalic acid.

Mark: Well, oxalic acid has some controversy but it's a hot topic right now. The jury is still out on how to use it because it doesn't reach capped brood. You can treat when there's brood but it might get damaged, or treat when the hive is broodless but it might be too late. A lot of people think it's ineffective, but it's a lot cheaper per hive than most of the other treatments.

Jessie: Tell me your best story of someone treating a hive wrong. I know you have one.

Mark: Well, in Michigan, a guy was mixing coumaphos with kerosene and lighting it on fire in front of the hive. He ended up in the hospital from the toxicity. A lot of people use these pesticides illegally to try to treat for *Varroa* and cause contamination and resistance in the hives.

Jessie: What's the biggest challenge in your job?

Mark: Getting enough stock to get out to people is the biggest challenge. Keeping inventory tight is encouraged by the company and not having too much overstock. Getting foundation in the spring is a real problem for us. Everyone in the bee business has a similar problem of trying to meet demand but not having a lot of equipment left over. I was a dairy farmer first, and that's an even tougher job than this one. You are directly affected by your mistakes. Here, the corporation can absorb some of the impact if something happens.

Bobby: Do you sell a lot of eight frame equipment?

Mark: We do sell some and I prefer it. My wife swears that our eight frame at home does the best but I haven't had a chance to look at it. It's also lighter and easier to handle.

Jessie: What are some of the differences between Michigan and Virginia for keeping bees?

Mark: Oh it was easier in Michigan. Down here, they don't get a set cold time and they just eat through everything. In Michigan, I would extract a hundred and 20 to 30 pounds of honey per hive starting from packages and here I'm lucky to get 50 pounds from 15 hives. We've had a lot of clear cutting around my area that takes out a lot of our tree nectar sources, and a lot of killing out the brush and weed sources with herbicides. A lot of the local ag practices are hurting the bees and we have to plant cover crops like clover and buckwheat.

Jessie: Okay, so one last question. Do you think we can get everyone together for a group picture? We could put the cats in it too!

Mark: Sure, we could do a group picture. I don't think we can get the cats in it though.

Once we finished the interview, Mark took us around and showed us the wax drop-off in the warehouse and the clean wax. He told us that John is the cat caretaker, and then Boudreaux gave us a tour of his favorite places to pose while I took 173 pictures of him and Sissy according to my iPad (as opposed to nine of Mark, once or twice they were supposed to be of Mark, but the cats were too cute in the background. Sorry Mark!). We took a few group photos, had Mark take a few selfies with us while I tried to get the cats in the background, and then we left Mark and his crew in peace for a little while – until the next day when I ordered another 100 hives' worth of MAQS and Apivar. In the meantime, I think the Dadant group needs to get to work making a tiny beesuit for the cats – one with a veil, one with antennae and wings. I'd come visit to see that. If you're ever in the Tightsqueeze area, you should also stop and visit Mark and his crew. At the very least, you can pick up some cool stuff, see some beekeeping history pieces, and say hello to the cats. You should also see if you can buy the wax mold of Saint Ambrose in the front office and give it to me for my birthday. Just a suggestion. BC

Jake Reisdorf

His plan is to save mankind!

Dennis **Taylor**

In their dreams, most middle schoolers envision themselves pitching for the Cubs, or crooning their latest No. 1 hit to a screaming audience, or winning first prize at the next Comic-Con costume contest.

Jake Reisdorf's plan is to save mankind. His parents are very proud.

The 14-year-old from Carmel, CA, a beekeeper tending 70 hives, has evolved into one of California's emerging ambassadors for the plight of the honey bee, and the 7.4 billion human beings whose very existence hinges on its good health.

Reisdorf, an eighth-grader, has been recruited to talk to school kids, Rotary and Kiwanis clubs, the Monterey (CA) chapter of the Successful Thinkers Network, and as a lightning-round speaker at the first-ever bee symposium at the University of California-Davis, home of one of the nation's top entomology departments. He was 11 then. He knows a lot more today.

"I'm constantly meeting beekeepers who have been doing this for years, and their families have been doing it for generations," he said. "I'm always learning new things."

Jake also is CEO of the Carmel Honey Company, providing four varietals of honey – orange blossom, sage, Meadowfoam, and wildflower – to more than 80 wholesale clients, including chefs at many of the top restaurants in California.

