

Seed Bombs Work • Winter In A Top Bar • Bee Kid's Corner

Oct 2013

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The Magazine Of American Beekeeping

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Features . Culture . The Rest

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Saving Nature

Yesterday as I was coming back from my Devil's Elbow beeyard I thought I would stop and enjoy the nature around me. I went through the Hay swamp and stopped on the bridge over Black Creek.

I was at first calmed by the stillness and quiet, I saw the trees and shrubs formed a canopy over the road; then I began to take a closer look around me. Looking down into the clear water of the swamp stream, I started looking for fish so as to bring my grandson fishing. I could not even find a minnow. I started to look up at the surface of the water and it was like a unmarked mirror, no smudges, not even a water skimmer or water spider on the surface. My senses started to think that this is awfully quiet like when a big cat is on the hunt everything is quiet waiting for that moment of kill and relief for the survivors who can go back to what they were doing. I stood on the bridge and waited, but nothing, just nothingness. I did not see a bird in the air, no sign of ducks or geese, there was not even a song-bird around. The only other living creature was one lone deer crossing the road a half mile down. My heart jumped, there is life, but then it quietly disappeared into the bush again and all was quiet and still once more.

My soul felt sad as I started to realize that there were thousands of acres of corn and soy beans and several hundred acres of potatoes up stream that had been treated with neonics over the last several years. All the run off from Spring rains and Winter snow melts these past weeks and years have had their toll on the life in this stream. I have canoed down this very stream in younger years and saw birds in the air, geese with young on the water, beaver on the bank and a fox hunting, a pristine part of God's handy work.

But what has happened? Has mankind in his greed for wealth and dominance managed to destroy the very things that keep us alive and the beauty that use to surround us. It is like a horror movie, every living creature is dead and the earth is silent.

Bill Ferguson, Ferguson Apiaries
Hensall, Ontario

CCD or CDR

Due to the amount of recent questions recently asked about all the colony loss, I make these comments: CCD or Colony Collapse Disorder by definition of the acronym describes two things. One is "CC" or the fact that a honey bee colony simply dies or collapses. The basic understanding of this happening is that at some point during the collapse process, both brood and hive food are left unattended by the bees. This action is highly radical for *Apis mellifera* or any other social insect. None the less, thousands of honey bee colonies have been found in this condition which is sort of like describing how humans, some of them, responded to the Black Death Plague. History tells us that millions of people died from the plague, and that great numbers simply ran from it. This is what the bees are apparently doing – they are running away from *something*.

The other part of CCD is the "D" part of the acronym. D denotes the word *disorder* which doesn't explain much about the cause of the colony collapse. Obviously, any time honey bees leave their house and home, babies and food, an unnatural situation has occurred and as the bee is a highly social and orderly insect, there is obvious serious disorder. A disorder as found in my reasonably good thesaurus is described as both *chaos* and *confusion*. I conclude that our CCD situation in its collective assumption is far too much an elegant way to describe what's happening or what is not happening to our bees. The bees and we too require a more emphatic description, something with a punch. To satisfy this need, I have begun to refer to CCD as **CDR** or **Colony Death Result**, for this is exactly what happens. While a disorder may partly describe the colony's social makeup and ultimate demise due to various circumstances, Colony Death Result is precisely what the bees and we as beekeepers are faced with.

As to what causes CDR, that remains a wide open question. Honey bee colony deaths occur due to many causes, partly because of colony exposure to: thousands of chemical compounds specifically formulated to promote the profitability of agriculture, chemistry in abundance used to remove insects



from our personal work and home environment, substances introduced to promote and/or enhance every state of human existence, and beekeeping methodology through which commercial beekeepers confound all the issues by continuing to mass produce honey bees both for the hobby and agricultural industries.

In as much as history may reveal various measures used over the centuries to increase some sort of honey bee product, whether that product be honey, pollination services, wax for candles, or for apothecary, never before has there been mention to such massive insect death as we now experience. Colony Deaths continue to occur I would venture to say, as a **Result** of a mixture of circumstances which have been brought about through the desire for increased human productivity, profit and comfortable living. Any unraveling of this tightly woven noose of circumstances will involve much finger pointing as well as individual and corporate denial. Ultimately, I fear **Colony Death Result** will continue until it is not only the bees who feel the noose around their necks, but will continue until we feel it around ours.

C. Michael Stanley

Invasive Weeds

I enjoyed reading your August 2013 issue of *Bee Culture*, always a good source for information on bees. However, I take issue with Larry Connor's comments about invasive plant species in his article "Happy New Year – Time to Get Ready for Winter." Mr. Connor knows his bees, but he appears to be clueless about ecological conservation. By advocating for the

spread of invasive species, such as purple loosestrife and sweet clover, he doesn't seem to understand the negative consequences or impact it will have on honey bees and other pollinators. He recalled an opportunity he recently had to speak to some "pro-environmental sustainability advocates" who had recently taken up beekeeping, and felt it was his "duty" to educate them about not pulling sweet clover as it is a valuable nectar source for their bees. He smugly says this was not an easy discussion, but one that we must have.

Okay, I would love to continue this discussion. Bee "experts" for years have suggested planting purple loosestrife and sweet clover for your bees, but they are so wrong! Why would anyone advocate for a monoculture (which is what happens when invasives are not controlled)? Invasive plant species eventually become a monoculture by crowding out the native plants. Sure bees can get nectar from these invasive plants, but it is a one and done for the bees as these invasive plants crowd out the diversity of the native plants that bloom at various times throughout the Spring, Summer, and Fall. What bees need is a diversity of plants that will provide them with nectar and pollen throughout the entire season. The environmental group that he was speaking to must have been very polite or too shocked to express their total disbelief and probably had a good laugh after he left. By controlling the invasive species in their area, this environmental group is not eliminating a nectar source, but adding a diverse nectar supply from native plants with a diverse bloom time, meaning pollen and nectar is available for a much longer time period (six months for our apiary located in southern WI).

For our apiary, my wife and I have planted native plants that bloom in all three seasons. Golden Alexanders in the early Spring to goldenrods and asters in the late Fall. In between, the bees have pale purple coneflower, yellow coneflower, bellflower, ox-eye sunflower, bee balm, black-eye susan, potentilla, prairie dock, cup-plant, compass plant, hoary vervain, lead plant, and the list goes on and on. Our honey flow lasts a month longer

because of the diverse bloom time of the native plants. Appropriately, I call my honey Pure Prairie Honey – the best honey you have ever tasted. This last Spring it was too wet for the farmer to mow his alfalfa crop adjacent to our apiary before it bloomed. Knowing that this crop is a desired plant for bees, I paid close attention to my bees and found that given a choice between native plants and the monoculture of alfalfa flowers, they stayed with the native flowers. My advice for beekeepers is to plant as many native species as they can for their apiaries and then fight off the invasive plants so they don't outcompete the native plants. If the bees get a craving for some sweet clover they can always fly to the nearest roadside ditch to get some "junk food."

While I'd love to see invasive plants outlawed and eliminated, I am a realist and understand they are, unfortunately, here to stay. But that doesn't mean we shouldn't try to manage them as best we can. And certainly Mr. Connor should not be advocating their spread.

Jim Hess
Blanchardville, WI

Bumblebee Massacre

I just read the horrifying article about the bumblebee massacre – 59,000 dead? That's bad! I would like to point out that the nectar of linden is not toxic to bees. Linden honey is the most important honey crop in German cities. Professional beekeepers bring some thousand beehives to Berlin to harvest that kind of honey. The honey bees are definitely not harmed by the linden. For a long time there were concerns about a detrimental effect of a certain type of linden (*Tilia tomentosa*) to bumblebees since lots of dead bumblebees were found under these trees at Summer time. Nevertheless, the theory about toxic substances in the linden nectar could not be confirmed. In fact, scientists found another problem – the bumblebees don't find many other nectar sources when *Tilia tomentosa* is flowering. The consequence is a high competition at the linden blossoms and many bumblebees are dying because they are depleted of energy.

Sebastian Spiewok
Berlin, Germany



Cheers For Bee Culture

Being the Senior Mentor in our association, I encourage all of our new beekeepers in the Sacramento Area Beekeepers Association to subscribe to *Bee Culture*. Beekeeping is an ongoing learning curve and real beekeepers "buy into" that concept. *Bee Culture* continues to promote the life long learning philosophy. I've been keeping bees (they keep me) for over 37 years and each month I seem to read and learn something new.

Thanks to the writers.

George Bleekman
Granite Bay, CA

The Future Of Honey

I enjoyed your thought provoking July issue.

James Tew was bemoaning the loss of weeds and wild flowers upon which the bees used to forage. One doesn't have to be a prophet to foresee that a time could come when honey is produced on special farms, with pasturage designed and planted to support honey bees. I hope the researchers are looking into how big these farms would need to be, and the best way to plant the pastures. For instance, must the flowers covering the beekeeping year be mixed, all over the pasture, or can each flower be in a separate plot?

Then Ross Conrad was proposing a return to subsistence farming. My grandmother lived during those halcyon times, and her family ate mostly potatoes, cabbage and onions, enlivened by a few carrots and wormy apples. They had a scrap of meat only on holidays. Plus she spent all her time gardening, preserving and preparing meals. I much prefer our present way of life.

Jeanne Hansen
Madison, WI

Comb Honey From Swarms

An article entitled "How I do it - Honey Bee Swarms, Part 2" by James Tew, published in the June 2013 issue of *Bee Culture*, sparked the interest of Southeastern Michigan Beekeepers' Association (SEMBA) member Randy Graichen of Ypsilanti, MI. In the last paragraph of that article, Tew described a method for producing comb honey using a large captured swarm and placing it in a deep super with mostly capped honey and two drawn comb frames for the queen to lay eggs. Above the deep super he suggested placing a super with comb honey boxes. Tew admitted that he had never tried this procedure but suggested that someone reading the article might try it if they caught a large swarm.

On June 23 Randy actually captured a swarm of nearly five pounds and hived it in two 6-5/8" medium supers. On that same afternoon, he read the article by Tew and decided to try Tew's suggestion with certain modifications. He filled the hived swarm with capped honey frames and six drawn comb frames for the queen to lay eggs. He then placed a queen excluder above the bottom two supers and a 5-5/8" super with comb foundation. This hive was then moved to an apiary location that was showing a strong honey flow.

On July 28 examination of the comb honey supers revealed that it was approximately 95% filled, capped and ready for harvest. Thanks for the idea. It works.

Roger & Mary Sutherland
Michigan

Petitions For Signing??

I'm glad to see the EU are stepping up and saying "no" to these bad pesticides. My personal feeling is that our government, EPA doesn't want to ban these poisons because it is big money for them. As I was reading from the August magazine, "Dear President Obama" I was hoping it was a petition for people to get on line and sign. Does *Bee Culture* know of good, legit petitions out there that need more signatures?

Brett Cree
Lafayette, IN

Why Enter A Honey Show?

How many clubs and associations in the U.S. have an annual Honey Show? Here in the Southeast, our local and state Honey Show seem to have had decreasing entries in the last few years. At both shows, every entry gets a comment card to help educate the beekeeper with positive aspects of their honey, wax, or other art/craft items. There may also be notes on things to improve to do better next time. This is a fantastic learning opportunity to get a "free review" of your favorite honey, candles, wax block, mead, and/or creative talents. We have Certified Welsh Honey Judges at both of our venues. Through the all-important comment card, they are prepared to teach as well as judge. Entering the Honey Show should not be about the money- it's the culmination of your beekeeping year, but both pay money for class winners. Best in Show obviously gets the biggest monetary prize, but the comment card is priceless.

Why go to the Honey Show if you have no entries? These venues often have picnics and possibly fund raisers to help the organization fund its annual speakers. More importantly, members have a relaxed opportunity to chat and learn from other beekeepers. This is often the only time of the year that scheduled programming is not keeping people in their seats. They can mingle, share a drink if desired, and talk about their strange

brood pattern or that huge swarm that decided to land 100 feet up in the tallest tree on their property- in September? In short, this is the time to get to know your beekeeping friends.

No Agenda. No Pressure. Just Casual Conversation with Friends- Old & New.

All of this can be happening while the Honey Judges are methodically reviewing and reordering the entries for prizes. Never underestimate the Honey Judge!

So, to every person who tells you that they have the best tasting honey or mead? Tell them to **prove it!** Enter the local and state Honey Contest. It will be a day of friends, family, food, camaraderie, and just maybe a ribbon or two. You will be supporting your organization, and it will definitely be an education.

Cindy Hodges
Metro-Atlanta Beekeepers Assn.



Marcy Cornell, Evelyn Williams, and Jerry Edwards judging at the Metro Atlanta Beekeepers Association.



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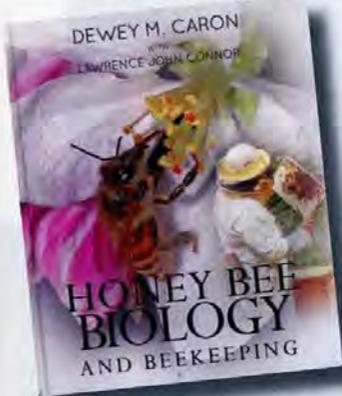
P.O. Box 214

Mount Vernon, GA 30445

New For This Fall –

Honey Bee Biology and Beekeeping. By Dewey M. Caron with Lawrence J. Connor 8.5" x 10.5", 368 pgs, color throughout. Hardcover. ISBN 978-1-878075-29-1. Published by Wicwas Press, Kalamazoo MI. Available at Wicwas Press and other booksellers. \$54.

This is an extensively revised edition of Dewey's 1998 book of the same title. But it is definitely not the same book. New and updated material has been added, along with many, many new photos, all of these in color. It does have its requisite beginner's chapters on installing a package, inspections, lighting a smoker and other basic beekeeping activities. But it does cover intermediate and some advanced beekeeping class material, along with Master Beekeeper level material too. Some of the information has been rearranged from the original, but it's all still there, and the glossary and index are both useful and easy to use. Each of the 20 chapters has a study guide at the end, with questions and suggested exercises for both teachers and students. A good book for serious classes, brushing up for exams, or teachers of all levels of skill.



Coloss BEEBOOK. Standard Methodologies for *Apis mellifera* Research Vol 1 and 2. Edited by Vincent Dietemann, James D. Ellis, Peter Neuman. With more than 300 contributors. Published by IBRA. Online or hard copy edition \$155 at www.IBRASore.org.uk.

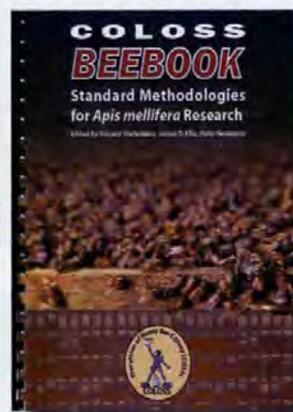
If you want to know more and more about anything honey bee... this is the place to find out how to measure anything at all. World scientists discovered some time ago that they couldn't compare apples to apples when it came to how to measure almost anything in the field, the lab or inbetween when it came to finding out why honey bees were dying. And so they got together and formed an international group to deal with this issues that were showing up. The Coloss in the title is an abbreviation of Colony Losses. To do this they needed to be able to talk to each other. So they began standardizing tests and techniques so scientists in Germany and the US and England did things the same way so they could compare and contrast, and more importantly actually use each other's data to support their respective work. What a good idea.

What to standardize? A partial, abbreviated list for Vol 1 includes: instrumental insemination, anatomy, behavior, cell cultures, subspecies and ecotypes, chemical ecology, colony strength, GIS systems, maintaining adults in cages in labs, rearing larvae, molecular research, biochemistry, pollination, queens, statistics, toxicology. And in Vol 2: pests and pathogens, epidemiology, colony loss estimates, small hive beetle work, tracheal mites, *Tropilaelaps* mites, *Varroa*, wax moth,

AFB, EFB, fungal diseases, Nosema and viruses.

Each of these is a chapter, 32 in all, that was originally published as a research paper, each with many authors, in IBRA's Journal Of Apicultural Research, so they are not only up to date, but have been reviewed by the world's experts.

But a paper book is not dynamic and it is out of date the day it comes off the press. Thus each of these chapters is on the web site above in wiki format. As new information becomes available it can be added, wrong data removed, and any misinformation can be corrected. It is a living document so that when you, or any honey bee scientist wants to know the latest techniques, you only need to check this web page, knowing that if followed, their work will be satisfactory. What a good idea.



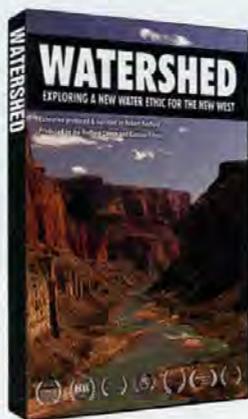
Watershed. Exploring A New Water Ethic For The New West. A one hour documentary on the Colorado River. Produced and narrated by Robert Redford. Available from Collective Eye Films, Family version. \$14.99. www.Collectiveeye.org.

