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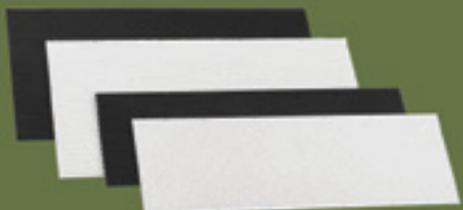
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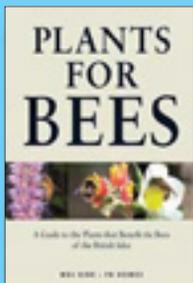
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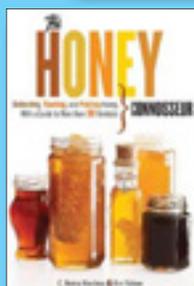
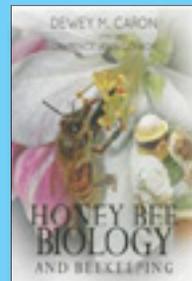


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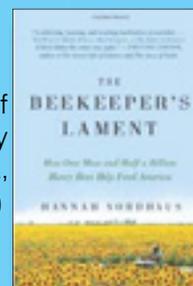


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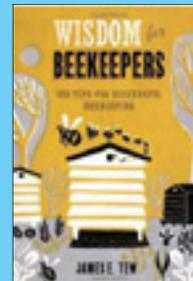


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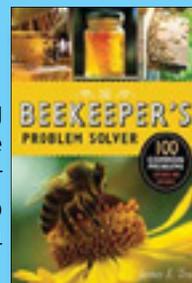
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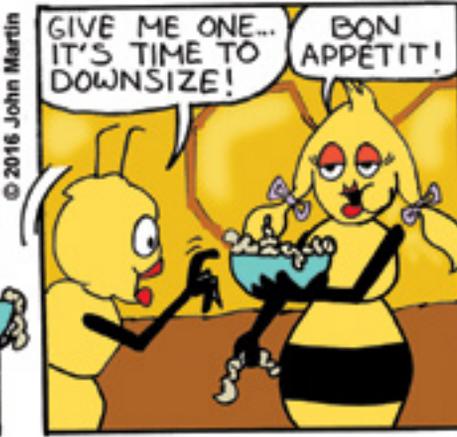
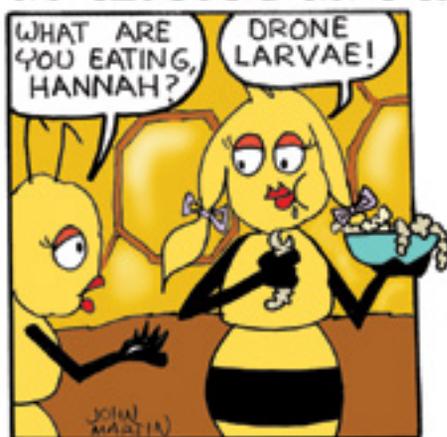


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Bee Sting Habituation

I'd like to share a personal observation to see if others have experienced anything similar. Some years ago, after keeping bees for a dozen years, I started to have rather severe, though localized, reactions to bee stings. If I got a sting on my wrist, my whole arm would swell up for several days and itch terribly for another few days as the swelling subsided. Over time, the reactions became worse and I wondered if my days as a beekeeper were numbered.

Then I had a vague recollection of reading a letter to the editor of *Bee Culture* (or perhaps some other publication) from someone who had correlated the increased localized reaction to bee stings with using ibuprofen (and perhaps other NSAIDs.) The writer theorized that the drug was inhibiting the body's ability to build up its normal tolerance to stings. I was unable to find the letter, but at the time I was taking a lot of ibuprofen, so I decided to switch to aspirin and see what happened.

Over the course of the next year or so, my reaction to stings diminished, until the response was mild pain lasting only about ten minutes. The turnaround was surprising. I talked to a couple of doctors who knew nothing about the effect but agreed it was possible that NSAIDs could interfere with habituation to stings.

Some years later, I was in need of minor knee surgery and my surgeon insisted that I take an NSAID for the first few days afterwards. (I forget the drug's name, but it was in the same class as ibuprofen.) I took it only as long as absolutely required, about three days, then returned to aspirin. But the next sting I received caused my leg to swell and itch in the manner I had previously experienced. Over the next few stings, the reactions subsided again.

That's the observation I can relate; my sample size is very small (just me, though twice.) However, I've been paying attention to what seems to be a substantial uptick in the number of people who claim to be allergic to bee stings. In conversation, some folks have related to me stories of strong localized reactions of the type I

experienced. With the widespread usage of ibuprofen and other NSAIDs, I wonder if we may be undergoing a population-wide disruption of our normal ability to build up immunity to stings.

If others know about or have had a similar experience, perhaps it could be brought to the attention of the medical community for further consideration. I would be interested to see an evaluation of the hypothesis of the original letter writer.

Karen Greenler
Edgerton, WI

Bee Van To The Prom

Our son, Ben, and his friend Victoria took the "bee van" to prom this year. When I asked, "Will you be renting a limo?" the reply was, "Oh no Mrs. Schuler, we are taking the bee van." Well, it can seat almost a dozen and it's free. The kids decorated it, including a disco ball inside. Ben's dad, Tim Schuler, is the apiarist for the state of New Jersey.

Patty Schuler
NJ



Michigan In Trouble

I manage a honey distribution company called Hey Honey and my primary supplier is our family farm, Super Bee Apiaries in Kawkawlin, MI. Our business model is very simple. My cousin Ned Waibel was the beekeeper for roughly 250 hives around mid-Michigan and his wife Jeanette did all the bottling and flavor steeping for our 25 different flavored honeys. I created Hey Honey to handle the distribution and sales. Over the past five years we have enjoyed a steady and healthy growth and strong customer following.

Tragedy struck recently when we lost Ned to a massive heart attack leaving Jeanette without the engine we depended on to produce

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our honey stock. While we do have family that also raises bees, for our business to continue, we need to recapture production and raise the product ourselves next season.

I would like to explore opportunities with a university and am curious if a research-for-labor grant/arrangement could be created or if additional bee keepers could be contracted. Ned was a true champion of bee preservation and had a great deal of knowledge relating to how to sustain the bee population. Access to a relatively large number of hives I thought could be of interest to the educational community. However it appears that access to federal grant money is becoming difficult and unsustainable. Up until this event, Ned handled everything pertaining to beekeeping. My role is strictly marketing and sales but I am trying to help Jeanette by replacing Ned's role. Any resources or personnel you can suggest to help us keep our apiary moving forward would be very much appreciated.

Jay Jermo
Kawkawlin, MI

Hearing Aids And Bees

Recently I started wearing aids. They are the behind-the-ear kind.

This afternoon I was observing the hives from outside the electric fence. I have never had a problem doing this. Today they attacked my left ear. I got stung on the ear. As I left the area they attacked my right ear.

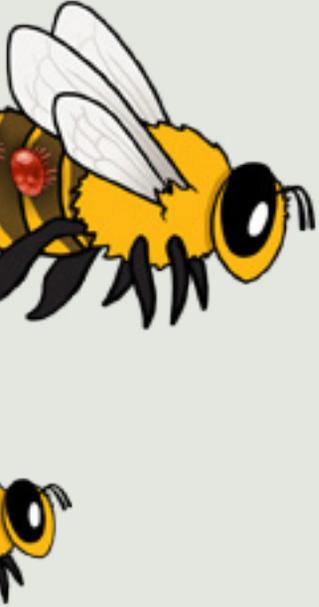
Has any other beekeeper had this problem?

Richard Brewster
Andover, NH

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More About The Plants

I can't wait to get my copy of *Bee Culture* each month and read it two or three times.

I have been a beekeeper for 25 years and always learn something new, and I enjoy all of the writers who contribute.

I have tried to contact Connie and have been unable. In her articles I wish she would tell us where we can obtain some of the seeds and plants she writes about.

Ray Cashion
Asheboro, NC

Climate Change Denier

I greatly enjoyed the letter from Louis Pofahl in the May *Bee Culture* in which he proclaimed himself "a proud climate change denier." I seem to have touched a nerve with Mr. Pofahl with my modest proposal in the April issue that if *Bee Culture* runs letters from climate change deniers, it also should consider letters from those who have strong opinions about such things as 9/11 plots, Kennedy assassination conspiracies, and government gun grabbers.

I did not imply that climate change deniers are "buffoons, idiots and clearly incapable of any reasonable thought" – those are Mr. Pofahl's words. I was merely trying to put their claims into perspective, and I thank Mr. Pofahl for his assistance.

Mr. Pofahl, himself has helped me in another way to do that. In his letter in the May issue he cites an article in the Wall Street Journal by Joseph Bast and Roy Spencer calling into question the scientific claims supporting man-made global

warming. A simple internet search shows that Bast is the president and CEO of the Heartland Institute. Heartland has been funded by conservative organizations like the Charles Koch Foundation as well as companies like ExxonMobil. In the past, Heartland was involved in a campaign funded by Philip Morris to question the links between smoking, secondhand smoke, and health risks. As the old saying goes, money talks.

Tom Chester
Tucson, AZ

The letter to the editor from the Climate Change Denier, Louis Pofahl, caught my attention. After reading it I have to reply. He makes one huge error that shows the extent of his ignorance and destroys his line of "reasoning."

"Here is why we proud deniers question the CC enthusiasts, first when the term "global warming" wasn't getting any traction it was changed to climate change. In Nebraska we have real climate change, in January the temperatures are around 10°, in March the climate changes and temperatures go up to 50°..." Then he cites an analysis in the Wall Street Journal. Sorry, Louis, the WSJ is owned by Rupert Murdoch and, therefore, has no credibility.

But back to Climate change. Here's where his ignorance blew him out of the water. He doesn't understand the difference between climate and weather. Flippantly, climate is what you expect but weather is what you get. The reality is climate is a worldwide



phenomenon while weather is local. The local weather in Nebraska is a small part of the overall climate of the Earth but not a measure of it alone so you're reporting the temperature changes locally are meaningless except for those who experience them.

You're perfectly welcome to deny climate change but wishful thinking is irrelevant to the facts.

Brian Gregory
Tahuya, WA

Winter Survival

I lost four colonies this Winter.

It is my understanding that, in the Winter, the bees bunch together to keep warm. They do not hibernate.

But how can they bunch together when separated by frames?

Have beekeepers made an opening in the frames so that the bees can really bunch together?

This ought to help Winter survival.

William McCoy
Chagrin Falls, OH

Editor's Note: For starters, every honey bee colony has comb that acts the same – it separates the cluster into bunches. However, in a tight cluster bees crawl into the cells, vibrate

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muscles and warm themselves, the wax and any bee nearby – on the other side of the cell, in the next cell and in the space between combs. The wax, and the bees stay warm. In fact, the wax actually acts as a sort of heat sink, keeping the interior of the cluster warm. And yes, bees, and beekeepers make openings in the frames or combs for several reasons. To make passage from one side to the other easier to access food, for movement and for airflow. Plastic foundation has reduced that because the manmade opening is always in a bottom corner. Beekeepers with frameless hives – top bars and such – will see these openings, often near the top of the comb. Long ago, Langstroth suggested removing a frame or two from the center of the brood nest to allow a larger bee-to-bee cluster. It didn't catch on, but if you follow his writings, it worked.

Just Honey Bees!

Could we please limit this site to Bee Culture only, and skip the butterflies. I have enough trouble just learning what I need to know about honey bees. I don't need to learn about butterflies, bats, or grizzly bears.

Charles Moore

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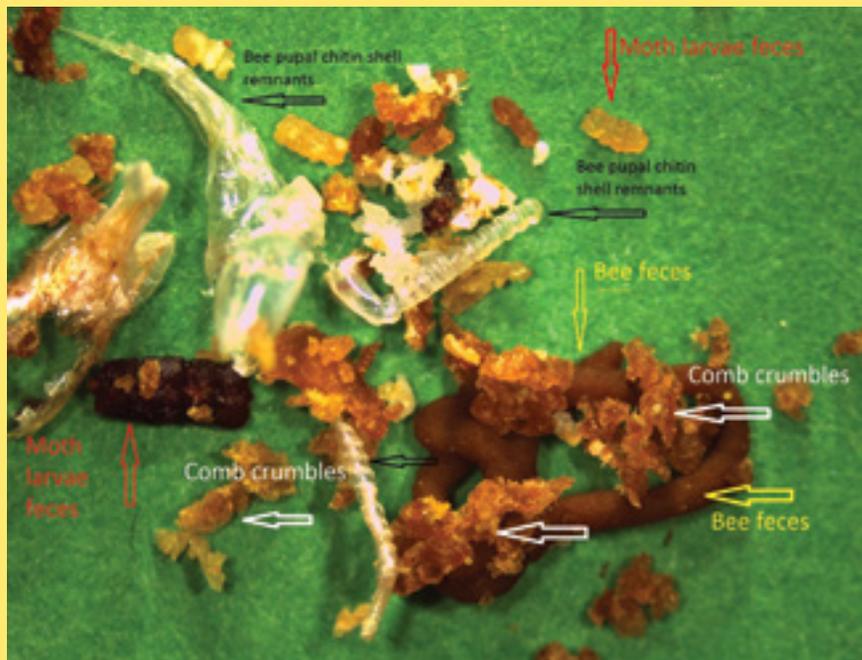
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Magnified (8X)View of Selected Detritus Examples on Sticky Boards Don Coats



Pieces pictured were harvested early March from a sticky board in SE PA.

Bee Pupal Chitin Shell Remnants were rather abundant. This might suggest that pupae were being removed and cannibalized by workers because the workers detected a health flaw in the developing pupae. In this case we might have expected the brood frames above the sticky board to show a

patchy pattern.

Cell Caps (not pictured), round and neatly chewed out, were also found on this sticky board. Their presence may confirm that external extirpation took place by workers since normally emerging healthy babies nibble themselves through the cap in an erratic pattern.

Comb Crumbles are leftovers from house cleaning and brood cap pieces. These crumbles always predominate over other detritus found on sticky boards.

Wax Moth Larvae Feces occur in different sizes and color tones, depending on the age of the larvae and the age of the comb. Note the regular ridges and uniform diameter that distinguish this material.

Bee Feces are interesting to see on the sticky board, since we don't expect bees to defecate in the hive. And also note the length of this particular sample! Bee feces dropped along the flight path from foragers is very different - fluid or pasty in much smaller portions. We might wonder what caste of bee produced this large well-formed deposit. Of more concern are fecal mistakes (diarrhea) that sometimes do appear on the sticky board, as tiny puddles or piles of paste.

Many *Varroa* mites were found on this board, a topic that deserve more discussion than available in this caption. If this kind of inquiry and discuss interests you, please communicate to -> doncoats@verizon.com



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Bee Culture

The Magazine Of American Beekeeping

Get Ready For Bee Culture's Next Event **A CASE FOR (LOCAL) HONEY**

Fully 80% of the honey consumed in this country is imported. Vietnam and India make up half of what's sent to the U.S. How much of that is illegal Chinese honey is a matter of discussion, but we know some is, but the quality of the honeys from both of these countries no way compares to the many, many quality honeys produced right here in the U. S. This is a **GOLDEN** opportunity for U. S. honey producer/packers to capture a greater market share when selling LOCAL honey, and learning how to capitalize on the quality aspect of that fact. As a result of this we are beefing up the marketing aspect of our program to focus on producing the best product possible, making sure it stays that way in the processing and getting the word out on the care and quality a LOCAL honey has.

With that in mind, so far our speakers include **Dan Conlon**, Warm Colors Apiaries, Massachusetts; **Bob Binnie**, Blue Ridge Honey Company, Georgia; **Dave Shenefield**, Clover Blossom Honey, Indiana; **Steve Conlon**, ThistleDew Honey, West Virginia; **Joann Dunlevey** RS, Food Safety Specialist, Ohio Dept. of Ag; and if possible a Representative of The FDA. Because of this new slant, other speakers are firming up travel plans and will be announced as they become known.

This well rounded group has all aspects of this topic well covered. U.S. Producers, Packers, Producer/Packers, Insurance and Risk Brokers, Marketing, and all the new Food Safety rules and regulations.

Unfortunately, missing from this discussion will be the National Honey Board, the marketing arm of the honey industry, and so far those large packers and importers who have chosen to have their annual meeting on the same weekend. The coincidence has not gone unnoticed. The focus of this event will remain on **promoting and informing ambitious U.S. Honey Producers and Packers of U.S. Honey.**

New this year will be a Friday Night Social held in Bee Culture's Conference Center, the location of the Two day Conference on Saturday and Sunday. It's a low-key, meet and greet with the speakers and attendees from 5pm to 7pm on Friday where you can pick up your folders with speaker profiles, conference agenda, and lots of information on Medina's dining and shopping opportunities. Supper afterwards is on your own but you'll have plenty of places to choose from, and lots of people to join with.

Tuition is \$150 per person which includes the Friday night social and classes and an exceptional lunch on Saturday and Sunday. On line Registration opens March 1, 2016. Hotel and B&B info included here.

Friday Night Social, October 21, and classes and lunch Saturday and Sunday October 22 & 23, Bee Culture's Conference Center, 640 W. Liberty St., Medina, Ohio. Register early.

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The device comprises a bowl that houses a special basket which is the key to EasyCheck's reliability, as its design incorporates numerous holes in the bottom and sides of the basket that allow detached mites to fall more easily to the bottom of the optically clear EasyCheck bowl.

Varroa EasyCheck allows quick and easy sampling. Beekeepers simply collect 200 or 300 bees and shake them for 60 seconds in the EasyCheck shaker with a solution of alcohol or Winter windshield washer fluid. Mites separate from the bees and fall to the bottom of the transparent bowl where they can be easily counted. The liquid may be reused repeatedly.

A full description of the product and instructions for use are available on Véto-pharma's website at www.veto-pharma.com.

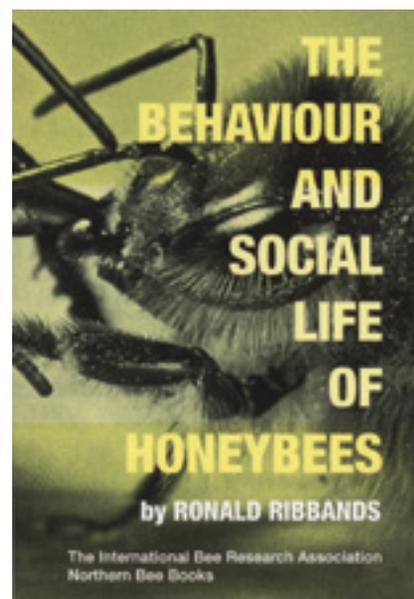


Gardening For Butterflies. How you can attract and protect beautiful, beneficial insects. Published by Timber Press. Produced by the Xerces Society, written by Scott Hoffman Black, Brianna Borders, Candace Fallon, Eric Lee-Mader, and Matthew Shepherd. Foreword by Robery Michael Pyle. ISBN 978-1-60469-598-4. 8" x 9", color throughout, 287 pgs., \$24.95.

The bulk of this book is made of the plants that butterflies like and how to design a garden for them, and, not coincidentally, for moths, too. The photography is stunning, but more importantly, the information surrounding each plant is useful for making choices about where you live. Bloom time, flower color, height, annual or perennial, shrub or tree, soil requirements, nectar value and larval host value and where it grows. Don't need much more than that to make a choice about whether to use it in your garden or not. So you don't have to read every page, it has useful charts summing up the information on where things grow, name and bloom time and flower color, so you can make choices rapidly and efficiently. I like the photos, but I need that kind of information for easy reference.

And of course, almost everyone of these butterfly plants is a honey bee plant, too. So by helping one, you are helping both. Not a bad deal in my book. If you garden, this is one book you should have on the shelf. Check it out.

Kim Flottum



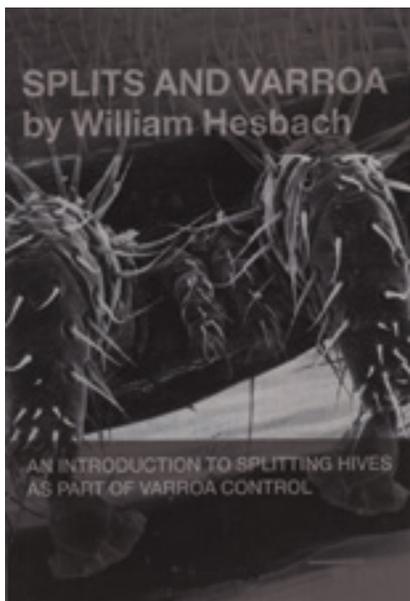
The Behaviour And Social Life Of Honeybees. By Ronald Ribbands. Published in conjunction with IBRA. ISBN 978-1-908904-87-4. 6.5" x 9.5". 352 pages. Black and white. Soft Cover. \$36.00.

Tom Seeley writes in the Foreword: Originally published in 1953, Ribband's book provides present-day bee biologists and beekeepers with beautifully clear summaries of the older scientific studies that are the foundations to the topics that are now hotbeds of behavioural research on honey bees: sensory biology, learning and memory, orientation, chemical and acoustical communication, nest-mate recognition, queen-worker relations, mating behavior, caste determination, comb building, individual and colonial thermoregulation and foraging activity.

This reprint, Seeley notes, is welcomed, both as a guidebook for researchers in bee behavior wishing to explore the roots of their own studies, and as a reference book for beekeepers seeking a deeper understanding of what is happening inside their hives.

Kim Flottum

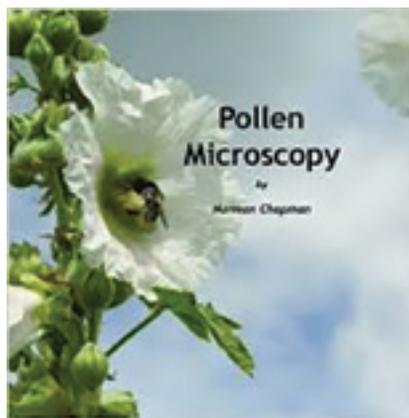
More New Books On The Next Page



Splits And Varroa. By William Hesbach. ISBN 978-1-908904-86-7. Published by Northern Bee Books. 6.5" x 9.5". 40 pages. Soft cover. Color. \$15.00.

This is a straight forward approach to making splits and divides as part of a non-chemical control program for *Varroa*. It's the basics, but seldom are basics all gathered together in one place. Walkaway splits, using ripe queen cells, dealing with virgin queens, dealing with the weather, swarms and the all important brood breaks. It has solid info on *Varroa* biology and day to day data on post split management.

Kim Flottum



Pollen Microscopy, by Norman Chapman. ISBN 978-1-907092-10-7. Published by CMI Publishing Ltd. UK. 132 pgs. Softcover. \$21.00

A growing number of beekeepers have become interested in trying to identify the pollen in the honey produced in their hives. This book, which includes over 50 hand drawn illustrations of pollen grains, is nice for the coffee table but I doubt it would be of much help for those trying to identify pollen grains. Although the pollen drawings are well done and the pictures of the parent flowers are in color and quite appealing, the main problem is that the pollen grains were drawn as they come out of the flower, not as they would appear once the honey was

properly diluted and then chemically processed to prepare the pollen for proper identification. If a beekeeper wants to see what pollen looks like, then there are other books that one might want to consider such as the 2014 edition of *Pollen: The Hidden Sexuality of Flowers* by Rob Kessler and Madeline Harley, which can be purchased on line for less than 30 dollars. There are other keys to pollen types such as posters of pollen types and books such as *Pollen and Spores* (2nd ed, 3rd printing) by Ronald Knapp that illustrates over 150 key North American pollen types. Both the posters and book can be purchased for \$30 or less on line from the American Association of Stratigraphic Palynologists.

Although fascinating and informative, searching for the pollen in honey samples is not as easy as it might sound. There are over 300,000 potential pollen types worldwide and each species produces a microscopic size grain that has a unique morphology. With the right equipment, a good microscope, adequate reference materials, and help from pollen experts it is possible to learn how to do this and possible to learn how to analyze honey. The hard part is the "learning curve" that often takes years of work and experience. *Vaughn Bryant*

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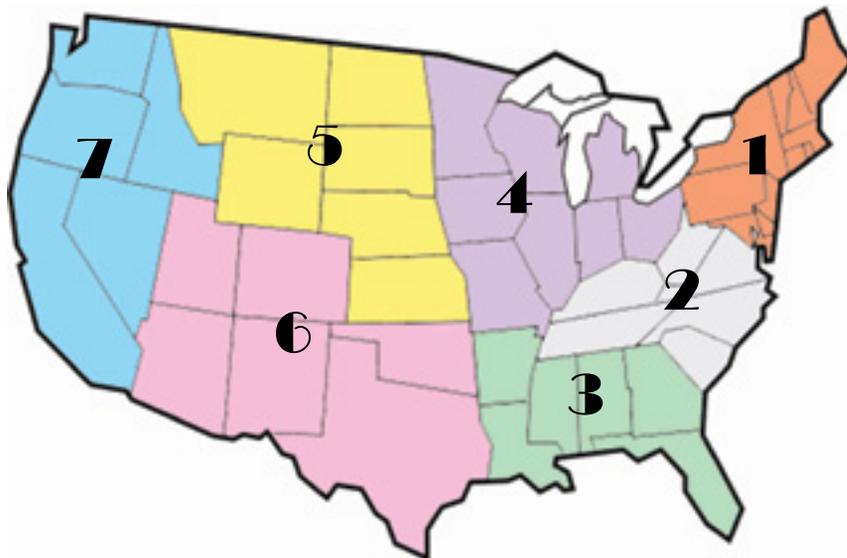
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JULY - REGIONAL HONEY PRICE REPORT



Honey Label Use

We took a look at honey jar labels this month, seeing what our reporters use, and don't use. Perhaps you will see something here that will help promote your honey while just sitting on a shelf or farm market table.

A Product Of The USA label helps define the origin of the honey in the bottle, and, while most of us sell in local markets, there are beekeepers who, to round out their product line bring in honeys from other places. Only 26% of our reporters seem to have an issue with that and don't use a USA label.

But what about a Local Honey label? Well, there's a difference, but not as much as we expected certainly. Local is the King of the best honey there is, but only 54% use a Local on the label.

Many, but not most, sell a varietal honey in some location and add that to their label mix. If you have something as special as Sourwood, Locust or Sunflower, touting it to your customers is a plus and enables you to add a bit to the price because of the extra work involved. 43% of our reporters take advantage of that fact. But even if you can't demonstrate a particular floral source,

segregating out a seasonal harvest gives your customers a chance to come back and ask for that Fall honey I got last time, or the wonderful Spring Bouquet like last years crop. But only 21% use a seasonal label. If you don't you might consider that name, instead of the far-to-typical Wildflower so many of us use.

If your honey is sold at a farm market, what does the customer see? The top of the bottle. Even in many stores the honey is located such that the customer is looking at the top, so something there should help, right? Only 22% of our reporters use a top label, but we didn't ask whether that

was because that's all that they sell there, or they didn't want one.

Other promotional tactics used included the locations of the apiary where the honey was made, that the honey wasn't filtered and indeed did contain pollen, Raw Honey is a common attribute used by beekeepers to indicate strained and not filtered and not heated above 100, how to get honey back to liquid form is common, and good, as is 100% Pure and Natural, though Natural doesn't have an official meaning yet. Certified Naturally Grown shows up on occasion, as does Product of (State) which is required in some places.