He places and maintains hives on other people's properties for a monthly fee.

And he started his own nonprofit charity, from which he donates proceeds from his company to organizations that promote honey bee research and education efforts.

The charity, by the way, was Jake's idea.

"When Jake started the business, he said, 'I need to give back in some way,'" said Becky Reisdorf, his mom. "We just kind of took that literally and called it 'Jake Gives Back.'"

More information about all of the above can be found at **carmelhoneycompany.com**, a website that Jake, of course, built mostly by himself. In fact, that's how his bee obsession began.

"It started as a fifth-grade project, when I was 10. I was assigned to design a website, and I did mine about honey bees," he said. "I did a lot of research, because I wanted to make it as accurate as possible. That got me really interested, so I got my first hive, and it all took off from there."

Becky and Jeff Reisdorf, a building contractor, and Jake's 10-year-old sister, Brooke, also are elbow deep in the bee and honey business.

Little sis – "a girly girl," according to her mom – doesn't mess with the bees (she watched Jake's eye swell shut from a sting one day), but she helps with the company's ornate packaging and other necessary tasks. Mom and Dad help manage the business, and chauffer their CEO to talk to chefs, business owners, and other clients. They also escort him to seminars and conferences – some on the other side of the country – to advance his education (and theirs).

"Whenever we go to a conference, everybody looks first at my husband, then at me," Becky said with a laugh. "We just say, 'Nope, not us!' and point to Jake."

Father and son team up to maintain the hives, a huge and sometimes frustrating job, considering they lose about 40 percent of their bees each year – an attrition rate that is fairly typical.

Nowadays, Jake can speak with authority on topics like colony collapse disorder (pesticides, mites and rodents that wipe out bee populations) and deformed wing virus. He rails against the unhealthy practice of trucking bees from one location to the next for monocropping. And he has strong opinions about modern-day orchards.

"Back in the day, for every five rows of almonds there would be a row of wildflowers. That was perfect for the bees," he said. "Now they enclose them, and they try to fit in a couple more trees per row, without as many wildflowers. We're trying to work out better ways of doing it, a way to compromise, by raising awareness about bees. That's why I give speeches and go to events. Honey bee pollination is responsible for one out of every three bites of food we take."

Jeff Farrell, general manager of Earthbound Farms in Carmel, hired Reisdorf as his company beekeeper, maintaining nine hives, plus an observation hive. He also does educational seminars at Earthbound, talking to both adults and kids about the importance of bees in farming.

"I can't say that I've ever met anybody like him," Farrell said. "To be that young and passionate, and to have such an amazing knowledge base about bees is just amazing. I learn a lot from him, absolutely."

The kid's efforts and enterprises haven't gone unnoticed. In 2015, Reisdorf won first prize in the Main Street Division of the Start-Up Challenge at California State University-Monterey Bay. That same year, he was presented with the Successful Thinkers Network's Successful Thinking Award "in recognition for an innovative idea in the area of business, trade craft, or humanitarian endeavor." And this past September, the family flew to Washington D.C., where Jake was honored as The SCORE Foundation's Outstanding Young Entrepreneur for 2016.

Jake doing what he loves to do.

Meanwhile, the close-knit community of fellow beekeepers has welcomed him as a symbol of hope. Teenaged beekeepers – particularly those who aren't descendant from generations of beekeepers – are rare. Today's average beekeeper is 57 years old, according to a survey conducted by the University of Delaware. Rarer still is a teenager in charge of his own honey company.

"You hear stories of kids his age starting their own companies, but in beekeeping, I think he almost stands alone," said Bernardo Nino, staff research associate at the El Nino Bee Lab, a research, outreach and extension center at UC-Davis where Jake and his father are enrolled in the California Master Beekeeper Program. "Jake is substantially ahead of the curve. He's already at the head of the business. Honey, beekeeping, and hive placement are in vogue and gaining traction right now, but he's essentially competing with people who have a degree in some sort of biological or environmental science. He's 14."

The Carmel Honey Company is doing well, adding wholesale clients every week, retailing the product via the website, and providing managing hives for others.

For Jake, it isn't about the money. Every penny, so far, has gone right back into the business, and he takes out the trash and does other household chores for his $20-a-week allowance. Neither the CEO, his parents, nor his little sister draws a salary. But they do have goals.

"World domination," said Becky with a laugh.