While exploring resources on water use and conservation recently, and having read and reviewed several books on the topic (See Book Reviews, Aug 2013), I stumbled

Apistan, a Renewed Product. Few conventional chemistries are immune to the potential for resistance development. Resistance develops by selecting out the individuals that are susceptible to the agent leaving the more tolerant individuals to reproduce. Eventually, the entire population becomes tolerant to the control agent. Resistance development can be contained or possibly eliminated by proper management of mite control tools. An integrated approach is an option to stave off the resistance quagmire. In an integrated program other tools are used in conjunction with traditional mite control materials. The most important tool when managing resistance is to rotate mite control agents that have different modes of action Apistan® being one of those agents. Successful IPM *Varroa* control involves all tools necessary, including avoidance, traps and chemical controls. It is important to monitor hives periodically for mite infestations as part of good management practices. Apistan® will ensure proper control and will reduce the risk of tolerance development within mite populations when used in an IPM program.

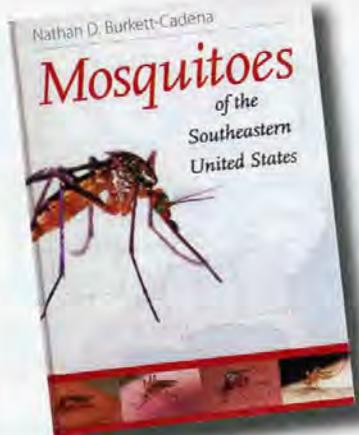
across a reference to this film. I took a look at the Collective Eye web site, and saw that they had two levels of purchasing – one for public screening, where you charge a fee, and one for private viewing. The second, of course, is affordable so I contacted them for a review copy.

The film follows several people impacted by the water use of the Colorado River. A rancher who uses water for crops and a living, a fly fisherman, a Delta Restoration worker, a Navajo Council member, the Mayor of Rifle Colorado, a citizen of Los Angeles who uses the water, and a group of Outward Bound teens rafting on the river. All have input, and take from the river. And in the end, the river seldom ever actually reaches its delta in Mexico. And we have all the water. This film promotes water conservation, using the information as both a fund raiser for the 5% needed to get water back to the delta, and on a larger issue of saving the Colorado River itself. If you've ever been thirsty . . .



The Beetle Baffle. Available from Country Rubes. www.countryrubes.com, 20693 Dog Bar Rd, Grass Valley, CA 95949. 530-913-2724. rubes@countryrubes.com, and other bee supply companies.

A clever idea, simple to use and effective in reducing small hive beetle damage. Simply put, it's 4 pieces of aluminum, each shaped like a "V". Three are attached to the top edges of the sides and back of a bottom board, with the overhang facing down, while the fourth is attached to the bottom of the front of the bottom super, facing downward. Beetles entering the hive are able to crowd together in the protection of the overhang from these 'baffles', and there



Mosquitoes of the Southeastern United States. By Nathan Burkett-Cadena. Published by The Univ. Of AL Press. 9" x 12", 188 pgs, color throughout. Hard cover. Available from Univ. Of AL Press, <http://www.uapress.ua.edu/catalog/>. \$54.95.

Most people here thought I had left my hive tool home when I told them I was interested in this book, and, after I got it and told them it was worth every penny, they knew for sure I'd gone over the edge. Plus, it's for the SE U.S., not OH, they said. And, have you ever tried to ID a mosquito when it's the size of a bloody dime because you just smashed it to smithereens?

Mosquitoes, if you aren't familiar with them, are in the insect order diptera, the flies. But think about this a moment. Beekeepers are outside. A lot. We get bit by things we don't want to get bit by, too. Consider the ticks that carry all those horrible diseases that you have to look for later. And I know a bunch of beekeepers, especially in the SE

and E that have had to deal with tick borne diseases, or several of them. And how many times have you been working bees on a hot, sweaty day and it was the mosquitoes that were eating you alive, not the bees? See. When it's hot and you don't want a beesuit on you have bare arms – and you can go home bloodier than heck from the bites of those tiny critters. And mosquitoes, too, carry and pass along diseases. And they don't just live in the SE. And what about mosquito sprays? What are they spraying for?

Only 57 species of the many found in the U.S. are examined in this book, but that's OK. I quickly perused the species listed here that head as far west as the Rockies and as far north as WI. Here's a list of the diseases I found carried by those in OH – Yellow Fever, dengue, chikungunya, eastern equine encephalitis, La Crosse encephalitis, west Nile virus, heartworm nematode (dogs), malaria (though not in the U.S.), and St. Louis encephalitis.

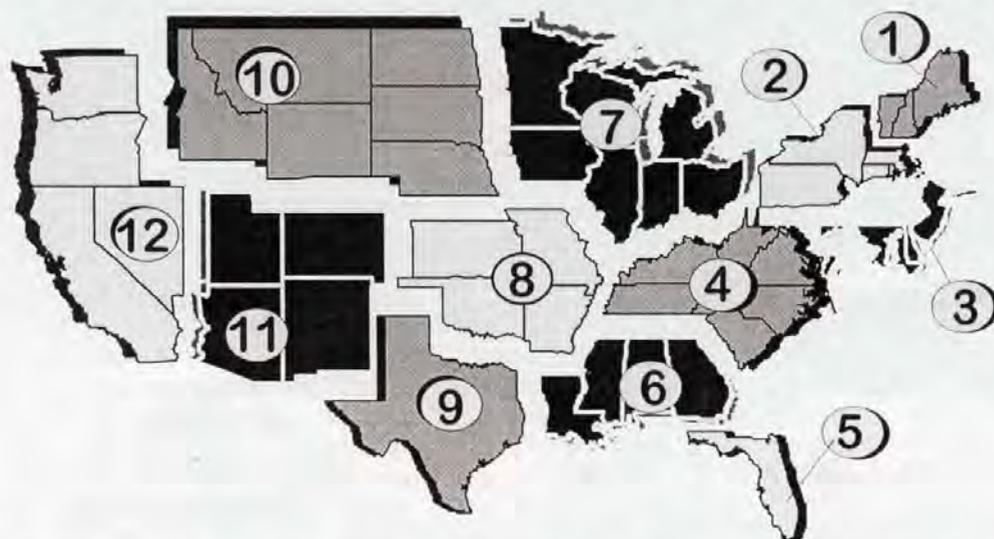
So knowing what's biting you out there, and when (day biters carry as many diseases as evening and night biters), can be a life saver. And where are they? Some never leave the woods. Some never leave town. Some are always very, very near the water their larvae grow up in. And some go everywhere. The key is easy to use, even for someone not experienced in using insect keys, and the photos are stunning. So now, wear a shirt, try some repellent. And you won't leave your hive tool at home anymore.

they stay, unable to move upward past the baffle. They can move laterally, but not vertically. No poisons, no disposable traps to deal with. Easy and simple to install. You can put them on bottom boards, or put all four pieces on the bottom super. There's an installation video on the web page, along with a set of photos showing how to make it work. For \$16 You get four interlocking strips. Three of them sit or can be stapled or nailed on top of your bottom board. The 4th goes on the hive body along the front opening.

Also available are Beetle Baffles mounted on Weatherproofed Spacers, ready to go.



OCTOBER - REGIONAL HONEY PRICE REPORT



What's driving the honey market this fall? Well, right off, price. Across the board 59% or our reporters have raised their prices this year an average of \$0.38/pound (meaning 41% aren't raising them). In fact, 10% are lowering them). But that's a national average increase (about 15%). Regionally it goes like this at cents/lb increase: 1 - 40, 2 - 50, 3 - 66, 4 - 58, 5 - 30, 6 - 15, 7 - 33, 8 - 25, 9 - 50, 10 - 15, 11 - 20, and 12 - 53. Where do you fit in? Why? The crop this year isn't looking so good right now. 39% of our reporters had either no crop, or so bad as to not hardly count. 31% call it

average, while 30 are OK to great. Not a lot of promise for abundance there, and demand hasn't slowed a bit this year. Not much honey, lots of demand... But all beekeeping is local and the crop varies a lot by region. We ranked each region with 1 = no crop at all, 3 = average and 5 = buster crop. So the lower the number, the worse the crop. Just an fyi, only 2 reporters, in different regions said they had a 5, while 7 reported a 1. So, by region: 1 - 2.4, 2 - 2.9, 3 - 3.2, 4 - 2.6, 5 - 2.5, 6 - 3.0, 7 - 2.6, 8 - 3.5, 9 - 3.5, 10 - 4.0, 11 - 2.6, and 12 - 3.5.

So where will they get it? Be-

cause of price or reduced crop about half will buy from another beekeeper or packer to keep what customers they have or to make additional sales. 80% will stick to selling retail even though the wholesale price is attractive.

So where will they sell all this honey? 98% or our reporters sell at least some honey from home, averaging about 52% of their crop sold there. 20% sell about 28% of their crop to friends at work, while 43% of our reporters sell almost 60% of their honey already bottled but to stores and other outlets. 30% sell about a third of their honey whole-

sale bulk to packers, and 12% sell about a quarter of their honey solid retail, other than home and work. Where is that? Farm markets are really, really expanding as sales outlets. There are more farm markets to sell at, and selling there is lucrative. Buyers at most of these are not looking for a bargain, rather looking for fresh, local and know the seller. So, a third or just a bit more of our reporters are taking advantage of this and selling almost two thirds of their honey at solid retail prices at farm markets. That's a place to check out if you haven't already.

| REPORTING REGIONS | | | | | | | | | | | | SUMMARY | | History | | |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------------|---------|------------|-----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Range | Avg. | Last Month | Last Year |
| EXTRACTED HONEY PRICES SOLD BULK TO PACKERS OR PROCESSORS | | | | | | | | | | | | | | | | |
| 55 Gal. Drum, Light | 1.94 | 2.25 | 2.00 | 1.85 | 2.15 | 2.08 | 1.82 | 1.94 | 1.80 | 2.25 | 2.10 | 2.25 | 1.25-2.45 | 2.02 | 2.12 | 1.87 |
| 55 Gal. Drum, Ambr | 1.85 | 2.00 | 1.85 | 1.82 | 1.75 | 1.90 | 1.80 | 1.85 | 1.60 | 1.85 | 1.84 | 2.18 | 1.15-2.50 | 1.88 | 1.96 | 1.80 |
| 60# Light (retail) | 155.00 | 190.00 | 151.67 | 162.20 | 180.00 | 180.00 | 162.33 | 170.00 | 125.00 | 171.00 | 150.00 | 195.00 | 90.00-240.00 | 168.70 | 177.50 | 159.50 |
| 60# Amber (retail) | 178.33 | 185.00 | 162.50 | 169.17 | 180.00 | 175.00 | 153.60 | 165.00 | 132.50 | 163.25 | 159.00 | 198.75 | 90.00-225.00 | 169.00 | 176.77 | 152.76 |
| WHOLESALE PRICES SOLD TO STORES OR DISTRIBUTORS IN CASE LOTS | | | | | | | | | | | | | | | | |
| 1/2# 24/case | 78.02 | 77.23 | 62.80 | 64.70 | 71.37 | 60.00 | 52.05 | 71.37 | 71.37 | 51.84 | 71.37 | 99.00 | 43.20-102.00 | 70.13 | 74.73 | 62.16 |
| 1# 24/case | 118.54 | 102.16 | 96.00 | 90.50 | 96.00 | 110.80 | 89.59 | 108.00 | 84.00 | 106.32 | 95.40 | 126.50 | 52.80-158.40 | 104.38 | 104.32 | 100.13 |
| 2# 12/case | 112.89 | 87.23 | 102.60 | 84.73 | 90.00 | 90.28 | 84.83 | 105.00 | 78.00 | 97.44 | 84.00 | 107.75 | 63.60-144.00 | 95.25 | 94.19 | 86.46 |
| 12 oz. Plas. 24/cs | 102.41 | 77.96 | 71.40 | 76.77 | 74.40 | 90.00 | 70.99 | 103.20 | 72.00 | 74.40 | 82.80 | 89.20 | 62.40-124.80 | 82.20 | 83.88 | 78.07 |
| 5# 6/case | 136.40 | 95.32 | 100.50 | 92.00 | 114.00 | 117.88 | 97.14 | 112.50 | 84.00 | 102.36 | 102.00 | 118.50 | 83.10-175.00 | 106.71 | 103.54 | 97.00 |
| Quarts 12/case | 149.00 | 128.88 | 130.02 | 116.92 | 120.00 | 113.67 | 137.70 | 120.00 | 130.02 | 125.64 | 107.40 | 145.00 | 90.00-176.40 | 126.84 | 127.32 | 114.62 |
| Pints 12/case | 84.00 | 70.95 | 96.00 | 81.00 | 78.00 | 65.60 | 117.60 | 81.46 | 55.00 | 81.46 | 81.46 | 84.50 | 50.00-117.60 | 79.12 | 94.98 | 72.58 |
| RETAIL SHELF PRICES | | | | | | | | | | | | | | | | |
| 1/2# | 4.54 | 4.45 | 3.31 | 3.81 | 4.26 | 3.50 | 3.19 | 4.26 | 4.26 | 3.89 | 3.45 | 6.00 | 2.50-6.75 | 3.89 | 3.72 | 3.66 |
| 12 oz. Plastic | 5.63 | 4.69 | 3.85 | 4.47 | 5.00 | 4.75 | 4.17 | 5.38 | 5.00 | 4.34 | 5.07 | 5.65 | 3.29-8.00 | 4.73 | 4.73 | 4.42 |
| 1# Glass/Plastic | 6.96 | 5.95 | 6.12 | 5.61 | 6.50 | 6.56 | 5.71 | 7.00 | 6.50 | 6.02 | 5.30 | 8.83 | 3.00-10.00 | 6.19 | 6.04 | 5.87 |
| 2# Glass/Plastic | 13.33 | 10.08 | 11.60 | 9.25 | 11.00 | 10.27 | 8.83 | 11.50 | 9.00 | 10.23 | 8.62 | 13.66 | 6.00-17.00 | 10.47 | 10.03 | 9.37 |
| Pint | 8.25 | 7.73 | 9.46 | 7.45 | 7.25 | 8.51 | 13.50 | 8.50 | 6.00 | 9.00 | 6.27 | 10.66 | 4.00-15.10 | 8.29 | 8.05 | 8.05 |
| Quart | 15.33 | 11.76 | 14.20 | 12.79 | 12.00 | 11.80 | 13.42 | 16.63 | 9.00 | 15.93 | 10.42 | 18.33 | 8.00-22.00 | 13.40 | 13.69 | 12.86 |
| 5# Glass/Plastic | 26.10 | 20.08 | 25.23 | 20.83 | 21.44 | 21.44 | 19.53 | 25.00 | 18.00 | 23.89 | 18.17 | 25.00 | 9.00-33.50 | 21.63 | 21.39 | 20.39 |
| 1# Cream | 9.17 | 6.40 | 8.88 | 7.25 | 7.45 | 7.45 | 5.97 | 7.45 | 7.45 | 6.45 | 7.44 | 9.00 | 4.95-10.00 | 7.42 | 7.07 | 7.32 |
| 1# Cut Comb | 10.25 | 5.00 | 8.88 | 9.19 | 8.46 | 6.00 | 7.02 | 8.46 | 8.46 | 10.00 | 10.00 | 12.00 | 5.00-12.00 | 8.43 | 8.54 | 8.20 |
| Ross Round | 7.83 | 6.48 | 8.25 | 6.25 | 8.76 | 8.00 | 12.73 | 9.75 | 8.76 | 8.76 | 8.76 | 7.20 | 3.50-15.00 | 8.28 | 8.17 | 7.89 |
| Wholesale Wax (Lt) | 6.60 | 6.95 | 5.92 | 4.55 | 3.50 | 3.90 | 4.80 | 10.00 | 7.00 | 6.00 | 3.53 | 4.63 | 2.50-10.00 | 5.26 | 4.85 | 4.42 |
| Wholesale Wax (Dk) | 5.13 | 6.95 | 4.75 | 4.31 | 3.25 | 3.05 | 4.92 | 10.00 | 5.34 | 5.34 | 2.10 | 4.25 | 2.00-10.00 | 4.67 | 4.38 | 4.00 |
| Pollination Fee/Col. | 98.00 | 50.00 | 83.33 | 62.40 | 80.00 | 50.00 | 51.60 | 85.00 | 88.27 | 80.00 | 88.27 | 110.00 | 35.00-170.00 | 74.04 | 83.07 | 73.73 |



INNER COVER

Long ago, very long ago, I used to spend Summers at my parent's cottage on a small lake in west central Wisconsin. There were three of us boys about the same age living close and between Summer jobs, swimming, fishing and mowing lawns a favorite sport was to prowl the lake shore seeking adventure. Sometimes we'd spy a mess of bullheads spawning, and then a while later thousands of their young swimming in a black mass the size of an air mattress. Sometimes turtles – the little ones with orange underneath,

the big ones with the leather shells, or the snappers – who always got a wide berth. We'd scare up water snakes once in a while and occasionally muskrats or raccoons would scare us when they'd erupt in a splash if we startled them.