REPORTING REGIONS								SUMMARY			History	
	1	2	3	4	5	6	7	Range	Avg.	\$/lb	Last Month	Last Year
EXTRACTED HONEY PRICES SOLD BULK TO PACKERS OR PROCESSORS												
55 Gal. Drum, Light	1.55	2.08	2.19	2.43	2.10	2.14	2.70	1.25-3.20	2.19	2.19	2.31	2.26
55 Gal. Drum, Ambr	1.45	1.98	1.94	2.34	2.09	2.06	2.70	1.25-3.00	2.06	2.06	2.20	2.13
60# Light (retail)	203.57	187.75	193.33	202.96	171.00	189.85	251.25	120.00-300.00	203.74	3.40	200.46	197.17
60# Amber (retail)	211.43	191.00	191.67	188.11	204.33	180.56	251.25	116.38-300.00	200.47	3.34	201.83	188.81
WHOLESALE PRICES SOLD TO STORES OR DISTRIBUTORS IN CASE LOTS												
1/2# 24/case	86.76	76.93	76.02	68.80	51.84	88.50	112.00	48.00-124.80	80.42	6.70	83.00	81.52
1# 24/case	125.12	107.07	120.02	97.16	127.08	96.75	170.60	45.00-216.00	119.27	4.97	119.48	112.35
2# 12/case	113.19	97.50	120.80	99.60	97.44	101.10	119.50	76.80-168.00	110.42	4.60	108.54	102.34
12.oz. Plas. 24/cs	100.73	84.80	80.04	89.95	74.40	98.40	119.28	48.99-192.00	95.06	5.28	97.84	92.09
5# 6/case	135.69	107.00	91.10	113.90	102.30	97.50	125.00	30.16-204.00	117.16	3.91	122.75	115.17
Quarts 12/case	165.93	126.08	126.72	121.00	155.22	138.20	136.00	100.00-192.00	135.48	3.76	144.41	140.14
Pints 12/case	100.13	86.40	71.00	76.40	110.88	73.20	79.25	13.00-130.00	83.11	4.62	94.68	87.18
RETAIL SHELF PRICES												
1/2#	5.09	4.15	4.33	3.84	5.40	3.31	6.17	2.45-7.75	4.57	9.15	4.55	4.14
12 oz. Plastic	5.96	4.76	4.85	4.92	4.73	5.74	8.03	3.00-10.00	5.64	7.52	5.70	5.24
1# Glass/Plastic	7.07	6.71	6.64	6.16	6.08	5.87	10.15	3.00-12.99	7.11	7.11	7.39	6.76
2# Glass/Plastic	13.06	10.94	11.28	11.74	9.70	10.62	14.27	6.00-19.00	12.03	6.02	12.31	12.12
Pint	11.33	8.36	8.72	12.07	8.00	9.90	12.63	4.00-17.70	9.91	6.61	10.61	9.52
Quart	17.05	14.81	14.08	16.72	14.93	15.10	18.13	8.00-26.00	15.82	5.27	16.76	16.65
5# Glass/Plastic	27.66	25.91	30.57	23.47	19.45	23.83	32.50	15.00-41.00	26.22	5.24	26.88	27.92
1# Cream	8.74	8.33	30.00	7.01	7.20	6.50	10.75	5.00-30.00	9.17	9.17	8.33	8.20
1# Cut Comb	10.76	9.92	8.33	8.30	8.50	4.50	19.00	4.50-30.00	10.67	10.67	10.65	9.96
Ross Round	10.03	6.50	8.85	10.00	8.85	9.30	9.47	6.00-12.00	8.70	11.60	8.74	8.31
Wholesale Wax (Lt)	8.20	6.10	4.40	5.71	6.00	5.04	7.00	2.46-12.00	6.35	-	5.85	6.13
Wholesale Wax (Dk)	6.83	4.65	3.62	5.94	5.71	3.38	7.50	2.00-10.00	5.42	-	5.21	5.53
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INNER COVER

I went to the 25th anniversary meeting of the Young Harris/University of Georgia Bee Institute in May this year, held at Young Harris University. It's organized every year by Paul Arnold who teaches at YH, and the Bee Lab staff from UGA in Athens. I've been there a few times previous, both to the Institute and at an EAS Conference held there some years back when Jennifer Berry was President. Young Harris has grown quite a bit since I was there last, and accommodating the 300 plus attendees was easy enough for them now.

There's a new auditorium that can hold all those people and more, and there are new class rooms so there can be, and were, five or six simultaneous workshops going on

at the same time, plus the bees-in-the-parking lot sessions too. Speakers were many and varied – Dewey Caron, Jim Tew, of course Keith Delaplane, Jeff Pettis (it was especially good to have some time with Jeff who's been too research-busy lately), Ask Phil Craft was there and so was Our Southern Voice Jeff Harris. Bob Binnie, one of the good people speaking at our CASE FOR LOCAL HONEY event in October this year gave a great how-I-do-business talk (and who I was supposed to call afterwards and forgot – Sorry Bob, I'll get back to you when I get off this darn plane), Jennifer Tsuruda from South Carolina was there, as was Bill Owens who's moved up in his day job to the point of hardly ever getting to remove bees from houses anymore. So was Robert Brewer and Keith Fielder, the Georgia Extension guys who run the Welsh Honey Judging class and show, and Cindy Hodges, one of Atlanta's urban beekeepers, John Skinner from Tennessee, and of course Jennifer Berry in the background, keeping all the wheels on track. There's a multi-level Master Beekeeper class going on early in the week with several different exams taking place and a shrimp boil one evening with great live music and an ice cream social where all the Master class people get announced.

Though the vendor area is a bit cramped there were several there and they were busy, as usual. Kelley Bees (It's still Walter T. to me, and Earl King was and always is right there too), Brushy Mountain (ask Candy about boiled peanuts the next time you see her), and though I didn't know either the Dadant or Mann Lake people well enough to recall their names (sorry guys) they both seemed to know me and said hi. Veto Pharma (and Phil and that new bee/mite wash bottle I'm waiting impatiently for) had a table, and David Miller from Beetle Jail was there with a new mesh jacket we'll be showing off next month, and Bob Cole and his book store (and honey and other bee things) was set up. Oxavap was showing off his many oxalic acid vaporizers and of course Rossman Apiaries was there with a little bit of almost everything they sell.

Rossman's is a staple there (as are a few others, certainly), but Fred wasn't there this time, and though his son-in-law Clint has ably taken over much of the travel work, I'd been hoping to have a chat with Fred since I haven't had that opportunity in quite a while. So instead I chatted with Clint for a bit and talked him out of one of their hats and wore it for the rest of the week. All in all good people, a great place and a good time. Thank all y'all for the great meeting. And congratulations to The Bee Institute for 25 years of making better beekeepers. Oh, and thanks for the hat Clint.

A Spieth Road Story

We had one colony last year that was, bar none, the most defensive colony I've ever dealt with outside of Arizona. Really. We'd put three packages in at the same time, from the same supplier, all with (we thought) similar queens. They all went on a new hive stand that was closer to the house than the stand way towards the back of the lot, which gets way too much shade needs to be moved. Three packages, all the same, same supplier, same race, same, same.

It started when the first flush of brood from the package queen began to emerge. One day just as docile as last time just like all the rest. The next time – whoa! Get the gloves, get the suit NOW.

The package on the west end of the new stand was the one. Of the three, it grew by far the fastest. It made spring honey fast enough we needed to feed only three frames of left over honey when we dumped it on drawn comb. And they even made enough excellent early Summer honey to harvest, and we were heading for a second harvest of late Summer honey when we decided to do something.

And bees. They say it takes a lot of bees to make a lot of honey, and there were a Godawful lot of bees, but they also say it takes mean bees to make lots of honey (I'll get back to that in a minute). The lots of bees thing was spot on though. This colony, housed in medium eight frame equipment (some of my friends think

Young Harris.
Mean Hive.

maybe it's that eight frame stuff that makes them grumpy) just like all the rest of the boxes out there, had way more boxes than the other two on the same hive stand, and even more than the overwintered hives in the back. Seven, all the time with four full of brood, compared to maybe five at the most for the others with maybe three with mostly brood. I ran out of boxes early on, got some more, ran out again so harvested (well, actually my friend Buzz came over and we harvested and he took them home and extracted them for me. I have a deal with Buzz. He has a truck, a honey house, and he's retired. I'm none of the above so he does the work and takes all the honey he wants for his efforts, thank you Buzz).

The mean bees thing has some truth to it, too, but probably not because of what you think. That old saying goes back to the days before African honey bees and *Varroa*. There was a time when beekeepers more often than not let colonies just requeen themselves because queens were not quite as available as they are now, and besides, they cost money. Beekeepers back then were cheap (fortunately that has changed), and it was cheaper and easier to let them do it rather than paying for a new one. So, local virgin queens more often than not were mating with drones from colonies that had come from queens that had mated with drones from long time local colonies . . . All of these queens and the drones were from colonies that had managed to figure out how to survive wherever it was they were. Selection was based strictly on survival, and Mother Nature was the selector.

There wasn't a beekeeper getting in the middle making arbitrary selections based on color, on gentle, on production, on anything other than being alive next Spring. Of course production, winter population, resistance to pests and diseases, a queen's productivity, a colony's ability to read the seasons and utilize available resources when abundant and hunker down when not, and that same colony's ability to defend itself from the Devil himself to keep close it's hard work all played into the survival game. A colony had to do all of these to stay alive. And to keep staying alive it had to do all of

them better this year than last, and even better next because Nature always bats last. So to survive those colonies of yesteryear were mean as tacks and made tons of honey.

So yes, it takes a lot of bees to make a lot of honey, and by gosh, mean bees do make lots of honey, too (most times). These bees, however, didn't have the luxury of learning to survive for generations and generations. No, they came that way. First generation bullies.

But before we finally did something it got to the point where they'd meet us at the far edge of the garden, about 30 yards from the hive and bedevil you all the way to their hive and past if you were headed to the burn pile or the hives in the back. And they wouldn't quit, and, because they were stinging your suit they kept coming and more and more kept coming and pretty soon you simply had to leave. Never mind opening the colony. Boiling out got it's name from what happened when you took the top off that colony. It was incredible.

By the end of July they had set up patrols just outside the house near the side door we use, and they routinely circled the deck on search and destroy missions. They even waited in the driveway in the morning before we left and were still there when we got back greeting you when you opened the car door. Worse, they occasionally went across the road to visit a neighbor who didn't mind, but, you know, maybe you could do something 'cause I have to mow my lawn at night anymore and my wife can't work in the garden at all.

As you can imagine, by now working that colony was impossible.

And yes, I had let it go too long. Way too long. Should have requeened that sucker the first time I noticed it. Yup. Should have. Didn't. Now, out of control. Dangerous even. Time to do something.

So. Very early morning. Sun not quite up, most everybody still home and not out yet being mean. Door blocked. Five gallons of soapy water. Cover off, water in. Wait 10 minutes. Five more gallons. About a dozen bees left. All the rest just plain dead wet. Took the capped honey and rinsed it off and saved for another colony to use. Removed the rest of the boxes. Fed the uncapped honey, the brood and dead bees to

the chickens who were more than delighted, soap and all. All told, 15 minutes. Done before breakfast.

What a waste. What a sad, miserable tragedy. Thousands of (yes, very mean, defensive) bees snuffed out because I let them go unimpeded. Simply replacing a queen a couple of months before this would have avoided all of this. The colony would have gone on, most likely like the average, though not stunningly productive colonies I had from the other packages. Alive and well, and with a little help from their friends into winter and beyond.

The lesson here is simple. Bees really do know what to do, and left to their own devices will manage just fine thank you, once they figure out how to live where ever it is they are, which takes some time and isn't ever a gentle process. But once that happens those colonies that nature selects start throwing swarms that are fine tuned to live right where they are. And, given free rein, ever more of them would survive because they just keep getting better at being where they are.

Sadly, for the most part the colonies we have now aren't geared to live where ever it is we put them and they quite readily die. They haven't been Nature Selected. They've been Beekeeper Selected, and it's pretty obvious we don't do such a good job. And the bees we don't manage just die too. They aren't selected at all. They are just meat for *Varroa*, for virus, for weather, for starvation. So our bees aren't mean, no sir. But unfortunately, most of our bees die too early, too often, from too many causes.

I don't know. Mean and productive and alive, or gentle and dead. What do you think?

•

It's July. Summer's nearly over and it's time to think of winter. Now. So keep your smoker lit, your hive tool handy and your veil tight. It's tough out there.



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It's Summers Time –

The Garden, New Neighbors and Oregon

I hope you all had a great Memorial Day Weekend. Our city and county do a good job of reminding us what that day is really about. Medina has a big parade and a weekend of activities and most of the small townships have their own parade.

It was the first weekend home for Kim and I in a while. We took a couple of extra days on either side and worked on our yard, got the garden in and did some beekeeping also.

Around here the old guys will tell you to never count on the weather until after Memorial Day for putting in your garden. So I guess we were right on schedule. We did things a little different this year – not as much, spread out a little more and lots of cardboard and straw between rows and plants to keep down the weeds. I also planted a lot of flowers in the garden – partly because I went overboard on buying flower seeds. As is customary for us we planted mostly tomatoes. But we've also got different kinds of beans, lots of squash and some eggplant. I don't really like eggplant much, but it's a fun plant to grow and we can always find someone to share it with.

We like growing peppers too, but we mostly put those in pots around the deck. Lots of hot peppers this year for my son and friends. Kim doesn't like any degree of hot pepper. I like hot, but not as hot as some of these are.

Then we were off again on another trip. We were anxious to see how things were doing. It's amazing how fast plants will grow given all the right conditions. I was really surprised at the beans and the squash which were all planted from seed. Things are looking good right now. I got some of the tomato cages on last night. This weekend we're supposed to have 90° weather and lots of rain.

We have new neighbors. We only have neighbors on one side, so we have been without for over a year. I think Kim was actually hoping for another Summer of not having to worry about anybody next door. But I think we got some good ones. They have chickens and ducks, extra points for that. As soon as she saw our beehives she decided not to spray all of the weeds in her



yard, so that's a good start. I quickly gave her a nice big jar of honey.

Keep a good thought. It always helps to have good neighbors.

Our last trip was last weekend to Albany, Oregon for the Mother Earth News Fair. It was hovering around 100° the whole weekend and bright sunshine.

Kim gave three talks – two outside in tents and one inside where it was nice and cool. But folks didn't seem to mind the heat – the tents were pretty full each time. Kim and Shane Gebauer, from Brushy Mountain Bee Farm did a live demonstration with Shane inside the tent – in a beesuit – and Kim outside. This was the second time they've done this for Mother Earth and it works very well. They are a good team.

Shane opens up a hive and goes through the frames as Kim is outside answering questions and walking through the crowd with different pieces of equipment.

This time they got braver and Shane actually handed a frame full of bees out to Kim, who walked through the crowd. Nobody ran away screaming and nobody got stung.

The best part of the trip – we got to see Jessica, Kim's daughter. She lives about three hours away but made the drive up to see us. So we had her for a day and night.

We're home for a bit now. The new deck is done and we're planning a July 4th get together with a few friends.

I hope you are having a great Summer and have a great holiday. If you have any good eggplant recipes, please send them my way and I'll give this vegetable another try.

Shirley Summers



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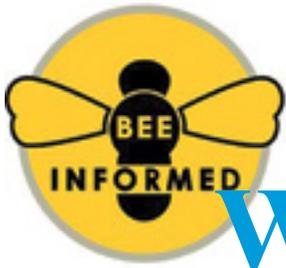
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BIP and NASS – Why The Difference?

Nathalie Steinhauer

Over the last year, and for the first time, the National Agricultural Statistical Service (NASS) conducted a survey to monitor colony losses. The Bee Informed Partnership (BIP), in collaboration with the Apiary Inspectors of America, has also recently published preliminary loss data covering the same time period.

While the core purpose of these two surveys are the same, to track honey bee colony losses in the U.S., there are significant and important differences in survey design (questions asked), delivery, data presentation, and the methodology by which loss rates are calculated. These differences mean that dissimilarities in loss rates reported by both surveys are expected. This blog is meant to help compare our results while highlighting differences and limitations of these comparisons. We do this in the hopes of helping beekeepers, academics, the general public and policy makers make sense of the current data.

The NASS report, with the full explanation of their sampling design and methodology can be found here: https://www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Bee_and_Honey/

The BIP abstract can be found here: <https://beeinformed.org/results/colony-loss-2015-2016-preliminary-results/>, and an explanation of our methodology can be found in previous peer reviewed reports.

In order to compare NASS and BIP estimates, we combined the quarterly numbers published by NASS to correspond to BIP's division of the season into "Summer" and "Winter" (see table 1). The details of those recalculations are provided at the end of this blog. It is important to note that the NASS personnel who coordinate this survey cannot comment on our methodology to compare loss rates so this was done by BIP personnel using publically available NASS data.

Table 1: Loss rate estimated from different surveys using different loss calculation methods

Loss Estimates (%)		BIP numbers	Recalculations based on NASS numbers Using NASS-influenced method	Recalculations based on NASS numbers Using BIP-influenced method
		BIP method		
Summer	Apr 2015-Sep 2015	28.34	23.87	23.97
Winter	Oct 2015-Apr 2016	28.26	28.12	24.33
Annual	Apr 2015-Apr 2016	44.30	43.43	39.15

Details on how calculations are made are provided at the end of this blog.

Both surveys present loss rates very differently. Most apparent, the Bee Informed Partnership present loss rates for the "Summer" (April 1- Sept 30), "Winter" (Oct 1 – March 31), and over the course of the year (April 1-April 1). The NASS survey presents the loss data in the 4 quarters (April 1 – June 30), (July 1- Sept 30), (Oct 1 – Dec 30) and (Jan 1 – April 1). Regrettably, the way that BIP collects data does not permit us to separate it into quarters, and so BIP data cannot be directly compared

with NASS results for each quarter. However, by making some assumptions, we can rework NASS numbers and present them as two different seasons, as BIP reports them.

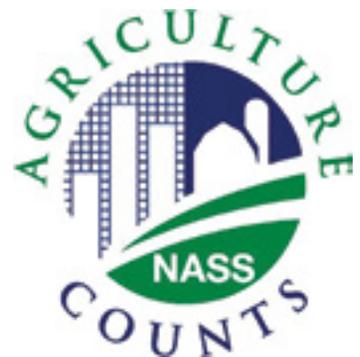
While tempting, it is not appropriate to simply add the loss rate for two quarters together to get a loss rate for a season. This is because the population of colonies under surveillance in distinct time periods is different than the total number of colonies that were under surveillance over the entire time period.

A non-bee example may help illustrate the point.

Say one had \$1000 in stock starting on April 1, and lost 20% of these funds by Sept 31, they would have \$ 800 remaining. If the stocks lost another 20% in the next six months, they would have 640 dollars left. If you were to calculate the annual loss rate by simply adding the loss rates in both seasons (20% + 20%) you would say the stock lost 40% of their value by, which would mean they should have \$600 remaining, which they do not – they have \$640 remain. The proper way to calculate the annual loss rate is to calculate independently over the entire season – so the stock had a value of \$1000 in April 1, and had a value of \$640 on March 31 the following year so the loss rate was $360/1000 = 36%$ not 40%.

Another significant difference between surveys is how we calculate losses. NASS asked their respondents specifically how many colonies alive at the beginning of the quarter died. This method generally excludes counting any colonies that were made through splitting which died in the quarter. BIP methods calculate losses indirectly, that is, we calculate how many colonies there should have been at the end of a period if none died, and then consider the difference between the expected number of colonies (those at risk of dying) and how many remained alive. We then use these numbers to calculate the loss rate. This means that splits made during the specific seasons that died in the same season are counted as lost.

This difference suggests that BIP and NASS numbers would differ most when beekeepers split the most. According to both surveys, most beekeepers make splits in the summer, and so we would expect BIP summer losses to differ most during this season. Table 1 clearly shows this trend – as compared to BIP methods and BIP numbers the Summer loss was higher



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than recorded if we use NASS numbers and NASS-influenced methods, or NASS numbers and BIP-influenced methods.

Another reason we expect differences in numbers stem from differences in sample design and respondents recruitment. NASS performed a stratified randomized sample of farming operations that have honey bee colonies. All migratory commercial operations were sampled, in addition to a representative sample of the small scale beekeepers (less than five colonies) that qualify as farms. As BIP does not possess a list of registered beekeepers in the U.S., we performed a sample of convenience, trying to reach a maximum numbers of beekeepers through different means (bee journals, internet, paper survey) and inviting participants to forward the invitation to their peers. The only requirement to be part of the BIP survey was to have colonies located in (at least) one US state or territory.

Given the variations in population targeted, sample sizes and methodology, we consider the numbers recorded by both surveys as fairly comparable. Both surveys show loss rates well in excess of what we would expect in a health bee population. Both surveys highlight the need to determine what is causing these high loss rates and provide solutions to beekeepers on how to steam these high loss rates.

This blog is written to provide a basis for comparison of these two very different survey methodologies and calculations. Understanding that presenting losses by quarter (NASS) and those by season (Summer, Winter and annual) (BIP) may cause confusion, we hope this blog helps bring some clarity to this discussion. Below we detail the assumptions we made when making comparison between surveys, and how we calculated the different loss rates by season and for the entire year that are shown in table 1.

Details of the calculations:

BIP Numbers, BIP Method

From questions:
 Total Colonies Start = Number of colonies at the start of the season
 Total Increases = Number of splits or colonies purchased during the season
 Total Decreases = Number of colonies sold or given away during the season
 Total Colonies End = Number of colonies at the end of the season

Calculated:
 Total Colonies at Risk = Colonies at the start + Increases - Decreases
 Total Colonies Lost = Difference between Colonies at Risk and Colonies at the end of the 6 months period
 Total Loss = Total Colonies Lost / Total Colonies at Risk

Season	N	Total Col Start		Total Increases		Total Col End		Total Col at Risk		Total Col Lost		Total Loss = F / E * 100
		A	B	C	D	E	F	G				
Summer	4,808	399,096	151,413	18,588	561,096	530,911	349,425	28.14				
Winter	3,756	389,083	131,039	11,046	505,026	508,076	343,050	28.16				
Annual	4,874	379,739	283,948	29,221	342,736	613,061	279,349	44.32				

NASS Numbers, NASS Method

From questions:
 Colonies = Number of colonies at the start of the quarter
 Added = Number of colonies added during the quarter
 Lost = Number of colonies lost during the quarter

Calculated:
 Total Loss = Lost / Colonies

Quarterly:

Quarter	Colonies		Lost	Total Loss = F / A * 100
	A	B		
Apr-Jun	1,849,500	661,860	352,860	12.36
Jul-Sep	1,152,880	172,990	497,100	34.50
Oct-Dec	1,874,760	117,110	412,980	24.94
Jan-Mar	1,594,960	376,160	428,820	26.92

The numbers here above were extracted as-is from the [Honey Bee Colony report](#) published by USDA NASS provided in the earlier link.

NASS do not include in their estimates the splits (“added”) made during the respective quarter. In our opinion, when pooling two quarters together, the splits made during the first quarter need to be added to the pool of starting colonies, as their loss (if any) would be counted in the second quarter. We therefore included them in the divisor of our recalculations of seasonal loss estimates. For annual estimates, the additions from the first three quarters are added to the starting colonies. In each case, as per NASS standards, splits made during the most recent quarter (most recent splits) are not considered in the pool of colonies at risk. Those recalculations were based on our best judgement and only engage the Bee Informed Partnership. We welcome any recommendation on an alternative method to pool quarterly results into semester estimates.

NASS Numbers, recalculations based on NASS-inspired Method

Seasonally:

Season	Colonies		“at Risk” Colonies = Added		Lost	Total Loss = F / E * 100
	A	B	E = A + B	F		
Summer	2,849,500	661,860	3,511,360	809,960	23.07	
Winter	2,874,760	117,110	2,991,870	841,180	28.12	
Annual	2,849,500	852,000	3,701,500	1,651,140	44.63	

NASS Numbers, recalculations based on BIP-inspired Method

From questions:
 Colonies = Number of colonies at the start of the season
 Added = Number of splits made during the season
 Total Colonies End = Number of colonies at the end of the season, i.e. start of the following season

Calculated:
 Total Colonies at Risk = Colonies at the start + Added colonies
 Total Colonies Lost = Difference between Colonies at Risk and Colonies at the end of the 6 months period
 Total Loss = Total Colonies Lost / Total Colonies at Risk

To imitate the BIP methodology of indirect calculations of number of colonies lost over a season, we used the published numbers of colonies at the start and numbers of addition. The number of colonies at the end of the season was estimated using, when available, the number of colonies at the start of the following season or, if not, the calculated number of colonies resulting after additions and lost over the two quarters composing the season. Those recalculations of NASS numbers only engage the Bee Informed Partnership. **BC**

Season	Total Col Start		Total Col End	Total Col at Risk		Total Col Lost	Total Loss = F / E * 100
	A	B		E = A + B - C	F = E - D		
Summer	2,849,500	664,850	2,874,760	3,684,350	809,590	21.97	
Winter	2,874,760	495,310	1,541,950(*)	3,366,070	826,120	24.53	
Annual	2,849,500	1,128,160	1,541,950(*)	4,177,660	1,635,710	39.18	

(*) estimated as Next Season (Apr 2018 – Oct 2018) not yet available. Calculated as “Colonies at Start” + “Added” - “Lost”.

Nathalie Steinhauer is a PhD student working under Dennis vanEngelsdorp as part of the BIP team, based in the University of Maryland’s Entomology Department.

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A Closer LOOK

WINGS AND FLIGHT

Clarence Collison

Wings are not true appendages like the legs but are thin outgrowths of the skeleton which have been substantially modified for flight.

Honey bees are remarkable fliers, which enables them to forage effectively over a wide area and at great distances from the hive. In addition to foraging for food, water and propolis, flight is involved in the mating of the reproductive castes and swarming. Also, the nest environment is actively controlled by fanning behavior. Temperature and humidity control, pheromone distribution, evaporation of water from nectar and regulating the concentration of respiratory gases are facilitated by fanning.

The honey bee thorax is often referred to as the center for locomotion. It is the point of attachment for the six legs and both pairs of wings. The wings are not true appendages like the legs but are thin outgrowths of the skeleton which have been substantially modified for flight. The two pairs of wings are found on the posterior thoracic segments and articulate with the thorax in complex joints that allow a great range of movement (Winston 1987). The flight movements of the wing include an up-and-down component, a forward-and-backward component and a torsion, or partial rotary movement of the wing on its long axis (Snodgrass and Erickson 1993). The tip of the wing describes a long and narrow, slanting figure eight, the direction of movement being clockwise in the lower loop and anti-clockwise in the upper (Dade 1962).

The wings of the bee are flat, thin, two-layered extensions of the body wall, strengthened by tubular thickenings called veins. The fore wings are much larger than the hind wings and their venation is stronger. The veins carry blood, breathing tubes and nerves to the wing extremities (Winston 1987). The two wings on each side work together in flight. To insure that the two wings beat in synchrony, the wings are provided with a coupling apparatus formed by a series of upturned hooks (hamuli) on the front margin of each hind wing, and a decurved fold on the rear margin of the forewing. When the wings are extended in preparation for flight, the forewings are drawn over the hind wings, and the hooks of the later automatically catch in the marginal folds of the former (Snodgrass and Erickson 1993).

Flight through the air is possible only when the movement of the air over the wings produces a force sufficient to counterbalance the downward pull of gravity. The force acting on the wings is usually analyzed into two components: a vertical force, the lift, equal and opposite to the weight and a forward force, the thrust, equal and opposite to the drag of the body. During a glide this 'lift' is produced by the forward movement, but in order to fly level or climb, the air current must be produced by movement of the wings

“Within the honey bee thorax there are two main types of muscles that directly or indirectly move the wings.”

themselves (Pringle 1976).

Within the honey bee thorax there are two main types of muscles that directly or indirectly move the wings (Goodman 2003). Direct muscles are attached to all the wings; four to each forewing, three to each hind wing (Dade 1962). The contraction of the longitudinal muscles and the relaxation of the vertical muscles extends the thorax vertically and drives the wings downward. In contrast, the relaxation of the longitudinal muscles and contraction of the vertical muscles bows the thorax outward, driving the wings upward (Winston 1987). Flight speed and distance depends on the powerful thoracic muscles being amply supplied with energy derived from nectar metabolism; if the blood sugar falls below 1% the bee can no longer fly (Dade 1962).

A worker's wings beat in flight at a rate of over 200 cycles/sec which according to anatomical and aerodynamic analyses of flight is not possible. Thus there must be some special mechanisms in bees which sustain this high wingbeat frequency (Winston 1987). One mechanism involves the type of nervous control over flight muscles; since the nervous system cannot operate quickly enough to keep up with the speed of muscle contractions to sustain flight, the thoracic muscles resonate. That is, they contract more than once for each nerve firing (Esch and Bastian 1968; Esch 1976; Bastian and Esch 1970).

The minimum temperature for

active foraging is 46 to 50°F (8 to 10°C). The limiting factor is the temperature of the bee's thorax. Bees must be able to keep the thorax above 86°F (30°C) for flight. Bees are able to elevate their body temperature, even though they are ectothermic (cold-blooded), by contracting their wing muscles to produce heat. At high body temperatures, the bees have the opposite problem – that is to rid the body of the excess heat generated by the flight muscles. The ideal external temperatures for flight is 66 to 86°F (19 to 30°C) (Caron and Connor 2013).

Thermoregulation of the thorax allows honey bees to maintain the flight muscle temperatures necessary to meet the power requirements for flight and to remain active outside the hive across a wide range of air temperatures (Roberts and Harrison 1999). To determine the heat-exchange pathways through which flying honey bees achieve thermal stability, they measured body temperatures and rates of carbon dioxide production and water vapor loss between air temperature values of 21 and 45°C for bees flying in a respirometry chamber. Body temperatures were not significantly affected by continuous flight duration in the respirometer, indicating that flying bees were at thermal equilibrium.

Honey bees can maintain thoracic flight temperature at an extraordinarily high 46°C by passing excess heat to the head by means of passive conduction and accelerated blood flow. This excess heat is then eliminated by regurgitated droplets of watered-down honey, which cools the head much like sweat in vertebrates. This prevents overheating while allowing the thoracic muscles to operate at peak efficiency (Heinrich 1979, 1980a, 1980b). While nectar foragers can extrude their crop contents for evaporative cooling of the body, pollen foragers lack this option (Heinrich 1979; Cooper et al. 1985). Thoracic temperatures affect flight force output and metabolic rate (Feller and Nachtigall 1989; Nachtigall et al. 1989; Coelho 1991; Hrassnigg and Crailsheim 1999; Harrison and Fewell 2002).