"Selling that very first jar of honey was probably the biggest moment," her husband said. "I think a lot of business people feel they need to get their website up and running, and get everything else set before they try to sell their product, but at some point you have to determine whether the public wants what you're selling. Jake made his first sales to kids at his school. Then teachers. Then he started selling at farmer's markets, where he started to find people who wanted hives in their backyards. That's really how it all began."

Truth be told, he envisions a future in which he travels the U.S. and the world, educating others about the importance of the honey bee, rather than seeing himself as a beekeeper with a thousand or more hives in his backyard.

Becoming a honey baron . . . that would be nice.

Saving the human race . . . that would be better. BC

CALENDAR

♦ALABAMA♦

The Alabama Cooperative Extension 2nd Annual Beekeeping Symposium will be held at the Clanton Conference and Performing Arts Center, February 4.

Speakers include Jamie Ellis, Phil Craft, Keith Fielder and Geoffrey Williams. Registration starts at 8:00 a.m. Lunch is provided with pre-registration by January 20.

For more information and to register visit **https://mell-base.uce.auburn.edu/wconnect/CourseStatus.awp?&course=C170204A&Publish=ANYWAY**.

Alabama Master Beekeepers Symposium will be held February 9 at the Clanton Conference and Arts Center.

Featured speakers are James Tew and Jerry Hayes.

For more information contact Gerry Whitaker, **whitsfarm@centurytel.net**.

♦IDAHO♦

ID Honey Industry Association Annual Conference will be held December 1-2 at Red Lion Downtowner in Boise.

Speakers include Andrew Puckett, Steve Sheppard, Brandon Hopkins and John Proctor.

For more information visit **www.idahohoney.org**.

♦LOUISIANA♦

Louisiana Beekeepers Association will hold their 55th Annual Convention December 2-3 at the Holiday Inn South, 9940 Airline Hwy, Baton Rouge. Rooms are $99/night. Call 225.924.7021 to make reservations. Please mention the LA Beekeepers Association.

Speakers include Sam Comfort, Marla Spivak and Sue Cobey. You can pre-register online starting November 1 at www.labeekeepers.org

For more information contact Joe Sanroma, 318.308.5000 or Jennifer Brown, 601.493.3447.

♦MARYLAND♦

Maryland State Beekeepers will hold their Winter meeting February 11 at the Howard County Fairgrounds, West Friendship from 9:00 a.m. to 3:30 p.m..

For more information visit **www.mdbeekeepers.org**.

♦OHIO♦

The Mid Ohio Valley Beekeepers' Association in conjunction with the **WV Extension Services** will sponsor the 15th Honey Bee Expo on the campus of the WB University, Parkersburg, January 28, 2017. The cost is $20/person before January 13 or $25 at the door.

The keynote speaker will be Phil Craft.

For more information visit **www.movba.org**.

♦PENNSYLVANIA♦

Western PA Beekeeping Seminar will be held February 17-18 at the Doubletree by Hilton in Monroeville.

Featured speakers include Roger Hoopingarner and Doug Oster. There will be breakout sessions on pollinators, nutrition and more. A Beginning Beekeeping workshop will be offered in tandem on Saturday (limited to 75)

Cost is $55; Beginning Beekeeping cost is $75.

For more information and to register visit **www.extension.psu.edu/beaver** or call 724.774.3003.

♦WYOMING♦

The Wyoming Bee College will be held March 18-19 at the Laramie County Community College, Cheyenne.

Featured speakers are James Tew and Les Crowder and others. The cost is $75 which includes meals.

For more information visit **www.wyomingbeecollege.org**, **www.eventbrite.com** or call Catherine, 307.633.4383.

GLEANINGS

DECEMBER 2016 • ALL THE NEWS THAT FITS

VÉTO-PHARMA & BEE INFORMED

Véto-pharma is now a partner of the Bee Informed Partnership. I'm sure you have already heard about them and what they do for beekeeping.

Want to help honey bees? Beekeepers are consistently experiencing high and economically unsustainable losses. If something isn't done and done soon, many of these beekeepers will go out of business. Here at Véto-pharma, we develop, produce, and distribute a range of innovative products to support honey bee health. And we recognize when to support other organizations who are doing important work to protect bees. That's why we've decided to support the Bee Informed Partnership a non-profit research institution working on the front lines with commercial beekeepers to reduce colony losses. Their Technical Transfer Teams visit apiaries in 5 regions across the United States to share best practices, monitor and sample colonies over time, and provide near real-time diagnostic data to help beekeepers make informed decisions. They have great results to show for their work, so great that the success of the program has created demands beyond the scope of their existing funds. To scale their impact, the Bee Informed Partnership is launching a crowdfunding campaign to expand the Technical Transfer Team program and ultimately improve honey bee health to safeguard the food supply.