Game fish hunted close to shore too – Large Mouth bass, Northerns and others – and if we worked it right we could come at them from three sides and with a net catch one or two. We always let them go but it was the challenge and the teamwork that was the fun of it.

As Summer progressed the shoreline wildlife evolved and changed and grew so it was a never ending show – like TV's Nature, but smelly, wet and almost dangerous. And there were always, always the frogs. Adult bull frogs were big and brown and slow and tough and the young bulls, past being tad poles but not yet croakers were fast and strong and nearly invisible. Leopards were always small but even faster with spots and hard to see, and they seemed to be the morsel of choice for shore-hunting bass.

Big frog legs were a meal, as good to eat as they were hard to catch. But all of them were targets. Throwing stones at frogs was a game. Who got the most? The biggest. Who made the longest shot? It was a skill set to develop. It was always a competition. These three small boys weren't hunters. They killed not for profit, but only for pleasure.

You know it had to happen. One day my mom saw what we were up to. She came up behind us, quietly and unseen. And she went ballistic big time. Really big time. She grabbed the other two by the back of their shirts and at the same time kicked my butt six feet into the water. Their feet didn't touch the ground as she air lifted them away heading for their homes and their moms, and over her shoulder she screamed "Don't you move! I'll be back".

The lecture, delivered while I was still sitting in knee deep water and in ear shattering decibels was almost as you would expect. But, not quite. When she was done screaming about what a stupid thing we were doing, how cruel it was, and if she ever, ever caught us doing that again she'd start throwing rocks at us to see how we liked it – but then came the game changer, at least for me. When she'd calmed down and was helping me out of the lake she said in an almost normal voice – "some Greek guy said once . . . boys throw stones in jest, but the frogs . . . the frogs young man, they die in earnest. You remember that."

Wow. Well, I did. That simple statement changed my perspective on a lot of things.

For starters, I quit killing frogs. Longer term – always consider the other guy.

So this past weekend my mom's voice, now gone more than 30 years came back loud and clear, still keeping me in line.

I heard her when I opened the gate to feed a bunch of capped drone combs to the chickens. They relish those combs. They see me coming and

they rush the gate, they jump and flap and cluck and cackle and fly and can't wait. I stand the frames upright so they can pick both sides at the same time. It is a chicken's feast. But for the drones it is a death sentence for a crime they did not commit.

You know, drones get short shrift on every front. I wonder if any ever die of old age?

The best they have is they live for a bit, get the urge to fly but on a fateful day are the fastest with the mostest – catch a virgin – and then they die.

Next best is that they never catch that queen. They live the whole of their Summer, fly when they want – hang out with guys, eat by themselves or get fed. And wait. But when a dearth comes or the season ends they are unceremoniously evicted. They can't get back in. They struggle with those who yesterday offered them breakfast. Confusion. Desperation. Rain. Cold. And then they die.

Worse. A serious mid-season dearth. Not enough food for anybody. The order goes out. Kill the drone chills. Kill them all. If it gets worse it's kill the rest of the drones. Kill them all. Force them out, tear them apart. And then they die. They are sacrificed to save the whole. They are expendable. The queen's genes will have to wait to be shared next year. Or when it rains again and there's food. Or maybe never. But for now – we have to choose who shall live and brother, you shall die.

But the worst death must be to be raised expressly to die. Not to be dead, like a T-Bone from a cow that's killed. But your value is the actual dying. I kill thousands of

What Would Mom Think. The Interview Issue.

male chlds every Summer. They were raised on purpose to die on purpose. I place special bassinets in the colony, wait for mother *Varroa* to move in and when trapped inside I, and my chickens, kill them all – the mites, the drones, the future of the queen's genes.

The colony wins of course. When hundreds, thousands of drones are taken two, three maybe five times a Summer the mites go with them. And for every mite that dies future mites die with them. At the end of Summer the mites are gone. But the drones went with them.

Beekeepers, and their chickens kill the drones with ease and by design. But the drones – the drones, they still die in earnest.

I wonder what mom would think of this . . .

We're going to try something different in our December issue. It's the slowest month for nearly everybody – up north we're buried in snow, mid-states are too cold to work bees, but warm enough to be tempted, and down south you know it's winter because it's raining, and even if it isn't there's not much to do. And if you're way south the rest of us are jealous but we hope the gators or the snakes or the spiders or the ants don't get you out in the backyard.

The commercial outfits are, or even already have moved west for almonds, or are gearing up for packages and splits and queens, but not much until after the New Year. So December is a slow time, or we make it one because of the holidays and family and kids home and it's OK to go a little slower for a bit.

So this December, while you're taking it easy and having fun and looking for something different – we've got just what you want – The First Ever Interview Issue!

Well, our first ever anyway – certainly not the only first ever anywhere – I stole the idea completely from one of the business magazines I get. They do it three or four times a year it seems, but they have a much wider choice of people to gather in because they have a wider focus than we do. That's OK. We'll try this and see how it works.

What's going to happen is that our regular writers, Connie Bright,

Ann Harman, Jim Tew, and the rest are going to do an interview article, talking with someone they feel that's both interesting to them, and to you. Already the variety of people they've picked out is beyond amazing.

This will be not unlike sitting down at a lunch table with one seat left, at a big beekeeping meeting where you know only a handful of people. You look around and you are pretty sure that all of you are here because of the bees – but after that you can be as different as tomorrow morning and last night. The guy on your left turns out to be a surgeon, the couple across the table vegetable farmers, on your right is a lady who teaches school and makes candles for extra cash for the kids and her husband that doesn't even like to mow near the bees, and next to her is a guy who is a chemist for a food company, looking for the bliss point of a new soft drink they are making. They're all over the map these people – rich and not rich, highly educated and not so, talented and creative and steady and straight forward – all over the map. But everybody is here because of the bees.

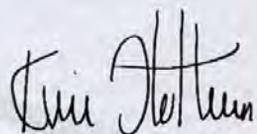
That's what our interview issue will be. All over the map. Stay tuned for the Interview issue, coming in December.

We had a fantastic honey making Spring this year. We even made dandelion honey. Then Locust, then I don't know what and we harvested early and made a crop. And then somebody turned off the faucet. Cool, rain, cool, rain, way too hot for awhile then cool, rain – what the heck happened? We went from June to September without hardly a drop. Some colonies found the

wingstem down by the creek in late August and made a little there and are squeaking by for now (read more about wingstem and honey plants at <http://blog.beeeculture.com/>). But the Goldenrod has been a promise in the making all Summer and it's still a promise in the making. In early September it's beginning to yellow up, but it is so very, very slow because it's so very cool, and rainy, and cool. Did I mention it's been cool?

Now it comes to how much honey for Winter? If you've only been doing this a few years you probably wouldn't believe that harvesting in May could put you in trouble in October, let alone next February, would you. It can, and maybe this year will for our part of Ohio. We took off pounds and pounds in May – way more than any year. And then – nothing. If the Wingstem and Goldenrod turnout I'll be just fine, but I won't get any Goldenrod because they'll need it. But if it's the buster crop it should be – you should see all the Goldenrod this year, unbelievable, I'll get some, they'll get some, and maybe I'll have enough for John Root, who, he will tell you again – and again – likes Goldenrod honey better than anything.

Keep your fingers crossed.



It's Summers Time —

End of Summer, Snakes and Boys

As I write we have just come out of Labor Day weekend 2013 – marking an unofficial end to Summer. Yes, there is still at least another month of warm weather, sometimes even hot days – at least here in Ohio. Last month I talked about the end of Summer for us beekeepers – selling honey at the fair and EAS. But Labor Day marks the end of Summer for everyone. The kids are back in school, football games have started and the nights are cooler. Yes, we're headed toward Winter sooner than we'd like.

We had a great weekend. Kim and I took an extra day and made it a nice long weekend. Actually, he took another day and had a really, nice long weekend. The weather was mostly beautiful, a downpour one day. But otherwise we spent a good bit of time outside – mulching, weeding, trimming and yes, mowing. And pulling up tomato plants that didn't produce much this year. A disappointing Summer with the garden, except of course for those chickens. They got lots of weeds and plants that didn't produce much. The zucchini and other squash did pretty well. We'll have lots of zucchini bread this Winter – a favorite with our kids and others. I'm gradually getting it grated up and put in the freezer.

I'm sure we consumed a half a cow this Labor Day weekend – wonderful juicy burgers and steaks on the grill, enjoyed with the neighbors and the local son and friends. It's fun to watch these young adult males consume good home cooked meals. They work weird hours and usually don't eat anything resembling a normal meal until they come to our house.

I love being out in the yard – about two acres. There is so much to do that if you get bored with one thing, just move to another part of the yard and take up another task. We never get it all done. And there are the neighbors that are also outside, so we stop and visit for a while. And the pony and the goat next door are always talking to me any time I'm within eyesight. They also get their share of the weeds and the flowers. Nanny loves most flowers, especially the trumpet vine – that is her favorite.

This has been a strange Summer here in Northeast Ohio. The weather was extremely hot for a longer stretch of time than usual and at times so much rain that you couldn't seem to get dried out. And snakes! I've seen more snakes this Summer than in all the other years I've lived and visited this house. I don't do snakes, hate snakes, don't want snakes. For about a week they seemed to be everywhere I went. I know, they're not big snakes, they're not dangerous snakes. Doesn't matter. I don't do snakes. And I've had more up close and personal than I care to ever have again. Two in the bales of straw that I was trying to put in the chicken pen, then in the driveway just sitting there right in the way, then in the shrubs where I was trying to weed and trim – and right on the pathway where I was walking to feed the neighbor's cat while they were away. Fortunately my son Matt was walking with me and spotted it before I did and stopped me, or I might have stepped on it and that would have been the end of me, I'm pretty sure.

Matt has been here for a chunk of the Summer, which has been wonderful. He'll be back in CA getting ready to

go back to school by the time you read this. He's happy out there, so even though we miss him, we're glad he's doing well. This might be the last Summer we get this much time with him. By next year he'll be settled in a job, and off on the next part of his adventure.

And the one sure sign that Fall is coming is the smell of the bees processing that wonderful Goldenrod nectar. Starting about mid-August we watch the field of Goldenrod just down the road, waiting for it to start blooming and then hoping for several days or weeks of sunshine so the bees can do their thing. This year looks good. It's in full bloom right now and you can smell it in the evening when you approach the beehives. One hive is very close to the house so you can even smell it inside if the breeze is right and the windows are open. It's an unusual smell – some say it smells like Butterscotch. It's over powering at times and the first time you smell it you might think there is something wrong. We manage two observation hives here in town – one at the local library and one at the Root Candle Store. The first year they were up and running we got phone calls from both places. The ladies sounded a little frantic – “Can you come over, there seems to be something really wrong with the beehive? There's a bad smell coming from it.” Now they know and they're just as happy as we are to smell that smell. It means things are going well.

We also worked the bees over Labor Day weekend. We checked them all to make sure they had enough room for the Goldenrod flow. We had a hive that has been just a little nasty all Summer long, so we got rid of that one – combined it with another and got rid of that queen. A word of caution here. We try and work the bees as much as possible without gloves, but when we got to that nasty hive they came right out stinging, got me on the hand. So I headed back to the garage to get my jacket – I just had a veil on to begin with – and gloves. Well, I couldn't find my bee gloves, so I grabbed a pair of my garden gloves, the kind with the sort of plastic ribbed material. Let me just tell you they did not like those gloves. As soon as I got back in the hive they came after me. So I headed back to the house and let Kim finish. My right hand took about five stings and the left a couple. So either they didn't like the color, the feel or maybe there was some odd smell on those gloves. Stick to your bee gloves if you have to wear them. Do get used to working your bees without gloves though. It took me a while, but really most of the time if you're just in there looking and checking and not banging them around a lot, it's all good.

Enjoy the Fall, Winter is coming and we're hearing it's going to be a doozy!

Happy Summers

Ohio State Beekeepers Association

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A Closer LOOK



COMB CONSTRUCTION AND USE

Clarence Collison

The hexagonal design minimizes the amount of building material while maximizing the storage capacity per unit area.

The wax that is used to build comb is produced by workers in modified epidermal cells located under the fourth to seventh ventral abdominal sternites, secreted from these wax glands, removed by the workers' legs, and manipulated by mandibles to construct regular hexagonal-shaped cells. Comb consists of two cell types, the smaller worker-sized cells and larger drone-sized cells. Under normal conditions worker-sized cells are found in greater proportions than drone cells. In natural honey comb, the smaller cells are approximately 5.2 mm wall to wall and the larger size cells are approximately 6.4 mm (Taber and Owens 1970). Both cell sizes in addition to raising workers and drones, may also be used to store pollen or honey. Colonies also build specialized cells for rearing queens, but these are constructed in much smaller numbers, and typically only when a colony is preparing to swarm or to replace a dead or declining queen. The relative quantity of each cell type appears to be closely regulated feature of honey bee nests (Seeley and Morse 1976; Page et al. 1993). The amount of drone comb in a nest is governed by negative feedback from drone comb already constructed. This feedback depends on the workers having direct contact with the drone comb in their nest, but does not depend on the queen's contact with the comb. The comb itself, rather than the brood within it, is sufficient to provide the negative feedback, although the brood may also contribute to the effect (Pratt 1998b).

The percentage of drone comb by area in feral nests collected in upstate New York has been shown to cluster fairly tightly around 17% (Seeley and Morse 1976). Experiments on hived colonies show that this proportion is actively maintained in response to changes in drone comb quantity: colonies provided with ample drone comb build significantly less new drone comb than colonies supplied exclusively with worker comb (Free 1967; Free and Williams 1975). From a functional standpoint, such regulation should be quite important to colony fitness, since the amount of drone comb in its nest sets an upper limit on the number of drones that a colony can rear, and thus plays a role in setting a colony's sex ratio (Allen 1963, 1965).

Colonies of honey bees initiate new comb construction only when two conditions are met: 1) they are currently collecting nectar and 2) they have filled their available comb beyond a threshold level with brood and food. Pratt

(1998a) explored how the individual workers responsible for building might use readily accessible local cues to acquire this global information on colony and environmental state. He tested the hypothesis that comb is built by nectar receivers (bees specialized to receive nectar from foragers and store it in comb cells) that experience increased distension of their crops (honey stomach). Crop distension could serve as a cue that both conditions for building have been satisfied, because the bees' crops will fill up as they receive nectar from successful foragers and have difficulty finding comb in which to store it. However, two findings led to rejection of this hypothesis. First, very few nectar receivers participated in comb building. Most builders came from another, unidentified subpopulation of workers. Second, potential builders showed no increase in crop size correlated with the onset of new comb construction or with the development of conditions that favor comb building. This was true both for identified nectar receiver bees and for bees belonging to the age cohort at which wax secretion and comb building reach their peak levels. The behavioral repertoire of comb-building bees suggests that these builders come from a pool of underemployed bees that may evaluate colony state by direct inspection of comb cells.

The hexagonal design minimizes the amount of building material while maximizing the storage ca-

Brood cappings contain, in addition to wax, bits of cocoon, and traces of propolis and pollen, hence their different appearance compared with cappings over honey.

capacity per unit area. Constructing circular, pentagonal, or octagonal cells leaves unused space between cells and therefore wastes construction material. Similarly, triangular and square cells have a greater total circumference area than hexagonal cells, which also requires more construction material per unit area (Winston 1987). Irregularly shaped cells are constructed where worker and drone cells adjoin and where combs are attached to their supports. Cells slope slightly downwards toward the mid-rib of the comb.

While cappings over honey cells are generally 100 percent wax, those over brood are only part wax (Cogshall and Morse 1984). Brood cappings contain, in addition to wax, bits of cocoon, and traces of propolis and pollen, hence their different appearance compared with cappings over honey. Capping of brood proceeds slowly with much bee effort, using bits and pieces from nearby cells and from old brood cappings; emerging bees apparently eat very little of the cappings they chew away. Brood cappings on old combs are darker than those on new combs, indicating that new material is used when brood in new combs is capped.