Flying insects that transport loads that substantially increase body mass, require an increase in induced power, the component of

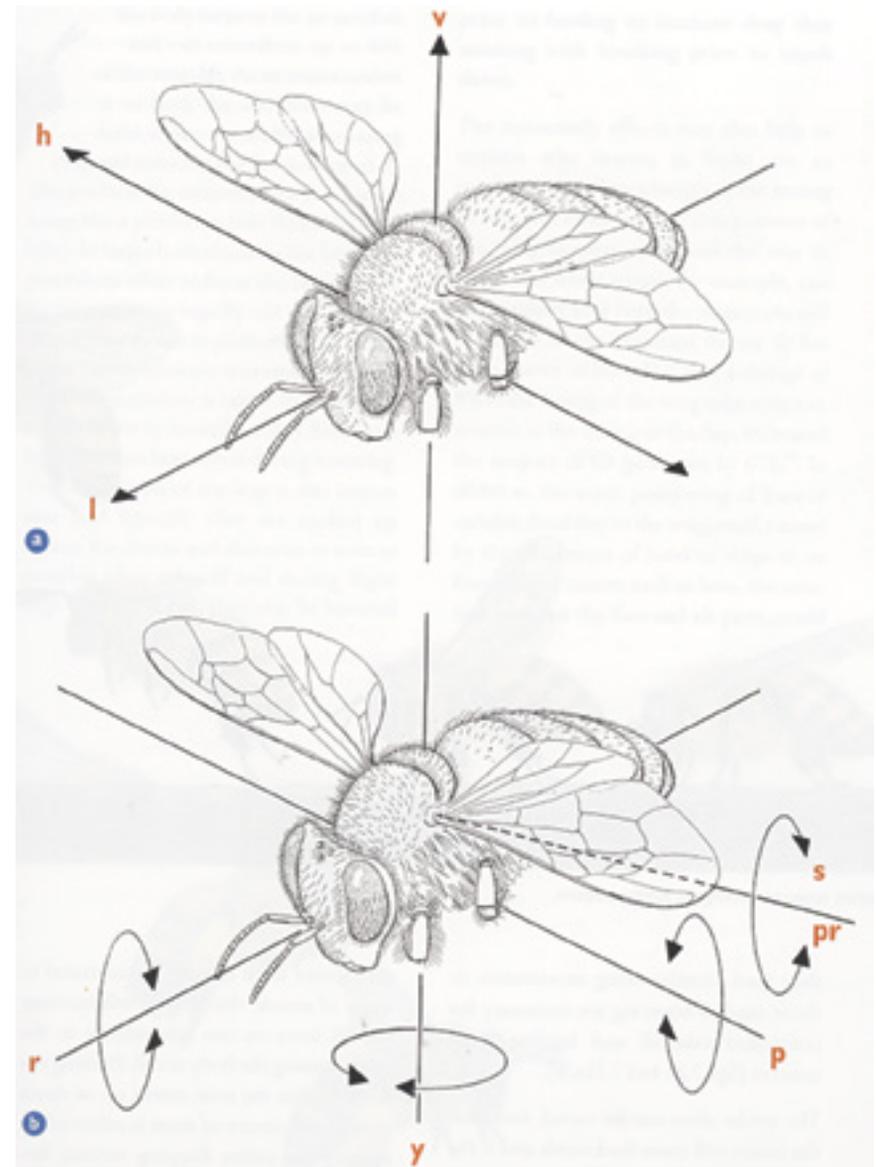
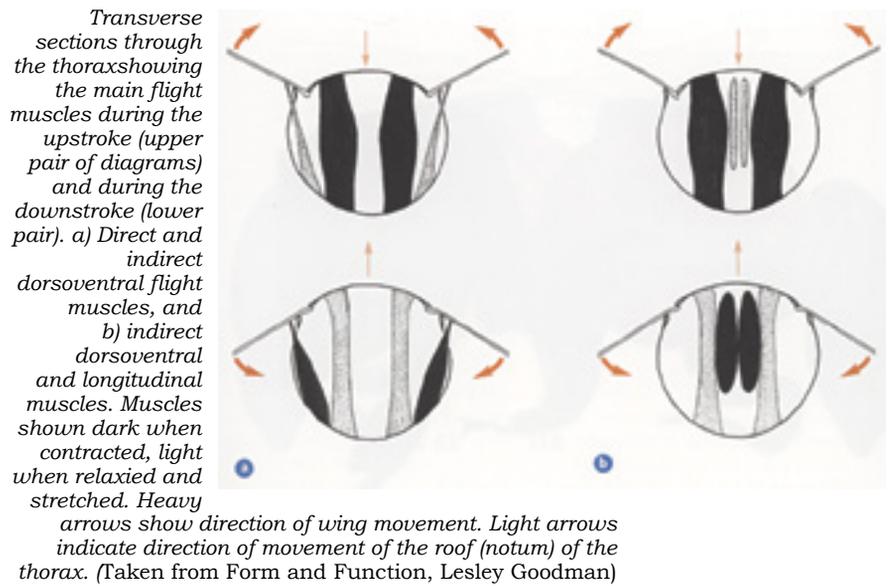


Diagram showing a) the bee's three axes of translational movement, and b) the rotation about them. a) Vertical, up and down, lift (v); longitudinal, forwards and backwards, thrust (l); horizontal, lateral, side to side, sideslip (h). b) Yaw (y), roll (r), pitch (p). The dotted line represents the axis about which the wing can rotate: supination (s), pronation (pr). (Taken from Form and Function, Lesley Goodman)

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aerodynamic power that creates lift (Ellington 1984). These increases by induced power can be generated by increased wing stroke amplitude, wingbeat frequency and/or the mean lift coefficient averaged over the stroke, which together require an increase in metabolic rate, assuming constant total efficiency of force production. Feuerbacher et al. (2003) investigated the effect of load carriage (pollen and/or nectar) on metabolic rates, thorax temperatures, wingbeat frequency during hovering, on wing kinematics and mechanical power output of flying honey bees. The loads carried by honey bees range widely and can approach their maximal lifting capacity. Foragers typically carry pollen and nectar loads representing 20% and 35% of body mass, respectively, maximally reaching 80% of reaching body mass (Winston 1987).

The type of load carried (pollen or nectar) may also affect the metabolic cost of load carriage during flight. First, pollen is carried externally on the pollen baskets of the hind legs, whereas nectar is carried internally in the abdominal honey stomach, potentially causing the center of mass of the bee to differ with the two load types. Changes in the center of mass may alter body angles, wing positions and angles of attack, or may require correctional changes in the flight movements to changes in body angle (Feuerbacher et al. 2003).

Pollen foragers had hovering metabolic rates approximately 10% higher than nectar foragers, regardless of the amount of load carried. Pollen foragers also had a more horizontal body position and higher inclination of stroke plane than measured previously for honey bees. Thorax temperatures ranked pollen > nectar > water foragers, and higher flight metabolic rate could explain the higher thorax temperature of pollen foragers. Loaded pollen and nectar foragers (mean loads 27% and 40% of body mass, respectively) significantly increased metabolic rate by 6%. Mean pollen loads of 18% of body mass had no effect on wingbeat frequency, stroke amplitude, body angle or inclination of stroke plane, but increased the calculated mechanical power output by 16-18% (depending on the method of estimating drag). A rise in lift coefficient as bees carry loads without an increase in wingbeat

“It is possible to induce mortality by pesticide contact with only the wings of the honey bee”

frequency or stroke amplitude (and only minimal increases in metabolic rate) suggests an increased use of unsteady power generating mechanisms.

There is now increasing evidence that honey bees regulate their ground speed in flight by holding constant the speed at which the image of the environment moves across the eye (optic flow). Barron and Srinivasan (2006) investigated the extent to which ground speed is affected by headwinds. Honey bees were trained to enter a wind tunnel to forage at a sucrose feeder placed at its far end. Ground speeds in the tunnel were recorded while systematically varying the visual texture of the tunnel, and the strength of headwinds experienced by the flying bees. They found that in a flight tunnel bees used visual cues to maintain their ground speed, and adjusted their air speed to maintain a constant rate of optic flow, even against headwinds, which were, at their strongest, 50% of a bee's maximum recorded forward velocity. Manipulation of the visual texture revealed that headwind is compensated almost fully even when the optic flow cues are very sparse and subtle, demonstrating the robustness of this visual flight control system.

The wings of bees accumulate permanent wear, which increases the rate of mortality and impacts foraging behavior, presumably due to effects on flight performance. Vance and Roberts (2014) investigated how experimental wing wear affects flight performance in honey bees. Variable density gases and high-speed videography were used to determine the maximum hovering flight capacity and wing kinematics of bees from three treatment groups: no wing wear, symmetric and asymmetric wing wear. Wing wear was simulated by clipping the distal-trailing edge of one or both of the wings. Across all bees from treatment groups combined, wingbeat frequency was inversely related to wing area. During hovering in air, bees with symmetric and asymmetric wing wear responded kinematically so as to produce wingtip velocities similar to those bees with no wing wear. However, maximal hovering flight capacity (revealed during flight in hypodense gases) decreased in direct proportion to wing area and inversely to wing asymmetry. Bees with reduced wing area and high asymmetry produced lower maximum wingtip velocity than bees with intact or symmetric wings, which caused a greater impairment in maximal flight capacity. These results demonstrate that the magnitude and type of wing wear affects maximal aerodynamic power production and, likely, the control of hovering flight. Wing wear reduces aerodynamic reserve capacity and, subsequently, the capacity for flight behaviors such as load carriage, maneuverability, and evading predators.

In pesticide risk assessment, estimating the routes and levels of exposure is critical. For honey bees subjected to pesticide spray, toxicity is assessed by thorax contact to account for all possible contact exposures. Poquet et al. (2015) tested six active substances with different hydrophobicity. They demonstrated for the first time that it is possible to induce mortality by pesticide contact with only the wings of the honey bee. The toxicities induced by contact with the wings and thorax were similar, with the wing median lethal dose (LD_{50}) being 0.99 to 2.23 times higher than that of the thorax. This finding demonstrates that the wings represent a relevant route of exposure in the honey bee. **BC**

References

- Barron, A. and M.V. Srinivasan 2006. *Visual regulation of ground speed and headwind compensation in freely flying honey bees* (*Apis mellifera* L.). *J. Exp. Biol.* 209: 978-984.
- Bastian, J. and H. Esch 1970. The nervous control of the indirect flight muscles of the honey bee. *Z. vergl. Physiol.* 67: 307-324.
- Caron, D.M. and L.J. Connor 2013. *Honey Bee Biology And Beekeeping*. Wicwas Press, Kalamazoo, MI, 368 pp.
- Coelho, J.R. 1991. *The effect of thorax temperature on force production during tethered flight in honeybee* (*Apis mellifera*) drones, workers and queens. *Physiol. Zool.* 64: 823-835.

Cooper, P.D., W.M. Schaffer, and S.L. Buchmann 1985. *Temperature regulation of honeybees (Apis mellifera) in the Sonoran desert.* J. Exp. Biol. 114: 1-15.

Dade, H.A. 1962. *The Anatomy And Dissection Of The Honeybee.* Bee Research Association, London, 158 pp.

Ellington, C.P. 1984. *The aerodynamics of hovering insect flight V. lift and power.* Phil.Trans. R. Soc. Lond. B 305: 145-181.

Esch, H. 1976. *Body temperature and flight performance of honey bees in a servo-mechanically controlled wind tunnel.* J. Comp. Physiol. 109: 265-277.

Esch, H. and J. Bastian 1968. *Mechanical and electrical activity in the indirect flight muscles of the honey bee.* Z. vergl. Physiol. 58: 429-440.

Feller, P. and W. Nachtigall 1989. *Flight of the honey bee II. Inner- and surface-thorax temperatures and energetic criteria, correlated to flight parameters.* J. Comp. Physiol. 158: 719-727.

Feuerbacher, E., J.H. Fewell, S.P. Roberts, E.F. Smith and J.F. Harrison 2003. *Effects of load type (pollen or nectar) and load mass on hovering metabolic rate and mechanical power output in the honey bee Apis mellifera.* J. Exp. Biol. 206: 1855-1865.

Goodman, L. 2003. *Form and Function in the Honey Bee.* International Bee Research Association, Cardiff, UK, 220 pp.

Harrison, J.F. and J.H. Fewell 2002. *Environmental and genetic influences on flight metabolic rate in the honey bee, Apis mellifera.* Comp. Physiol. Biochem. 133A: 323-333.

Heinrich, B. 1979. *Keeping a cool head: honeybee thermoregulation.* Science 205: 1269-1271.

Heinrich, B. 1980a. *Mechanisms of body-temperature regulation in honeybees, Apis mellifera, I. Regulation of head temperature.* J. Exp. Biol. 85: 61-72.

Heinrich, B. 1980b. *Mechanisms of body-temperature regulation in honeybees, Apis mellifera, II. Regulation of thoracic temperature at high air temperatures.* J. Exp. Biol. 85: 73-87.

Hrassnigg, N. and K. Crailsheim 1999. *Metabolic rates and metabolic power of honeybees in tethered flight related to temperature and drag (Hymenoptera: Apidae).* Entomologia Generalis 24: 23-30.

Nachtigall, W., U. Rothe, P. Feller and R. Jungmann 1989. *Flight of the honey bee III. Flight metabolic power calculated from gas analysis, thermoregulation and fuel consumption.* J. Comp. Physiol. 158: 729-737.

Poquet, Y., G. Kairo, S. Tchamitchian, J.-L. Brunet and L.P. Belzunces 2015. *Wings as a new route of exposure to pesticides in the honey bee.* Environ. Toxicol. Chem. 34: 1983-1988.

Pringle, J.W.S. 1976. *The flight of the bee.* In: Honeybee Biology, Geerings of Ashford Ltd., Kent, UK, J.B. Free, editor, pp. 65-76.

Roberts, S.P. and J.F. Harrison 1999. *Mechanisms of thermal stability during flight in the honeybee Apis mellifera.* J. Exp. Biol. 202: 1523-1533.

Snodgrass, R.E. and E.H. Erickson 1992. *The anatomy of the honey bee.* In The Hive And The Honey Bee, Dadant and Sons, Inc., Hamilton, IL. pp. 103-169.

Vance, J.T. and S.P. Roberts 2014. *The effects of artificial wing wear on the flight capacity of the honey bee Apis mellifera.* J. Insect Physiol. 65: 27-36.

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

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The Decline Of Pollinators

An Overview

Robert Owen

Pests, Pesticides, Land Use Lead The Way

The triumph of modern agriculture is the enormous increase in productivity of land when growing edible crops to feed a huge and increasing number of people on the planet. This increase in productivity has been brought about by scientific and technological progress in our understanding of the ways that plants grow, by the development and application of fertilisers, by plant breeding, by the control of pests and diseases, and by improvements in irrigation. Increased use of land to grow edible and other useful plants has, however, made it much more difficult to satisfy one critical requirement that of pollination, the transfer of pollen between flowering plants of the same species. The majority of flowering plants rely on either insects or animals for pollination, unlike the wind pollination utilized by corn, wheat, rice, and sorghum.

The main pollinators are bees, of which there are about 25,000 species world-wide. One of these species, the European Honey Bee, *Apis mellifera*, dominates crop pollination world-wide, although native bee species also play their part. Other insects that provide much of the remaining pollination include moths, flies, wasps, beetles and butterflies.

Crops that rely on honey bees for pollination or improved productivity include apple, citrus, melon, strawberry, apricot, peach, onion, pumpkin, cherry, mango, grape, olive, carrot, potato, bean, cucumber, sunflower, various nuts, alfalfa (also called Lucerne), lavender and a range of herbs. The world-wide value of all pollinators, including honey bees, although difficult to estimate, was valued at €153 billion Euros in 2005 for the main crops that feed the people of the world. (Helmholtz Centre for Environmental Research (UFZ). *Economic value of insect pollination worldwide estimated at €153 billion euros*. Press release September 15th 2008).

We are dependent on bees, as well as on many other pollinators, not just for many of the fruits and vegetables we enjoy eating each day or the strawberry ice cream at the supermarket, but for our very survival on this planet.

The contribution of insects is largely overlooked in today's agri-business world. According to the FAO, World honey production in 2007 was worth around \$1.25 billion

USD, but the value of insect pollinated agriculture, which includes honey bees, is worth significantly more. Figures vary widely, reflecting the difficulty of estimating the value of pollination, although a 1997 study valued all global pollinator ecosystem services at \$120 billion USD, while a later 1999 study valued benefits to agriculture alone at \$200 billion USD.

It is not only edible plants that are at risk. Crops such as cotton and hemp that are used to produce natural fibres, as well as many species of trees, that do not need to be in flower when they are harvested, still need animal pollinators to produce further generations. Even for meat and dairy production, the reliance of bee provided pollination of clover and alfalfa is critical.

Bees, both European honey bees and native bees, play an important role in ensuring a healthy and diverse ecosystem. But this works both ways, a healthy and diverse ecosystem is essential if bees are to survive and flourish around the world. Flowering plants and bees have co-evolved over the past 110 million years and both depend on each other for survival. A reduction or loss of one will

compromise or make difficult the survival of the other.

Like humans, bees require a diverse food supply in order to obtain the range of minerals, proteins, sugars, fats and vitamins they need to survive. If we are to ensure our own long term survival, we cannot focus only on keeping individual species of plants or animals alive, we must look at what is best for entire ecosystems and to ensure that ecosystem health overall is optimised.

While the role that bees play in the food supply may be apparent to many it is noteworthy that this is only one of the ecosystem services they provide. The flowering plants that bees pollinate deliver many other critical services to the ecosystem. Included among these are carbon sequestration, prevention of soil erosion, nitrogen fixation, maintenance of the water table, and greenhouse gas absorption. All pollinators, not just bees, require resources for nesting, feeding and reproduction in the form of vegetation, prey, suitable habitat conditions, as well as the implementation of pollinator-friendly land- and water-use practices if they are to survive.





The beautiful Sun Bird, which feeds mainly on nectar, is a native of Tanzania in Africa. Fortunately, this species of Sun Bird is not regarded as endangered. (photo by Nigel Voaden).

Butterflies, due to their visibility and pleasing appearance have long received the attention of both the scientific and lay communities, and as a result they have been the focus of the majority of long-term monitoring efforts in the U.S. that have documented significant reductions in population numbers. In one California study, a 29 year census of butterfly species showed a nearly 40% decline in species diversity. Moths, which are nocturnal and drab, outnumber butterflies by a substantial margin, but because butterflies are more visible and attractive, they are included on the endangered species list much more frequently than their less colourful relatives. In the U.S., moths are important pollinators of a variety of plants. As an example, the hawk moth is the principal pollinator of many plants in the S.W. United States including night-flowering cacti, desert lilies, evening primrose and wild tobacco.

In Britain, more than two-thirds of the nation's larger moth species have declined over the last four decades. Apart from their contribution to pollination without moths birds would go hungry.

Similarly in Europe, many studies show serious decline in species richness and distribution of many species of moth.

In Australia there is so little information on most species of moth, as with other pollinators, that it is difficult to distinguish between species decline, migration, normal short-term movements and simple lack of information

In the U.S., many pollinators such as digger bees, squash bees, mason bees, and shaggy fuzzy foot bees may also be in decline, but there is insufficient data to clearly show this. Alkali bees can pollinate onions, mint, and celery; carpenter bees pollinate canola and pepper; leafcutter bees contribute to pollinating the alfalfa that provides forage for dairy and beef cattle; Mason bees can pollinate apples and blueberries; squash bees can pollinate pumpkin; and shaggy fuzzy foot bees can pollinate apples and blueberries. Their contribution to native plant communities is likely to be indispensable, but for most species, including those native to Australia, no evidence of population decline exists because their abundance has never been measured over time.

Among native bees, bumblebees are exceptional in that there are indications of significant declines. The long-tongued bumblebee, *Bombus hortorum*, found in

most of Europe north to 70°N, as well as parts of Asia, New Zealand and some of the southern states in the U.S., pollinates a diverse range of wild plants as well as such crops as water melon, cucumber, berries, and sunflowers. Bumblebees are also used to pollinate tomatoes inside greenhouses, which other species of bees are unable to do.

The number of worker bumble bees inside a colony is relatively small (50 to 100), and although they are effective and efficient pollinators, they are unable to compete as pollinators with a hive of European bees that can contain 50,000 worker bees.

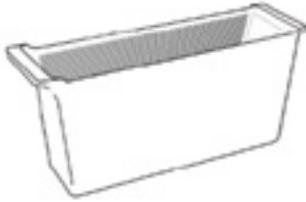
Global climate change also presents a challenge to the bumble bee and there are some indications that the bumble bee species adapted to living in cooler climates are in decline, while warmer adapted species are extending their range.

Flies are especially important pollinators in alpine regions. Fly pollination is also important in agriculture and some species of *Forcipomyia* are the main pollinators of cacao, the source of chocolate. Flies also contribute to the pollination of several minor crops including onions. There have been insufficient studies conducted to quantify the decline in the number of flower visiting flies, but there are clear indications of their decline.

As well as bees and other similar sized insects, vertebrae pollinators are also important and include bats, non-flying mammals (including several species of monkey, rodents, lemur, and tree squirrels), and birds (including hummingbirds, sunbirds, honeycreepers, and some parrot species). Bats are important pollinators in tropical and desert climates, including the S.W. United States, Mexico, Africa, Southeast Asia and the Pacific islands. Although not all species of bats are pollinators, declines in bat populations have been so dramatic that of the 59 U.S. species listed on the U.S. Fish & Wildlife Service Endangered Species data base, 14 are listed as endangered, one is being proposed as endangered, two are listed as threatened, while a further 14 are being reviewed for endangered listing. Over 300 species of fruit depend on bats for pollination, including mangoes, bananas and guavas. The Agave plant and the Saguaro, state cactus of



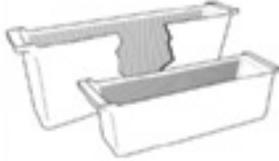
The long-tongued bumblebee, *Bombus hortorum*, distributed across much of Europe, is a common pollinator of plants. (photo by Rasbak)



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Monocultures, although important in large scale agriculture, provide little if any other food resources for insect pollinators outside of the main flowering season. (photo by Dave Reede)



The Leafcutter bee (*Megachile* sp.) pollinates alfalfa that provides forage for dairy and beef cattle. (photo by Jacopo Werther)

Arizona, also depend on bats for pollination. The agave is an important plant because it is used to make tequila.

It is now recognised that agricultural production, agro-ecosystem diversity, and biodiversity are threatened by declining populations of pollinators. Many pollinator population densities are being reduced below levels at which they can sustain pollination services in agro-ecosystems, natural ecosystems, and for the maintenance of wild plant reproductive capacity. In Asia, studies show a linkage between declining native insect populations and decreasing crop yields. As a result, many farmers in the developing world and elsewhere are bringing in the European honey bee to provide pollination services to pollinate apples and other crops.

Threats to pollinators and the services they provide are perceived to be increasing throughout the world and are largely man made in origin. The main causes of pollinator loss are:

- Poisonous agro-chemicals, pesticides and herbicides
- Parasites and diseases, particularly the mite *varroa* infesting the European honey bee
- Changing land use (habitat loss, loss through mechanical destruction, fragmentation of land,

monocultures, fire, overgrazing, recreational use)

- Climate change
- Pollution
- Competition between native species and introduced species

The use of pesticides for pest control and the role of bees in pollination are essential ingredients of modern agriculture. Without either of these two, global food production would seriously decline. Unfortunately, these two practices are not always compatible, as honey bees and other pollinators are susceptible, even at very low levels, to many commonly used pesticides. The indiscriminate use of pesticides, by inadvertently killing or impairing the foraging ability of natural and managed bees, has resulted in a reduction in crop yield, which is the opposite of what crop protection seeks to achieve.

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In the U.S. last year, a staggering 42% of all managed honey bee colonies died, the second highest colony loss on record. Much of this loss was due to the mite *varroa* although pollinator-unfriendly human activities have also contributed to their decline. This level of honey bee loss is unsustainable.

A number of conservation studies have concluded that clearing land of trees and increased cultivation have eliminated many of the nesting sites previously used by pollinators. Changing irrigation practices have also had long-term negative effects on soil nesting pollinators. Overgrazing of range land and the use of herbicides have reduced the presence of pollinators by decreasing diversity of pollen-nectar resources and by eliminating plant resources used by various pollinators for nest construction. Thus, one of the unfortunate side effects of increased food production has been a decrease in the number and variety of pollinators on which agriculture depends. This situation must be addressed as healthy and diverse ecosystems are essential if we are to feed the 7.3 billion people who today live on this planet. **BC**

Bibliography

1. www.news.cornell.edu/stories/2012/05/insect-pollinators-contribute-29b-us-farm-income
2. Klein A, Vaissière BE, Cane JH, Steffan-Dewenter I, Cunningham SA, et al. (2007) Importance of pollinators in changing landscapes for world crops. *Proceedings of the Royal Society B: Biological Sciences* 274: 303–313.
3. Aizen MA, Harder LD (2009) The global stock of domesticated honey bees is growing slower than agricultural demand for pollination. *Current Biology* 19: 915–8.
4. Potts SG, Biesmeijer JC, Kremen C, Neumann P, Schweiger O, et al. (2010) Global pollinator declines: trends, impacts and drivers. *Trends in Ecology & Evolution* 25: 345–353.
5. Goulson D, Lye GC, Darvill B (2008) Decline and conservation of bumblebees. *Annual Review of Entomology* 53: 191–208.
6. Gallai N, Salles J, Settele J, Vaissiere B (2009) Economic valuation of the vulnerability of world agriculture confronted with pollinator decline. *Ecological Economics* 68: 810–821.
7. Aizen Ma, Garibaldi La, Cunningham Sa, Klein AM (2008) Long-term global trends in crop yield and production reveal

no current pollination shortage but increasing pollinator dependency. *Current Biology* 18: 1572–5.

8. Potts S, Roberts S, Dean R, Marris G, Brown M, et al. (2010) Declines of managed honey bees and beekeepers in Europe. *Journal of Apicultural Research* 49: 15.
9. Calderone W. Nicholas. (2012). *Insect Pollinated Crops, Insect Pollinators and US Agriculture: Trend Analysis of Aggregate Data for the Period 1992–2009*. PlosOne, May 22, 2012
10. www.fws.gov/endangered
11. www.fs.fed.us/wildflowers/pollinators/animals/bats.shtml
12. Nicola Gallai, Jean-Michel Salles, Josef Settele, Bernard E. Vaissière. (2008). Economic valuation of the vulnerability of world agriculture confronted with pollinator decline. *Ecological Economics*
13. vanEngelDorp, Dennis, Meixner, Marina Doris. (2010). A historical review of managed honey bee populations in Europe and the United States and the factors that may affect them. *Journal of Invertebrate Pathology*, 103 (2010) S80–S95
14. Nick Hanley, Nick, Ellis, Ciaran, Breeze, Tom. (2013). Accounting for the value of pollination services. Draft. www.ons.gov.uk/ons/.../valuation...accounting.../issue-paper-1-3.pdf
15. Lautenbach, Sven, Ralf Seppelt, Ralf, Liebscher, Juliane, Dormann F, Carsten (2012). Spatial and Temporal Trends of Global Pollination Benefit. PlosOne April 26, 2012

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A BETTER WAY TO BOTTLE

Allen Hayes

Easy To Build – Anyone Can Do This!

Many backyard beekeepers bottle their honey using a plastic bucket with a honey gate valve in the bottom. These buckets are sold by most of the bee suppliers and considered the standard for smaller operations. But there are problems with these. First, should your honey crystallize in one of these dispensing buckets you cannot immerse it in a warm water bath to liquefy for fear of the gate valve seal leaking and water entering and contaminating your honey. More importantly you need to have one of these for each variety of honey your bees produced. Then too if your crop is in several unmodified buckets, you must transfer the honey into your bottling bucket. This is messy and you always lose some honey in the process.