Here are three things you can do to take action and help us reach our goal:

1) Pledge a donation to the campaign. Sign up at **www.beeinformed.org** and they'll contact you once the campaign is live in November 2016 to make your donation.
2) Share this news with your friends, family, and social media network to help us spread the word about the Bee Informed Partnership fundraiser!
3) Visit beeinformed.org to learn more about their important work and get involved.

FL GETTING TOP BEE RESEARCH LAB

The Florida State Beekeepers Association is working to bring a world class $3.5-million honey bee research and education laboratory to the University of Florida.

The association has raised more than $2.7 million in funding and is aiming to get the rest by having supporters sponsor a square foot of the proposed facility for $350.

The aim is to break ground on the lab by next January. It will include a research, extension and instruction facility and is intended to become a hub for both national and international researchers, beekeepers and students.

It was third time lucky for the association. For two years, funding requests to the state legislature were rejected. But on the third attempt, lawmakers agreed they would give $2 million if the association contributed $200,000 and the university's Institute of Food and Agricultural Sciences added another $500,000.

That would cover the research section, but $1 million needed for the teaching and extension wing.

The association's campaign aims to cover that and it has raised about $350,000 and to expects to raise the rest by the end of this year.

The Gainesville Sun newspaper quotes Jamie Ellis, associate professor in the university's Department of Entomology and Nematology as saying that as a land-grant institution, the university has responsibilities in research, instruction and extension.

Ellis, who will supervise the bee lab, says most of his educational efforts are directed toward extension.

"The lab will be a unique, tailored space to allow us to meet the needs of both our extension clients and our students." Ellis says.

Because honey bee populations have been suffering, there is a significant need for his team to develop unique facilities in the teaching and extension wing, including a honey-extraction facility, to teach beekeepers to make their products more valuable.

"Within two years, we'll be moving in to augment our efforts in addressing the sustainability of beekeeping in general," Ellis tells the newspaper.

"Regardless of what has happened in the past and how we got here, the facility is a reality now, and the determination of our partners, as well as my team, will make this a great endeavor."

Alan Harman

AUSSIES FIND THE SWEET SPOT WITH POLLINATION, NOT HONEY

Australia's big commercial beekeepers are reported moving away from honey production to pollination services.

The Australian broadcasting Corp. reports this is, in part, because of the expansion of horticultural industries that rely on bees.

New South Wales Department of Primary Industries technical specialist Doug Somerville says demand from almond and blueberry farmers is driving the move.

"The bee industry in Australia is changing rather quickly at the at the professional end," he says. "It was traditionally focused on bulk honey production, but now at the big end it's swinging across to paid pollination because the almond industry is growing exponentially in southwest New South Wales, Victoria and South Australia."

Somerville says the biggest movement of bees in Australia is in the eastern states with 150,000 plus beehives being shipped to the almond growing areas.

"That's not likely to stop in the near future," he says "We'll see a shift in beekeepers moving their business model from purely honey production to doing pollination as well as honey production.

"But that honey production may well suffer as result, if it's economically viable to swing further on to the pollination area."

Somerville says the increase in demand will make pollination more profitable for apiarists and this will in turn make the industry more sustainable and create opportunities for new blood to enter the industry.

"There's a lot of fuss at the moment with people saying 'there's not enough bees, there's not enough bees' but to me that's a bit of a 'the sky is falling' type stuff'," he says.

"There are enough bees if the market pays.

"It's very much about supply and demand, you can double the number of bees in one season and that's not too difficult with a bit of expertise.

"What you need then is for it to be economically viable to do so for the beekeeper to be able to spend that time and energy invested in producing a product that needs to then be paid for."

Somerville tells the broadcaster there the price paid for pollination is slowly increasing and now is about A$120 (US$91.18) a hive, "which is not too bad.

"We haven't got to that crunch of the supply and demand curve crossing each other at this point in time I was speaking to the biggest broker of bees for almond pollination yesterday and we believe it will probably happen next year or two."