Various levels of wax deprivation in colonies induced shifts in the temporal pattern of division of labor in worker honey bees (Fergusson and Winston 1988). The most extreme wax stress induced an earlier onset of foraging, and an increase in comb building and the production of wax scales. Moderate wax stress induced only an increase in comb building and production of wax scales. No significant differences in development of hypopharyngeal gland acinal diameter were found, suggesting that production of wax and brood food and associated behavior patterns develop and decline independently.

When comb construction begins, the workers hang together in tight chains (festoons) forming a dense cluster in which they maintain a temperature of 35°C, the best temperature for wax secretion and manipulation (Winston 1987). Temperature measurements made during the comb building process showed a significant increase in the wax temperature of several degrees centigrade compared with the surrounding non-construction areas, as long as the builder bees were active in this area. In areas where the building activity was taking place the temperature reached 35-37°C, which

is significantly above the wax temperature in areas without building activity (< 29°C) (Pirk et al. 2004).

The cells in a natural honey bee comb have a circular shape at 'birth' but quickly transform into the familiar rounded hexagonal shape, while the comb is being built. The mechanism for this transformation is the flow of molten visco-elastic wax near the triple junction between the neighboring circular cells. The flow may be unconstrained or constrained by the unmolten wax away from the junction. The heat for melting the wax is provided by the 'hot' worker bees (Karihaloo et al. 2013).

Honey bee combs have two sides with rows of hexagonal cells on each side. To get a precise impression or image of the structure of the cells, comb cells were filled with polyester resin and hardened at room temperature. The use of the polyester resin, which has a nectar-like viscosity, involves no heating which might deform the cell base. The moldings were then carefully removed from the cells and the shape of the bottom was recorded (Pirk et al. 2004). In extending a cell to its final length, honey bee workers warm up the wax and the round walls gradually become elongated and hexagonal. The cell bases are hemispherical from the onset of construction. The comb structure is a result of a thermoplastic wax reaching a liquid equilibrium (Pirk et al. 2004).

The role of the queen in relation to wax secretion and comb building in honey bees was analyzed with respect to queen status (mated, virgin, and dead queens and queenlessness), and pheromones of the head and abdominal tergites of queens. Worker variables considered were colony size, percentage of bees bearing wax scales, wax scale weight, and weight of constructed combs (Whiffler and Hepburn 1991). The amount of wax recovered from festoon bees and the percentage of festoon bees bearing wax were independent of queen status, the pheromones of queens and access to the queen. Colonies with full access to freely moving mated queens always constructed significantly more comb than those headed by virgin or dead queens as well as all permutations of caged and division board queens whose mandibular glands and/or abdominal tergite glands were operative or not. Despite pheromonal similarity of virgin queens to mated ones, colonies headed by virgin queens constructed as little comb as did queenless colonies. The bouquets of the mandibular glands (source of queen mandibular pheromone) did not differ significantly among queens nor was the amount of comb constructed correlated with pheromonal bouquet. Comb building is greatest among colonies having full access to freely moving queens but the stimulus for such building is not attributable to 9-oxo-2(E)-decanoic acid (9-ODA), 9-hydroxy-2-(E)-decanoic acid (+/- 9HDA) and 10-hydroxy-2-(E)-decanoic acid (10-HDA), components of the queen's mandibular gland secretions.

The influence of the queen and her pheromonal signal on comb construction was examined further (Ledoux et al. 2001). Four treatments with newly hived packages of bees containing: 1) a mated queen, 2) a virgin queen, 3) no queen but with a dispenser containing synthetic queen mandibular pheromone (QMP), and 4) no queen and no pheromone were tested. After 10 days, the comb produced by each colony was removed, comb measurements made, bees from the comb-building area collected, the size of the scales on the wax mirrors of the collected bees ranked on a scale of 0-4 and the queens removed and analyzed for QMP components. Queenless workers built substantially less comb and the comb they did build had significantly larger, drone-sized cells than for the other three treatments, indicating that both cell size and the quantity of comb built are mediated through the queen, particularly QMP. The observations of wax scale size suggested that QMP influenced comb building behavior rather than wax scale production. These results support the idea that queenless honey bees can adopt a strategy of constructing drone-sized cells in order to increase reproductive fitness through male production following queen loss.

Upon entering a new home site a honey bee swarm is faced with the task of organizing the building activities of thousands of component bees so that several straight and parallel vertically oriented combs can be quickly and efficiently built. As a part of this organization process it is necessary for the bees to select and agree upon a planar orientation for the new combs. De Jong (1982) found evidence that memory of a previously used comb direction influences the building of the new set of combs. Swarms which have recently moved into bait-hives (empty boxes placed in trees to attract feral swarms) tend to maintain the previously used comb direction when removed and forced to

build new combs, whereas swarms which have occupied the bait-hives for a longer period (over 9 days) do not. Recent swarms predictably alter their comb building direction within the influence of an applied earth strength magnetic field, indicating that honey bees are able to use the earth's magnetic field as a reference at the commencement of comb construction in a new hive.

A characteristic pattern of brood, pollen and honey develops on the combs of a honey bee colony, consisting of three distinct concentric regions – a central brood area, a surrounding rim of pollen and a large peripheral region of honey. Since the pattern is consistent throughout the season and well organized suggests its adaptive value for the colony, yet the mechanism of pattern formation has not been elucidated (Camazine 1991). The pattern is most pronounced on the central combs which intersect a large portion of the roughly spherical volume of brood. A compact brood area may help to insure a precisely regulated incubation temperature for the brood and may facilitate efficient egg laying by the queen. The location of the pollen in the rim adjacent to the brood area where it is readily accessible to the nurse bees, may promote efficient feeding of the nearby larvae.

Camazine (1991) tested two hypotheses to explain the formation of these comb patterns. The blueprint (or template) hypothesis suggests that there are particular locations specified for the deposition of eggs, pollen and honey, i.e., the pattern develops as a consequence of the bees filling in the comb according to the orderly arrangement latent in the blueprint. An alternative is the "self-organization" hypothesis: pattern emerges spontaneously from dynamic interactions among the processes of depositing and removing brood, pollen and honey, without a plan specifying spatial relationships. Computer simulation of the self-organization hypothesis demonstrates how the colony-level pattern can emerge and how, using only local cues and simple behavioral rules, the bees can create an overall, global pattern of which they have no concept.

The same cell may be used at different times for food storage and brood rearing. Cells for honey storage may be extended to twice the depth of cells used for brood. When new, cells consist entirely of wax (white in color) secreted by worker bees, but after brood has been reared in them they are lined with cocoons and accumulate larval feces in their bases. Cocoons are light brown, so that after repeated use for brood rearing, combs become dark brown or even black. Combs not used for brood rearing remain white or become yellowish by absorbing pigments from pollen (Free 1977). **BC**

References

- Allen, M.D. 1963. *Drone production in honey-bee colonies* (*Apis mellifera* L.) *Nature* 199: 789-790.
- Allen, M.D. 1965. *The effect of a plentiful supply of drone comb on colonies of honeybees.* *J. Apic. Res.* 4: 109-119.
- Camazine, S. 1991. *Self-organizing pattern formation on the combs of honey bee colonies.* *Behav. Ecol. Sociobiol.* 28: 61-76.
- Cogshall, W.L. and R.A. Morse 1984. *Beeswax Production, Harvesting, Processing and Products.* Wicwas Press, Ithaca, NY, 192 pp.
- De Jong, D. 1982. *Orientation of comb building by honey bees.* *J. Comp. Physiol. A.* 147: 495-501.
- Fergusson, L.A. and M.L. Winston 1988. *The influence of wax deprivation on temporal polyethism in honey bee* (*Apis mellifera* L.) colonies. *Can. J. Zool.* 66: 1997-2001.
- Free, J.B. 1967. *The production of drone comb by honeybee colonies.* *J. Apic. Res.* 6: 29-36.
- Free, J.B. 1977. *The Social Organization of Honeybees.* Edward Arnold Publishers, London, 68 pp.
- Free, J.B. and I.H. Williams 1975. *Factors determining the rearing and rejection of drones by the honeybee colony.* *Anim. Behav.* 23: 650-675.
- Karihaloo, B.L., K. Zhang and J. Wang 2013. *Honeybee combs: how the circular cells transform into rounded hexagons.* *J. Roy. Soc. Interface* doi:10.1098/rsif.2013.0299.
- Ledoux, M.N., M.L. Winston, H. Higo, C.I. Keeling, K.N. Slessor and Y. Le Conte 2001. *Queen and pheromonal factors influencing comb construction by simulated honey bee* (*Apis mellifera* L.) swarms. *Insectes Soc.* 48: 14-20.
- Page, R.E., M.K. Fondrk and G.E. Robinson 1993. *Selectable components of sex allocation in colonies of the honeybee* (*Apis mellifera* L.). *Behav. Ecol.* 4: 239-245.
- Pirk, C.W.W., H.R. Hepburn, S.E. Radloff and J. Tautz 2004. *Honeybee combs: construction through a liquid equilibrium process?* *Naturwissenschaften* 91: 350-353.
- Pratt, S.C. 1998a. *Condition-dependent timing of comb construction by honeybee colonies: how do workers know when to start building?* *Anim. Behav.* 56: 603-610.
- Pratt, S.C. 1998b. *Decentralized control of drone comb construction in honey bee colonies.* *Behav. Ecol. Sociobiol.* 42: 193-205.
- Seeley, T.D. and R.A. Morse 1976. *The nest of the honey bee* (*Apis mellifera* L.). *Insectes Soc.* 23: 495-512.
- Taber, S. and C.D. Owens 1970. *Colony founding and initial nest design of honey bees, Apis mellifera L.* *Anim. Behav.* 18: 625-632.
- Whiffler, L.A. and H.R. Hepburn 1991. *The queen in relation to wax secretion and comb building in honeybees.* *J. Comp. Physiol. A* 169: 209-214.
- Winston, M.L. 1987. *The Biology Of The Honey Bee.* Harvard University Press, Cambridge, MA, 281 pp.

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Creating A Successful Beekeeping Development Program

Gard Otis, Nicola Bradbear

10 Rules, And Over 60 Guidelines To Follow, From Experienced And Successful Program Developers

Introduction

Many beekeepers and bee researchers desire to improve the lives of others through beekeeping. You may have met beekeepers while travelling. Or perhaps you are involved with a church-based organization or social group that believes that beekeeping will lead farmers and their communities out of poverty. Despite people's best intentions to help, efforts all too frequently miss the mark and fall short of the original goals. In surprisingly many instances, beekeeping projects actually cause financial hardship to the very people they were intended to help.

We collectively have had experiences with beekeeping communities in nearly a hundred countries on every continent except Antarctica. We have been involved in highly successful beekeeping development projects as well as some with limited impact. We have reviewed training efforts conducted by others that have achieved widely differing levels of success. Through our experiences we have come to recognize some of the key components of successful projects. We share these here as a brief guide to beekeeping development. Below is our checklist of factors that we believe contribute to the success of beekeeping projects.

1. Learn about international development

- "Beekeeping development" usually involves income generation, yet goals also should include capacity building of trainers and trainees, a process that is continually evolving. Capacity building should be

viewed as a central part of development processes.

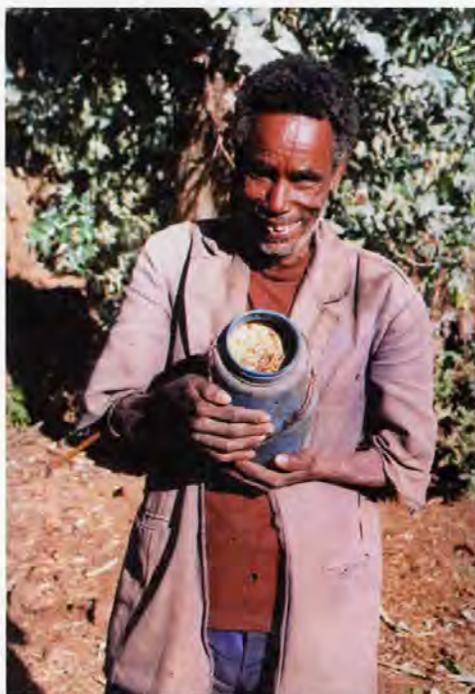
- All projects start with goals. The "project approach", with narrow goals upon which all attention is focused such as "training 50 beekeepers to produce 500 kg of honey", has proven to be unsuccessful time and time again.
- "Success" should be defined in terms of what the participants want from the project. For example, while we may focus on increased income generation, our partners in developing countries may be more concerned with greater well-being, higher

status, empowerment within their society, increased gender equality, or stronger communities.

- A central goal should be that project activities should be self-sufficient by the time all funds have been spent. Projects built upon continual infusion of money or technical expertise will fail once interventions cease.
- There is a large body of literature on effective development practices. Learn from the enormous gains in international development practice that have been achieved over the past half century in order to avoid common



Colonies of stingless bees kept in hives made from hollow logs or timber planks are a normal part of rural livelihoods in El Salvador. These people will be helped most, not by changing the technology of the hives, but by ensuring that maximum income is gained from sale of the honey. When interviewed, the beekeepers state that their major constraint is lack of forage for bees, and therefore a planting scheme for bee trees would be appropriate.



A beekeeper in Ethiopia. Lack of adequate containers to store and market honey is a common constraint faced by beekeepers in many countries. Importing containers is not satisfactory - people need local solutions to their problems. Projects can help to identify resources, make contacts, and find ingenious ways to recycle.

mistakes. A good starting point is one of the practical books by Robert Chambers.

2. Gain understanding of local development processes

- You are not the first person to think about improving incomes and livelihoods through beekeeping! Find others who are

knowledgeable with whom to discuss your ideas. Search the internet for information about previous beekeeping projects in the region where you hope to work.

- Learn about and seek to understand local beekeeping knowledge and practices from the outset; to do otherwise is arrogant and disrespectful.
- Allow communities chosen for beekeeping activities to self-select participants - within the participation targets that may have been set for the project externally by you or the donor agency.
- Develop daily activity schedules, community maps, group discussions, and other participatory techniques that involve active participation by the trainees, to better understand the communities and to enhance the relationships between trainers and trainees.
- Mistakes will happen and should be expected as part of the learning process for you, the trainers and the trainees. Accept and learn from them.
- Encourage feedback and discussion in all activities. Consider the feedback, and always strive to reach collective decisions about future activities and changes to existing practices.

3. Understand the local culture

- Learn about the local culture

surrounding the production and use of honey.

- Is there a tradition of beekeeping or honey hunting? What practices are used? How can those be enhanced through training or other activities? Introduction of completely novel practices will be difficult if not impossible, and may be undesirable. In many parts of Africa and Asia, honey comes from wild colonies of bees - not from bees kept in hives. There may be very good reasons for this, such as seasonal absconding, that affect the economics of keeping bees in hives.
- How does beekeeping fit within the local culture (i.e., religion, gender roles, etc.)? For example, in some settings men work away from home, so training must target women.
- Donor agencies may set criteria (targets of youth or female participants) that may be unrealistic. You need to discuss your proposal with the recipients and the donor: never agree to targets that are unachievable.
- Is there informed desire to participate in beekeeping training? In other words, do the potential participants fully understand the benefits and risks? The trainers and promoters must explain what participants should realistically expect with respect to honey yields, colony absconding, pollination of their crops, costs associated with bees



*The Asian honey bee *Apis cerana* is gentle and largely disease free. In most Asian nations, *Apis mellifera* of European origin have been introduced, and large commercial enterprises are based on beekeeping with this species. Nevertheless, for small-scale beekeepers, the indigenous bee requires little maintenance and its honey is everywhere more highly prized, and highly priced, than honey from *Apis mellifera*.*



*Where large trees and wild-nesting honey bee colonies are still present in sufficient numbers, people still "hunt honey" by climbing trees and plundering honey from nests. The nests of *Apis dorsata*, and the honey hunters' scaffolding are clearly visible in this bee tree in Banda Aceh, Indonesia. Honey hunting has persisted because traditional methods are sustainable, allowing the overall population of bees to persist.*



Honey for sale in Bishkek, Kyrgyzstan Republic. As in so many other developing countries, beekeepers can harvest honey relatively easily, but marketing it is a greater problem. There is often poor access to good materials for packaging.



Beekeepers discuss their top-bar hives in Mozambique. Low cost hives made from local materials are essential. The easiest way to increase production is to increase the number of occupied hives. With seasonally migratory bees, this is only possible if hives are inexpensive.

and equipment, etc. Be careful not to exaggerate the potential benefits.

- Did the target community request beekeeping assistance, or is the training driven by your own interests? Without local buy-in, the project will not succeed.
- Is honey used locally? For what? In many places, honey is a traditional medicine or a substrate for making beer, rather than a food. It may be a

highly valued gift. Is beeswax used or sold?