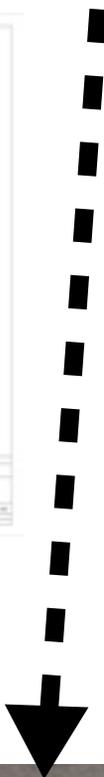
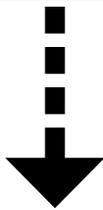
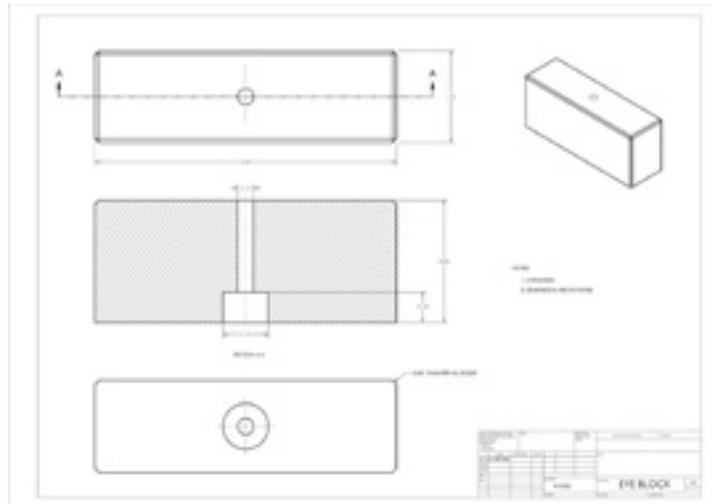
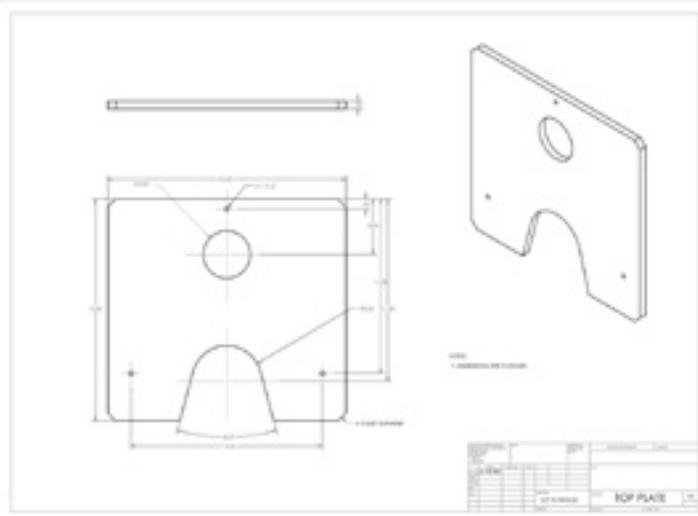
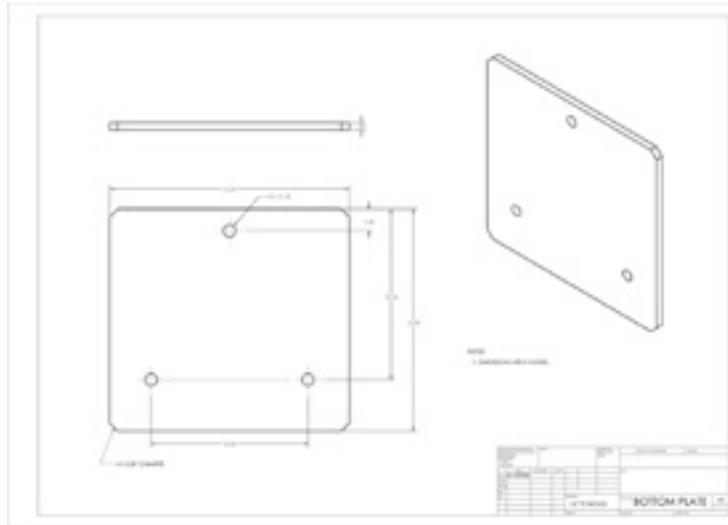
With the setup I am showing here you only need one honey gate valve mounted in a lid that fits all of your buckets. As you bottle, when the first bucket runs empty, simply transfer the lid to another full bucket and continue bottling. This device is easy to make and uses tools that most beekeepers have in their workshop. Most of the items can be purchased at a big box home improvement or hardware store. The metal tubeless tire valve can be purchased at an automotive store. You can buy regular food grade buckets or use ones from a doughnut shop. Select a bucket and lid that has a 5 inside the recycling triangle. That tells you it is a food grade container. Start by making the wooden parts, you can use a hole saw in an electric drill or drill press to make the large holes in the lid and the top plywood plate. Then coat the wooden parts with exterior grade polyurethane, this will allow you to wipe off any excess honey with a damp cloth. The tire valve is necessary to let air in; you will need to drill a 15/32" diameter hole in the lid for the tire valve. Remove the core from the tire valve. The bugle head screws (AKA drywall screws) are used to secure the eye blocks to the bottom plate use 4 screws for each block. The 2" long eye bolts go on the bottom with the flat head screws and hex nuts and the 3" long ones go at the top with the fender washers and wing nuts. You will need to open the eyes of the eye bolts a little to allow the chain to go in and you can spread the eyes open enough with a hammer and cold chisel. By using chain and wing nuts on the 3" eye bolts, this arrangement will accommodate many different height buckets like 3, 4¼ or 5 gallon.

To remove all of the foam, etc. floating on top, first let the honey settle for at least one week. Then remove the lid and lay plastic food wrap directly on top of the honey

and press it down to contact all the junk floating on top. Then pick up the plastic wrap and discard it. You may have to repeat this until all of the foam and other floating debris is gone. Then lay the bucket on its side, remove the cap from the tire valve to let air in and begin bottling. If you do not use these two plywood plates and chains you risk the top coming off and spilling your valuable honey.

LIST OF MATERIAL

ITEM	QTY.	DESCRIPTION	MATERIAL
1	1	TOP PLATE	1/2" PLYWOOD
2	1	BOTTOM PLATE	1/2" PLYWOOD
3	3	EYE BLOCK	WOOD
4	1	HONEY GATE VALVE	PLASTIC
5	1	METAL TUBELESS TIRE VALVE	STEEL
6	3	1/4"-20X 2" EYEBOLT	STAINLESS STEEL
7	3	1/4"-20X 3" EYE BOLT	STAINLESS STEEL
8	3	1/4" FLAT WASHER	STAINLESS STEEL
9	3	1/4" FENDER WASHER	STAINLESS STEEL
10	12	#10X 1-1/2" BUGLE HEAD SCREW	STEEL
11	1	FOOD GRADE BUCKET	PLASTIC
12	1	FOOD GRADE BUCKET LID	PLASTIC
13	3	WIRE CHAIN 11" LONG	STEEL
14	3	1/4"-20 HEX NUT	STAINLESS STEEL
15	3	1/4"-20 WING NUT	STAINLESS STEEL
16	AR	EXTERIOR POLYURETHANE	



BUILD YOUR BEE LINING BOX

Frank Linton

Tom Seeley has written a delightful book on the ancient art of lining honey bees *Following the Wild Bees: The Craft and Science of Bee Hunting*. You can line bees yourself. One of the few bits of equipment you will need is a bee lining box. If you have a shop, you can make a wooden one. Inspired by Tom's design, but without access to a woodworking shop, I made a bee lining box on my dining room table using just a ruler and a utility knife.

I made the box with black foam core board from a craft store and glued it together with an adhesive I had handy (Figure 1). I made the top of the box from Plexiglas, which is easily scored and snapped (Figure 2). For hinges I used duct tape. I used rubber bands to hold the Plexiglas top and its hinged covers in place.

The box consists of two compartments, each

with a Plexiglas top. The Plexiglas has hinged covers to control the light entering the compartments. One compartment has a hinged door on the end. This compartment is used to catch foraging bees. Between the two compartments is a sliding door (Figure 3). Bees caught in the first compartment are moved to the second compartment through the sliding door. You can find instructions for lining bees and details for how to use the box in Seeley's book and in other bee lining references.

The dimensions of the box are not critical. Each of the two compartments is roughly cubical (I used cubes 3 inches on a side). The construction is pretty-much self-evident from the photos. One thing that is helpful in making a sturdy box is to use two layers of foam core board on the base, ends, and sides. This will give you stronger joints. Two layers



Figure 1. Beeline box made with foam core board, Plexiglas, and duct tape. The foam core board pieces are glued together. The Plexiglas top and its hinged covers are fastened with rubber bands. Hinges are duct tape.



Figure 2. The top covers are open to reveal the structure.

OUR OWIN ING BOX

of foam core board also make it easier to recess the upper edges and nest the Plexiglas and its covers in place. Take note of the design and construction of the end door.

The trickiest part to make may be the sliding door between the two compartments. I put the sliding door between two layers of foam core board. Push the slider all the way in one direction to open the door and all the way the other direction to close the door.

You will need an in-box feeder to start a beeline. You can then feed the returning bees with a larger external feeder. For the in-box feeder, instead of the traditional honeycomb, which can be messy, I use a large bottle cap to hold a piece of sponge soaked in sugar syrup.

Enjoy. **BC**

Frank Linton, an EAS-certified Master Beekeeper, learned about lining bees from his grandfather. Frank's interests include monitoring colonies remotely (<http://colonymonitoring.com>) and observation hives; see his recently published *Observation Hive Handbook: Studying Honey Bees at Home*, and the related: <http://thebeepecker.com>.



the Plexiglas, the end door is open to show the

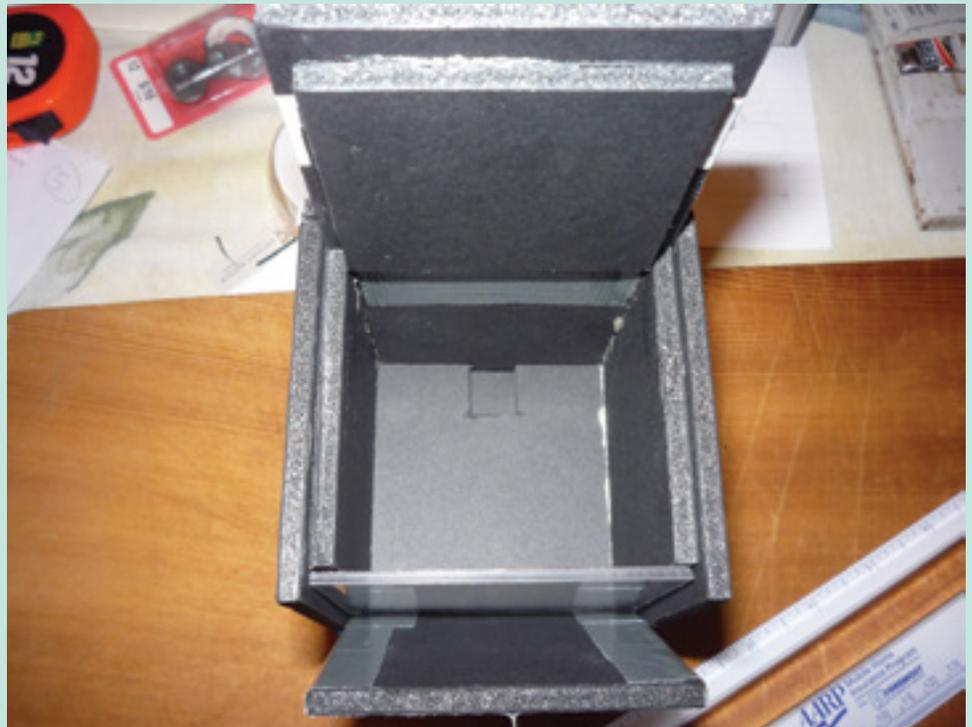


Figure 3. Interior view showing the sliding door, closed, between the catching compartment and the holding compartment.

REMOVING BEES

Brian Rogers

Use Every Tool Necessary

Recently I was invited to give a presentation to a Bee Club on the other side of the state by some great friends in Missoula. When queried what they wanted me to address, the answer was, “We don’t know, just make it interesting and fun.” Ummm, alrighty then. So with such a lofty goal in mind I stayed up all night and managed to complete the project in one long go! You see, the presentation just flowed out like a tapped honey barrel. Never before in my experiences (and unfortunately certainly not in college) has a presentation come together so quickly and with so much material that it could be said to have written itself. I let them know I had it ready and the date was set. I drove across the state and gave the presentation to the assembled group. It was received very well and went GREAT. My topic that night you ask? I spoke about my “Top 20 Bee Captures and Removals”.

Fast forward a couple of months and here I am working on my Master Beekeeping Certification through the University of Montana and it was identified that there might actually be something worthwhile that I’ve been involved in that can help others in this industry – two industries even! So after encouragement from Dr. Jerry Bromenshenk and *Bee Culture*’s Kim Flottum, here is some of that material.

First, let’s make this semi-official for the class’s sake. My research question is: How do we retrieve bees that are inside a structure and can we improve the efficiency, reduce the damage required, improve success with technology, as well as what are some lessons I have learned along the way?

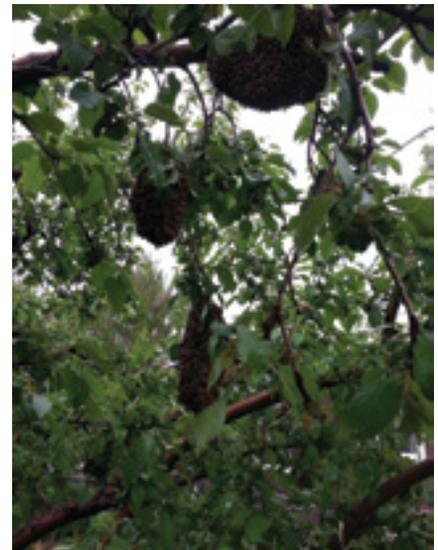
Let’s assume a few things: 1. We’re talking experienced beekeepers. (Youngs and Burgett, *Removing Bees From Buildings*, 1989) It’s not

recommended for the industry’s novice beeks to be messing with bees & structures; collecting swarms is a better starting point. Let those wings grow a little bit first, walk before you fly! 2. We are dealing with honey bees and not the yellow jackets that nine out of 10 of my voicemails are regarding every August and September. 3. That we all understand that, unlike wasp and yellow jacket nests, we should not entomb, seal up, or leave a honey bee hive in a structure without an informed decision of the risks. If the homeowner were to manage to kill the caretakers, there is still a great big ball of goo that gets formed on a hot Summer day from the honey, wax, bodies, pollen, propolis, etc, and it’s bound to make its presence known as it seeps through drywall, plaster, ceilings, walls, floors, and so on. This then is followed up with attracting even more undesirable tenants than the bees, such as rats, roaches, mice, skunks, ants, etc. In short, hives must be removed, nests do not. 4. There are very few resources available out there for the experienced beek to turn to when he/she wants to move up to a level in which they are able to safely remove bees from structures. One resource that I found invaluable is *Honey Bee Removal* by Cindy Bee and Bill Owens. I highly recommended this short publication if this facet of beekeeping appeals to you.

So let’s get started with the easiest hurdle first. Isn’t it great when swarms present themselves right where we can scoop them up and capture them during bivouac? This can be considered our ‘almost ideal’; with the only better condition being that they move themselves into the empty bait hives all on their own. Unfortunately, all too often the bees move into structures where they

aren’t wanted, that weren’t built for them, and quite often where they are not welcomed as tenants. Those scout bees just return to waggle their butts off excitedly for attics, wall cavities, floor joists, cellars, soffits, sheds, under bathtubs and even the occasional outhouse. Apparently those scouts are quite effective lobbyists as they build consensus (Seeley, *Honeybee Democracy*, 2010, Chap 6) too because they keep ending up in all these less-than-ideal places.

Now before we go on, we should mention that beekeepers tend to be an opinionated bunch, aren’t we? As the widely accepted saying goes, “If you ask three beekeepers their opinion, you get four answers.” We find that there are a lot of rules, but there are exceptions happening all around us. So one of the things I’ve learned is to be very careful using is the word, “never.” Here’s a good example; it had been said that bees would never swarm to the same tree, simultaneously, especially with many trees nearby because it would interfere with the scents and they would rather spread out. Here’s a picture of not one, not two, but three



swarms, all in the same tree. They had emitted from hives that were kept about 10 feet away. No other trees anywhere else on the property were occupied, but all three of those queen-right swarms decided that one tree was the place to be. We captured all three with one going to the tenant beek with just enough on-hand spares to make one more hive, and the other two traveled back to be installed in another apiary. So the lesson here is there are times we get surprised dealing with honeybee behavior; that's all part of the fun. Hold that thought.

Sometimes things are just one step past a swarm and one step before involving floor and wall panels, siding or cutting accesses. Here's one where we climbed up into an attic and found a gorgeous hive with four by three feet curtains of honeycomb. The white debris pile on top of the insulation under the hive was actually a nice accumulation of wax scales! This removal was as plain as removing the hive by cutting manageable sections of comb out, searching for/finding/capturing the queen, rubber banding the sections of comb into empty frames, and saving as many of the bees as possible.

The next step in complexity is having to remove an easy cover like fabric or a hatch cover. I went on a call to a nearby town where a homeowner reported bees entering and exiting the corner of the cinderblock foundation under a trailer. The first trip was to scout it out, confirm the location, view the activity, and determine what I would need to bring for the removal. It wasn't planned to be a recruiting trip, but it happened that the owner wanted to join the ranks of beekeepers and wanted to start with



those bees. GREAT! Welcome to a fascinating and fun hobby newbie! I gave them the short list of what they needed, stacked the hive boxes next to the house, and left instructions to call when they got their suits and equipment. Four to six shipping weeks later, they called and we set a day to remove the hive. We suited up, accessed the crawlspace, removed the fabric covering the floor joists and – there it was. A beautiful six foot long by 16” hive with diagonal combs filled to the brim with honey from one end to the other. But where are the bees?!? Remember those rules? The bees would “never” leave an active hive like that, right? Oh well, one exception we can think of would be if it was absconding, right? Darn, they must've left, so let's just remove all this comb and honey. I guess we don't need to worry about rubber banding comb in place on frames anymore, because there are no bees to occupy them. We removed the entire hive's

worth of comb and honey which filled numerous trash bags and dragged them out of the crawlspace. We had a good chuckle because the hive actually involved the underside of the main bathroom's tub. “Honey, I'm trying to relax in the tub, what's that sound?” We started loading equipment back up and noticed the stored boxes had bee activity, a lot of activity! What we found was that the bees must have left that perfectly-stocked-for-Winter hive, walked out the front door, across the wall to where the boxes were leaning against the house and moved into the langstroth boxes; the very boxes that we prepositioned to put them in a couple of months prior. They moved themselves into where we were going to put them. Surprise! If only they were all this easy. They had actually made pretty good progress in the first box. With Winter approaching quickly we ended up devising a hive-top feeder to put their honeycomb mash into for them to re-store and feed. The hive made it through the mild winter and the world gained a couple of new beekeepers out of it. Not bad at all.

Another time I got a call for bees that had just moved into an outhouse a “couple weeks before”. Not your blue porta-potty type (thankfully) but instead it was a lumber-built outhouse with the bees unable to access the inside, only the outside (again, thankfully for human occupants). We found the seam for the panel and just pried the whole 4x8 section off exposing new comb at the top and old comb at the bottom.

Out on a Montana ranch, a





and bee vacuum, we always want to try non-invasive tools and techniques first so as to be as precise as possible on the location. This can be as simple as using a hand to feel for the warmth of the cluster, or a stethoscope to find the loudest amplitude. Even with those tools, we often find that it still comes down to our doing exploratory surgery to find out the extent of the hive. But wouldn't it be great to get a more accurate picture before you go in the wrong direction? Like when we did this one:

My team went out to an old grain storage building where bees were coming and going through the outside corner siding. Looking at the construction, we assumed they were travelling up into the wall cavity, similar to many others; so we started to remove siding planks. We got three planks up and found hard blocks preventing them from moving up in the wall. We chased an assumption and we were wrong. Now if they aren't moving up, then they must be moving across; and the chase was on. Once several tons of grain were moved out of the building, we were able to access the floor corner. We cut an access opening and it kept going and going. Upon inspection we saw they had moved into the floor joists and with enough space under them to move between joists they setup home involving a three feet by five feet space under the floor.

One very important tool which also cannot be overlooked is a good bee vacuum when doing commercial scale removals. Once we've found the hive, gained access, and found the

queen, we have the option to step up the collection a notch by using a **gentle** bee vacuum. I emphasize gentle because the idea is not to recreate the near total vacuum of space and turn the inside of bees into the outsides. Any vacuum design used, and there are many out there to choose from, needs to include a variable vacuum head or a regulator to adjust the amount of suction delivered. (*Honey Bee Removal*, Cindy Bee & Bill Owens, 2010) The operator should ensure that the bees remain intact with wings, legs, and antenna all staying where they belong so they can function post-relocation.

There are more advanced tools on the market that help as well. A pinhole or borehole camera can be fished into a cavity to get a better picture of the inside and can remove the question of "does the hive go up or across?" However, these cameras have their limitations. It's very easy to get turned around, twisted and lose your perspective using them. So wouldn't it be great if we can just point a camera at a wall or ceiling and get a picture of what we're dealing with? Enter FLIR.

Forward-Looking Infra-Red cameras, aka thermal cameras, are similar to the no-touch or laser thermometers that take a temperature on a surface from a distance, usually with a laser dot for aiming. But thermal cameras look at thousands of those surface temperature points simultaneously and compose a picture with it. Thus you can find things like the wall cavity your building contractor forgot

homeowner called up to say bees were living in a soffit at the peak of a gable. A convenient cherry-picker ride later and they were in a temporary hive bouncing down the highway on the return trip to the apiary.

These examples are pretty typical of the removal process; Find hive, access hive, remove hive. It's straightforward, sometimes brute force, but still effective. But how can we improve on this? Let's concentrate on finding the hive because the others will follow if we can just enhance that first part of the equation.

When the hives are obscured, we need to have a few tools at our disposal. We can always drill pilot holes and see if the bit comes out wet, but before we grab our wrecking bar



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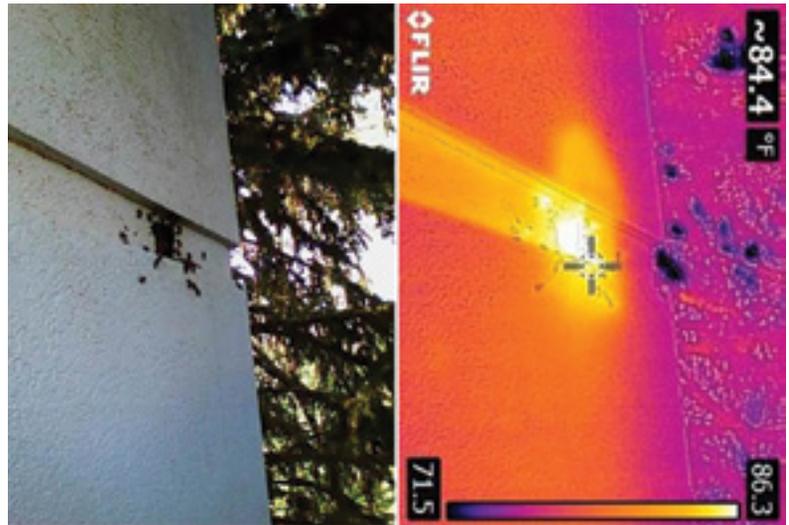
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to insulate, electrical panel breakers that are running hot, which hives are alive or dead in Winter, whether your dog napped on your sofa or the floor while you ran to the store, and of course the cameras are extremely adept at locating hives inside walls, ceilings, floors, etc, which you'll see in a moment.

I received a call from a condominium building that reported bees between a 9th floor suite and the roof. After a futile chase with all the previous tools we tried using a FLIR camera that I use for house inspections. We found that we could see from where the bees entered an exterior panel, the bees spread out on the lower edge to the left and right within the panel. We also found out that what is contained within the blueprints is not necessarily what gets implemented in the final building.



The panel contained insulation on the top, but was not insulated in the bottom as designed, which provided the cavity where these bees decided to make their home. Since this call, I've had chances to prove the thermal camera time and again as being a very valuable tool in finding and orienting hives for removal. I only wish I had the camera sooner.

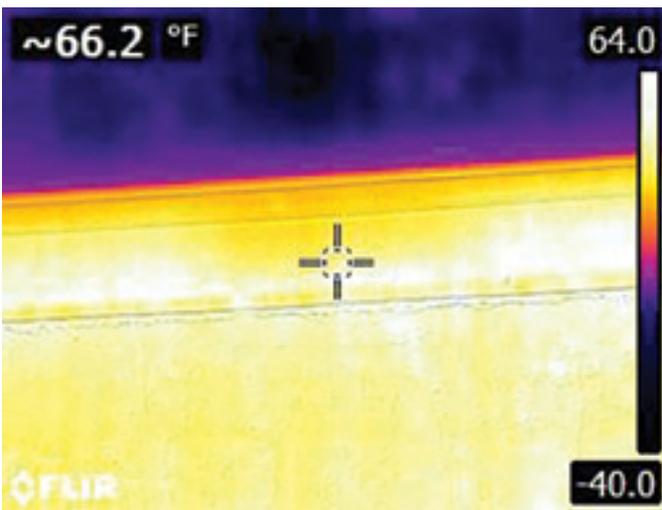
I received another call about bees inside an exterior wall on the 2nd story of a building that moved in "a couple weeks ago" (there's that phrase again; learn to politely ignore it if you hear it, it's often wrong). We could see the hole, but when viewed thermally the warmth radiating around it didn't match with the amount of traffic and certainly didn't mesh with such a small space between the exterior coating and interior sheathing. It turned out there was another hole through the sheathing leading to the main cavity between the studs. So we knew it was bigger than indicated, but we just didn't know how much bigger. Time for some exploratory

surgery on the inside wall opposite the entrance hole. Turns out the hive was 16" by about eight feet with four layers deep of just curtains and curtains of honey and brood.(Fig 16)

My most recent call is probably the best and clearest example for FLIR technology. I got a call about bees in an exterior wall with wood siding. Sure enough, there was a notched hole in the siding along with a round puncture through the exterior sheathing made by a woodpecker with bees coming and going. Everyone else had just assumed that they were in the wall and there were already plans afoot to start ripping siding planks off. A quick verification of the small hole on the exterior was followed by an interior scan which revealed that they were not in the wall but instead in the ceiling, all neatly contained within the width of one floor joist. While the second floor had a nice hardwood floor, it was quickly determined that the easiest and most cost-effective way to retrieve them was through the ceiling drywall on the first floor. You can now understand how the thermal camera saved a lot of wasted time, work, damage, money, and frustration that day!

All these examples just to save bees and get them to where they are wanted and appreciated; but what a noble cause indeed!

So in conclusion, I have found several tools that have earned their place as being essential to the toolkit for anyone that goes beyond the occasional tree branch swarm capture; the newest being the FLIR thermal camera. These tools start to allow efficiency and finesse beyond the typical: find





hive, access hive, remove hive with brute force. The tools mentioned reduce the damage required, helps the capturer efficiently use time and resources, saves the property owner unnecessary charges and stress. Any time we reduce the disruption of a very chaotic event for the bees, the likelihood of success increases.

My final lesson learned – I'm pretty sure the presentation in Missoula went so well because the

material and pictures were great and it had nothing to do with the fact that the event was held at a brewery; at least that's what I continue to tell myself. <starts scheduling next bee meeting at brewery> Brilliant plan, Cheers! **BC**

Acknowledgements

I would like to express gratitude to:

- Univ of MT for their excellent Beekeeping program and using this article as part of my fulfilling the Masters requirement. There is some great company in class and not just the instructors!
- Jerry Bromenshenk for encouraging me to follow-up his multiple articles on infrared cameras to reinforce letting folks know what we've been using them for and how thermal cameras can help this industry.
- The apprentices and helpers that go with me on removals (especially Stacy and Howard). Your help is immeasurably beneficial!

References

1. Cindy Bee and Bill Owens, *Honey Bee Removal*, 2010, Chapt 3
2. L. Youngs and D.M. Burgett, *Removing Bees From Buildings*, Oregon State University Extension Service, EC 857 Reprinted Oct 1989
3. Thomas D. Seeley, *Honeybee Democracy*, 2010, Chapt 6

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Jessica Louque

A New Season, A New Package Installation

This year, we decided to shake things up a bit and give The Carolina Honey Bee Company a coronary with an order of over 500 packages. We mostly managed to up our game with our scheduling this year and contacted Mark Bennett at Dadant early enough this year that ordering equipment for 550 double deep hives with robbing screens and queen excluders wouldn't be as much of a stress in his inventory (unlike the year that we literally bought out his warehouse in Virginia). We started off with our game plan of "how can we do better than the last two years?" and went from there.

Setback 1: Not Enough Equipment and Space

In previous years, we either had issues with the equipment not arriving on time due to shipping difficulties or the company-whom-we-shall-not-be-named backing out of sending it and giving us our check back. Some of it was oversight, where we forgot that we need a ratchet strap for each hive, or we needed to have identification tags on all of our frames *before* the bees go in (trust me, the ladies don't like having the tags put on post-installation), which means we had to have thousands of metal tags cut out beforehand. We have to have

around 40,000 pounds of sugar ready to go, with working pumps and tanks and hot water, and also an apiary to hold the hives.

Year 1

We had just cleared the land for our first site, but there wasn't enough open area that was safe to drive on where we could put the bees. In this case, all 200+ colonies went along one side of a 500 acre field on pallets. This was a little claustrophobic for the bees and the beekeepers. Our sugar costs came through a secondary distributor and cost a decent amount of money, but arrived on time. It had to be stored off-site because of the quantity, and a lot of time went into going back and forth for sugar pickup. We did not use any pollen substitute. Some of our equipment was a temporary fix until the remaining pieces came in.