Alan Harman

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rapidly. So there's this wave of European bumblebees spreading through South America right now. They're spreading at the rate of 150 miles a year, which is quite extraordinary. That might not have been so bad, but they're carrying European bumblebee diseases, and the native bumblebees have no resistance to them. So there's an unfortunate parallel with what happened when the first Europeans colonized the Americas. The people brought with them European diseases which wiped out tens of thousands of Native Americans. And the same thing's happening 500 years later with the bumblebees.

You're known for being a fierce critic of neonicotinoid (neonic) pesticides.

I think there's a very convincing body of research now. There have been hundreds of papers published in the last five or so years. It's beyond any reasonable doubt they're harming wild bees. It's unclear how much they are contributing to honey bee problems, but it's beyond doubt that they affect bumblebees. And probably other wildlife as well. There have been papers linking butterfly declines and insectivorous bird declines to neonic use as well. The basic problem is they are chemicals that are extremely toxic to all insects, that are highly persistent in the environment. They're systemic, so they get sucked up by plants, including plants that aren't crops. Wildflowers, hedgerow trees – any plants growing near where neonics are used, end up full of these chemicals.

They're also getting into streams and ponds and rivers. Pretty much every sample anyone takes from a river or pond anywhere near an arable farm contains these powerful toxins. So if your soils and your water and your wildflowers and your crop are all contaminated with potent neurotoxins, then it probably isn't surprising that your farmland wildlife and insect life isn't faring so well.

The neonics are pretty popular with farmers. Is there a way of regulating these pesticides so that they might be used safely?

I don't think they're necessary. We in Europe introduced a moratorium in December, 2013. They were banned for use on flowering crops – canola, sunflower, maize – the main three. When the debate was being held in the European Parliament, the agrichemical industry were lobbying heavily. They produced estimates of how much the losses would be if neonics were withdrawn, and they said that if the moratorium came into effect, it would cost the EU $7 billion Euros in lost crops, every year. But nonetheless the politicians voted for the moratorium. It came into effect, and surprisingly crop yields went up and have remained higher than they were before the moratorium – for the crops that were routinely treated with neonics beforehand. So these dire predictions of waves of pests wiping out the crops turned out to be completely false.

What alternative pest control are European farmers using to replace the neonics?

Primarily pyrethroids. The crop I know best in the UK is canola, which here is mainly autumn-sown. So it goes in in late August, and the seedlings come up in September. That's the key period that it was claimed that neonics were necessary to control things like flea beetles, which attack the seedlings. Instead, the farmers are spraying the seedlings with pyrethroids, sometimes two or three times, in September.

Some people claim that farmers are turning to worse chemicals to replace neonics. I would dispute that. I think the evidence suggests that pyrethroid insecticides, although toxic to bees, the fact that they're much less persistent in the environment, and if they're being applied to seedlings which are nowhere near flowering, at a time of the year when there aren't many bees about, actually I think they pose far less risk than the neonics do.

But haven't pyrethroids been overused to the extent that pests are acquiring resistance to them?

There certainly are plenty of instances of resistance to pyrethroids. But the facts suggest that they've worked perfectly well since the moratorium was introduced in the EU, because crop yields have been very good.

And how about organophosphates? Any danger that they could become the pesticides of choice, in the absence of neonics?

In Europe most farmers don't use organophosphates. There's only one organophosphate, chlorpyrifos (trade names Dursban, Lorsban), that's allowed for use in the EU, and I have yet to find a farmer who uses it. They all regard them as rather dangerous and unsuitable, so they turn to pyrethroids instead.

We've got American beekeepers who argue that not only are the neonics not harming honey bees – they have to some extent grounded the crop dusters, which in the past were a huge problem for beekeepers.

In European farming, neonics didn't replace other insecticides. Farmers were still spraying pretty

Rusty Patched Bumblebee. (Xerces Society photo)

much all of their crops with insecticides, on top of the neonics. So it wasn't like once neonics came along they abandoned everything else. They were routinely spraying crops, mainly with pyrethroids, again, because neonics are not thought to be effective past the seedling stage of the crop. They don't protect the crop, once it's really big, against most pests, because they're too dilute in the crop. So later on in the crop cycle, farmers are spraying anyway. I can't say what's happening in the States, but that's certainly true in Europe.