- Is beekeeping equipment available at reasonable cost? Does it fit with local needs and values? In one project we were involved with, hives costing only \$7 were too expensive to be adopted when there was no certainty of a honey crop. Explore options for inexpensive hives locally made from bamboo, woven reeds, or clay.
- Is there support at higher levels, within regional, state, and federal governments? This may be extremely important for long-term success.

established local methods have proven to be feasible and sustainable.

- Hold group meetings in target communities to gather information. They help you and the participants in your project to learn from each other.
- Are honey bees common or scarce? From which species of bees is honey obtained? How is honey collected, and in what amounts? What is the timing of honey production, of swarming, and of absconding/migration?
- Adults and children often know the locations of wild bee colonies. If there are few bees, it is not likely to be a good place to keep bees throughout the year. Perhaps if the bee populations have been harmed by pesticide use or habitat destruction, your efforts may be best spent in helping to address those larger and more difficult problems.
- Are there good floral resources for bees? Local residents often know which flowering plants are visited by honey bees. Bees will collect pollen from cereal grains such as corn and rice, but they need good nectar sources if they are going to produce crops of honey.
- How intensive is the use of pesticides? Bee kills will undermine beekeeping success.

4. Understand the local beekeeping story

- Gather local information.
- Before you do anything, learn about the beekeeping in the location you are considering for your intervention.
- Beekeeping practices may look very different from those you use at home, yet they may be highly cost effective and appropriate for local resources and conditions in ways that are not apparent to you on first sight.
- Accept that the beekeeping methods you know well are not necessarily appropriate for bees and beekeepers elsewhere. By their very existence, long-



A beekeeper in western Nepal with his log hives containing *Apis cerana* honey bees.



A honey collection centre in Kapiri Mposhi, Zambia. Helping a community to build a collection centre so that their honey can be bulked into significant volumes to attract buyers is a very good way to help beekeepers to move their beekeeping from a subsistence activity to a business activity.



The members of the beekeeping community at Kapiri Mposhi, Zambia, discuss their plans for the season ahead.

- Assess the daily schedules of potential trainees. Is there time within their day to manage bee colonies on a small-scale? On a medium scale? Or are they already so busy in daily activities (collecting firewood, farming, fetching water, cooking, washing, etc.) that there is no time left in the day for beekeeping?
- Observe and understand existing beekeeping activities before you suggest changes. For example in many countries, beekeeping practices are extensive rather than intensive: this means that beekeepers have a large number of low-cost hives, and accept that a proportion will always be empty of bees. This is a cost effective strategy to cope with the mobile, migratory nature of many tropical bees.
- Bees in the location in which you plan to work may well be healthier than bees back home. Consider the reasons for this.

5. Make use of local resources

- Always use local resources – this means *local bees*, *local materials* and *local skills*.
- By making hives and other equipment locally, beekeeping efforts help to strengthen local economies and will be more sustainable in the long term.
- Bees may look like those you see at home – but if they are living in a climate that is different from yours, their biology and behavior

will be markedly different.

- Local bees are adapted to local parasites and diseases. For example, over much of Asia, *Apis cerana* is unaffected by parasitic mites, while European honey bees usually succumb quickly to *Varroa* and *Tropilaelaps* mite infestations.
- Local bees are uniquely adapted to local patterns in floral resources and prevailing weather conditions.
- Any importation of live bees always brings with it the risk of introducing a novel pest or

pathogen. Avoid this option: it is impossible to undo mistakes caused by bee importations, and beekeeping built on expensive imports is not sustainable.

6. Understand market systems

- Endeavor to understand the local market system – it may be helpful to train honey traders as well as beekeepers and to spend effort on encouraging the creation of market linkages.
- There is no point in encouraging people to spend time and effort to produce honey and beeswax



A simple, low cost bee hive. Introducing unfamiliar technology does not necessarily help people to move out of poverty.

unless there is a good market for their products.

- The stronger the market for honey, the more incentive people will feel to invest their time and effort in beekeeping.
- Local honey prices are usually higher than world wholesale prices - so beekeepers should expand and seek to saturate local markets before considering export.
- The testing of honey quality required for export is beyond the capabilities of most development initiatives.
- Be careful that your project is not subsidizing honey production or trade at any level (for example by providing bottles, labels or free transport). What will happen when this support is no longer available?

7. Strengthen local trainers

Are knowledgeable trainers available? Trainers should be able to:

- Evaluate nectar and pollen resources and the local floral calendar to assess beekeeping potential;
- Explain the training system and realistic outcomes for beekeeping, so potential trainees can make informed decisions about becoming involved;
- Effectively manage local honey bees and/or stingless bees;
- Deliver training in bee biology and management (through active hands-on learning, not through lectures) that facilitates learning and adoption of techniques;
- Assist trainees with other aspects of running small businesses, such as marketing of products, financial management, and obtaining credit and repaying loans.

8. Build relationships

- Successful development requires strong relationships of participants at all levels.
- It is essential that there is an effective leader or group of people in defined leadership roles among the beekeeper trainees.
- The more honest and open the communication between everyone, the greater the mutual understanding will be of all aspects of project implementation

and management.

- Effective development is about the goals and needs of the target group of people, not the people directing the project. Take the time to meet members of the target communities, learn about their needs, and develop a strategy (goals and milestones) designed to help them achieve the criteria of "success" important to them.

9. Encourage social development

- Encourage the formation of beekeeping clubs or associations.
- Beekeeping clubs serve as a venue for regular sharing of knowledge and group problem solving. They have also an important role in the continuation of beekeeping activities once external funds have been spent and direct contact with trainers ceases.
- Clubs can provide important opportunities for exchanges between people otherwise excluded from social settings.
- Explore the potential for sharing information through cell phones that have become ubiquitous in recent years.

10. Monitor progress

- Monitor outcomes of projects to learn what is working and what is not. The most effective projects involve collaborative identification of problems and weaknesses as well as strengths, through monitoring, experimentation, and evaluation.
- Success goes beyond how much honey is produced and money is generated.
- Obtain information on social changes, such as level of self-esteem, education of children, environmental benefits (e.g., pollination and yields of crops, awareness of the importance of forests), local governance and

organizational capacity.

- Obtain baseline data at the start of the project as well as data at the end of the project, so that changes can be detected and evaluated.
- Beekeepers and bee researchers are generally unaware of appropriate methodologies for monitoring development projects. Team up with social scientists to gain the necessary expertise.
- Report on the project honestly so that others can learn from your successes and failures.

It has been our experience that spearheading a successful beekeeping project - one that results in long-term benefits to the recipients of training activities - is very difficult to achieve. The relationships of participants at all levels are critical. One can never expend too much effort to improve relations. The better you can understand the lives of those you want to help, the more likely your activities will be appropriate for them and their community.

Remember - the communities that you want to assist have probably been producing honey for centuries with methods that may seem 'wrong' to you, but they may have very good reasons for them.

One final piece of advice: park your ego at the airport before heading overseas to assist others. If you have personal goals that differ from those of the people you are seeking to assist, they will interfere with the anticipated outcome of your project - the creation of local, sustainable beekeeping enterprises. That central focus on the people and the communities you wish to assist should permeate all project activities. **BC**

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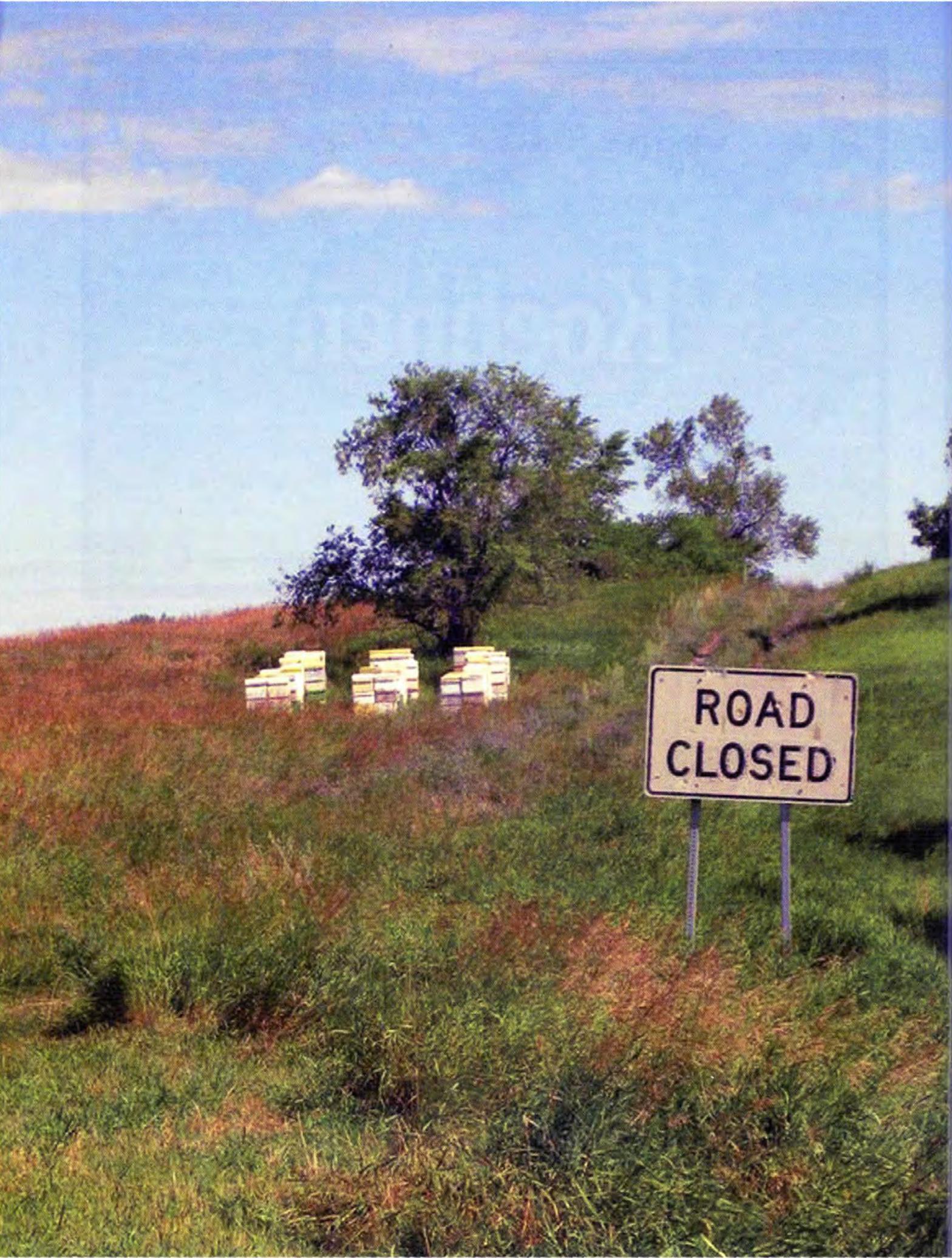
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NORTH DAKOTA'S POLLINATOR SUMMIT

Any Policy Development Here Will Be Heard Everywhere.

Kathy Kellison

Why North Dakota's Best Management Practices for Honey Bees Will Affect Our Entire Nation

North Dakota beekeepers, with the aid of beekeeping industry leaders, are developing Best Management Practices (BMPs) to fold into a newly proposed State Pollinator Protection plan, the first of its kind in the nation. That North Dakota document will undoubtedly affect the entire nation.

This all began when Department of Agriculture (NDDA) Commissioner Doug Goehring called a North Dakota Pollinator Summit on July 31 in Bismarck for beekeepers, growers, pesticide applicators, related agencies and non-governmental organizations to discuss the rising tide of issues with apiary locations in North Dakota.

Goehring set up the four-hour summit to try to resolve the issues cooperatively, in a concerted effort to avert any necessary regulatory intervention. Among the 150 attendees were leaders in the beekeeping industry, including Zac Browning, Bret Adee, John Miller and Ron Spears, along with noted honey bee researchers. Marla Spivak, and Jeff Pettis, and representatives from the Natural Resources Conservation Service (NRCS).

North Dakota matters BIG time!

What happens with bees in North Dakota in the Summer is vital to meeting U.S. pollination needs. Some 474,000 colonies are clustered in nearly 11,000 outyards registered with the North Dakota Department of Agriculture (NDDA).

When you consider that there are 2.4 million managed honey bee colonies in the United States, North Dakota's share amounts to almost a third of our nation's commercially managed honey bees. That's why

the stakes are so high in achieving a successful result, which will not only matter for specialty crops like almonds, but significantly impact the state's 200 beekeepers and the health of their bees. Thus, any developed policy language will result in a rippling influence on similar endeavors by other states with large numbers of commercial beekeepers.

The meeting reflected real time

Goehring launched the meeting by asking each attendee for an introduction and affiliation. Then he and Jim Grey of the NDDA Pesticide and Fertilizer Division, reviewed the troubling statistics on managed honey bee losses and the current EPA tiering of risk assessment for pesticides. Grey acknowledged problems with the sketchy labeling language on Extended Residue Toxicity applications (ERTs), including such wording as "when bees are actively visiting or foraging." Grey made it clear that *protecting bees and pollinators comes second to crop protection.*

Carrie Larson, honey bee inspector for NDDA, reviewed the progress the agency has made toward on-line mapping of apiary locations; requirements of beekeepers to post contact information on a plaque at entrance of their sites; and provision of a form signed by the landowner of the apiary location stating that permission has been granted for placement of colonies.

An open forum followed, with participants responding to and contributing to any of three categories for identification of BMP's: What can pesticide applicators do to protect bees? What can beekeepers do to protect bees? What can landowners/growers do to protect bees?

Highlights of trouble spots with pesticides and bees

Early into the discussion on

BMP's for pesticide applicators, some participants said that Chlorpyrifos applications were commonplace on sunflowers at five percent bloom because this is considered – from the crop protection point of view – the best timing to ensure preemptive knockdown of harmful pests. Dr. Marla Spivak called this practice "a direct violation of the label." Other priority concerns included the use of tank mixing and timing of applications. Some advocated further investigation of products containing Asana; these products repel the bees, thereby providing some protection by reducing the collection of contaminated pollen from crops treated with harmful applications. Another discussion centered on the feasibility of night spraying with either aerial or ground application as a means to reduce exposure to pollinators.

Did anyone say you could park those hives there?

Despite some tension during the pesticide portion of the forum, the most emotive exchange took place over the illegal placement of colonies on private lands. One North Dakota township, Nakoma, in the aftermath of repeated frustrations over random and prolific placement of colonies, has now banned honey bees within the township's boundaries. Jim Gray also reported the challenges he has experienced when warning beekeepers about harmful crop-protection applications, and that they need to move their hives. Beekeepers shared that it is challenging to relocate bees on short notice, and that they often do not have alternative locations for a safe placement. Also adding to emerging conflicts: the lack of setback requirements from highways and residences. Cyclists and other passersby have complained about being stung, as have residents.

photo by Jeff Pettis

Where can a bee fly to a clean flower in this state?

Lastly, the group discussed what can be done to enhance the safe foraging quality of land where beekeepers are allowed to place their colonies. This is where the Natural Resources Conservation Service and the Conservation Reserve Program (CRP) come in; they are significant players. CRP acreage has been reduced in the United States from a high of 33 million acres to 27 million. Even more problematic than the loss of available acreage is that mandated planting regimes have shifted away from the long established clover mixes, which are highly beneficial as pollen and nectar sources that support both the health of honey bees and the economic stability of the beekeeping industry in honey production. This further minimizes the critical support to the U.S. beekeeping Industry that CRP once served. Of the approximately 150 million pounds of honey produced annually in the U.S., some 34 million (23%) comes from North Dakota's largely undeveloped landscape. Consequently, North Dakota directly benefits in taxes collected on revenues driven by the success of the beekeepers to keep their hives strong. Thus, it is in the state's best interests to actively engage in advocating for federal cost-share funding to increase honey bee forage plantings on private working lands. An enticing CRP contract would encourage landowners to remain enrolled in CRP and increase participation by other growers to do so as well.

NORTH DAKOTA STATS

Population - 700,000
Area - 69,000 sq. miles, 44,160,000 sq ac
No. of farms - 31,900
Land in farms - 39,600,000 ac
Avg farm size - 1,241 ac
Colonies - 474,000
Beeyards - 11,000
Beekeepers - 200

CROPS

Wheat - 6,900,000 ac
Corn - 3,600,000 ac (94% GM)
Oats - 260,000 ac
Soybeans - 4,400,000 ac (94% GM)
Hay - 2,230,000 ac
Canola - 860,000 ac
Sunflowers - 578,000 ac
Potatoes - 84,000 ac
Edible beans - 510,000 ac
Barley - 770,000 ac
Flaxseed - 200,000 ac
Lentils - 315,000 ac
Safflower - 10,000 ac
Sugarbeet - 230,000

CROPLAND - CRP

Flood plain wetlands - 2,971 ac
Non-flood wetlands - 46,440 ac
Duck nesting - 118,761 ac
Safe - 65,752 ac
General - 333,315 ac
Farmable wetland - 98,174
Total - 590,991

Number of contracts - 26,991
Number of farms - 13,709
Acres under contract - 1,791,065
Rental price/ac - \$41.20
U.S. CRP Pollinator Habitat established
2013 - 53,524 ac
Pollinator habitat established
in ND - 1,200 ac
ND CRP for wildlife
enhancement - 65,753 ac

Now what?