Year 2

The same field was cleaned up and we could now put these 200+ hives spaced out on stands all the way around the field. It had a late season planting of buckwheat, and some of our other nearby fields were planted in buckwheat as well. Our sugar was ordered from a dealer working directly with the manufacturer and

was able to deliver the sugar for a lower cost. We still had to keep our sugar off-site to maintain climate-controlled storage. We tried using pollen patties, but they were kind of gross and the bees didn't really like them. Dadant was our sole point of hive equipment and everything was taken care of in plenty of time for painting and assembly. We had two package installations, and the second one of another 200+ took place at a cooperator's field. This reduced stress but was a little bit of a drive for feeding and maintenance.

Year 3

The original field was planted in the Fall with a vetch/clover mix that was just starting to bloom at our first package installation. We had a bee building put up in the top corner of the field, so we have a close location for equipment storage and making sugar syrup. The new building also comes with a large cooled room that can hold the sugar shipment, reducing the off-site driving. We bought the Dadant AP-23 pollen patty mix in powder form this year and made our own. This was a hit with the bees and made it easier to dose the same and keep the hive beetles under control. Equipment was ordered in 2015 (for the most part) and some things were bought locally instead of having them shipped with the possibility of not receiving them on time (like ratchet straps). The package installations were distributed between the original field and two additional fields to further reduce the stress, with the sites being split roughly 200/230/120. These two fields were slightly closer, with about three miles between each site, so the driving was reduced while keeping the bees separated.

Setback 2: Package Purchases

It is difficult to meet our criteria for bees, particularly when we are extremely demanding and add to our



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Don Hopkins gives a training on lighting a smoker that makes it look easy.

orders randomly and without notice. Most of the time, there are no bees to be had if you order past January, and sometimes they have to be ordered before that. We also require mated sister queens with a written document explaining such, and they have to be marked. Sometimes we want three lb. packages and sometimes we like four lb. packages. It all depends on what we want to do with the bees and how fast we know what we want.



Bobby does a package installation demonstration.

Year 1

We started way too late in 2014 and had a deficit to beat. Bobby called a ton of places trying to get the packages we needed, only to accidentally stumble on The Carolina Honey Bee Company. They were able to get all our bees ready in the time frame that we needed, and we drove down to pick them up. In the meantime, someone else had ordered 25 packages from a distributor in central NC and we picked those up and installed them the same day. These bees didn't even have the syrup can tapped to keep them from starving, and they were the most aggressive bees I've encountered in this part of the south. Not one of them survived the winter either. Our bees from TCHBC were pretty docile and survived fairly well from both the package installation and overwintering. We shook packages on a Saturday, but it took us two days because of equipment being late and inexperienced help (not to mention angry bees from shaking).

Year 2

We were pretty happy with TCHBC bees from the year before, so we reordered from them, with the caveat of them delivering for us and bringing some experienced help to install packages with us. We also needed 200 4 lb. packages, where the fourth pound is shook in over the other three. They brought the bees up both times, no problems, and we only had to wear a veil in the deep summer during dearths to avoid aggression. We did one site with shaking, and one site with just sitting the opened box in the hive with the queen between frames. The first installation with shaking the bees resulted in a massive swarm that can be seen in last year's package installation article. The second installation was an overcast day with a light mist of rain, and it worked out really well for the bees and installers.

Year 3

Out of our techs from the year before, five of our people were able to be hired full time permanent, giving us some experience in the field. On top of that, Tim was able to bring some help out with him for package installation. Bobby did a package installation demo, and everyone got to work. We closed the robbing screens,

pulled the queen out, and sat the box in. A group of people went behind everyone feeding, and the bees stayed closed up until nightfall. We only had about 1% failure rate out of all of the installed colonies, and no swarms. It seemed to take an average of about one hour for every 50 packages. (this is the whole group, not one person).

Setback 3: Tech Training

Training for all aspects of a job is important, but knowing what to train and how to train is a different story. Sometimes, common sense is really not that common, and once you've done something for a long time, you don't realize or remember what is confusing or difficult when it comes second nature to you.

Year 1

This was our first year at our current job, although it wasn't our first package installation. Most of our help had not ever been around a hive at all, much less installed packages. Let's just say it could have been smoother.

Year 2

We had a lot more experience this year just by dealing with new people the previous year and understanding what would be the potential problems for everyone (pull the cork ONLY out of the CANDY end) and doing a much better job demonstrating what needed to happen for successful installation days. We had Tim and his crew from TCHBC helping, and Don Hopkins came out to provide some oversight to our newbies. Most of our people had at least some science or outdoor background, and everything was a lot more calm.

Year 3

Since we were able to keep five of our techs from the previous year, we had additional experience in the field to help mentor our new people. Although we still used this as the first day on the job for all the new techs, it was a lot more guided with a closer ratio of experienced to non-experienced people. We had about nine experienced people to nine inexperienced people for the first installation, and about seven to six at the second installation, not counting a couple repeats from the first package installation. We had very few stings and Bobby and

I didn't have to wear a bee suit at either installation – although I might should have at the last one (rainy didn't make happy bees).

Outcomes

After reviewing our shortcomings each year and figuring out ways around them (or just learning by default), I think we're definitely on the right track for keeping our bees healthy. Overall, we've been able to make our package installation days a lot better:

- Faster installations
- More experience in the group
- Not shaking the bees
- Less swarms and more successful colonies

Our hope is to be able to keep getting better each year, with bigger installations, more successful colonies, and more experienced people kept on permanently! **BC**

Jessica Louque and her family are keeping bees, farming, gardening and living off the land in North Carolina.



A few friends and family stopped in to pick up a couple of packages and help get the hives ready for installation.

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Huckleberries - Vaccinium

Connie Krochmal

Two groups of bee plants are known as huckleberries – *Vaccinium spp.* and *Gaylussacia spp.* The former, which are most common in the West and are closely related to blueberries and cranberries, will be profiled this month. The others will appear in a future article.

Members of the heath family, these native species are found in North America in both the East and West. Hardiness can vary slightly by species. Some have a chill requirement. With the exception of the tree huckleberry, the plants are typically unsuitable for extremely warm areas.

These nectar plants help to build up colonies in the Spring. Certain species are known to be important honey plants – particularly in the West. When there is a honey surplus, this good quality, pale amber honey has a good flavor and body.

Habitats

Although the habitats differ slightly from one species to another, these species generally have several sites in common, such as woods, forests, clearings, woodland borders, and thickets. Some are adapted to dry, sandy soils. Most are suited to full sun and partial shade.

General Description

These native plants can sometimes be difficult to identify because they readily hybridize. Generally, huckleberries are shrubs although one species can be a small tree. Height and growth habit differs according to the species.

The leaves are mostly deciduous but are sometimes semi-evergreen. One species is evergreen. The shape, color, and size of the foliage can differ from one species to another. This can provide Fall color, usually orange or red.

Huckleberry blooms open during the Spring singly or in pairs, often on short clusters or racemes. Resembling urns or bells, the flowers generally emerge on current year's growth, but are occasionally on old wood. These are often white or pink. The bloom time can differ slightly by species.

Fruit color, size, and shape can vary according to the species. Generally larger than blueberries, these contain hard, stony seeds that are larger than those of blueberries. The ripe fruits, generally harvested from wild plants, are used like blueberries. They were staple foods for some Native American tribes.

Growing Huckleberries

At least three species of huckleberries are cultivated. The plants are readily available from nurseries. Some species are grown as hedges and ground covers and in containers. Generally, huckleberries are more fruitful if they receive some sun.

The preferred soil and water needs differ slightly according to the species. However, most huckleberries

prefer a moist, acid, well drained soil. At least one species tolerates an alkaline pH.

Some species are drought tolerant. The plants can generally be propagated by seeds, suckers, and layering. The smaller types should be spaced three to four feet apart.

Recommended Species for Bees

The following huckleberries are known to be good bee plants.

Blue huckleberry (*Vaccinium deliciosum*)

Sometimes called mountain huckleberry or blueleaf huckleberry, this shrub occurs in Washington, Oregon, Idaho, and California in alpine meadows and subalpine coniferous forests. It is suited to zones four through eight.

A little over a foot in height, the low growing, dense plant features smooth tufted stems. The thick toothed leaves are oblong to oval with whitish undersides.

Depending on the location, this can bloom from March to May. The globular pink blossoms open singly. During favorable weather, blue huckleberry brings much nectar. The plant bears edible, sweet tasting, aromatic, flavorful black fruits with a whitish bloom.

Deerberry (*Vaccinium caesium*)

Also known as squaw-huckleberry, this is native to the entire East from Maine, New York, Ohio, Indiana, and Illinois throughout the South and Gulf regions westward to Kansas, Missouri, and Texas. Deerberry is found in oak scrub, pine-scrub, floodplains, dry open woods, and mountains.

Suited to zones five through nine, this deciduous shrub reaches three feet in height. The growth can be hairy. The foliage, two inches in length, can be blue, whitish, or green underneath.

The white blooms with showy stamens open in small bracted clusters. The leaf-like bracts can have the same shape as the foliage. The blackish-blue fruits are covered with a whitish bloom.

Evergreen huckleberry (*Vaccinium ovatum*)

Sometimes called California huckleberry, this occurs from Washington and Oregon to California. Florists use stems from the wild plants for floral arrangements. Due to overharvest, the species is threatened.

Evergreen huckleberry occurs as an understory shrub in mixed and low elevation forests. Suited to very poor, sandy soils, the plant is hardy to -10°F. Often grown as a hedge, this is tolerant of salt spray.

With a medium growth rate, this very leafy, compact, bushy, upright to spreading, dense plant features arching, stiff, hairy twigs. Evergreen huckleberry has a spreading growth habit when young. This free flowering plant is only two to three feet tall and wide when grown in sunny spots.

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Vaccinium ovatum



Vaccinium stamineum

In the shade, evergreen huckleberry can reach eight to 10 feet in height.

Usually toothed, the box-shaped, glossy, finely toothed, leathery, ovate to oblong leaves are deep green to bright green above and paler underneath. The young foliage is reddish-copper to bronze. The leaves are $\frac{3}{4}$ to three inches long.

From March to May, the small, bell-like, nodding blooms open from the leaf axils in dense, inch-long clusters. Only $\frac{1}{4}$ inch in length, the flowers can be pink or white. Sometimes, these have red tinges. The corolla features five short lobes.

The edible, spherical, blue-black or black fruits can have a whitish bloom. Smaller than blueberries, these have a tangy flavor.

Evergreen huckleberry can bring a small crop of honey, which is very good quality.

Scarlet huckleberry (*Vaccinium parviflorum*)

Sometimes called red huckleberry, this species is found from Alaska to California. Hardy to zone five, it is most common along the coast. The habitats include low to mid elevation mountains, bottomlands, dry open woods, and rotting logs. Requiring very acid conditions, scarlet huckleberry prefers a moist soil and a humid climate.

With a slow to moderate growth rate, this lovely, shade-tolerant, airy shrub is usually one to five feet tall but occasionally reaches 18 feet. It can be three to six feet across. The slender, light green, cascading or spreading stems are flattened.

The thin, greenish-blue to green, oblong leaves are deciduous or semi-evergreen, depending on the location. They're relatively small – usually $\frac{1}{2}$ inch or less in length, but these can be slightly larger.

The blooms typically open from April to May for around six weeks either singly or in pairs from the leaf axils. The rounded, one-fourth-inch-wide, urn shaped flowers are mostly white. Sometimes, these have pink or reddish tinges.

Remaining on the bush for weeks, the translucent, very showy, spherical berries ripen to a vivid red or pinkish-red. Over an inch in diameter, they're quite flavorful.

Known to be a very good honey plant, scarlet huckleberry yields a mild tasting, very sweet, distinctive tasting, light amber honey. This is very thick and hard to extract.

Squaw-huckleberry (*Vaccinium stamineum*)

Also called deerberry, this relatively fast growing shrub is found from Missouri and Minnesota into Indiana,

Ohio, New York and Massachusetts southward to Georgia, Florida, and Louisiana.

Hardy to zone five, this very drought tolerant species inhabits various habitats, such as dry sandy pinelands and dry woods. Needing an acid soil, this plant spreads by underground stems. It tolerates a drier soil than some huckleberries. Squaw-huckleberry is a host of the blueberry maggot – a pest of blueberry plants.

The much branched, loose, airy plant features peeling bark and arching, twisted branches. Typically two to four feet in height and three feet across, squaw-huckleberry occasionally reaches 10 feet or so.

Older stems are grayish-brown. The young growth is hairy, especially the undersides of the leaves.

Variable in shape and size, the glossy, thick, alternate, deciduous foliage can be oval, ovate, oblong, or elliptic. The color ranges widely from green or greenish-blue to blue. The undersides of the leaves can be whitish, blue-gray, or gray-white. About $\frac{3}{4}$ to four inches long and half as wide, these can be very sparsely toothed.

The floriferous plants bear lovely, dainty, nodding, five-parted, small, bell-like blooms with flaring petals. They open in loose, leafy bracted sprays, $2\frac{1}{2}$ inches long. These make their appearance in April and May from the leaf axils on old wood as the leaves unfurl. They're considered to be the most beautiful of the huckleberry flowers.

The flowers can be white, cream, or light pink and sometimes have purple tinges. These feature long, stunning, orange-yellow stamens. The calyx has spreading lobes. The bracts are sometimes much smaller than the foliage.

Usually covered with a bloom, the dry, very seedy fruits, $\frac{1}{2}$ inch wide, can be smooth or hairy. Often, they're pear shaped to globose. Ripening from August to October, the berries are highly variable in color. They can be blue, black, reddish, purplish-black, green, yellow-green, yellow, pale purple, white, or blue-green. The flavor ranges from sweet to tart.

Thinleaf huckleberry (*Vaccinium membranaceum*)

Sometimes called big huckleberry, this species is native over much of the West into Minnesota and Michigan. Hardy to zone six, this drought tolerant plant occurs in alpiners and mountain meadows.

Thinleaf huckleberry grows from one to five feet in height. A dwarf, deciduous, upright, erect or loose ascending shrub with peeling bark, it features four-angled stems that can be hairy.

Up to $2\frac{3}{4}$ inches long, the small, bright green, thick, mostly smooth, finely toothed leaves are oblong to ovate.



Vaccinium membranaceum

Both the Latin species name and common name refer to the thin foliage.

Emerging in Spring either with or after the foliage unfurls, the nodding blossoms, over ½ inch long, open singly from the leaf axils. These can be whitish-green or white with either green or pink tinges. The corolla is pinkish or greenish.

Thinleaf huckleberry bears the largest, best tasting huckleberries. The sub-globose fruits are black to purplish with a slight bloom. Ripening from August to early September, they taste sweet yet acid. The fruits are harvested commercially from wild plants – especially in the Rocky Mountains.

Tree huckleberry (*Vaccinium arboreum*)

Tree huckleberry occurs throughout the South from Virginia and Kentucky to Tennessee, Indiana, and Illinois westward to Missouri, Oklahoma, Kansas, and Texas. It is commonly found in dry, sandy, or rocky sites – particularly woods. An ideal understory plant, tree huckleberry thrives under taller trees.

With a slow to moderate growth rate, this species requires less water than blueberries. It adapts to a range of soil types, moisture levels, and pH levels – from acid to alkaline. The carefree plant requires minimal care.

Also called farkleberry, this is an excellent landscape plant. Either a coarse looking shrub or small tree, the erect, dense, upright, rounded, spreading plant has an open crown. It is suitable for zones six through 10.



Vaccinium arboreum

Tolerant of drought and heat, this very floriferous plant is relatively long lived and slow growing. Typically six to 15 feet tall with a four to ten foot spread, the plant sometimes reaches 20 to 25 feet in height under ideal conditions. Best grown as a multi-stemmed tree, this has a trunk that can reach a foot in diameter.

This plant is noted for the twisted trunks, branches, and twigs, all of which can be hairy. The very colorful, striking, thin bark is a mix of rich browns along with purple, orange, and gray.

The alternate, shiny, thick, leathery leaves can be evergreen or semi-evergreen. Deep green above, these are lighter beneath. The shape ranges from oblong or elliptical to oval. From one to 2½ inches long, the foliage can provide red or pink color in the Fall.

This floriferous plant blooms when very young. The pendant, scented, white or pink, bell-shaped blossoms with white corollas open singly on long, showy, loose, leafy clusters. These emerge from the leaf axils as the leaves emerge from April to June on older wood. The bracts are smaller with a different shape than the foliage.

The firm, dry, mealy berries have a bland taste. Ripening in September and October, they cling to the plant for weeks.

This is an important honey plant in some areas though it doesn't produce a surplus crop every year. **BC**

Connie Krochmal is a writer and a beekeeper in Black Mountain, North Carolina.

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Beeyard Thoughts

Some thoughts on Senior Citizen Beekeeping.

What is a healthy colony anyway?

Your new package bees should be thriving by now. Are they?

Odds and Ends – A rainwater device for watering bees.

Why are most bee suits white?



Senior citizen beekeepers

At this point, all of you young athletic beekeepers can skip to the following section on Healthy Colonies. Not much for you here at this point, but certainly you can expect lifestyle changes in years to come. I didn't think this aging thing would happen to me either.

A few weeks ago, I truly frightened myself – alone – in my own beeyard. I mean it was that dark dread of deep fear that happened quickly, but was strangely not totally unexpected. The cause? After lifting a full deep super, I was certain that I had seriously reinjured my left shoulder – again.

Knowing me, I probably wrote about it in an earlier *BC* article, but approximately three years ago, I had my left shoulder surgically repaired/rebuilt – and, no, I do not know what I did to cause myself so much damage in such a small spot. I just tore up my left shoulder.

As has become typical when preparing for the few surgical procedures that I have experienced, my surgeon assured me that all was typical and within eight weeks I would once again have a 64 year-old shoulder¹. It's never typical and it always takes longer to recover than the estimates given. I underwent the procedure and upon awakening was told that the damage was extensive and required extensive repair. My recovery period would not be eight weeks, but more likely a year. With therapy and time, about a year later I was okay. Another year and I felt that I was back to as normal as I would ever be. Now, as I near 68, I am very,

¹For you people in this line of work or with knowledge of this procedure, a short bit of background information. Before approaching physicians, I let my shoulder discomfort/pain drag on for about 1-½ years. I did months of pre-op therapy along with cortisone injections. I did not just go straight to surgery.

very happy that I had the work done. Even requiring a year's recovery, if necessary, I would do it again.

My questionable moment

In the beeyard, a few weeks ago, as I have done so often in recent years, I needed to take honey off a winterkill colony. I seem to have this attitude that leaving a ridiculous amount of honey on colony preparing for Winter will somehow save the Winter day. All too often, it does not. *Varroa* and the effects of *Varroa* continue to be my greatest Winter challenge – no matter how much honey is on the wintering colony.

One dead colony had a full deep super on top of the typical two deep supers that housed the dead cluster. I felt that it was time. I was fully healed; what better time to reemploy my newly rebuilt shoulder joint. I broke the super free of its propolis seal and hefted the heavy box.

The weight of the nearly 100 pound box was immediate overloading and threatening. The trip to the worktable was short but still too long. The strain and discomfort was immediate as was the deep, dark dread. *Oh no. Oh no.* Was I going to be required to go through all that surgical work again? Could my talented surgeons repair, yet again, my shoulder joint? By nightfall, the discomfort was readily apparent and I confessed to my wife – who immediately questioned my sanity but after all, I am a beekeeper.

The following day, my pain was no worse and during the following four to five days, I seemed to have recovered as much as possible. I am once again okay. I think I dodged a surgical bullet, but that event was a **stern, stern** warning. In the beeyard, I can no longer do what I have done thousands of times – pick up heavy boxes.

My no-can-do-ever-again list

I added lifting full supers to my growing list of things I should never do again. Presently the list is: no water skiing, no bowling, no elite roller coasters, no jump roping, and no extensive paint jobs that requires a ladder. To the list I add – no dead-lifting heavy supers in the beeyard – even if someone else is present. So how will ever remove a honey crop?

Frame by frame

I could take out individual frames. Yes, that will work and yes, and I will try this procedure, but I will continue to explore alternatives. But there must be other ways to lift supers.

For other reasons, years ago, I purchased a subcompact Kabota tractor with a front loader. I will explore setting the blade edge of the loader bucket at the very bottom edge of the super, break the super loose, and slide it into the loader bucket. (I'm sure the bees will not notice any of this.) As clumsy as I know it will be, I would (theoretically) use this clumsy machine as I would use two younger shoulders.

For Senior Citizen beekeepers

Nearly any attribute of a yard that is suitable for Senior Citizens will usually be okay for any beekeeper. While there are many, many more older beekeepers still working with bees, I am personally acquainted with two 90+ year-old Alabama beekeepers who are still in the apiary. Beekeepers like that are reassuring to the rest of us.



Hydraulic lift being used to pick up a hive. (photo credit – Red Belly Farm, Mississippi)

In the perfect yard, everything should be level and firm (especially for older beekeepers)

Even before my shoulder episode, I had made the realization that an ideal yard would be level. I know, I know – most apiaries are not level at all. Do you remember that I wrote about such a yard feature a few months ago? In Midwest where I live, the soil is fine textured and not well drained. During the passing seasons, my two small storage buildings actually move (over time) during Winter enough to bind doors, but come the Spring, all moves back into alignment.

My hive stands sink.

I started with all my hives level but the hives consistently sink out of level. For many years, beekeepers were instructed to slant hives to the front. Rainwater would not collect at the rear of the bottom board. Currently, there is no problem with water accumulation when using screen bottom boards. Modern feeders practically require being level to function properly. A hand truck and other wheeled apparatuses greatly prefer solid level surfaces. I am comfortable feeling that a level yard is an excellent yard feature – especially for senior citizen beekeepers or those of us who have other physical restrictions.

Are you going to bring in a dozer to level your apiary ground? No. We can all only do the best we can. Common sense must prevail. Many apiaries are not level and never will be.

Okay, I'm stopping for the month

I am stopping this Senior Citizen thread for the month. All beekeepers are not old curmudgeons with weedy beeyards and aching joints. But in preparation for next month, I would like ask what you older people have done to allow you to continue to keep colonies productive and enjoyable – gadgets or procedures. Most of us just continue to reduce colony numbers. Next month, I plan to continue reviewing apiary layouts that are more suited for us older types and discuss some of the changes we should make. If you have had some success, please send a description to me. We're all in this together. I am especially interested in hive lifter and loaders. The Internet is full of mechanical examples.

What is a healthy colony anyway?

I was recently asked to present several discussions at a meeting sponsored by Mother Earth magazine. Most of the topic requests were routine – including the topic – “Attributes of a healthy colony.”

As I perused by personal presentation files, I was honestly surprised to find that I had nothing that specifically described a *healthy* colony. I must have had nearly 15 programs discussing colony *problems*. Healing an ailing colony until it was “*healthy*” was the goal. I was forced to consider what colony health actually is.

Colony health is for the moment

Colony health is frequently a

temporary condition. For instance, a colony is healthy if it can build up during Spring to a population large enough to swarm. At that moment the colony in question is healthy, but undergoing a behavioral procedure. If either the parent colony or the issued swarm develops serious queen problems, both will potentially develop laying workers and die. A colony that was healthy just a few weeks before is now nearing death.

Not only queen failure, but *Varroa* effects, pesticide effects, and beekeeper management missteps are examples of ways a healthy colony can become unhealthy in a short time.

Colony health and seasons

A beautifully full, productive colony in late Spring would have to make some serious, rapid changes to prepare for Winter. A healthy colony during the Spring season will look differently from a healthy colony during Winter. Alternatively, a healthy colony coming out of Winter would be considered a weak colony in late Spring. Seasons make a major difference in the characteristics of healthy colonies.

Colony and apiary odors

What does your bee operation smell like? A healthy colony has a slightly sweet, fresh straw odor. If a colony smells of old combs and bee populations are sparse or worse a faint putrid smell, good health is on the run here. American foulbrood (hence the name) has a putrid sour odor – especially when the condition is just peaking.

The apiary has odors of its own, too – especially at night when bees are fanning and the air is still. Both good and bad odors can be detected. As cold weather arrives, odors become less evident, but during Spring months when fruit trees are in bloom, the colony will smell like blooming fruit trees. It is a nice time to be in the apiary.

Beekeepers are always taught to look at a colony – both inside and out. Look for everything – both good and bad. Examine the colony and then make your health decision concerning the condition of this individual colony. I would like to suggest that, in addition to looking for characteristics, that you specifically



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smell the air from the colony. The colony is, after all, a virtual slurry of blended odors.

So what is a healthy colony?

A healthy colony is for the moment. It's healthy for that general period. It will not stay that way indefinitely. Even in the wild, bee colonies wax and wane. They frequently die. That is why we have beekeepers. Trained individuals who strive endlessly to help colonies get from one healthy period to another. Isn't that why we humans have physicians?

For the Beginner

For you beginners who got bee packages a few weeks ago, your new queen should be roaring. Beautiful frames of brood should be common. Frames of new, white wax on your new frames should inspire photography. This is your window for being sure your new package colony has a chance at the upcoming Winter. The first Winter is probably the most dangerous winter the colony will have to confront. If those new queens are not at tiptop shape and output is productive, I would suggest that you ask an experienced beekeeper friend how to be helpful. It's still possible to get a replacement queen but this is a drastic and expensive procedure. If you have more than one package colony and the other is doing better, could you pilfer a frame of brood with adhering nurse bees? Not too much or you will weaken the healthy colonies too much. My main suggestion is to speak up – loudly – if your new colonies appear lethargic. This is their pivotal window for being alive next Spring.

Odds and Ends

A watering device

After I discussed watering procedures – yet again -- L. Funderburg sent me the attached photo of a system he developed to use water captured from his roof. Mr. Funderburg has installed an automatic filler to control the water level and included some floats to prevent bee drowning. At this time, I suspect he is just waiting for bees to find the resource.

Why are most bee suits still white?

In closing, why are most bee suits still white? It was commonly said that



A clever watering device using captured rain runoff.

white was the best color for reflecting heat and possibly not exciting bees. I suggest we re-think that concept. White suits are impossible to clean and make hardworking beekeepers sometimes appear soiled.

So what color do I suggest? Anything but white and anything but black or dark gray would be great; any pastel or possibly a pattern of some kind. I will think about this bit of trivia a bit more as I wait for your comments. Don't lose sleep over this, but neatness always counts. **BC**

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Bee Venom And The Chemistry Of

O U C H!

Sharla Riddle

Zap! Stings happen. Even the most experienced beekeepers catch a sting occasionally. It's the price we pay for those beautiful jars of honey. Bees aren't "seek and destroy" insects. They really aren't itching for a fight, and are quite content to ignore humans. After all, they have work to do. We're basically a nuisance to them, so stinging is really a last resort for a bee. But, they are, in the end, social insects and protecting the hive is Job 1. So if a worker bee senses a threat, it *will* sting and then use alarm pheromones to call in the cavalry. It's these chemical weapons in the bee's arsenal that have scientists fascinated. Bees are remarkable, so it's little wonder that their venom is proving to be an amazingly complex and useful substance.

Bee venom is mostly water-88% to be exact. Because of this water solubility, bees sting in moist tissue in order for the venom to disperse effectively. Unfortunately, that's why the venom works so well on humans – we have lots of nice moist tissue. Painful to think about, huh? Unlike alarm pheromones, bee venom is odorless with a pH of 4.5 to 5.5 which can make it slightly acidic. Because of this acidity, some home remedies advise using a baking soda paste on stings to neutralize the stings. Most scientists doubt the effectiveness of such topical treatments. (That's because the venom is injected *into* skin and not *onto* skin.)

The allergen in bee venom that causes the main "ouch" is *melittin*. It's

by far the most abundant ingredient in bee venom – 50% of venom's dry weight comes from melittin. Melittin causes red blood cells at the sting site to burst and the blood vessels to expand. This blood vessel expansion



is why some people have a dangerous drop in blood pressure after bee stings. And, unfortunately, melittin isn't the only ingredient in bee venom that causes pain. *Phospholipase A₂* is another protein that works with melittin to destroy cell membranes at the sting site. This ingredient, which makes up 12% of venom, causes pain and inflammation.

But wait – the pain from that one sting isn't quite over yet. 9% of bee venom consists of histamine. Histamine causes your tiny capillaries to leak fluid. This is why bee stings cause itchy red spots. Histamine also contributes to some of the pain of the sting. Not all the proteins in bee venom cause pain. Finally, some good news, right? Wrong. Some ingredients help to strengthen the toxicity of the venom. *Apamin*, which makes up 3% of venom, destroys nerve tissue. *Hyaluronidase* (2% of venom,) helps the reaction to spread to surrounding tissue by breaking down one of the components of cell tissue.