You've written four books. If you were to recommend one to beekeepers, which would it be, and could you tell us a little bit about it?

I guess *A Sting in the Tale*, the first popular science book I wrote, which is all about bumblebees, really. It's about my life and the fun I've had over the years studying them. A beekeeper might think he knows everything there is to know about bees, but he probably knows everything there is to know about *honey bees*. There's a whole world of other bees out there which hardly anybody knows much about. I guess one of my missions in life is to persuade people to pay attention to all these other creatures that are out there that are doing important stuff. The book's also meant to be a fun, entertaining read.

Any hope for pollinators, or is it all gloom and doom?

Well, the prospects are pretty worrying. I mean the direction we're going in is not good. And if we don't do something pretty dramatic, we're going to lose a lot of our butterflies, a lot of our bees, a lot of our birds, a lot of everything. But I don't think we should be gloom and doom. We have to do as much as we can to change that, and there are lots of things people can do. Get involved, just even in your own garden, plant bee friendly flowers, don't use pesticides, and your buying choices – buy local food, buy organic food. If enough people did that, it would begin to make a difference. BC

One of Britain's foremost conservationists, University of Sussex Professor Dave Goulson founded the Bumblebee Conservation Trust, a charity that promotes bumblebees. He has written 230 academic papers, as well as four books about bumblebees and other wildlife. His bestselling "A Sting in the Tale" was a finalist for the Samuel Johnson Prize in 2013. I caught up with Professor Goulson on Skype.

How did you come to devote your life to bumblebees? They seem to be your passion, and studying them and advocating for them is what you get to do for a living. Do you consider yourself lucky in that regard?

Well, as you say, I am lucky. I always loved insects, and wildlife. It wasn't always bees, though. It was butterflies and moths. I was a little bit of a birdwatcher as a kid, as well. But I got hooked on bees as an adult. I did my PhD on butterflies, and it was a little after that I was watching some bees in a park and saw them doing something I couldn't explain and did some research on it. I got more and more involved and never looked back, really.

What's the status of pollinator populations worldwide and in the U.S.?

We don't have a really good monitoring system for wild pollinators. We don't really know, for most of them, what's happening to them. But for the ones that we have data for, which tends to be the bumblebees and butterflies, it's not going very well, to be honest. There seem to be a large majority of species that are in decline. In America, the rusty patched bumblebee is one of several that have declined really rapidly in the last 20 years, and gone from being a very common insect to close to extinction. You've had one bumblebee go extinct quite recently – Franklin's bumblebee. Butterflies have shown very big declines. The monarch butterfly is down about 80 percent.

What are the chief threats to pollinators?

It's mainly habitat loss. Flower-rich habitat has gone from most of the farmed countryside and been replaced by monocultures. You've got lack of flowers, lack of habitat, pesticides, of which there are lots of different ones – too many I think – and then diseases also.

Pollinators naturally suffer from lots of diseases, but we've made life more difficult for them by accidentally distributing pollinator diseases around the world. That's best understood for honey bees. We know the *Varroa* mite has spread all around the world, more or less. Hasn't got to Australia yet, but that's the last place. But it isn't just the *Varroa* mite. Viruses – deformed wing virus has spread all over the place. It turns up commonly in bumblebees. It seems to spill out of apiaries into wild pollinators. It isn't even confined to bees. It's been found in other pollinating insects, like wasps and flies. We don't really understand the dynamics of these diseases very well at all. But it's undoubtedly not helping. For the last 20-odd years we've been exporting bumblebees for tomato pollination, taking yet more diseases around the world. So we're doing a pretty good job of messing things up for our poor pollinators. They could probably cope with one thing, but if you bombard them, and you starve them, and you infect them with diseases, and you poison them, all at the same time, then probably not surprisingly they sometimes seem to be suffering.

Dave Goulson, educator, author and expert on pollinators.

Please talk about the decline of native bumblebees in South America.

So this is really dramatic and worrying. There are native bumblebees that live in South America – not very well studied, but some beautiful species. Unfortunately the Chilean government deliberately introduced European bumblebees in 1998. They took buff-tailed bumblebees from factories in Europe where they are bred for the tomato pollinating industry, and they deliberately released them in the middle of Chile. They took to Chile very well, and they've been spreading extremely

Ed **Colby**

Dave Goulson

Continued on Page 94

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