The four-hour summit provided an opportunity for all attendees to have their say. Next, the NDDA staff will compile the input into a draft document and distribute it to participants for review. The draft, expected to be ready for comment later this fall, will be posted on the NDDA website where it can also serve as an informational resource for other key states.

Maintaining open roads of communication through meetings such as the North Dakota Pollinator Summit offers the best possible potential for all stakeholders to maximize beneficial outcomes to meet their own needs while allowing other stakeholders to do the same. No doubt the greater the cooperation in preventing dead-ends in land management and land access for honey bees in North Dakota, the greater the outcome for improving the health of all of our nation's honey bees, as well as our native pollinators. The production of U.S. crops, valued at \$16 billion annually, depend on them.

When you consider that such a substantial number our nation's honey bees are foraging to make their living from North Dakota's soils, North Dakota's Best Management Practices will have a pivoting role in the sustainability of the bees required to provide predictable pollination services to large scale agriculture worth billions in resulting agricultural assets. Now, that indeed, is food for thought! **BC**



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DOWNTOWN

Is There Enough Food In The City For Your Bees?

“Does urban apiculture do more harm than good?” That’s the sensationalized question that hit the mainstream press, distorting the conclusions of a recent article by Dr. Francis Ratnieks and Dr. Karin Alton in the UK journal, *The Biologist*. Their study asked whether the massive and still-growing popularity of London beekeeping has outstripped the feeding capacity of the city’s greenspace.

Because you all might be holding your breath (spoiler alert) I’m going to cut to the chase and tell you, “No, at least not yet,” but you are *not* off the hook.

Let’s underscore the very special nature of that specific London case: in that city, the number of registered hives has doubled from 1,677 to 3,745 since 2007, and Angela Woods, secretary of the London Bee Keepers Association (www.lbka.org.uk), notes that “our membership has grown 575% in six years.” She points out that London’s green coverage amounts to only 25%. This study was meant to get in front of a developing problem in a unique urban habitat. And good for them!

But many urban beekeepers in the U.S. who have fought to keep their hives alive over the past year anxiously whispered, “What about my bees?”

What is your answer?

Perhaps the best response the urban beekeeping community can give today is, “If you are in North America, your bees probably have

adequate forage, but not necessarily. Not guaranteed.” The solution for not knowing is relatively simple: finding out. And there is reason to be optimistic that you – and your friends and neighbors – can make valuable contributions to bee forage and, therefore, honey bee health. In building up urban green spaces and pollinator resources, we will also find ourselves working alongside allies in organizations that have approached sustainability in the city from this angle for a long time.

All urban neighborhoods are not created equal. The truth, across this continent, is that people of less economic means are also people of less green space, in part based on age and in part based on overall economic clout. The average age of urban beekeepers in the US, for example, skews far younger than the age of beekeepers overall (a 2010 MAAREC study by Elizabeth Burdick and Dewey Caron places the latter around 57 years). Urbanite beekeepers are more likely to be younger people who cannot afford to rent, own, or manage as much space as their older rural or suburban counterparts.

In the U.S.’s densest cities, like New York, almost *all* beekeepers have no yards or gardens to call their own, and they cut deals with building owners for roof access, or community gardens for a share there. Younger beekeepers also tend to clump into more affordable areas, making competition for shared space that much more intense.

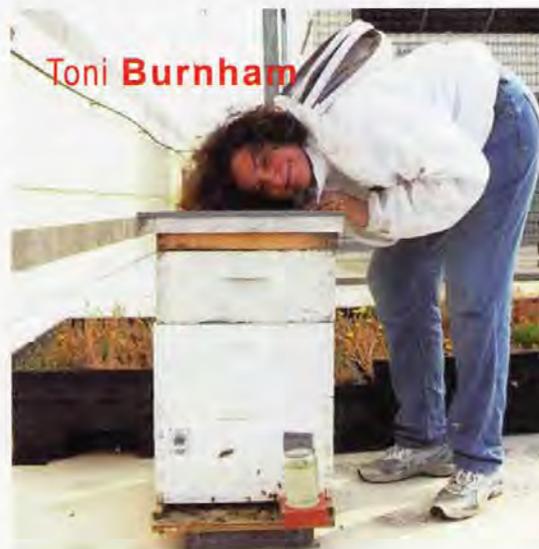
Then take into account city areas with concentrations of economically disadvantaged populations, including under-supported park and recreational infrastructure, and you can see that some of the most likely

people to want and benefit from beehives may not exercise much influence over the forage areas necessary to support them.

So you can see why the assertion, “Your bees may be starving!” could hit a raw nerve among beekeepers who are trying very hard to create sustainable urban habitats. But take comfort.

There’s no rule of thumb for how many acres of forage it takes to support each beehive: it depends on the plants that grow around you. Dr. Gordon Wardell, Bee Biologist at Paramount Farming Company in Bakersfield, CA, and honey bee nutrition expert, puts it this way: “Let’s say the average flight range for a bee is two miles, that means they have 8,658 acres to forage. So the question becomes ‘What is in a two-mile radius from your colony at any particular time?’”

James Fischer of The Honeybee Conservancy (www.thehoneybeeconservancy.org) in New York notes that “two miles” may be optimistic in ur-



Toni Burnham

Are City Bees Starving Bees?



Berkley Square.

ban foraging conditions, which can be severely impacted by wind velocities and turbulence around skyscrapers, and so on. “We are working with patches of lavender in the dearth periods to see just how far hives in certain unproductive sites can forage, and – we may be forced to admit that some green roofs are ‘solitary/bumble bee only’ sites, or sites where honeybees cannot be expected to make much of a harvestable crop . . . But most sites are very productive, as NYC has a good dispersion of parks, and most streets are tree-lined on both sides.”

UK scientists Dr. Karin Alton and Dr. Francis Ratnieks, concentrating on the case of London, posit about 2.5 acres or so of borage, or up to 20 acres of lavender, as a likely proxy of about how much pollen and nectar a mature hive in their climate will consume in a year. That’s a daunting chunk of land, but a justifiable measure of planted space to use, because British urban street trees are not, in the main, pollinator-friendly. That city’s trees are nearly a monoculture of the London Plane (*Platanus × acerifolia*), which is devoid of bee-friendly nectar and pollen.

But North American urban forests are more plentiful and much more diverse. Tree forage is a mainstay of urban apiculture from coast to coast, and city governments are investing in tree canopy renewal. How many acres of borage in England are equivalent to a city block of Black Locust on the East Coast? This is not a conversion that you can find

on Google, but one you can make an estimate of for the space around you. (see sidebar)

But let’s back up now to the average number of acres – 8,658 – that your bees might forage: how likely is it that they can find the equivalent of that amount of plant forage (from two to 20 acres) and variety (from both ground level plantings and trees) for the number of hives sharing that space? According to a 2010 compilation of data on urban tree coverage by Fiona Watt and Bram Gunther of the NYC Department of Parks, the average tree canopy in American cities covers 27% of the land (Atlanta comes in first at 36.7%). If you live in an average neighborhood in an average



London lightposts.

U.S. city, your bees can perhaps forage over 2,000 acres of trees, though some of them – like London’s plane trees – are not pollinator-friendly, and urban wind tunnels can limit access.

There are simply no parallels to the London case in any North American city, however. Londoners look after 10 hives per km². James Fischer estimates about 400 hives in the 834 km² of NYC (which has an estimated tree coverage of 24%). Here in DC we host about 200 hives (tree coverage of 37.2%, 177 km²). Most of the hives in either DC or New York

Estimating the Contribution of Urban Trees

(Math by James Fischer, errors by Toni Burnham)

How can you assess the contribution of your local tree cover to honey bee forage? James Fischer of the Honeybee Conservancy (www.thehoneybeeconservancy.org) offers that using the surface area and volume of a sphere is one way to estimate the equivalent acreage of blooms provided by a tree, and contributed the handy chart below:

Area= $4\pi r^2$ • Volume= $4/3\pi r^3$ • Bloom density=2 inches from each other in all directions

| Tree Foliage Radius (feet) | 5 | 10 | 15 | 20 | 25 | 30 |
|----------------------------|--------|---------|----------|----------|----------|-----------|
| Surface Area (sq ft) | 314.16 | 1256.64 | 2827.43 | 5026.55 | 7853.98 | 11309.73 |
| Volume (cubic feet) | 523.60 | 4188.79 | 14137.17 | 33510.32 | 65449.85 | 113097.34 |
| Surface Equivalent acres | 0.01 | 0.03 | 0.06 | 0.12 | 0.18 | 0.26 |
| Volume Equivalent acres | 0.07 | 0.58 | 1.95 | 4.62 | 9.02 | 15.58 |

In the chart above, assume either that a tree provides blooms only on its surface, or inside its volume, as well. You can also pick a bloom density within the tree, in this example conservatively normalized to no blooms that are closer than 2 inches from each other. What results is impressive “equivalent acreage” from tree blossoms. A single tree with a 30-foot diameter ball of foliage (15 foot radius) with blooms inside as well as on the surface offers the equivalent of nearly 2 acres of blooms.

So, how many trees are on your block? When do they bloom? How many hives do you suppose are nearby?

would have to be located in roughly the same overlapping forage area to exhaust just the tree resources available to them, not taking into account gardens, window boxes, green roofs, and so on. But remember, sources do not flower continually and you need to know your local bloom times to know when food might run short.

All beekeeping is local, and all city bees will do better in proportion to the level of education and information their keepers have (and use) about the slice of urban heaven that they inhabit. The London Bee Keepers Association has already been including forage information (and emphasizes the responsibility of the beekeeper to assure its adequacy) along with basic and continuing beekeeping education throughout their huge boom in membership. And it works when beekeepers take the relationship between bees and green spaces seriously.

The British Beekeepers Association supports this strongly: "One thing that everyone in the urban environment can strive to do is to improve that environment for bees by planting bee-friendly flowers be it in pots and window boxes through to garden or park-scale planting. For those who wish to get more directly involved then joining a local beekeeper's association and learning the necessary skills is the way forward."

Scientists here also point out it is relatively easy to make a big contribution via pollinator planting. Dr. Wardell has seen a small amount of additional plant life go a long way:

"This year I became aware of how just a little bit of natural forage can really benefit an apiary even when [hives] are receiving supplemental feeding . . . I had one set of splits here at my lab where I planted a small plot (0.5 acre) with wild flowers just to see what did well after almond bloom. The other spot [where] I put the [second set of] splits was pretty barren. Even though my little wild flower plot supplied relatively little pollen to each of the 50 splits at the lab, that little bit made a huge difference in how the colonies built up even with all the supplemental feeding they got. The isolated yard didn't build as well and queen acceptance was higher in the colonies that had just a little bit of natural pollen.

I don't encourage people to try to plant acres and acres of flowers for their bees, just a little bit can make

a huge difference. Some wild flower seeds in a fence row or a backyard bee garden can be a huge boost to a colony."

Dr. Wardell also has a suggestion for any beekeeper, because we all really need to understand the forage around where we put our apiaries. It's a lot of fun to find out how local forage works! Hive scales are more and more within the reach of the average beekeeper, both in price and the technical chops it takes to monitor one. Place a hive scale and use it to monitor a healthy, queen-right colony over a couple of years. Get a feel for what comes in, day after day. Perhaps report what you find to HoneyBeeNet, honeybeenet.gsfc.nasa.gov

You might discover a positive feedback loop. Says Dr. Wardell, "I put a half dozen colonies in my backyard. The yields were good but continued to grow year to year as the bees pollinated the flowers they preferred. White and yellow sweet clover got thicker and thicker. Moving bees to an area will improve the preferred forage and honey potential will grow. So there is a dynamic that benefits both parties, the flowers and the bees (actually three parties - I harvested the honey)."

Most of us got into urban beekeeping as a search for just such a beneficial relationship with green space: we want our city habitats to function better as a result of our bees being there. You have to understand your bees and what they need for that to happen, of course. The idea that just buying and slapping down beehives anywhere is somehow good for all concerned is the kind of logic used by people who hoard cats: if you really care, you make sure you can tend to them. If you don't, it's a tragic, toxic mess.

The London Beekeeping Association has an approach that we can afford to emulate in advance of such density problems. Instead of encouraging business groups, public agencies, the media and others who wish to promote the health of bees to buy and place hives willy-nilly, they are suggesting the improvement of urban grasslands as wildlife habitat and the reduction of mowing. Other possibilities include support for gardening organizations - often starved for funds in hard economic times - that in turn undertake pollinator friendly plantings. Right now, your city has organizations working on

tree planting, lawn reduction, runoff prevention, green roof promotion, carbon sequestration - it just goes on and on - who'd love to think they were helping out the bees as well. It might be worth attending a few of their meetings and sharing the opportunity.

In many cities, it is also legal to garden on vacant lots if no barriers to access are present. In even more places than that, "guerrilla gardeners" create and throw seed bombs over fences to encourage the growth of food for both people and wildlife on disused property. Pollinator plant seed bombs are fun and easy to make: consider including plants that are good for natives and bumble bees as well as honey bees!

If you manage a colony or two (or more!) of honey bees, you have chosen the place where they will make their home. Even if that is a relatively large North American city, they are likely to find lots to eat, most of the time. But there are large variations from neighborhood to neighborhood, and certainly from season to season, and if you are going to intervene when they need you, you need to learn about the forage they have available before starvation becomes a possibility.

Most of us are into city beekeeping because it is our way of ensuring sustainability and green-ness in an increasingly urban future. It is a source of hope, wonder, and connection in places where people might forget that they are still on a living planet. Even in the city, pollination is that perennial conversation between the world of animals and the world of plants, in the air and in the soil around us. Though we beekeepers really like to mess with the animal half of that equation, the relationship ends without attention to the plants, as well. It's a worthy business to have beekeepers raise their hands to ask if a balance is being maintained, and to accept the responsibility to make that happen. We're lucky on this side of the ocean that we still have room to grow, and can thank our colleagues on the other side of the pond for helping us keep that critical balance in mind. **BC**

With contributions from Dr. Gordon Wardell (Paramount Farming Company), James Fischer (The Honeybee Conservancy), and Angela Woods (London Beekeepers Association.)

Seed Bombs Work

An Urban Bomb Worth Throwing

Toni Burnham



Supplies needed.

Most of us see honey bees working vacant lots. Well, we can improve bee nutrition and expand their foraging there with some well-placed seed bombs. And no one gets hurt!

What is a seed bomb? It's a lot like a human-made fruit: there are seeds in the middle, surrounded by food for the young plants, encased in a protective shell.

A wiser, more experienced beekeeper once told me, "It's easier to plant a tree than to get permission to cut one down," so let's give it a try.

Warnings:

- Be careful where you throw! Don't hit people, windows, or vulnerable stuff.
- Don't interfere with conservation areas or existing gardens.
- Don't plant invasive species.



Rolling.



Cut to size, sprinkle compost.

Ingredients:

- **Clay:** either naturally-occurring or store bought (the non-toxic kid-kind works);
- **Pollinator-friendly seeds:** consult local planting guides or buy a pre-mixed pack. Consider some native bee forage.
- **Compost or worm castings:** give your seeds a good start by choosing solid nutrients.
- **Water:** just a bit, to hold things together only.
- **Gloves:** if you worry about getting messy.

Directions:

Work on a smooth, cleanable surface. Roll out a thin (less than 1/3" thick) disk of clay, shoot for an oval 2½" by 2".

Spread/pile your compost or worm poo on the clay, as much as you can get to stay.



Add seeds.

Add seeds. If they are tiny, you could get a whole teaspoon in there, if they are large, maybe only three or four. Some bombers recommend adding some chili powder to discourage animal munching.

Some drops of water: less is more here. You are just looking to get stuff to stick together with a smidge of moisture, not to water your seeds.



Roll bomb in compost.

Roll into a ball, making sure that all the seeds and as much of the compost stay inside as you can.



Place some more compost in a bowl, and roll your seed ball around in it, mashing as much as you can in. Some folks repeat this several times.



Ready to go!

You can get six of these in a biggish pocket. If you are seed bombing this Fall, think about early Spring forage for bees! **BC**

BEE'S WRAP

Replace plastic in your kitchen with this paradigm-shifting product made with beeswax!