It's not just the chemicals in a bee's venom that make it such an effective defensive weapon. Bees also have an excellent dispersal mechanism – their stings. Only female insects can sting, and scientists believe this is because the sting evolved from the insect's egg-laying organ-the ovipositor. The structure of this modified ovipositor allows the sting to act like a self-guided missile. The bee doesn't need much force to embed the sting into its victim; the barbs are positioned on the sting in a way that helps pull it further into the wound. Attached to the sting is the bee's venom sac, containing the bee's chemical cocktail of melittin, histamine and other proteins. When a bee stings, venom is released into a space on the sting between the barbs and the stylet. Honey bees won't sting unless they sense a threat, because they can't withdraw their stings. Once

they sting, they die. The venom sac and sting of the bee are torn from the abdomen and left behind. Amazingly, even when the sting is no longer a part of the bee, it can keep pumping venom into a victim. That's why getting the sting out quickly after a sting is important.

When a bee stings, an alarm pheromone is released by its Koschevnikov gland. Located near the sting shaft of the worker bee, this gland is responsible for most of the bee's alarm pheromones. When worker bees detect this alarm pheromone blend, they fly faster and buzz more. It's a bee home security system. It signals the defenders (aka stingers) to seek and sting threats. That's why it's a good idea to apply two or three puffs of smoke to the sting site after removing the sting to mask the tell tale alarm odor.

The alarm pheromones of honey bees contain about 20 compounds. Of these, *isopentyl acetate* is the key compound. Bees begin to produce this IAA (also known as isoamyl acetate), at about day 15. The production will peak at 2½ weeks. IAA has a very familiar smell, because it has the exact same chemical composition as banana oil. That's why there's a banana smell when bees sting another animal. Fortunately, smoke tends to mask the smell of this pheromone. This loss of signal results in just a few angry bees rather than a swarm of stingers ready to defend the colony.

Bee stings are one of the hazards of the beekeeping trade. They are inevitable, even when every precaution is taken, and researchers are working on ways to reduce the impact of the bee's venom. Because the sting keeps pumping venom into the sting site, scientists are realizing that the method of removal isn't nearly as important as getting the sting out-ASAP. In the past, the rule of thumb was to avoid pulling the barb out with fingers or tweezers. The thinking was that more venom would be squeezed in. Now scientists are advising speed over precision. Forget digging around in your wallet for a credit card to scrape it. Unless it's handy, that wastes time. Studies have shown that leaving the stinger in just eight seconds can increase the size of a bee welt by 30%. It doesn't really matter how you remove the sting; just flick it off as fast as



Venom Sac

Barbed shaft of sting

possible. Your hive tool is the perfect scraper, by the way.

Once a bee stings, your body chemistry begins to change to combat the toxins. Because your immune system considers the unknown proteins of bee venom to be invaders, it makes antibodies. The job of these antibodies is to strengthen the immune system against future attack. Unfortunately, some people develop an overly-sensitive immune response. In about 5% of the population, bee stings are much more than just painful – they're life threatening. Two out of every 1000 people are at risk of anaphylaxis from bee stings. This inability to breathe can occur within seconds or minutes. Beekeepers who are prone to other allergies have a much greater risk of developing these severe allergic reactions to venom.

Most adults without known allergies can tolerate about 10 stings per pound of body weight. In the event of multiple stings, it's a good idea to see a health care professional. That's because your kidneys might need monitoring for a few weeks. When a sting occurs, cell tissue is damaged. The kidneys' job is to eliminate this damaged tissue. In the case of multiple stings, however, there may be too much damaged cell tissue for the kidneys to process. This can cause the kidneys to clog and fail days after an extreme stinging event.

Reactions to bee venom are classified as *systemic* or *localized*. Systemic reactions require immediate medical attention. Swelling in these reactions may occur in areas other than the sting site. Shortness of breath, dizziness and a drop in blood pressure can signal anaphylactic shock, which can result in death

if not treated. The usual treatment for these allergic emergencies is epinephrine. This form of adrenaline slows the blood pressure drop by forcing the blood vessels to constrict. It improves breathing by relaxing the airways and also helps to reduce swelling and itching. Once an allergic reaction has occurred, it's necessary to carry an Epi-Pen or sting kit at all times. Doctors also advise wearing a medical alert bracelet.

Most localized reactions to bee venom (except stings to the eye) can be treated at home. Swelling is normal in a bee sting and ice helps because it constricts the blood flow to the sting site by narrowing the blood vessels. Less blood flow means less swelling. A few topical ointments, such as calamine lotion, can also offer relief. Calamine lotion helps because its crystals are large and cause moisture on the surface of the skin to evaporate quickly. Much like an evaporative cooler, this rapid absorption of moisture helps the skin feel cooler. The histamines in bee venom that cause itching, swelling and pain can be blocked by certain medicines. The molecules in the cell membrane at the sting site are called receptors. Histamines "turn on" these receptors when bee venom invades tissue. Antihistamines, such as Benadryl, work because they keep these receptors from "turning on." Thus, the capillaries don't leak fluid and swelling is reduced. Pain relievers that contain aspirin should be avoided with bee stings. There's already quite a bit of bleeding under the skin and aspirin makes it worse.

Even though the chemical compounds in bee venom can pack quite a punch for predators, those

same compounds have the potential to be remarkably effective in medicine. Researchers have discovered that melittin is a strong anti-inflammatory agent. When venom is injected into the body, the melittin stimulates the production of cortisol, also known as the “fight or flight” hormone. In addition to giving the body an extra boost of glucose energy, cortisol also reduces inflammation. Scientists hope that the use of melittin will aid patients with diseases such as arthritis and MS, where inflammation can be debilitating. Melittin has also been shown in laboratory studies to slow the growth of certain cancer cells, such as melanoma and breast cancer.

When researching bee venom for medical purposes, scientists begin with dry bee venom. When exposed to air, venom dries into grayish-white crystals. These crystals are then converted into a powder form. The hope is that this powdered bee venom can be used to produce injectable venom for the treatment of certain diseases. Because it takes a whopping one million bee stings to collect just one gram of dry bee venom, it’s quite expensive. Scientists are developing an artificial form of melittin in order to further their research.

Bee venom is a complex substance, and laboratory research

into its medical applications is relatively new. Although many people swear by at-home bee therapy, known as apitherapy to treat their MS and other conditions, science moves a bit more cautiously. Bee venom is a toxin, so a scientific approach to research and treatment must be taken. Even so, the hope is that bee venom may lead to medical breakthroughs for those suffering from debilitating inflammatory diseases. So, while bee venom might sometimes be a pain, it might also be a cure. Maybe the occasional “zap” isn’t such a bad trade-off after all. **BC**

Sharla Riddle is a retired educator and freelance author. She has been named a Huddleston Scholar, Tandy Scholar and RadioShack Science Chair.

References

Abdu, Mahmoud Al-Samie and Mohamed Ali. *Studies on Bee Venom and Its Medical Uses*. International Journal of Advancements in Research & Technology, Volume 1, Issue 2, July 2012.

About Honeybees. University of Arkansas: Division of Agriculture Cooperative Extension Service. April 2016.

Bee Stings. United States Department of Agriculture. Agricultural Research Service. April 2016.

Breed, Michael D., Ernesto Guzman-Nova, and Greg J. Hunt. *Defensive Behavior of Honey Bees: Organization, Genetics, and Comparisons with Other Bees*. Annual Review of Entomology. 2004. 49:271-98.

Caron, Dewey M. *Honey Bee Pheromones*. Lewis County Beekeepers. April 2016.

Communication: Basic Bee Biology for Beekeepers. Bee Health: Extension.org July 2009.

Dockterman, Eliana. *Scientists Think Bee Venom Could Fight Cancer*. Time.com (2014): 1.

Hunt, G.J. Flight and Fight: A Comparative View of the Neurophysiology and Genetics of Honey Bee Defensive Behavior. Journal of Insect Physiology 53 (2007) 399-410.

Kaplan, Alan. *Once Stung, Twice Shy*. Bay Nature 8.3 (2008): 44-45.

Loveridge, Joel. *Bee Stings*. University of Bristol School of Chemistry. April 2016.

Morse, Roger, and Brenda Bull. *Insects that Sting*. Conservationist 49.6 (1995): 22.

Murdoch, Guy. *Sting Treatment*. Consumers’ Research Magazine 80.6 (1997): 2.

Wright, Russell, Phil Mulder and Hal Reed. *Honey Bees, Bumble Bees, Carpenter Bees, and Sweat Bees*. Oklahoma Cooperative Extension Service Fact Sheet EPP-7317. April 2016.

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TOOLS FOR SOCIAL MEDIA

The right ones can make all the difference.

Jessica Dally

When it comes to social media and marketing in general, good tools can make all the difference. Sure, just like in the bee yard, you COULD do a hive inspection without a good hive tool, but it sure makes everything a whole lot easier. Good marketing tools are no different.

There are a ton of tools for social media and marketing out there. So many I could fill this article simply listing all of them. But just because someone makes a thing doesn't mean it's good. And alternately, using all the tools can take you more time rather than saving you time.

So what tools are lifesavers? Here's my short list. I couldn't do my job without some of these. While some have a bit of a learning curve, none of these will take up a ton of your time just trying to become efficient and a number of them even have help so you can learn them at your own speed!

Canva



I've often said that the minute this tool goes away I will quit my job and I'm only somewhat kidding. If you've ever struggled to make graphics, signs,

pictures with words on them, flyers, business cards layouts, posters, ads for print publications, etcetera this is the tool for you. Sure, Photoshop and other bigger tools will give you a lot more options, but if you have those skills you're not having graphic design problems. This tool is for the rest of us. And best yet, it's FREE!

So what does Canva do? Well, first, it allows you to design almost anything in almost any size. Second, it gives you design templates you can use and customize to your own specifications. Need to make a poster? You can choose one of their templates and change colors, removes parts of the design, change the background image, and make it your own. You can upload your logos, your personal pictures, and more.

Best yet, when you first sign up for Canva they send you weekly (ish) emails training you on the basics of how to use the program. DO THESE! They take about two to three minutes and help you learn how to use the program in bite size chunks that are easy to understand.

I have friends who are Photoshop experts who still use Canva when they want something quick and easy.

That tells you a lot about just how simple and useful this program can be even for professionals. It's even more useful for people who don't have a graphics team supporting their marketing!

I will add that Canva does have a paid program as well. To be honest, when they finally launched their paid program I was one of the first to sign up, primarily because I wanted to pay for this service. I'd simply received too much value to not pay for this amazing program. Beyond that, however, you receive a number of great features with the paid program. One of which is the ability to resize your design. This comes in useful when you realize the poster you designed now needs to be printed on regular 8½ by 11 paper.

Unless you're a pro at Photoshop and the like, give Canva a try. It's free, it's easy and you will not regret it.

Pixlr

This tool is a bit more complex and not nearly as user friendly. That said, I use it a LOT less. I don't use the downloaded version but stick to the online version. And what



do I use it for? Really one thing and one thing only. To create .png images. What are those? .png images are what you usually see as images with a clear background. In other words something you can put over another image and still see the background.

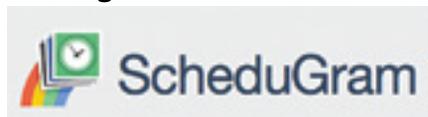
Pixlr makes this relatively easy. That said, you'll need to do a good google search to figure out how to do this but if you really want to cut something out of a background, this is the easy and free online tool to do it. Your images aren't going to be perfect so if you need perfect hire someone to do it in Photoshop. If, however, you just want something fun, this is the tool for you.

Moo Cards



I'm always amazed in this day and age when people have one sided, one color business cards. Moo Cards (and many other printers) allow you to have FULL color business cards for not much more than you'd pay for single-sided one or two colored cards. Best yet, you can switch up the background on EVERY single card if you want. You can give each person a personalized card, or at least one that no one else has. How fun!

Schedugr.am



If you're managing a thriving Instagram feed it may be difficult to post regularly. Instagram, unlike almost any other social media platform, will NOT allow you to schedule posts. While there are other tools that theoretically allow you to schedule, Schedegr.am is the only tool that actually schedules your post for you. They do not require you to log in and do something to actually post the scheduled content. Simply schedule your post for 2am and it will go up at 2am.

OK, so you're probably not scheduling posts for 2am, but you might be scheduling for when you're out of town. This is the only tool out there that I've found that will actually post for you once you've pressed schedule without any further

interaction required. This is a huge win for folks who don't want to work on their rare day off but still want to have content posted to their social media streams on those days.

Hootsuite



While there are a ton of different dashboards out there for managing twitter and other social media streams, my favorite is Hootsuite. To me, it's the least cluttered looking and it allows the easiest integration for the least amount of money. For most people the free version will work just fine for keeping an eye on your different social media streams all in one place.

There is one thing to keep in mind when it comes to using a dashboard. While you can post to your various different social channels (Facebook, twitter, Instagram) from the dashboard, it's almost always best to use the actual platform itself for posting. In other words, log in to Twitter to post to Twitter and the same for Facebook. Use the dashboard simply to keep an eye on your content.

That said, I do use Hootsuite to retweet content for twitter. But I never use it for posting pictures

as it won't show the pictures in the same way a post made directly to twitter will, and that is a huge drawback. Of course, like anything social media related, that could all change tomorrow so check it occasionally to see if Hootsuite has updated how things post. And if you use a different dashboard it could be that your choice posts pictures just fine.

Why use a dashboard? It's just a touch easier to look at everything in one place, especially if you manage multiple accounts – like a personal twitter account and a business twitter account. BUT, if you don't have multiple accounts you might not need a dashboard at all.

So that's your starter list. Do you have a tool you love for managing your social media accounts or dealing with your marketing needs? I'd love to hear about them! Let me know on twitter at [@jessicadally](https://twitter.com/jessicadally) or Facebook at [JessicaDallyConsulting](https://www.facebook.com/JessicaDallyConsulting). **BC**

Jessica Dally is the Director of Marketing for a company in WA State and also runs her own marketing consulting business, Jessica Dally Consulting which can be found at www.JessicaDally.com or on Facebook at www.facebook.com/jessicadallyconsulting. She has worked with numerous beekeeping businesses including Bee Culture Magazine and was a former board member of Puget Sound Beekeepers in Seattle, WA.

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Also see Phil's Bee Culture Q/A column in this issue.



LAYING WORKERS. IT HAPPENS. FIX IT.

Paul Hizsnyai

The phenomenon of laying workers is the last ditch effort for survival of the bee colony, the last attempt to avoid the certain death of the doomed hive. This is a sign of strong instinct of bee survival, embedded in the genes after thousands of years flourishing. This coded instinct controls the bee's well organized social behavior.

A man can't help but admire this mystical insect world, and their amazing societies among them. The beekeepers know that without a queen there isn't any offspring production, there isn't any replacement of continuously dying worker bees.

The constant hatching of the new worker generations provides the mean of replacing the aging population within the hive. What do the bees do when this continuous rejuvenation is interrupted and no more hatching happens? It takes 24 days until the last egg emerges. During this time period the bees try to replace the lost or incapable queen, sometimes even using older four day larva.

Beekeepers know that if the larva hasn't started receiving the royal jelly within five days, the attempt is doomed and the queen cell modified from a worker cell is always smaller than the normal queen cell. All these conditions fundamentally effect the quality of the future queen and her reproductive organs remain inferior. The sperm storage capacity is smaller too and the queen runs out of the sperm much sooner. All these are the consequences of inferior nourishment, which originates from the late start, more honey and pollen instead of royal jelly.

These emergency raised virgin queens face other challenges during the mating flights, like bad weather, predation, accident, etc. and consequently the colony may remain queenless. That means the colony has no hope to produce a new replacement. If the beekeeper doesn't remedy this situation the worker bees take action on their own, following their instinct.

By this time the normal life in the hive becomes chaotic, the original routine is drastically altered. The workers' reflexes activate certain changes in their body in order to try to save the doomed colony. After about three weeks their normally suppressed reproductive organs becomes larger and active. These worker bees with activated reproductive organs start laying eggs in the worker cells. But these disguised queens have never mated, consequently they can't lay sperm-fertilized eggs. Very often more than one egg is visible in these workers' cells, in random ways. Most likely this symptom originates from the smaller abdomen and they can't place the eggs the proper way, since their body is not built for egg laying.

These laying workers want to produce worker larva, so



Laying workers will deposit many eggs in the same cell, many on the sides of the cell.



A normal queen places a single egg in a cell at the very bottom.



Worker brood produces worker brood pheromone.

they lay eggs in the worker cells. The problem is these eggs produce drone larva, not suitable for the smaller worker cells, in other words they are too small (4mm instead of 5mm). However when the larva is growing, the height of the cell is not adequate so the bees lengthen the cell wall, making it deeper. When the larva pupates, it will stick out of the comb surface, which appears "bumpy." We call it "humped brood." The emerging drones are smaller than normal drones. So, even this collective last ditch effort can't save the colony without new workers and they slowly dwindle into extinction.

What can the beekeeper do when the colony reaches this stage? Please note that in this case do not attempt to requeen the colony unless it is strong and there is brood from other colonies added at the same time. Otherwise the hive should be dismantled and the bees added to queenright colonies.

The main problem with laying workers is difficult to find them since there are more than one and not distinguishable. That's why the requeening attempt often fails. However if we leave this task to the bees, they can recognize the laying workers.

Using this principle I've successfully requeened laying workers many times. The hive of this strong colony with laying workers needs to be switched by another queenright colony hive. This hive switch should be done on a sunny day, after about 10:00 a.m., when the outside worker population is foraging. So, what do we accomplish by this manipulation?

When the foraging bees from the queen right colony return to the accustomed home location, they find themselves in a chaotic, disturbed colony. The main problem is the lack of queen pheromone, which

coordinates normal colony life. Beside this worker brood pheromone is missing. The workers from the queenright colony will recognize this abnormal situation and immediately start restoring the colony order. This is a very strong instinct of the social honey bee, when the queen pheromone regulates the colony activity and the workers' laying is restricted.

These new workers finish restoring order in about 48 hours, and eliminating many of the laying workers. The beekeeper should remove drone brood by scraping or simply replacing these frames.

In the next step we requeen the laying worker-free hive by a strong nuc. The newspaper method works fine, the nuc should be placed on the top. The nuc should not have outside entrance. The only way to exit is through the already cleared hive, but first the bees need to chew through the newspaper barrier. That takes time and happens gradually and the queen pheromone from the nuc will seep into the lower hive as well and the combined population is on its way to establish a normal life. This hive shouldn't be disturbed for at least five days, otherwise the new queen may be rejected, even killed.

What happens to the original queenright hive after losing a significant foraging work force? Usually it will recover without much set back. A strong colony has a large worker population and these bees will graduate to foragers and replace the lost ones.

So, what do we need to watch for when we try this method?

- Only a populous colony can be saved by this method.
- Schedule the manipulation for a good weather day.
- Start after 10:00 a.m. when the foragers are out of the hive.
- When introducing the new queen, the nuc should be on the top without an outside entrance.

I hope this method will ease the mind of many smaller beekeepers who are most likely more attached to his/her bees and don't want to see them to be wasted. This way not only the bees are saved, but we keep the same number of colonies, as well. **BC**

Paul Hizsnyai, award winner master beekeeper, Pokaszpetk, Hungary translated by: Tibor Csincsá, forestry engineer, beekeeper, Holland Centre, Ontario, Canada

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HOW TO GET YOUR HONEY IN THE JAR

Lonnie Funderburg

My wife and I have a system. I stand over next to the observation hive and talk about bees. She stands over next to the honey, candles, soap, lip balm, skin cream, lotion bars, i.e. the stuff she makes and sells. She tells me, "You stand over there and talk about bees. I'll sell the honey." Our system must be working. We have been the resident honeybee exhibit at this arts and crafts festival for 25 years. I do what she tells me to. We've been married for forty-two years.

At this festival where I have been the beekeeper for 25 years, I am not exaggerating when I say that 6,000 people might walk by on a three-day weekend. One of the most common questions of all these people is, "How do you get the honey in the jar?" After carefully explaining the process in detail for too many years, in 1999, I finally made a picture board showing the significant steps in the procedure. It's time to re-do the photos. My grandson is in one photo when he was just over two years old. He's seventeen now. Anyway, this is how I get the honey into the jars.

When I began beekeeping, I had a partner. Together, we acquired a Kelley 33-frame extractor. No, we didn't have the foggiest idea that a 33-frame extractor was much too large for our operation. The purchase included several beehives. Pay attention, I did not say colonies. Also included in the purchase was a Kelley bee blower. It was an all-or-nothing proposition. So, for several years, I used a Kelley bee blower to blow the bees out of their supers because I had a bee blower. Likely, it was only when the bee blower quit working that I began using a fume board. It was an epiphany. The operation became quiet. The bees are calm, not flying. Of course, the fume board does not get all the bees to leave the supers.

"There is no spigot on the side of the box."

For a few more years, I pulled all my honey on one day, drove about 30 minutes to a friend's house, and extracted until the wee hours of the night. In 1999, I bought my own extractor. Another epiphany! I began pulling only the number of supers that I felt like extracting. I no longer dreaded extracting day.

This is a purely personal recommendation. Do not allow your bees to put up surplus honey in a deep super. If you value your back, do not pick up a deep super of honey. If, for some legitimate reason, you do have a deep super of surplus honey, you are authorized and encouraged to remove the individual frames and place them in another deep super that is already on your hand trucks or wheelbarrow.

At home, my honey house is in my basement, I stack the supers near the door. At dusk, I open the door, and the bees fly home for the night. It works. There may not be a single honey bee left in the supers. With no bees in the supers, my wife is more likely to help me extract. Be cautious here, the small hive beetles *will* still be in the supers. So, I must extract right away, within a couple of days at most. A trick that I have learned is to stack the supers above a West Small Hive Beetle Trap with a flood light above the supers. The SHB will avoid the flood light, and the light keeps the honey warmer. As I work down through the stack of supers, the

SHB continue to move down and into the small hive beetle trap. The SHB do not like light.

I uncap utilizing a hot knife over an uncapping tank. After twenty-five years, I think I am on my third hot knife; they don't seem to last forever like a hivetool. I have used a cold knife. It worked. The hot knife requires slightly less effort. I suppose, if I had only a couple of supers, the cold knife would be adequate. Usually, I take a cappings scratcher to get the low places on a frame. I have one of those plastic rollers covered with little spikes. It works too. A friend showed me how to use the hot knife to get the low places. I do not have the finesse with a hot knife that he has developed during his much longer beekeeping career.

When I was just a beginner, my father and I were visiting an old family friend who had been an avid beekeeper. When he learned that I had begun keeping bees, he asked if I would like to have a Dadant uncapping tank. I did not know what an uncapping tank was or how to use it. It was shiny stainless steel; so, I said, "Yes!" He had constructed a plywood cover to protect the uncapping tank when not in use. I used the tank with the plywood cover as a rolling table for nine years until I acquired my own extractor. Only then did I realize what a prize he had given me. I used to let the cappings drain for several days, maybe a few weeks. With the SHB, I am much more careful to render my cappings after just a few days.

As mentioned above, my wife makes lots of stuff with beeswax. She wants my cappings wax, and she does not want any "old comb with slumgum" mixed in with *her* cappings wax. So, I am very careful to keep *her* cappings wax separated from any other wax. Remember, I do what she tells me.

Last Summer, my wife was anxious to get some of our backyard honey because her friends were asking for local honey. How close does it have to be to be local honey? If the store-bought honey is from Iowa or China, isn't anything made in my state local! Anyway, I brought in eight supers from the backyard for her to extract while I left town on business. No, wait, that was when I went to Colorado for a hike. When I returned, she had extracted the eight supers and had three five-gallon buckets of honey sitting near the extractor. "I couldn't move the buckets of honey," she said. Well, why didn't you put just two gallons in each of seven buckets? "I didn't think of that," was her well thought-out response. Just because it is a five-gallon bucket doesn't mean you have to fill it. Honey is heavy. Use your head more and your back less.

As I said, if there are very few bees in the supers, my wife will help me extract if she is caught up with her candle molding. I have a Dadant twelve-frame motorized radial extractor. I doubt I will outgrow this extractor. My 12-frame easily extracts a load before I uncap another twelve frames. The temperature makes a difference. If the honey is warm, it really extracts much faster than if the honey is cool. To super heat the honey, I have been known to put the supers in my garage, where it gets really hot in the Summer. Really warm honey is 95°F. The honey does not need to be any warmer to extract easily.

When the honey flows out of my extractor, I strain the honey through a double stainless steel sieve. This works well for maybe two loads of the extractor which yields about five gallons of honey. Sometimes more, sometimes less. My bees don't always pack my supers full. I have two of these double stainless steel sieves. If the sieve is doing what it is supposed to do, that is, strain out stuff, it gets clogged up. I moved the honey into five-gallon jugs with small openings for many years. Some beekeepers call these plastic 60s. I was more comfortable with my honey in a jug rather than a bucket which has the whole top open. Buckets are much easier to fill and empty than jugs. I still have the jugs. I prefer to use buckets. If you have a friend who works in a restaurant or you can cultivate an association with a



restaurant owner, they will have five-gallon buckets available for the asking. A little honey will really facilitate the acquisition. If you don't leave them out in the sun, five-gallon buckets will last a long time.

Too much heat is detrimental to honey. It would be best if you could bottle your honey at room temperature. However, I find that room temperature honey will not pass through my cloth strainer. Very carefully, I warm my honey to about 90° - 100°F in my hot box. Warm honey will pass through my cloth strainer almost like water. I purchase my cloth strainers in the paint section at Lowe's. They are actually paint strainers made to fit in a five-gallon bucket. Perfect!

"What is a hot box?" you ask. About 15 years ago while talking to a much more experienced beekeeper, I asked, "How do you re-liquefy your honey when it granulates?" The short answer is that he gave me a defunct chest-type deep freezer. It may not be a freezer; but it is still an outstanding insulated chest. I bought a \$20 space heater from Dollar General to warm the hot box. After tweaking the thermostat, the hot box will warm whatever I put in it to about 100°F. It takes about 48 hours in the hot box to re-liquefy a five-gallon bucket of honey that has granulated. I can fit eight five-gallon buckets in my hot box. Very carefully, I mean *very* carefully, I have warmed cold supers before extracting.

Back when I extracted with another beekeeper's equipment, he would warm the honey in a 40-gallon tank with an agitator. Then we strained the honey through nylon cloth and allowed it to settle in another large tank for a few days. Before bottling, we would scrape off the foam on top of the honey. The foam is just air. I tasted it. The foam would dissolve in my mouth just like cotton candy. When I obtained my own extracting equipment, I began working on a means of eliminating the foam. It's simple; do not let the honey splash. Minimize the distance the honey falls from the strainer to the bottom of the bottling tank. This is what I came up with.

My third and final strainer is the nylon paint strainer bag. This strainer bag is inside a five gallon bucket in which I have bored 3/8" holes in the bottom, about one hundred holes. There is only enough of the bucket bottom left to support the strainer bag. This bucket, with holes, is inside another five gallon bucket so that the bottoms of the two buckets are separated by only a couple of inches. In the center of the bottom of the second bucket, I cut a hole and added a sink strainer. The sink strainer serves to connect a section of 1½" flexible sink drain pipe to the bottom of the bucket. Connected to the flexible drain pipe is a straight 1½" drain pipe that is long enough to reach



the bottom of my bottling tank. Along the straight section, I melted holes with a soldering pen so the honey could ooze out all along the pipe. This contraption is supported on top of my bottling tank with a circular piece of ½” plywood. With this arrangement, almost no air is infused into the honey as it enters the bottling tank. I try to let the honey rest in the bottling tank for a few days before bottling. The honey judges are satisfied with the clarity of my honey at this point as evidenced by a dozen or more ribbons from various honey contests.

My bottling tank rests on a platform with the valve at the right height to observe the fill level. The only drawback to this arrangement is pouring the honey into the strainer bucket that is on top of the bottling bucket. I refer you to previous instructions concerning filling a five gallon bucket with only two gallons of honey.

It has been too many years since I sold an unlabeled jar of honey. I do remember that my sales doubled when I had a label. Also, I can remember using paste to attach my labels. Now I use peel and stick labels. I feel the peel and stick labels are well worth the extra cost in saving time and eliminating the mess. The most recent label purchases were 10¢ to 17¢ each. After hearing from too many customers, “Your honey turned to sugar, so I threw it out,” I began using another label with instructions to re-liquefy the granulated honey, cost about 2¢. Recently, I began adding to my label “Product of USA”. Before you spend too much on labels, find out exactly what is required on your label in your state. Another thing, I get those shrink wrap sleeves. I believe the shrink wrap gives my customers another element of confidence in my product. My wife found the shrink wrap sleeves online for about 3¢ a piece. So, why do I spend upwards of 22¢ after the honey is in the jar? It is called marketing; it increases sales; it develops repeat customers; it gives me an extra element of satisfaction, all worth much more than 22¢.

Back to the picture board I mentioned earlier, after showing the photos and discussing the process with a potential customer, it is not uncommon for them to remark, “How do you sell it so cheap?” **BC**

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Beekeeping On A Budget

Ross Conrad

In order to keep bees, you are not required to own or rent land. Often, landowners are happy to let you place bees on their property in return for some honey and free pollination of their garden or crops. As a result, beekeeping is much more accessible to folks with limited incomes than just about all other agricultural activities. Avoiding the cost of bees and equipment is a bit more challenging however.