As a beekeeper whose focus is on organic and more natural approaches to beekeeping, it should come as no surprise that I prefer my food to be as natural and organic as possible. Unlike food processors and retailers whose focus tends to be on ease of processing and shelf life, I have little interest in foods that will not spoil, with the exception of honey of course! I am interested in living foods that actually go bad if not consumed while they are still fresh and honey is the only natural food that, in its raw and unprocessed form, will never spoil as long as it is stored properly. Food-like products such as white flour, white sugar, Wonder Bread, Twinkies, and the like can sit on a shelf for years without going bad, but they are not what I consider to be components of a diet that will contribute to robust health and a long and happy life. As a result, food storage and preservation are perhaps more important to me than your average American.

A lot of food storage and preservation in American households is accomplished using plastic Tupperware-type containers or with some sort of plastic wrap. Plastic does not decompose readily and as a result has created numerous social problems related to its production and disposal along with ecological degradation and threats to marine species and other wildlife due to its persistence in the environment. Regular readers of *Bee Culture* already know how I feel about using plastic components in beehives (see *Bee Culture* Dec. 2011).

Plastics often contain plasticizers and plastic wraps require plasticizers in order for them to cling. Unfortu-

nately, as is the case with most of the chemicals used in commerce today, plasticizers have not been thoroughly studied to determine their safety, especially in light of long-term exposure and potential sub-lethal effects they can have on those exposed. Take Saran Wrap for instance. First introduced in 1953 by Dow Chemical Company, the plasticizer in Saran Wrap is acetyl tributyl citrate (ATBC). This chemical is considered to have low toxicity and is permitted for direct addition to food meant for human consumption by the FDA. And yet, according to the chemical's Material Safety Data Sheet, studies have yet to be conducted on ATBC to determine its epidemiology, teratogenicity, mutagenicity, LD50, or neurotoxicity effects. Data proving ATBCs' safety simply does not exist. Of course this means that data showing ATBC is harmful also does not exist. Unlike most of the rest of the world that requires companies to prove their products are safe before they can be sold, in America a product must be proven to be unsafe before regulation steps in to prevent its availability...and what company is going to spend a lot of time and money proving their product is unsafe?

Given the numerous issues associated with the use of plastic, I was thrilled to learn of a new product designed to replace much of the plastic we normally use for food preservation and storage. Billed as the beeswax and cloth food storage alternative that is the "new" old-fashioned alternative to plastic wrap, Bee's Wrap is the creation of Sarah Kaeck and her husband Brian who live in New Haven, Vermont.

The Kaeck's enjoy a homesteading life-style tending a large garden, raising chickens, pigs, and goats, while canning their garden surplus and making much of their own food such as bread, cheese and beer. Brian works



The Kaeck family manufactures Bee's Wrap in a workshop attached to their home. Pictured are Sarah and Brian Kaeck with two of their three children – Finley and Una, along with their dog Pappy. Their youngest child, Willa was taking a nap.





as a tile setter, while Sarah had her own sewing business and created aprons, cloth napkins and produce bags for sale. It was her love of working with fabric and crafting items by hand, that led Sarah to follow up on a suggestion from a couple of artistic cousins (whose mother is a beekeeper), to create a cloth and beeswax plastic wrap alternative.

It took a lot of trial and error to come up with a result they liked. As Sarah explains it, "It was fun, like cooking or being a scientist, tracking each batch and experimenting with different fabrics and ingredients." After a lot of experimentation the Kaeck's finally formulated a wrap that met their expectations. Each wrap is made from 100 percent organic cotton fabric coated with a mixture of beeswax, organic jojoba oil, tree resin, and features the Bee's Wrap honeycomb logo printed with non-toxic, acid-free, child-safe ink.

Sarah is continually discovering new uses for Bee's Wrap. Besides wrapping bread or cheese and folding the wraps into pouches to hold vegetables, snacks or leftovers, the wraps mold easily to the shape of containers making it ideal for covering bowls, pitchers, glasses, and serving dishes that are still half full so that they can be easily stored in the refrigerator. About the only items Bee's Wraps are not good for are meats and fish since it is not recommended that wraps be washed with hot water. Wash a Bee's Wrap with dish soap and cool water and hang it up to dry after using it to wrap an onion and it won't retain the onion smell. The wraps work just as well for foods stored in the freezer too. Bee's Wrap should last about a year with regular use. When the wraps do finally become worn out and ready to be replaced cut them into one-inch strips and they make great fire starters for the wood stove.

Not only are Bee's Wraps incredibly useful, Sarah and Brian found that they also enjoyed the manufacturing process and loved the smell of beeswax that would permeate their home while making the wraps in their workshop. More than anything however, it was the extremely positive feedback that they got from everyone they shared the wraps with, including folks that were perfectly happy using plastic and had no interest in



changing. This gave them the confidence to make a go at turning her Bee's Wrap into a cottage industry. "Even the naysayers were really excited" about the Bee's Wrap reports Sarah. Once demand started to grow, the Kaecks' quickly made the shift from making the wraps themselves to hiring some part time helpers as needed. They have reached the point now that they are considering hiring a full-time employee.

As with the wraps themselves, the products' simple and descriptive name and logo came out of a process that involved lots of feedback from family and friends. "That's the part I like most about running a business, the brainstorming and creative thinking is really fun" Sarah explains. She works with various beekeepers around the country to source the beeswax needed for production. Sarah says "it's been great working with beekeepers. I have found them to be really nice, informative, and interesting people and it has opened up another world for me." Sarah reports that through researching and sourcing a simple ingredient, beeswax, she has learned an enormous amount about bees and beekeeping as a result. While the Kaeck's have never kept bees, they have begun thinking about doing so. However, their current lack of time and energy to take on another project, and the fact that beekeeping is more complex than they originally thought has prevented them from getting any hives to date.

News about this revolutionary new product idea has spread naturally and organically, much like the wraps themselves. Word of mouth has been their major source of promotion, though Sarah says that "blogs have been a huge marketing tool" for the start-up company. However, as word spreads about Bee's Wrap, more and more conventional media outlets are picking up the story such as *Fine Cooking* magazine that featured Bee's Wrap in "Great Finds" in their August/September 2013 issue.

Bee's Wraps are sold and shipped all over the United States, Canada and Mexico. Not only can folks purchase the wraps online at www.beeswrap.com, but the wide variety of retail establishments that are beginning to offer Bee's Wraps to their customers range from boutiques to Green/Eco stores, natural food stores and cooperatives, and farm/homestead supply companies. When asked about future plans, Sarah says that she hopes to come out with a special holiday wrap in time for Christmas – the perfect thing to keep that holiday fruitcake moist! **BC**

Ross Conrad is author of the newly updated and expanded Natural Beekeeping: Organic Approaches to Modern Apiculture.

MASTERING BEE

What to Know After

Larry Connor

Mastering Beekeeping: Year One

An increasing number of state and regional organizations offer some sort of training that may lead to a Master Beekeeper certification. Programs like the Eastern Apicultural Society ask that applicants keep bees for five or more years before attempting their four part exam process. Various states use a far different model – often they outline a program of study that starts with the first season of colony ownership or manipulation (for those learning with the help of other people's hives).

For a wide variety of reasons not everyone wants to become a Master Beekeeper. At the low end of the spectrum are the I-wanna-have-bees-in-my-garden-but-not-do-any-work beekeepers, and impulsive drive-by beekeepers who try to do the absolute minimum to keep bees, and then complain bitterly when the colonies fail to survive. The opposite side of the motivation spectrum includes individuals who put in a remarkable amount of research before getting bees, training with every opportunity they can, and demonstrating a dedication to bees and beekeeping that is pretty remarkable. These are the ideal candidates for the exam process to become Master Beekeepers.

In the middle are lots of people that want to keep bees but are functionally 'too busy' to study and become experts in keeping bees. Many of us are quick to argue for the comprehensive training of new beekeepers, but we need to accept the reality that more and more people start with beekeeping with nearly zero training and instruction, little book learning, and absolutely no mentoring. One suspects the high failure rate of these beekeepers and their bees is largely avoidable, but the fact that a few of these folks are extremely lucky and find themselves the recipients of booming colonies and abundant swarms as they watch the bees from a distance.

Of course, this same population of beekeepers may experience queen failure, colony loss, weak colonies, Winter kill and other fates of colonies. We will not say 'told you so' because so many hard working, well prepared beekeepers also experience these concerns and losses. Mother Nature can be a bit unfair sometimes.

All this is a way of asking the question: *what are some standard areas of mastery a first year beekeeper might make with reasonable expectations of colony success?* Here is my list, in discussion format, for the person starting, or perhaps ending, their first year of beekeeping.

We will start a list of mastery with beekeeping equipment. It seems fair to expect that a Year One beekeeper should know all the names and parts of the

standard Langstroth hive, or parts of the top bar hive, if that is their choice. My personal recommendation is that ALL beekeepers start with or manage (perhaps some one else's) Langstroth colony before starting a top bar colony. Clearly others disagree. But everyone should understand the arrangement of the colony, from a bottom board, hive body (brood nest), honey storage area (supers), cover(s) and most important the frames. Beekeepers should be able to assemble a hive so it is well glued and nailed or stapled so it stands up to the pressures of manipulation and heavy propolis buildup. Since more and more beekeepers are buying their equipment pre-assembled, it is quite possible that a First Year beekeeper has no idea how individual hive parts go together. That is probably not adequate, in my opinion.

It seems logical that all new beekeepers need to know *everything* they can about beeswax comb and how bees use it for both brood production and honey storage.

At the end of the first year I expect a beekeeper to identify worker brood in all its stages, drone brood in all its stages, queen cups, queen cells, naturally emerged-from queen cells, queen cells that have been destroyed by another queen, open and sealed cells of honey and areas of stored pollen. Until these identification skills are mastered, confusion of their identity will confound the new beekeeper.

Likewise the successful first-year beekeeper will know all the members of the hive, and for many this often a big challenge. I have seen experienced beekeepers past Year One briefly confuse a drone for a queen bee; while the differences are pretty clear to me, the must not



The first taste of honey for first year beekeeper student part of the Students for a Sustainable Earth, the program. This was the first chance these students had all had in the season. I expect all of these students to work programs as they advance in their training.

KEEPING – YEAR 1

For Your First Season

be for the new beekeeper. I often hand a new beekeeper a drone to their ungloved hand and manipulate to become familiar with its size and shape. Knowing the difference of the drone, worker and queen body form, size and position of the eyes and other features, are important so beekeepers are able to evaluate a colony without tremendous hesitation.

Handling workers is usually not a first beekeeper's skill, but the top of the first-year class will learn how to carefully pick up and handle a queen bee, laying or virgin,



at Western Michigan University in Kalamazoo. While this is student-run program funded by a university grant. sample comb honey from the hives they set up earlier a higher standard, and compete for master beekeeper

so that she may be marked or placed into a cage. Of course, we know that queens are able to both sting and bite, especially virgin queens that may tend to be a bit more feisty. For the more timid beekeepers, there are cylinder and plunger systems that will help the first year beekeeper manage a queen, since I think recognition is the key here. All new beekeepers must master the ability to recognize queens and

evaluate their work as egg-laying machines.

First year beekeepers should be able to find the marked queen when she is on the frame. No excuses here, since she will often be the only marked bee on the frame. Finding a marked queen in a nucleus or full sized colony may be beyond the first year person, but it is a goal that can be mastered to the benefit of both colony and keeper.

Smoker and smoke use

There are advocates of smoke-free beekeeping. I am not one of them and I refuse to allow a student to operate

without a functioning smoker if there are other people in the area of the hives, beekeeper or non beekeeper, because our absolute first concern should be for safety. The first year beekeeper must learn to use the smoker before they open the hive, as they remove each super or hive body (brood box) and to use smoke on groups of bees to move them off the ends of combs as they manipulate frames. Focus on the protection of both the beekeeper and the bee: minimize the number bees to be crushed or pinched when frames are being moved. While this may not seem important to more experienced beekeepers, I notice that the simple application of smoke to the ends of the frames about to be removed reduces the crushing of bees, especially by many first-year beekeepers wearing gloves.

Lighting the smoker – I admit I have been a bit obsessive about including smoker lighting instructions in several Wicwas Press books. I am surprised how few beekeepers really know how to light a smoker so it says lit for an hour or more. The commercial beekeepers are often using propane torches and fancy methods to light smokers. This is beyond the first year requirement.

Handling frames during inspections – Watching some new beekeepers remove and inspect frames can be painful. There is no reason why a beekeeper should need 20 minutes to remove the first frame from colony and ninety minutes to inspect a hive 16 to 20 frames (double deep)! Proper use of a hive tool or two is key to efficient colony inspection. An experienced beekeeper should model the handling of a frame from corner to corner to see all the angles of the frame and look for the queen. Top bar frames are different of course, and require turning and twisting – but the first year beekeeper should have that down by now..

Returning the frames to a natural order when finishing an inspection – Bees have a rather predictable way of organizing the brood nest, with pollen and drone brood along the edges and honey on the outside. So why do new beekeepers put a frame of honey in the middle of the brood nest as they finish a colony inspection? Careful attention to return each frame to its original location and orientation are important for new beekeepers.

Colony equalization and making increase colonies – Not everyone agrees with me that a first year beekeeper should learn to equalized two colonies by moving frames of brood or switching positions of two hives, but why not. I demonstrated it to a group of college students on their second hive visit and were cool with it and understood the concept. Why not all beekeepers? As far as making new colonies from two and three month old colonies, I strongly advised that all new beekeepers keep

a minimum of two and a half hives (the half hive is a nucleus) throughout the season.

Problem detection: Diseases and pests – Every new beekeeper must be able to recognize healthy bee brood and vigorous colonies. The key here is to detect something that does not look normal or correct and to know when it is time to get help to confirm the concern and manage the problem.

Honey removal and harvesting – New beekeepers should know when honey is ready to be removed, how to brush and remove honey without killing a large number of bees, and how to crush small amounts of honey for family use. Larger harvests and honey extractors are better suited for more advanced beekeepers. But try to stop the enthusiastic beekeeper. So the lesson here is to make sure beekeepers leave adequate amounts of stored honey for the bees to use over the Winter or during a dearth period.

Feeding bees – First year beekeepers should be familiar with at least one method for feeding sugar syrup and one method to provide protein patties without causing robbing or small hive beetle attacks.

Propolis – Beekeepers should learn the origins of propolis, how it differs from beeswax, and how to remove it from hive equipment.

Preventing robbing by other bees and wasps – First year beekeepers should understand the need for short hive inspections when there is no nectar flow, and to reduce the entrance of hives to restrict access of robbing honey bees, wasps, and invading mice.

Evaluating stored amounts of honey – New beekeepers benefit by knowing how to count frames of honey and conservatively estimate the number of pounds or kilograms of honey each hive has, and check this with figures for average overwintering needs for their area. Since most people overestimate the weight of an item when we lift it, a scale is useful to determine stored honey.

Queen problems – New beekeepers should be able to tell if a queen is laying eggs or not by visual inspection of the bottom of the brood cells. They should know if a break in the brood cycle is expected or unusual. For example, they may find that certain lines of queens stop laying as soon as the nectar flow ends. They should recognize a queen that is present and producing drones (indicating that she is a drone layer), and when a queen is absent and the worker bees are producing drones. They should know that this is a time to ask for help with their bees or possibly lose the colony. Beekeepers should know what an expected number of drones looks like during the spring buildup, the nectar flow, and during the Fall. They should be able to determine when there are drones present in a colony during requeening.

This is my suggestion for the first year beekeepers. I know there are many multi-year beekeepers who have not mastered this list, and are successful with their bees. But a checklist is beneficial for those who are attempting to reach a set milestone, like an expected test for a certified beekeeper exam. **BC**

Reading List:

Here are books that are valuable to the first year beekeeper:

Delaplane, K., *First Lessons of Beekeeping*. Dadant & Sons, Inc. A low cost book with basic information.

Connor, L. *Increase Essentials*. Wicwas Press. How to make new colonies from the ones you already have, and overwinter them.

Connor, L., and R. Muir, *Bee-sentials: A Field Guide*. Wicwas Press. A beginner book that will last several seasons.

Flottum, K. *The Backyard Beekeeper—Revised and Updated*. Quarry Books. A popular beginners book.

Simon, E., *Bee Equipment Essentials*, Wicwas Press. Use for equipment assembly and how to use certain items of equipment. Pretty cool methods of honey processing and swarm catching equipment you can make yourself.



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The Voice Of The South

Dwelling Upon The Same Old Wounds

Perhaps the Trayvon Martin case and President Obama's subsequent statements about the matter stimulated me to consider such things, but whenever quiet moments occur lately I drift towards thoughts of race and beekeeping. No, the context of these thoughts is not the choice of bee races such as Italian, Caucasian or Carniolan.