There is a lot of truth to the old saying that the way to make a small fortune in beekeeping is to start with a large fortune. Beekeeping catalogs are chock full of equipment, supplies, gadgets, and doohickeys for us to spend money on. Much of what fills the pages of the catalogs is optional however, and even the mandatory beekeeping items can be had, made, or substituted at low, or sometimes no cost. My intention with this article is to explore some cost saving ideas and stimulate your thinking about additional ways you can keep bees on a budget.

Honey Bees

Short of knowing a generous beekeeper that has too many hives and

“A penny saved is a penny earned.”

Benjamin Franklin

wants to give some away, perhaps the most obvious way to achieve savings on the procurement of honey bees is to catch a swarm. Swarm trapping is far easier than climbing up trees and ladders in order to capture swarms. For best results, research suggests that setting out a swarm trap with a volume of about 40-45 liters (about the size of a standard Langstroth deep hive body), with a very small entrance near the bottom of the hive, the entrance oriented to the south and the trap placed in a location about 15 feet off the ground will yield best results. Place a frame of drawn comb in the hive so the scent of the beeswax will catch the attention of scout bees. Alternatively, synthetic queen pheromone can be purchased and used as a swarm trap lure. Some folks like to use lemongrass essential oil on a cotton ball as a swarm lure since it contains at least two of the same chemicals that compose the honey bee Nasonov gland pheromone.

With the right tools and skills, the removal of swarms that have moved into buildings or other unwanted places can potentially provide both free bees, but some income as well. This is where a good quality ladder, a chainsaw or power tools can come in handy. A good source of information on this topic is *Honey Bee Removal: A Step-by-Step Guide* by Cindy Bee and Bill Owens.

Beekeeping Equipment

One of the best ways to save money

is to not spend it in the first place. By foregoing optional equipment and limiting bee equipment purchases to necessary items only, both money and storage space can be saved. While each beekeeper is likely to have their own list of necessary items, as a starting point I would suggest the following be considered necessary items that one should not try keep bees without: Bottom board, hive body and honey supers with frames, inner cover, outer cover, smoker, hive tool and veil.

Another way to save a lot of money on bee equipment is to purchase pre-owned equipment from someone who is getting out of beekeeping. Just beware of purchasing old combs as they are notorious for harboring diseases and chemical residues that can adversely impact the health of your bees.

When purchasing equipment new, buy items that require assembly rather than equipment that is already assembled and painted in order to reap savings. Some equipment suppliers offer varying grades of equipment to choose from as well. You can save money when purchasing equipment by getting the “budget” or “economy” grade. This grade of equipment tends to be composed of parts that will work but are not ideal due to flaws in material and workmanship. Wooden parts that have knots, are cut to slightly the wrong dimension, have tear outs or splintered wood around cut edges, or have misaligned pre-drilled nailing holes are among the characteristics that will define budget or economy hive parts in contrast to the more expensive premium or select hive parts. Consider picking up orders rather than having them shipped for additional savings.

Another way to save on medium and shallow supers is to recycle old boxes by cutting down deep hive bodies that are damaged on the bottom and turn them into mediums or shallow supers. As long as the upper portion of the deep hive body is not damaged and the frame rest area is in good condition, a cut down box will make a great honey super.



Cutting the lower part of a damaged deep or medium super to make a shallow super is one way to stretch out your equipment investment, use resources more efficiently and save money all at the same time.

I always try to use an old or worn blade when cutting down old deep hive bodies into shallow supers, just in case I hit a nail in the process.

Another place where a significant amount of money can be saved is in the style of hive being chosen. For maximum savings, consider the relatively simplistic design of the top bar hive which requires less material, tools and skill to manufacture, but also calls for a different set of beekeeping management skills and knowledge to successfully keep bees alive especially in locations with long, cold Winters.

As suggested above, one place that I do not recommend you try to save money is on a hive tool. The money saved by using a screwdriver or knife when working hives is so little that it will not come anywhere close to making up for the damage you will do to your hive boxes and frames by prying on them with such tools. I also would not suggest you try to save money when it comes to protecting your bees from bears. Electric fences (especially solar powered ones) can be quite pricey, but depending on the number of hives in your apiary, the cost may be only a fraction of what the bees and equipment is worth.

Reusing old frames

When it comes to frames, money can be saved with the investment of time and good old-fashioned elbow grease in scraping down old frames and reusing them. You will need to invest \$5 in a frame cleaner which has a thin end that is just the right size for cleaning beeswax and propolis out of bottom bar grooves and the pre-drilled holes in the end bars. Be sure to collect all the frame scrapings and render them down. You may be surprised by how much beeswax it will contain.

Foundation

In order to encourage bees to consistently build their comb within the frame and build it straight, it is best to use full sheets of foundation. Although it takes a bit more attention and effort to obtain straight combs when using starter strips of foundation, significant savings can be had when using one-inch foundation strips rather than full sheets.

There are two basic ways to use starter strips of foundation. One is to position the strip of foundation along

An empty container with a leak-proof lid such as this gallon-sized bucket can make a great honey bee feeder.



the top bar. While top bar strips tend to work best in shallow or medium frames, there is a tendency for bees to stop building their comb just short of the frame's sides and bottom. This results in a comb that is not well anchored and secured on the sides and bottom and is prone to breaking when handled the wrong way or blowing out when being extracted.

One alternative that helps to reduce this problem is to use foundation starter strips positioned against the end or side bars. Bees building comb from end bar starter strips anchor their comb firmly to the end bars, as well as the top bar, which greatly increases the overall strength and resilience of the comb during handling.

Another way that some beekeepers help to anchor the comb when allowing bees to build combs from starter strips is to position thin wooden dowels, or shish kabob skewers so they are imbedded within the comb when it is completed. Building on this idea, there are beekeepers who do away with the need to purchase foundation altogether and instead use wooden tongue depressors in place of foundation starter strips to help guide the comb building activities within the hive.

Positioning frames with starter strips or tongue depressors between two full frames of foundation, or two frames of straight drawn-out comb, and making sure that hive sits perfectly level, will go a long way to increasing the frequency that bees build comb that is straight.

Hive Stand

While a hive stand is highly recommended in order to keep hives

off the wet, cold ground, money need not be spend when procuring one. Repurposed old bricks, cement blocks, scrap lumber, and flat rocks are among the items that can all serve as excellent hive stands.

Extractors

There is no getting around it; honey extractors are expensive. While hand-powered extractors cost less than extractors with electric motors, manual extractors are slower and this becomes an issue as the number of supers of honey you have to extract increase. Some backyard beekeepers will borrow a small extractor from a local beekeeper.

When buying an extractor, costs can be reduced by purchasing an extractor that has been preowned. Alternatively, some bee clubs and associations will purchase a small extractor for its membership to use, or several beekeepers in an area may decide to share the cost of purchasing an extractor to share among themselves. Consider producing cut comb honey, rather than liquid extracted honey, as a way to eliminate the high costs of extracting equipment.

Feeders

There are numerous styles of feeders to choose from, some more expensive than others. For the budget conscious beekeeper, a simple feeder can be made at home out of a recycled pail or jar. When punching or drilling very small holes into the lid of the pail or jar, I like to nail or drill from the outside in. This way the ragged edges around the openings are on the inside of the container. Fill the container with bee feed and turn it upside



Purchase unassembled equipment to save money. To avoid knotty wood, wood tear outs around cut areas, cracks, and pre-drilled nail holes that are off-center or missing completely, buy premium grade hive parts – but it will cost you significantly more.

down. The liquid syrup will drip out of the holes in the lid for about 20-30 seconds or so until a vacuum builds up inside the container. The vacuum will prevent the liquid from dripping any more until something touches the liquid through the holes and breaks the surface tension of the liquid. Place the feeder over the hole of the inner cover on the hive so the bees can access the feeder.

Coveralls

A full beekeeping suit is nice to have and certainly “official” looking, but for most practical purposes, I find that an old pair of light colored trousers and a light colored long sleeve shirt will work just as well as coveralls. Unfortunately there is no substitute for a good bee tight veil. There are however various styles to pick from when choosing a veil and some are more expensive than others. It pays to shop around.

Paint

To preserve your woodenware and save on paint costs, consider using off-color and returned paints

and stains that are offered at a discount from our local paint store. By accepting whatever colors the store happens to have available, savings of 70%-80% or more can be achieved. Unless your apiary is located in southern or desert region where daytime temperatures may get up around 90°F or higher for months at a time and where hives painted white will keep bees the coolest, the bees won't care about what color you paint their hive so why should you? As an additional bonus, evidence suggests that differentiating hives by painting them different colors, or painting unique shapes and designs around the entrances of hives can help the bees to recognize their hive over others and reduce drifting between colonies.

Smoker fuel

With a little pre-planning and effort, free smoker fuel can be obtained for beekeeping work. Whether it is wood shavings, dead pine needles, dried sumac berries, date palm thatch, used baling twine, dead leaves, mulch straw, or old

burlap, abundant (and usually) free smoker fuel is available to those who take the time to seek it out – even in big cities. Whatever your source for smoker fuel, just be sure it is dry.

Keep your bees alive!

Probably the most important money saving tip that can be given is to keep your bees alive and healthy! Replacing bees is expensive. A strong, healthy colony of bees can make up and compensate for a lot of problems and issues. Think of any honey that you don't harvest or money that you have to spend on preventing damage from mites, diseases, bears or nutritional stress as an investment rather than a cost. Strong populous colonies are also the best way to protect another one of the most important investments you have and that is drawn out beeswax combs. Frames of comb become vulnerable to wax moths and small hive beetles when not covered with honey bees so keep your equipment filled with bees. If only I had all the money I could have potentially saved if I had known about these ways to keep bees on a budget earlier on my beekeeping journey... **BC**

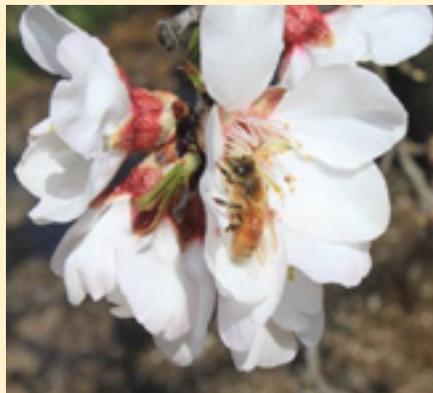
Ross Conrad is author of Natural Beekeeping: Organic Approaches to Modern Apiculture, 2nd Edition. Ross will be leading a beginning beekeeping class on July 16-17, 2016 at Wildroots Farm in Bristol, VT for the Vermont Chapter of the Farmer Veteran Coalition. www.wildrootsfarmvermont.com

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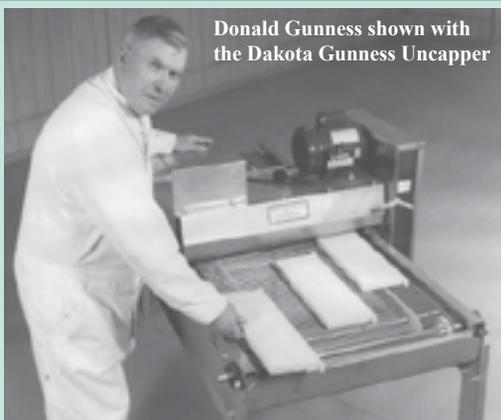
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Club Success At Events . .

Terry Lieberman-Smith

Congratulations on becoming part of your club's new executive board. Everything is buzzing right along, meetings are running well, attendance is growing, and conversations are long and loud. Your association is receiving requests to participate at upcoming community fairs, events, and maybe even local food conferences. When you announce these volunteer opportunities at club meetings, suddenly the mood in the room changes, no one is willing to make eye contact, and no hands are raised to volunteer. What just happened? No one wants to support the club? Does this mean that your club won't be represented at upcoming events? Not necessarily. You just need some new tools to reinvigorate the volunteerism that resides in all of us, by keeping in mind some key factors.

When people feel vested, appreciated and at ease, they are willing to give up time from their over-booked, over-tasked schedules. As club leaders, we need to adjust our mindset – just like the bygone good old days of leaving the hive out on the Back 40 and expecting it to live forever, the old days of passing around a sign up sheet and having it magically filled, or a successfully filled out sign-up sheet on a table are also bygone remnants of a different generation. Because time is a limited resource, you need to provide members the positive trade-off of their time to assist the club activity. So what are some reasons that would encourage people to enthusiastically give up their limited resource for the club?

People volunteer for a variety of reasons. One main motive is the need for the recognition that they may not get at home or at work. They need to know that by giving up their time there will be some show of appreciation for their effort. Club members also need to feel confident when they represent their association at an event.

Here are some great ways that you, as a board member, can help make the club successful by increasing volunteerism, and helping promote your group. The first step is to take the unknown out of the upcoming activity. Explain to your club members exactly what the event's purpose, and what their activities will be during the event. All of us are more comfortable when venturing into a new activity with an easy-to-follow task list that gives us a sense of purpose and confidence. It's just like a new recipe, clear instructions result in great outcomes. Hazy instructions lead to food that ends up in the trash. Why show up if you have no idea of the activity? Educated volunteers will not only feel confident, but they will also share their enthusiasm with other club members. Most people don't receive recognition or satisfaction from their day job. However,

by standing at a club table at a fair, talking about honey bees and beekeeping, your volunteer will receive the full attention, and awe, from the general public. That energy will translate to more interest about the club, contacts with those in the community who can partner with your organization, and a completely enthusiastic volunteer.

At all these events, provide your volunteers with everyone of the items they can use as props for talking points. You want volunteers making eye contact and talking with the public. The point is to have fun and talk about bees. The display table's abundance of attractive looking talking points will help start the conversation. Give a beekeeper a clean hive tool or a freshly painted nuc body, and the conversation will continue for hours! No one wants to touch a piece of ancient, dirty brood comb.

Everything on the table should be considered a marketing tool; brochures with upcoming club events or past activities to boast about, maybe some logowear if you'd like to sell it, and even lots of pictures from club meetings. A few years ago a local club member volunteered his skills, and built an attractive large wooden trifold board that we use for a variety of purposes. The board is a great backdrop to shorter items on the table, plus we can change the display on the board to fit the need of the event.

Your table should not only be educational, but it should be attractive and draw passersby to the displays. A few items strewn haphazardly on the table will do nothing to invite conversation or motivate your volunteers. Your display needs to have lots of color, items with a variety of height, and clean beekeeping equipment for the general public to touch.

While many clubs have observation hives, those traveling bees can be a source of constant concern during hot outdoor events and trying to make sure that little hands don't push the hive off the table. One way to circumvent this issue is to have an item like a training hive that Brushy Mountain Bee Supply sells, or to purchase the incredibly beautiful laminated photos through Mann Lake. I personally have a set of the Mann Lake laminated



. Get Volunteers And GO!

When standing at a club table at a fair, talking about honey bees and beekeeping, your volunteer will receive the full attention, and awe, from the general public.

photos, and have inserted them into deep frames. They make great educational displays, and they almost always draw people to the table. Consider taping a QR code for your club's website onto the side of the hive body or nuc that is displayed on your table. Just about everyone has a smart phone these days, so they can take a picture of your QR codes and visit your club's website or Facebook page at a later date. There are many free QR code generators available on-line

Putting together the successful table for events can be very stressful, or it can be a piece of cake. Why run around last-minute trying to pull things together, when you can pre-plan and pre-prep, and drop your stress load.

Developing a "GO" box will help to take the stress and worry out of attending local fairs, festivals and conferences. So what exactly is a "GO" box? It's everything your volunteers need to take with them for an event. Consider it a filled suitcase ready to leave for a last minute adventure. No muss, no fuss, everything is already set up. All you need to do is pick it up and "Go".

Our state association has a GO box with 100 of each of our brochures, our table cover, a checklist inventory of everything in the box, the DVDs that we sell, seed packets, a clay flower pot to display the seed packets for sale, signage for everything, pens, scotch tape, string, and envelope that has nametags, and name inserts for all of our board members, and a tally sheet of activity during the conference. The tally sheet keeps track of how many people visited the table, any ongoing issues that seem to be happening, any follow-up phone calls or e-mails

that we need to send, and other notes that will help us at future events.

We also keep a quick sketch of how the table should look, so that we will have a consistent appearance no matter who sets it up. While we don't carry an observation hive, for obvious reasons, we do have a traveling teaching nuc with frames containing pictures of hive activities. Everyone knows exactly what the final product (the table) should look like, and they know that everything they need will be on-hand to help make the event a success.

You might want to consider setting up your club's display table during club meetings, so members are educated on how your club is represented at events. You might even ask for input from club members. Remember, you need to have people buy into the importance of attending community events. An attractive, well thought out table might even attract more volunteers.

Now you need to staff your table. Your board members should focus on individuals who are suited to the task, and personally invite them to participate at the upcoming event. While you may have some people say "no", the majority of the selected members will feel as though you really care whether or not they participate and represent the club. Almost everybody has a "Pick Me" person inside of them just waiting for the opportunity to have someone make them feel important. To take a riff from the Nike slogan, "Just Ask". Asking others for help may be a little out of your comfort zone, but it's a needed skill that you can easily acquire through practice. The more people you ask the more "yes" answers you will receive and it will become easier to walk past the "no" responses, understanding that it's nothing personal, it's just not convenient at that time for that person to help out. People want to feel appreciated and just taking the time to ask will increase your percentage of "volunteering" club members.

Now that you have your group of enthusiastic volunteers, and your GO box ready at a moment's notice, keep in mind that the follow-up is equally important. Have someone take pictures during the event for posting on the club's website, Facebook page and newsletter.

Insert a short article about the event, and a list of each volunteer's name (spelled correctly), along with recognition at the next meeting. A round of applause for your volunteers will help ensure that the next time you need to ask for help, the "yes" will outweigh the "no".

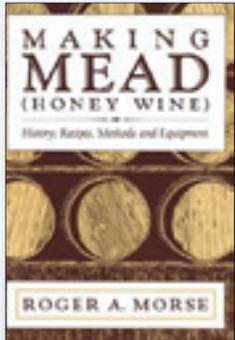
Looking forward to seeing your association table, staffed by enthusiastic volunteers, at all the upcoming Summer and Fall activities. **BC**

Terry Lieberman-Smith is the Vice President of The Ohio State Beekeepers Association.



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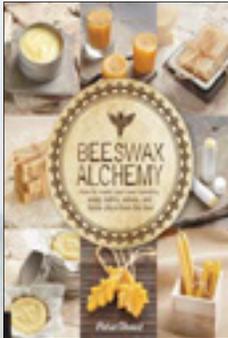
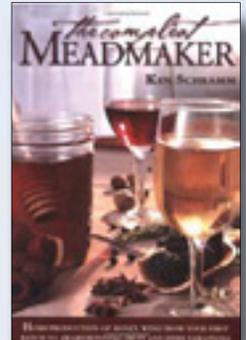


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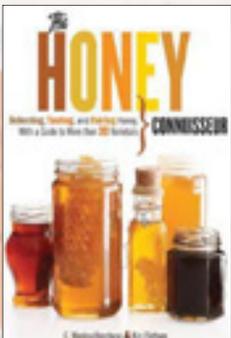


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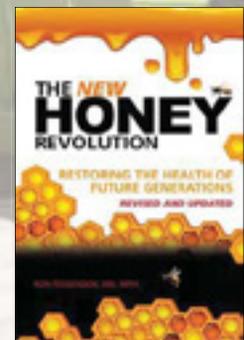
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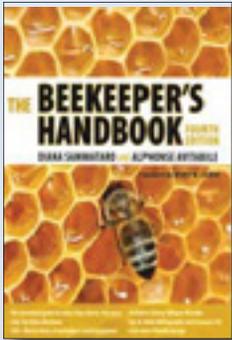
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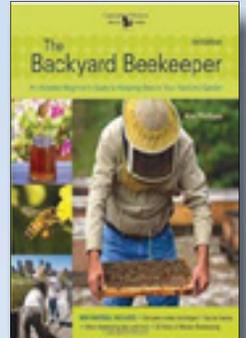


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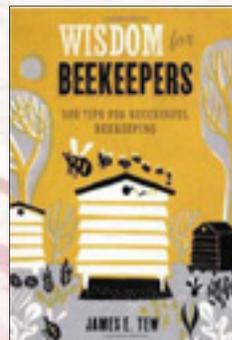
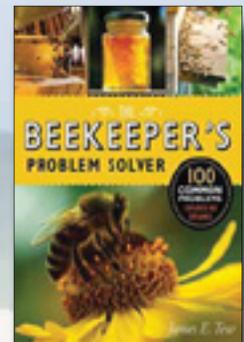


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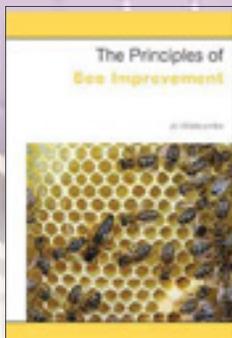
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A beekeeper in Pennsylvania writes:

Could you explain this to me? In late March we were having above normal temperatures, and beneath my screen bottom board I found two larvae in the debris tray. A few days later I saw a bee fly out from a hive with a larvae that was wiggling until the bee stung it, then it quit. It was about $\frac{3}{4}$ " long.

Can hive beetle, or wax moths rear larvae during the Winter?

Phil replies:

The ability of either pest to reproduce during the Winter depends on what part of the country you live in. I would not expect to see larvae from either wax moths or small hive beetles (SHB) in Pennsylvania hives in mid-Winter, or in any other area which experiences cold Winters. However, by March you are probably seeing early signs of Spring, and it's possible for one or the other to be starting a new reproductive cycle, especially the SHB.

Small hive beetles survive in the hive throughout the Winter, inside cells within the honey bee cluster, by taking advantage of the cluster's warmth. Adults are difficult for honey bees to remove, thus their continual presence even in strong, healthy hives. Their ability to rear larvae, on the other hand, depends on the availability of food – especially pollen. Some beekeepers like to place pollen patties in their hives early in the year to give their colonies a head start on rearing brood to take advantage of Spring nectar flows. They might, as an unintended consequence, also be fostering SHB brood. I advise beekeepers to use the patties if they wish, but to be observant and remove them if they begin noticing SHB larvae appearing in the hive. In your case, the warm weather you experienced in March undoubtedly resulted in some flowering and early, natural pollen collection by the bees. That could have stimulated the production of the larvae you saw if, in fact, they were SHB. I don't think, though, that conditions in mid-March are likely lead to the kind of rapid growth of small hive beetles which could become a serious problem. The location in which you found them – under the screen bottom board – is common. This is a favorite place for larvae to hide out, since honey bees cannot get at them to remove them.

Wax moth larvae are often found in the same location, and for the same reason. However, it's unlikely that the ones you saw were that kind. Unlike small hive beetles, wax moths do not live inside honey beehives year round. They are more of a warm weather invader, sneaking in

at night to laying their eggs. I would think that March in Pennsylvania is a bit early for wax moths to be active, and that what you observed were SHB larvae. There are distinct differences between the two. The $\frac{3}{4}$ " length you describe corresponds better to wax moth larvae, whereas those of SHB are closer to $\frac{1}{2}$ ", but it isn't easy to tell them apart unless you can compare them side by side. I am not sure which type of larvae you saw, but it doesn't really matter. Both are capable of stealth reproduction: laying eggs a few at a time in out of the way places, like under screen bottom boards, where they often escape a beekeeper's notice. Both can become serious pests in weak hives, destroying comb and overwhelming a small population of bees. Strong colonies, as you have seen yourself, can handle the problem on their own – not eliminating the infestation, but managing it.

A beekeeper in Michigan writes:

Is there an advantage to starting swarms on drawn comb versus foundation? I have caught a couple of swarms this year, and did have some extra drawn comb, but I have used it all. If I catch any additional swarms they will have to go on new foundation. Will these swarms be at a disadvantage because I do not have any drawn comb to give them?

Phil replies:

It is true that drawn comb would make empty cells immediately available for nectar and pollen storage and for the queen to deposit her eggs in. That might speed up the captured swarm's development by a few days. On the other hand, swarms, especially large ones, are self-selected for their wax making capabilities. In nature, unmanaged swarms must rapidly build enough comb for



their immediate reproductive and food storage needs, then continue production until they have storage space for sufficient honey and pollen to get them through their first winter. To that end, swarms contain a high percentage of young bees less than 10 days old – which is the optimum age for producing wax. They are also helped by the fact that swarming occurs during periods of strong nectar flow. Honey bees are stimulated to build comb when they lack empty cells for raising brood and for storing nectar and pollen brought in by foragers. However, making new wax is a very energy intensive process. (See my May '16 column on how much nectar it takes to produce a pound of beeswax.) A new swarm in a nectar flow has both the incentive of necessity and the resource of abundant food to make it a comb building machine.

In fact there are some advantages to letting a swarm colony draw out all fresh comb in its new hive. One is the convenience of the beekeeper. Throughout swarm season (April through June in the Midwest), I keep several unoccupied, one story hives in my apiary ready to house any swarms I might catch or to serve as bait hives for swarms from my own colonies. For this purpose, frames with foundation alone work best. If I stocked the hives with frames of drawn comb, I would have to monitor them frequently or risk losing it all to invading wax moths and small hive beetles. A more important consideration is the fact that old comb can harbor pathogens and chemicals which may be detrimental to the health of the colony. That is why we rotate old comb out of a hive every few years and replace it with new foundation. In short, the answer is no, you are not putting newly captured swarms at a disadvantage by installing them in hives with new foundation. Sometimes a fresh start is a good idea.

A beekeeper in North Carolina writes:

Yesterday following three days of bad weather one of my hives swarmed. It was real windy and they settled high in a cherry tree. This occurred around 1:00 and they were still there when it got dark. It remained very windy over night and when I got up I noticed the branch had broken but they were still hanging on. I kept watching for them to leave and saw lots of scouts flying around. All of a sudden I noticed the original hive was covered with bees. At first I thought maybe a secondary swarm but it looked more like bearding. The swarm appeared to be getting smaller and then was mostly gone. Eventually all the bees went inside as it was still fairly early. Have you ever heard of a swarm returning after being gone around 18 hours? I can think of no other explanation. Thanks as always for your help.

Phil replies:

The most likely cause of a swarm's going back into the hive is the failure of the queen to join it. Though the bees will probably replace her after a new colony is established, they must have a queen to begin with. Most non-beekeepers, and many new ones, assume that the queen leads the swarm on its journey to a new home, but that is not the case. Though she fulfills a singular and vital role in the life of the colony as the only female fully capable of reproduction (since she is the only one capable of mating) and as the emitter of unique pheromones (since she possesses glands that no other bee does), she is no ruler. On the contrary, she is subject to the demands of her subjects in all things honey bee. The term "queen"

mistakenly evokes associations with human monarchs, but she does not wield absolute power and, with reference to swarms, is not even "leader of the pack". Her role is more like that of the stereotypical politicians of some TV comedies. They are called "Governor" or "Mr. Mayor" and are the public face of power, but behind the scenes, aides formulate policy and filter information, handlers hustle them from appearance to appearance, and speechwriters put words in their mouths via teleprompters. In the swarm, the aides are scout bees: older foragers that locate a new colony site and lead the exodus. The handlers are the queen's attendants, and she herself is voiceless.

However, I suspect you know all this; your question is about why the swarm waited eighteen hours before going back. The long delay is unusual. My first experience of a swarm returning to its hive was many years ago at a local beekeeping field day. The ideal setting for a successful field day is a sunny Spring or early Summer afternoon at the home of a beekeeper, with a beeyard full of strong, healthy hives for hands-on experience. These are also ideal conditions for swarming, and to have a swarm issue from a hive during a field day is not particularly uncommon. It occurred on that gorgeous day in May just as we were sitting down for a potluck meal – a highlight of get-togethers in the South where good country cooks abound. Since most of the beekeepers agreed with me about the importance of the mid-day meal and we all assumed that the swarm would sit tight for a while, we decided to postpone collecting it until after we had eaten. Sometime after the main course, but before we finished desert, it disappeared back into the hive. A quick return in the absence of a queen is not surprising. It doesn't take a swarm, or a colony for that matter, very long to become aware that queen pheromones are dissipating and not being resupplied. That is why I suspect that, in your case, the return to the hive was due to the weather conditions you describe.

Though they typically leave the hive soon after queen cells are capped, swarms are known to postpone their departure during periods of rain or storms. Experienced beekeepers are particularly vigilant for them after a few days of inclement weather. With the swarm urge upon them and preparations made, your bees probably took advantage of the first opportunity, after three days of bad weather, to make their exit. They seem to have been a little too hasty. Aircraft are sometimes grounded when high winds make flying dangerous, so imagine the effect of a stiff breeze on tiny honey bees. It doesn't take much to blow them off course, and you described wind strong enough to break tree branches. I suspect that, after a night like that, the bedraggled swarm reached a consensus that it was better to retreat to the safety of the mother hive.

One last comment. That decision, whether partly or entirely due to the weather, was a temporary one. They will leave again if they have not already done so. Once a colony is in swarm mode, it will eventually swarm. A queen who doesn't cooperate on the first attempt, will be pushed and prodded into leaving on the second. If for some reason she cannot take flight – if she has a damaged wing or has had her wings clipped – the bees will just wait for a virgin queen to emerge and take her instead. As to the weather, in our part of the we say that if you don't like it, just wait a couple of hours. So watch the trees. **BC**



DOWNTOWN

The Quest For The Model Urban Bee Law

There's an old saying: free advice is seldom cheap, and this column may qualify for that criticism.

I'm not a lawyer, but I frequently get calls about legal issues and beekeeping. I'm also not long on legal principles: it's not that legal principles are unimportant, just that I am not your source. After 10 years of working to improve the legal status of beekeeping in my home city, and participating in struggles in nearby jurisdictions, I do have observations and advice, however.

When urgent calls seeking help with urban or suburban beekeeping laws come in, they usually take the form of a request for a "model" ordinance or statute: an example of what a bee law looks like in places that have them. The folks who ask often end up as disappointed as newbees who question a seasoned beekeeper what something they see in their hives. Why? Because the answer is almost always "it depends." There are all sorts of laws, all sorts of differences, all sorts of outcomes.

There isn't a one size fits all model, though there are places beekeepers have gotten a better deal than others. One reason we receive these calls and emails is that beekeeping was more widely legalized here in DC only a couple of years ago, and we got a pretty decent law and a set of livable institutional relationships. Other cities have achieved legalization, but their beekeepers consider themselves on shakier ground. Some lucky urban apiculturalists operate in places where beekeeping always seemed to be legal, and where they feel little threat.

Free Advice Is Seldom Cheap

So, to give you good advice, just like a colony management decision, you need to be able to share a whole bunch of history, what the most common problem is today, and what you are shooting for in future.

From our experience, struggles to ensure the legality of city beekeeping can be divided into three categories: *creating legal protections* where there are none; *overturning outright bans*; and *blocking efforts to ban beekeeping*. This work also takes place at different levels on different occasions: state, county or city; neighborhood or home owners association; or even within any of a dizzying array of regulatory bodies (zoning, departments of health, animal control, police, etc.) The reason to consider all this complexity is this: if beekeeping has been made illegal, or someone wants it to be, you need to know what problem triggered these events, who had it, and at what level it took place. Target your approach on the problem that arose and the outcome you want, and get there by resolving conflicts, rather than creating them, if at all possible.

If you are trying to make beekeeping legal in a place where it hasn't been, you need to know what kind of law banned it (Zoning? Public safety?) and how best to persuade exactly the right people to change their mind – without triggering an organized opposition. If there are no laws on the books, but your community is growing and needs rules and protections, try to identify the regulatory agency whose goals align most closely with yours (Environmental Protection or Public Safety? Animal Control or Department of Health?) and consult with them. If at all possible, meet with someone in a position of real

responsibility and power and become allies. If you ask just anyone who answers the phone or whoever takes the current shift at reception, they probably won't know who to talk to if you don't, and it is easier to tell you "no" and get you to leave than to work on finding you a better answer.

If opposition and suppression of beekeeping is brewing, who are your community and political allies?



What used to be a rural beeyard may suddenly be an urban beeyard with zoning restrictions or removal, but insure the safety of the new bees.

What is getting people upset? Who would benefit from a beekeeper endorsement?

And some more advice upfront: if your beekeeping community thrives on the idea that it is saintly or special, egocentric or edgy (or worthy of celebrity status), you are undercutting its welfare. I can't think why a

community would want to welcome dozens of eccentric individualists packing tens of thousands of stinging insects, each. Folks who look like ordinary, responsible neighbors, though – people who you expect to see around – seem both to belong and enrich the life of a neighborhood. Your legalization efforts are more likely to succeed as a natural outgrowth of community life than as a crusade from outside it.

More general pointers: identify all the tools available to you, not just the fiery, flashy ones. Bees are the great connectors in nature, they link plants to people, and they can connect us to our communities. Ongoing outreach that makes bees familiar and desirable, continuing beekeeper education and promotion of best practices, open channels of communication and reliable networks with community institutions and leaders, services like swarm catching and insect identification, and *then* public appeals and press coverage all



*an urban beeyard. Proactive regulations will prevent
by residents.*

help protect your right to keep bees. It's better to ask for a meeting and offer to help solve a problem than to embarrass the person from whom you want help.

Overturning a ban

The legal story in DC was about overturning a ban, with a goal of creating new protections. Our old

law was nonsensical and unenforced, with no city department wanting to be stuck holding the bag. An unloved law with no advocates is one ripe for change, and no one had created a reason to fear beekeeping through a public stinging incident or injury.

What we wanted was something similar to the law in several surrounding jurisdictions: please note, this kind of harmonization of statutes is often a powerful argument for economic as well as legal reasons, and politicians often take notice. In Northern Virginia, the beekeepers in a nearby county toiled to get beekeeping legalized, and succeeded with requirements that were entirely reasonable and similar to those in other jurisdictions that border us. We could point to them and say, "Hey! Look at that!" We were also in the lucky position of having an embarrassing law while being surrounded on all sides with good examples: people were motivated to change with a clear signpost in the right direction!

DC is a divided city, however (no surprise there!) Bees are pretty firmly associated with "green" issues such as environmental protection and urban agriculture. In this town, those issues are also code for middle- or upper-class, and gentrification rather than community building. People from other demographic backgrounds have been less represented in beekeeping, composting, community gardening, and so on in part for historical reasons, too. In this region, many working class people are only a handful of generations removed from subsistence farming, even sharecropping, and the move to a city and to office or retail work was a gigantic step upward in political, economic and physical well being. Those "crazy" new arrivals who raise the cost of housing and then want to turn lots into farms, and then think it's a great idea to get kids to dig around in the dirt again are imagining a very different idea of progress than that of folks who were happy to lose their calluses.

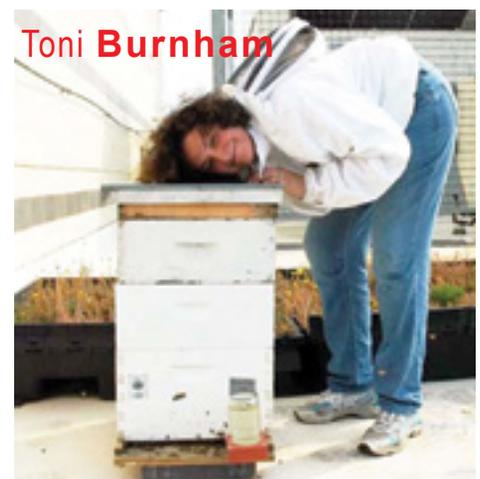
There was therefore a potential opposition, a different vision of what urban spaces should be like, that we could create if we indulged in attitude and an attempt to impose our own opinions. There was also an opportunity to undermine potential conflict by working under the radar,

making relationships and providing support to the community in a way that made us familiar and valuable. In fact, we probably played around with forming these relationships (with the public schools, parks and university, with the police, with the city arborists, with churches and community gardens and so on) longer than we had to. By the time someone had the gumption to ask the City Council to change our law to something very supportive, it passed with a unanimous yawn. We also have good relationships and ongoing collaborative conversations with city regulators, and they continue to listen to us.

Preventing a ban

In our suburbs, similar conflicting visions of how densely populated spaces should be used has also had an impact on legal beekeeping. I have received calls from Virginia and Alabama, Pennsylvania and Maryland, often as a product of changing populations and development. Across North America, fields that once grew crops are sprouting developments, and the community covenants that accompany the latter may be a bigger threat to beekeeping than any urban zoning rule. In many (if not most) jurisdictions, honey bees are classified as livestock, and new residential neighborhoods specifically ban the latter, or place hugely restrictive lot size and setback requirements in place. These effectively place beekeeping out of reach for the majority in these communities.

Two counties in Maryland have faced this in recent years, with differing processes but similar results. A more rural, northern





county was faced with a nuisance situation created by a beekeeper who was, essentially, a jerk who would have harmed nobody else if he lived on a farm, but his home was in a subdivision. His neighbors went to local government, livestock laws in hand, the beekeeping community showed up with assistance in remedying the nuisance. Because leaders out that way could speak with reasonable beekeepers, were not publicly shamed in the press, and did not wish to take on a whole new police and regulatory activity, the issue was settled, at least for a while.

In another case, a county much further down the road in converting farms to tract mansions took a different stand, enforcing huge setback requirements. In this case, two neighbors, once a beekeeper, had very different notions of what belonged in their community, what constituted a threat, and even the effect that keeping bees could have on nearby home values! (Perhaps one suggestion this column could make is this: Never get on the wrong side of a realtor.) The local beekeeping community had to stage a long, hard, public, and complicated fight to re-write the rules: at great

expense in time and money, and with no guarantee of success. While beekeeping was protected, ongoing enmities were created: a victory with a cost.

And the rumbles continue. A county to our East, where beekeeping has always been legal by right, is considering a zoning rewrite where bees could be banned. To our northwest, this nearly happened when a consultant for a long-overdue zoning revision slapped in boilerplate language that banned bees. Many long time beekeepers were angry and outraged, but members of the local beekeeping club (from many different political persuasions!) banded together, made appointments to speak with the officials engaged in the revision, politely shared information, regularly attended meetings as the process rolled out, and ended up protected. Had the club gone directly to direct opposition and public outcry (tools that we all should have and use if necessary) they would have missed the chance to inform the process. There is also some hope that the consultant involved has learned a thing or two!

Creating protections

Finally, it may seem like real madness to engage the lawmaking process when no one is bothering you, but I want to share with you the situations that can seem to suddenly overtake your beekeeping community, and to give you advance warning. The call we received from Alabama recently involved a community in the process of getting denser and richer, with a bona-fide golf course on the way. With new people and new houses came new proposals for limiting agricultural activities, including beekeeping. It is much harder for amateur beekeepers

to confront a multi-million dollar development plan than it is to craft agreements with people they know in a community that is familiar for a future in which they can keep bees. I frequently look at changes in land use in the areas around DC, and beekeepers that consider themselves safe today will certainly face challenges in the future. This is not only true here: the population of Medina County, where *Bee Culture* is published, has grown 25% in 20 years. Editor Kim Flottum tells a story about a Medina beekeeper with hives that were once out in the country. He didn't move, but cars and houses moved closer, including the lot for an auto dealership. Fecal trails from the bees, which used to fall on fields, kept ruining new car finishes. The beekeeper closed down his operation: it cost too much to deal with the damage. and he had no legal protection.

In the end, laws are agreements that communities forge among their members, and beekeepers are valuable members of these precious communities. We can influence these laws without being lawyers or politicians, but by being participants in the community and guardians of beekeeping's role in the latter. To me, this activity is more like gardening than warfare, more like networking than outrage. If there is a problem facing legal beekeeping in your city, learn about the nature and location of that problem and find a way to help resolve it. Don't wait for a crisis to protect something you love, and be listening for legal changes that could affect your bees. Don't create a crisis instead of a solution. Be part of the community and conversation around legal problems, and be ready to ask for the outcome you and your bees deserve. **BC**

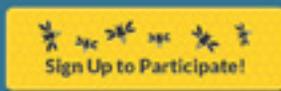
Beekeepers who responded to the **10th annual loss survey lost a total of 44.1% of their colonies** over the course of the year. This is the second consecutive survey year that summer loss rates rivaled winter loss rates.

More than 5,700 beekeepers from 48 states responded to this year's survey.

All told, these beekeepers are responsible for about **15 percent** of the nation's estimated **2.66 million** managed honey bee colonies. *For more information about the survey please go to:*

<https://beeinformed.org/results/colony-loss-2015-2016-preliminary-results/>

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Never again! The club's two-frame, hand-cranked extractor was just fine a few years ago for Robert's two hives but this year with five hives in a bumper-crop year extracting the honey crop was an all-night project. His helper friends slowly left through the evening. Well, you can't blame them. Could the extraction have been spread over several evenings? Not in small hive beetle territory! He could lose some of that harvest. It is very sad to see results of the bees' hard work all slimy and fermenting. Besides, someone else in the club had reserved the extractor for Sunday afternoon.

It is now time to consider a new extractor, one that will be useful for the next several years since he plans to expand up to about 15 hives. That will take three or four years but now is the time to see what is available for a 15-hive operation and have it in place and ready for the next extraction time next year. Not every year will be a bumper-crop year but that sort of year is when you really need a good motor-driven extractor that will accommodate the quantity of honey produced.

All the honey supers are 10-frame medium depth. This year, good weather and profuse blooms meant that each of the five hives had three mediums completely filled. That meant 30 frames of a wonderful wildflower mixture. So at 30 frames per hive times five hives – no wonder it took 'forever.' That's 150 frames! Last year was a poor honey crop year – too much rain at blossom time so those five hives only filled about 50 frames.

Jump forward three or four years to the goal of 15 hives. Poor year could be about 150 frames. (That is still an all-nighter with an extractor that takes only a few frames.) Bumper year – 450 frames! It is time to select an extractor. It will be motor-driven! And those big ones are radial so no need to reverse frames as in a tangential.

First let's take a look on the Internet to see if there is anything about big extractors. Well, just putting in 'honey extractors' there's not really much of interest. Chit-chat about hand-driven ones, small ones, lots of comments from really small-scale beekeepers. Maxant and Dadant seem to be mentioned quite a bit. But there are other equipment

It's Time For A New Extractor And Maybe, A New Honey House

Ann Harman

suppliers, such as Mann Lake, Brushy Mountain, Kelley Beekeeping, Betterbee and Blue Sky. True, there are many local beekeeping suppliers but their large extractors, if they actually sell them, come from some of the few manufacturers.

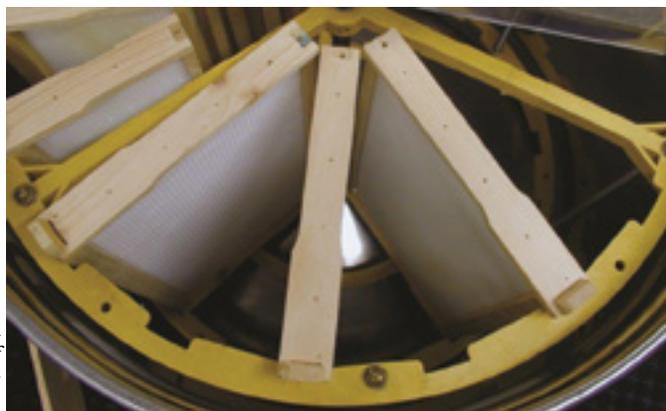
One of the costs of a big extractor is going to be shipping – call it 'freight' because a big heavy extractor, packed for travel, is going to come in a big truck. The distance from the supplier determines the cost. Kelley just has one outlet, in Clarkson, KY. Betterbee is in New York and Blue Sky is in Ohio. Cowen is in California, and Maxant is in Massachusetts. Brushy Mountain has the main shop in North Carolina, but branches in Pennsylvania and Oregon. Mann Lake has four locations, Minnesota, California, Pennsylvania and Texas, and two additional pickup locations in California. However, a peek into that catalog shows 'Free Shipping Even on Extractors.' That could be helpful in comparing costs. Dadant has eleven locations across the country. It may be best to determine freight after an extractor has been selected.

It is going to be easier to work from a collection of catalogs rather than online. The catalogs can be spread out on a table. The Internet, or even the telephone, can be reserved for

asking questions. Since the extractor purchase can be done any time before next honey season, it might be a good idea to attend some big meetings where bee equipment company representatives will be present. It's time to see when some state meetings will be held, and where. The three regional associations, EAS, HAS and WAS hold their meeting during the Summer. In addition, in January 2017 the two national meetings will be a joint one. Sometimes big extractors are on display. Meetings of all sizes are attended by both beekeepers and suppliers with all sizes of operations. So meetings are a great place to ask questions. Well, some information will be useful. Some will be contradictory. Go ahead and ask anyway.

Now the catalogs are spread out on the table. A pad of paper and a pencil are handy to jot down some questions.

One question comes immediately to mind. Where are these extractors made? One has to keep in mind the quotation by Russell Baker: 'The goal of all inanimate objects is to resist man and ultimately defeat him.' Extractors have motors and moving parts in addition to various types of electronic controls. What if something fails during an extraction? Will replacement parts be available



Some radials can handle two sizes of frames at the same time.



Maybe I could motorize it myself.

quickly or will they have to be ordered from another country, leading to a long wait? Maxant, Dadant and Kelley extractors are made at their respective companies. So now there is a question to write down for Mann Lake and Brushy Mountain – are replacement parts readily available? The same question needs to be asked to Betterbee whose extractors are made in Poland and to Blue Sky whose extractors are Italian.

Oh look! Brushy Mountain catalog has a chart showing how much time it takes for various sizes of extractors. The time is for actually extracting, not loading or unloading the frames. However, it is a useful guide to selecting the right size extractor. A good approximation for a 15-hive operation would be a time between about three to almost five hours, depending on how many frames the extractor holds. That is certainly better than all night!

Maybe it's time to take a look at 'how many frames?' Maxant's website shows only one large extractor for 20 frames. Cowen's are really

big. Dadant has a 20-frame but the next sizes jump to 60 and 84 frames. The last two would be too big for a 15-hive operation. Kelley has a 20-frame, a 33-frame and a 72-frame. The 33-frame could be considered but the 72-frame is too large. Brushy Mountain has an 18-frame, a 21-frame and a 27-frame. The 18-frame has a German motor; the 21- and 27-frame extractors have 'an Italian motor and a programmable controller.' It might be a good idea to ask some beekeepers about the motors and electronic controls and ask Brushy Mountain about availability of parts. Mann Lake has an 18-frame and a 48-frame. The Mann Lake Commercial Horizontal extractor looks interesting. However it only comes in 40- or 80-frame sizes. Betterbee has two 20-frame extractors, one of those labeled 'premium.' Blue Sky has an extractor that holds 28 medium frames.

After looking into the sizes offered it would seem that an 18- or 20-frame would be the best size.

According to the time chart the

actual extraction with those sizes would be between four to almost five hours. That is acceptable. Now to look at some other aspects of extractors in this size range.

The placement of motors on extractors certainly varies. Some are direct drive, either on top or on the bottom. Some have motors mounted on the side. Some have electronic controls; some are manually adjusted for speed. Whew! Perhaps it will be useful to ask some beekeepers about the placement and controls. Their answers will be interesting, and varied, perhaps useful and confusing, too.

Most of the gates are on the side, but a few are at the side of the bottom. Some have nylon gates and some can take metal valves or gates. Most of the extractors in the 18- and 20-frame range have legs except Dadant's, which has a three-leg stand with the legs straight. The legs do stick outward on all the rest. It could be possible to trip over them. There's something else to ask beekeepers about. Mann Lake shows that the legs are pre-drilled for mounting. Perhaps some of the other extractor legs are also drilled. Jot that question down.

The stainless steel bodies range from 20-gauge to 26-gauge. All the extractors with legs have the legs running up the full height of the tank so that the legs give stability to the tank. Perhaps the actual gauge is not that important. Well, put that down as a question for beekeepers.

The amount of money in purchase plus freight probably will be roughly \$1500 to somewhat over \$2000. Such a purchase needs to be carefully considered. It could be very useful to actually see the extractors in a beekeeping operation. Now is



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the time to start searching for some beekeepers to visit, even if it means a weekend trip out-of-town. Also it is time to contact some state meetings to see what vendors will be attending. The two national associations now have information online about their joint meeting so that can be put into planning. There is no point into rushing to buy something that will be used for years, even if only once or twice a year. There is a possibility of letting local beekeepers use it for their yearly extraction, provided no conflict exists with times of use.

When the extractor has been selected it might be useful to consider a settling tank. Tripping over numerous five-gallon buckets full of honey is just going to slow the processing down. Wait a minute. This is putting the cart before the horse. All those frames need to be uncapped. Then they go in the extractor. Then the honey goes into a settling tank. Now this extractor project looks like

It is bigger than it appeared at first. Back to the catalogs.

Perhaps it is time to sit down and design this 15-hive honey house, start to finish. A visit to some beekeepers with this size operation would be useful. That visit could help to

Three frames at a time is just too slow anymore.



determine the good and the bad. The useful and the annoyance. The ease of harvesting and the wish to pack it all up and take up photography instead of beekeeping. No, it's time to have a really great honey house. There is a book out there on the subject to look at for ideas.

Maybe those helper friends will come back after all. **BC**

Ann Harman knows all about beekeeping, honey and extractors. She lives in Flint Hill, Virginia.

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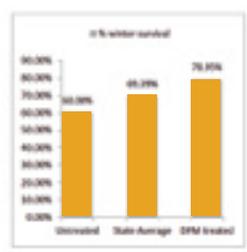
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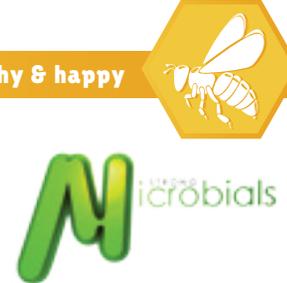
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CALENDAR

◆INTERNATIONAL◆

The 6th Cuban Congress will be held in Havana July 17-22.

Learn about their technology, productive handling, pollination, bee selection and breeding.

For more information visit www.cubabeekeeping.com/home.html. Transeair Travel has arranged a congress Travel Package. For trip information call them at 202.362.6100 or blubic@transeair-tavel.com.

◆ALABAMA◆

The Alabama Beekeepers Association will hold their Annual meeting September 30 and October 1 at the Clanton Conference and Performing Arts Center in Clanton.

Speakers include Jerry Hayes, Jim Tew and Shane Gebauer.

Details can be found at www.alabamabeekeepers.com.

◆CONNECTICUT◆

Back Yard Beekeepers Association 2016 Speaker Schedule – September 27: Brenna Traver, Penn State, Honey Bee Pathogens; October 27: Anne Frey, TBD; November 17: Jennifer Tsuruda, Clemson TBD.

Each month we have timely weekend hands on inspection workshops, bee school, mentor program and more. For dates and locations and more information please visit www.backyard-beekeepers.com.

◆INDIANA◆

Instrumental Insemination August 5-6 at the Purdue Honey Bee Lab. Registration is \$600 which includes taking an inseminated queen home with you. Classes are kept small, six students in order to receive detailed instruction.

Instructor is Krispn Given.

To register send email to kgiven@purdue.edu.

◆KENTUCKY◆

Heartland Apicultural Society will hold their annual conference July 14-16 at the Western Kentucky University in Bowling Green.

There will be presentations for all levels of beekeepers.

For more information and to register visit www.heartlandbees.org.

◆MONTANA◆

Master Beekeeping Certificate endorsed by MT State Beekeepers Association; The American Honey Producers Association and Project Apis m.

For more information visit www.UMT.EDU/BEE.

◆NEW MEXICO◆

Intro to Queen Honey Bee Breeding & Rearing will be held July 16-17 at Zia Queenbees Farm and Field Institute in Truchas.

Instructors are Melanie Kirby and Mark Spitzig. The cost is \$250 which includes a manual, grafting tool, queen marking pen, cell cups, cages and racks and live cocoons.

For more information visit www.ziaqueenbees.com/zia or 505.929.8080.

◆NEW YORK◆

4th Annual Greater New York Bee Conference hosted by the Long Island Bee Club, October 9 at Farmingdale State College.

Speakers include Richard Fell, Peter Borst and Kristen and Michael Traynor.

For more information contact Joan Mahoney, saw_whet@hotmail.com.

NY Bee Wellness Workshop will be held August 5-7 at Dyce Lab, Ithaca..

Randy Oliver will be the speaker..

For information contact **Pat Bono**, info@ny-beewellness.org, 585.820.6619.

◆NORTH CAROLINA◆

NC Beekeepers Association will hold their Summer meeting July 7-9 at the Hickor Metro Convention Center, 1960 13th Avenue, Hickory.

For information visit www.ncbeekeepers.org or contact sandy@pmbees.com.

◆OHIO◆

Cleveland Pollinator Symposium October 22 at Squire Vallevue Farm, Hunting Valley, 8;30 a.m. - 4:30 p.m.

◆SOUTH DAKOTA◆

The SD Beekeepers Association will hold their annual meeting July 8-9 at the Lodge in Deadwood.

Rooms are available by calling 605.584.4800. Indicate that you are with the SD Beekeepers Association.

For more information contact Bob Reiners 605.773.3796 or John Stolle 605.490.1447.

◆VIRGINIA◆

The 5th Annual Mid-Atlantic Organic Honey Bee Convention will be held July 16 at American Legion Post 242, Sandston.

The cost is \$50/person, \$90/family.

For information visit www.maohbc.com.

Winter Preparation – September 3, 9:00 a.m. to 5:00 p.m. at Honeybee Sanctuary. The cost is \$65. The workshop will look at what needs to be done to get ready for Winter.

For more information visit www.spikenard-farm.org or 540.745.2153 or info@spikenard-farm.org.

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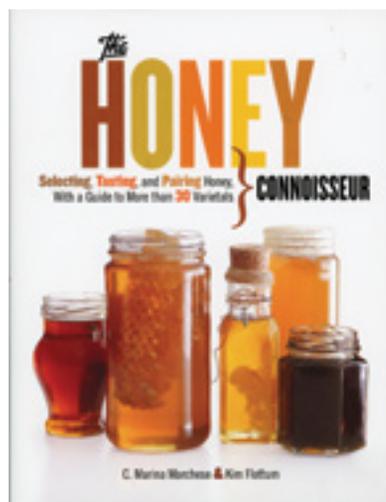
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Id never seen bees just pour out of a hive unless they were swarming. But on a warm late April afternoon, half the bees in a recently re-queened split emptied out onto the grass in front of the hive. I ran into the house for my camera and took some pictures. As I watched transfixed I saw the fat queen. I wanted a photo, but by now I'd misplaced my camera in the beeyard. By the time I found it, she was gone.

I kept watching. Within half an hour, the bees were heading back to the hive. Many of them had taken flight, only to land on the tops of nearby hives. I kept looking for the queen. I had a new plan. When I spotted her again, I snatched her and dropped her into a queen cage. I put the cage in the hive, thinking, "At least they won't swarm without her."

That evening I called Paul, who knows everything, but in a lifetime of commercial beekeeping he'd never seen such a thing. "Maybe there was another queen in there," he opined.

I didn't think so. The next day I slipped the caged queen into another hive that needed one. I blame her for the bee walkabout. Maybe the little troublemaker will settle down in her new home.

I pick up my queens at the UPS depot, where they know me. When I stopped by for my last shipment Mary reminded me that her kids took piano lessons from my former wife Linda. She recalled that long ago, when she bought pollen from me and gave some to her husband for allergy relief, his lip puffed up. She assured me she'd followed my explicit instructions, allowing him to only eat a grain or two the first time.

I've sent a couple of people to the hospital with allergic reactions after eating my pollen. How do health food stores sell this stuff without even a warning label?

You might think I don't have much to do, lollygagging in the bee yard like I do, watching bees wander around on the grass.

I'm really pretty busy. I don't have a wage job anymore, but the bees keep me hopping. I used my California almond pollination money to buy another yard from Paul. The California bees came back begging to be split, and suddenly I have way more bees than I ever dreamed I might.

I had phenomenal Winter survival, for once, and now I have way more hives than I ever have before. It's not 400 or 10,000, but I don't have a fork lift or help or even a dependable big truck. I can't worry about every single colony. I make mistakes as I charge ahead, but I try to learn from my blunders and then never look back.

It all started in March when some of my bees headed out to pollinate Colorado orchards just as others rolled in from California. There were mite tests and treatments. I made splits and nucs. I either had too many queens or too few. I made trips to Grand Junction to pick up the orchard pollinators when they'd finished their job. Then the weather turned and colonies teetered on starvation. I fed honey and corn syrup in snow storms.

Next the clouds parted, and when I wasn't looking, the little darlings went on a tear. Before I could put on honey supers I found swarm cells in brood supers packed tight with yellow-green dandelion honey. Everything happened so fast! I made more splits, but I ran out of queens. I made splits anyway. I ran out of equipment, but I made do. It wasn't always pretty.

Pat's a better beekeeper than I am. He used to work 40 hours at the grocery store and run 900 hives in his spare time. I asked him how he did it.

"I take every shortcut there is," he replied.

I'm not saying that's good advice, but it's memorable advice that I constantly take to heart. I want to find time to raise some



queens. When I put a rotten cover on a hive, or a warped bottom board, when I place a super on a split but can't find the time to rotate out some of the old comb, when a frame breaks and I stuff it back in the hive anyway, when I know I need to re-test for mites but have to run to another yard before it rains, I recite to myself Pat's mantra.

I've got eight yards. I might give up one currently vacant apiary that can be productive but generally isn't. My gal Marilyn said, "Don't do it. That's such a beautiful valley. Going there's like going on a mini-vacation."

She's right, of course. We all need to stop and smell the roses. I should put a few colonies up there, at least, just so I have an excuse to go there. But I probably won't. It's really not worth the trouble, and I need to take every shortcut there is.

Ed Colby

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