Particularly nagging to me is the idea that racial relationships in the U.S. improve as the previous generation is slowly replaced by younger people. They presumably hold better attitudes and tolerance about people that differ from themselves. This notion was recently reinforced during a lecture that I gave to children attending a Conservation Camp at Mississippi State University. I only spoke for 15-20 minutes to the youngsters, and the goal of my interaction was to tell them about bees and beekeeping, with hopes of exciting them with something that they may never have been previously exposed.

During my talk, I set an observation hive onto a small coffee table, and the children gathered around as close as possible. Two 10-year old boys honed-in to the best positions on either side of the glass hive. By some random probability, one boy was black and the other was white. As I talked to the group, I noticed that both boys were bent over with their noses nearly touching the glass and peering into the colony of bees with wide-eyed anticipation. I am sure that I had the same look on my face when I first saw bees up close for the first time.

Eventually, I paused and

entertained questions from my young audience. After answering a few questions, one of the two boys that hovered over the colony exclaimed, "The queen! The queen!" Immediately, the white kid ran from his side of the hive to join the queen-discoverer on the other side. In a matter of seconds, both boys were cheek-to-cheek and enthusiastically chattering about the queen. They looked like Siamese twins, fused at the hips, and so totally immersed in the bees that the psychological bubble that normally create personal boundaries were dropped. Both boys were smiling, and the moment was a precious glimpse into the unclouded and infinite tolerance of youth.

After I finished the presentation, the class took a break before going to see another part of our entomology department. They ate a quick snack

a difficult problem to understand. My own experiences with two beekeepers during my youth attest to the complexity of relationships among people.

One of my beekeeping mentors during my late teens and early twenties was a man at least 45 years my senior. He was born and raised in the Heart of Dixie, and he clenched tightly to an openly racist persona that irritated me greatly. His commercial beekeeping skills were great, and I thoroughly enjoyed learning as much as I could from him. However, after a brief period of me not confronting his openly racist statements or declarations, I elected to voice my opposition. In particular, I started to admonish him when he used the n-word, which was way too frequent. My first attempt at correcting his behavior caught him

"Wouldn't it be cool if we could keep bees together and sell honey?"

and drank some juice. I was talking to their teachers and happened to glance over at the two boys. They were sitting side-by-side on a couch in our lobby, and I heard one say to the other, "I can't wait to get bees of my own one day. I will make my own honey and give it to my grandma and grandpa." The other kid enthusiastically affirmed the idea, and added, "Wouldn't it be cool if we could keep bees together and sell the honey!" It was that moment that supported the idea presented by the President in his press conference.

But this conclusion bothered me, and it has taken me some time to probe the matter. My basic problem with this sunny picture is that it simply oversimplifies what can be

a little off guard, but he quickly recovered and accused me of being a left leaning sissy boy and Air Force brat. He knew that my father was in the military and that our family was not originally from the South. I expected an aggressive retort and stood firm while reminding him of the cruel and bloody history of the n-word. These early arguments usually ended with him muttering expletives under his breath as he went away from me into another room. Usually these time outs allowed both of us to cool down, and an hour or so later we could work together again and pretend nothing had happened.

Gradually, his use of the n-word decreased to near zero, but he still persisted with expressions of

Some statements were truly awful, triggered by anger and frustration.

racism. Some statements were truly awful and triggered by anger and frustration. Once, he had parked his truck somewhere on the poorer side of town, and it was vandalized. When he returned to the honey house, he fumed and declared that "we ought to put them all on a boat and ship 'em back to Africa." When he was that angry, I simply let it pass. I did not want my head chewed off. Other times, his statements were just weird. For example, he claimed that Martin Luther King's mother had been a maid for his mother. He said that he had met young Marty, and that, "he was a pretty good fellow until he got all uppity and..." He trailed off when he saw my furrowed eye roll of displeasure. "What do you mean by uppity?" I asked. "Insisting on equal rights and such; how dare he!" We bantered like this way too often, but it was our way of working through these vastly different perspectives about people.

Finally, one day I asked my mentor if he had ever had a black friend. He seemed confused and taken aback. His usual jovial and often thundering voice became insecure and quiet. He never really answered, but he eventually told me about Puddin' Head.

Puddin' Head was a black man similar in age to my mentor. He had needed a job once, and my mentor hired him as a beekeeping assistant. He taught him all that he could about beekeeping over several years, and the two men apparently had a very good and respectful working relationship. My mentor seemed to get a little choked up every time he spoke of Puddin' Head, and I let him alone and did not persist with my incessant questions. Over time, I gained the understanding, that Puddin' Head had left my mentor and started his own beekeeping business, and I could tell that this had hurt.

Several years went by, and I grew satisfied with two conclusions. First, my mentor was a product of his southern culture, and although I could curb his overt expressions of racism, I felt that he would never feel love or equality for a black man. I did not excuse his behavior, but I came to the conclusion that his attitudes would stick with him until he died. Therefore, I concluded that racism would only decrease with the loss of the more bigoted previous generation. Second, I would never learn the full story of the relationship between my mentor

and Puddin' Head. I was wrong with both conclusions.

One day my mentor drove us to a remote cotton field in central Alabama about 15 miles away from a group of apiaries that needed honey harvested. Prior to the trip, he had stopped by a grocery store and inexplicably bought can goods and fresh vegetables and fruit. He parked the truck in front of an old shotgun shack that stood on the edge of the cotton field. It was mid-July, and the day was already brutally hot. The doors of the shack were open, and I could see straight through the house to the other side. My mentor asked me to help him carry the groceries, and we quietly stepped into the shack.

He announced our arrival by shouting, "Hey, Puddin' Head, you awake?" I could hear a weakened reply coming from a small bed located in the corner of the back room. Lying there was an obviously dying black man. The shack smelled of sickness and death, and I was truly uncomfortable being there. However, I wanted to be as tough as my mentor, and I stood by his side as he introduced me to Puddin' Head. "This is the young fellow I've been tellin' you about," my mentor said as he sat the groceries onto a nearby table. I said, "Hello" before slipping backward to allow room for my mentor to pull up a chair and sit by the bed. The two men talked and smiled about old times, and I simply watched them for 20 minutes or so. Gradually, I slipped into the front

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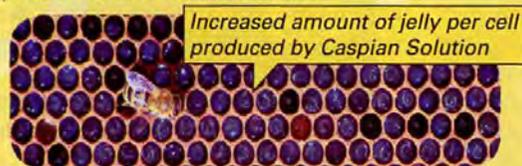
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room and began reading the bits of yellowed newspapers from as early as 1930 that hung on the wall as a poor man's wallpaper.

My mentor asked his friend if there was anything else he needed. He requested a different kind of soup than we had brought with the groceries. My mentor snapped to his feet and said that he would go and get him some soup, and he asked me to stay and keep Puddin' Head company. I sat in the chair and began asking him questions and offering lame small talk.

Eventually, I ran out of things to say, and in a moment of bravery, I asked how he could befriend such an old and stubborn white man who could be so openly racist. Puddin' Head began laughing until he coughed. He finally said, "You can't let that tough exterior fool you." He's a real softy, and I ain't never had a better friend."

I was truly dumbfounded and interested at the same time. Puddin' Head went on to tell me that my mentor had never abandoned their friendship - he had been visiting for over 15 years. He told of how my mentor had taught him queen rearing and package bee production, and he had even given him the first 150 colonies to start a beekeeping business. My mentor had apparently been supporting his friend's business with bees and labor whenever he could.

Puddin' Head explained that beekeeping had given him the ability

My lesson was that things are not always what they seem.

to be self-sustaining. He had sold queens, packages and honey up until a couple of years ago when cancer rendered him unable to work. It was then that I realized that the hurt that I had previously sensed in my mentor was caused by the declining health of his friend.

Puddin' Head said that he would be forever grateful for the chance to control his own fate by operating a beekeeping farm, and it was my mentor that gave him that chance. He was an uneducated man, and there were almost no other opportunities for him to earn a living and manage a business. He had some children, but none of them wanted to keep the business. So, after getting sick, he sold his bees to someone else. He was now running out of money, and his health was slowly spiraling to the end. He elected to die in the old shack in which he had been born. I just sat there unable to speak.

Finally, I insisted that the open bigotry of my mentor must be intolerable. Puddin' Head said, "You are not looking at things the right way." He continued, "It's kinda like bee stings, they hurt but you know that that's the way the bees protect themselves. It's the same with him."

Suddenly, it all became

somewhat clearer. The cultural mandates of the Old South made some exhibit the racist bravado that so irritated me. I don't excuse the behavior, I just suddenly gained the valuable lesson that things are not always what they seem. My mentor probably avoided social discomfort by adopting the expected traditions. However, it was also very clear to me that these two men loved each other and wanted only the best for one another.

I asked the old black man about the name, "Why Puddin' Head?" He smiled and said that his Mamma called him that because he loved her homemade pudding and would frequently beg her to make it. I still remember the last thing that Puddin' Head told me before my mentor returned with the soup. He said, "That Old Man taught me that bees don't judge men by the color of their skin, they are willing to sting all of us just the same." Something about this conclusion caused Puddin' Head to laugh, and it was clear that this motto was something the two men had shared their entire lives. **BC**

Jeff Harris is the Extension/Research Apiculturist in the Department of Entomology at MS State University.

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Letters From A Beekeeper's Wife

October 1, 1917

Dear Sis;

This is the second time that I have come out here to write under the trees, having been driven in before by bees. It is such a bright, warm day that they are flying about doing a little lazy gathering, and I foolishly chose the big apple tree for my back rest. I watched the bees sipping juice from the few rotting apples left on the ground and then reached out to pick up what I thought was a sound apple. Alas! I gathered up with it a disgruntled honey bee, who took her revenge upon me for disturbing her meal. My left hand is decorated with a puffy, red spot which still burns.

I have the greatest respect for the "posthumous works of the bee," and it is evident that the bee has too, for she never forgets to use them no matter how agitated or angry she may be. Her immediate reaction to any untoward stimulus is to thrust out her barbed weapon, generally with telling effect. It seems strange that, after centuries of acquaintance with the honey bee, little more is known today of the poison of the sting than was known to the ancients. No doubt, they knew the unpleasant effect of the practical application of her poison by the bee, but they seem to have no better advice to offer for its cure than Rob's, "Let it alone and forget it."

Rob just came up the lane, home from his visit to the Capitol, and, opening his suitcase, he dropped two old books in my lap. He never can resist visiting the rare book store, where Mr. Todd puts aside old books on bees until Rob comes along. These two are extremely rare, and the oldest we now have, Rob won't tell me what he paid for them!

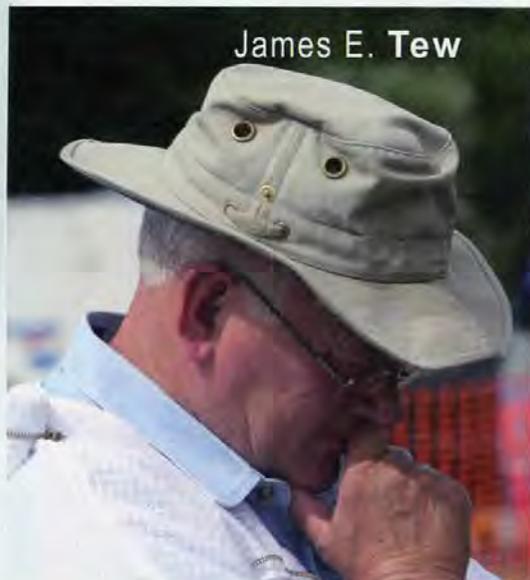
You would love these musty, leather-covered volumes, with their sere brown pages. One is called "The Theatre of Insects" by Thomas Moffett, 1658. Glancing through the pages on the bee, I find this, apropos of stings, in which I take a personal and lively interest, just at present. "If you would indeed to go sting-free, or at least heal yourself being stung; expel out of your mind, idleness, impiety, theft, malice; for those that are defil'd with these vices, they have set upon to chuse as it were, and out of natural instinct." Which of these vices have I, being stung? Am I impious, if I think Thomas Moffett didn't know what he was talking about, although his language be pleasing and picturesque, or am I idle that and I sit here and write to you?

Wait a moment and I'll see what words of wisdom this other volume contains about sting. This rare book is called "the Feminin Monarchi" by Charles Butler, 1654, and Rob has long wanted a copy, principally because Charles was an advocate of simplified spelling and employed it in his book, as you can see from the title. Dear! Dear! According to him, any one would have to be a paragon of all the virtues to be able to keep bees without being badly stung! Just listen to this: any one who would find "favor" with his bees must "be cleanly - must not come among them smelling of sweat or having a stinking breath, caused either through eating of leeks, onion, garlick and the like, or by any other means -" (no bath-tubs nor tooth-brushes in England in his day!) "In a word thou must be chaste, cleanly, sweet, sober, quiet and familiar so they will love thee and know thee from all others." Haven't I often told you what a superior group of men beekeepers are?

Rob's old bee books are full of just such quaint and often good advice, and, considering the difficulties the beekeepers of the Middle Ages must have encountered in observing the life of the hive, they knew a great deal. I imagine that their beekeeping consisted mainly in letting the bees alone, a practice modern beekeepers are coming back to, to a certain extent, I believe, for I hear Rob preaching about the evil of too much manipulation. It seems too bad that those old-time bee-men destroyed most of their bees at the end of the season, in order to get their products, for think how flourishing and profitable beekeeping must have been then, when all artificial light depended upon wax candles, and honey was the chief sweetening!

My sting still burns, so I shall stop writing hoping thereby to "expel idleness from my mind," and thus heal it. The bee is dead! At least I hold no malice against her - she has paid the price of her revenge.

Mary



Reading Common Hive Entrance Activities

It is enjoyable and I don't get all hot and sweaty!

gone, but our colonies are at full strength. What should my hive front look like? I would suggest looking for the following characteristics.

The typical activities at the hive front

1. Intensive, busy flight at the entrance, but not frantic flight.
2. A clean landing board and for the most part clean ground in front of the hive.
3. As a part of #2, certainly, no mound of dead bees indicating insecticide exposure.
4. No indication of robbing or fighting with other insects such as yellowjackets.
5. No indication of skunk or raccoon predation or attacks by any other animal.
6. No crawling bees, Chalkbrood mummies, or other indications of disease.
7. A few healthy drones on the landing board.
8. During the nectar flow, there will be a delicate floral odor in the air, but during goldenrod bloom time, the apiary will take on a weedy odor that I have grown to like.

Limited flight at the hive entrance. Not good.

Clearly, weak flight at the hive entrance on a warm day is not a

good sign. This time of the year, bees should be everywhere. Observation of limited flight means a hive will have to be opened to determine what has gone wrong. Queen loss, laying workers, pesticide exposure, or diseases are the most common reason for a hive to fail. This is an easy call. With no outward indication of pesticide damage, I will have to open this hive for further inspection. This hive needs help or it will not survive the upcoming Winter.

Swarm-like activity at the entrance of the colony

Through the years and several times this year, I have observed significant amounts of flight at the colony entrances. Just today – a hot August day with morning thundershowers – ALL of my hives had bees pouring from them. If this were spring, I would have thought that I had swarms issuing from every colony. These bees are gentle and many are scenting. Drones are in the mix. This looks like swarming, but it is not. In an hour or so, all returns to normal. I don't know what the bees are doing, but I no longer go right to swarming or orientation flights.

Chalkbrood Mummies in front of the hive.

Chalkbrood is a clear indicator

A personal note

This may be presumptuous to think that some of the *BC* readership cares, but I have caused confusion for some of you who have known me for a while. By the time you read this, I will have been retired from The Ohio State University for two years. During that time, OSU seems to have gotten along very well without me. But I did not retire from beekeeping. I work for the Alabama Cooperative Extension System (ACES) at Auburn University, but I continue to live in Wooster, Ohio, where I have lived since 1978 – hence the confusion I have caused. Actually, I have been involved with the ACES program for nearly 20 years in a cooperative relationship between OSU and Auburn. After my retirement from OSU, the ACES project became my primary employment. So there it is. I work for the Alabama Cooperative Extension System, but I live in Wooster, Ohio. It's about a 900 mile drive to work.

A handy recommendation

Through the years, as I increasingly became an older beekeeper, I have become increasingly supportive of the concept of *"leaving the bees alone as much as possible."* That is actually probably good advice but it just so happens that I am not always eager to remove deeps of honey to see how the brood nest looks. But I love the bees, and almost every day, I go to my apiary and have a look to see what's going on at the hive entrance.

What should I be looking for?

Right now, it's August. For most of us, the spring crop season is long



A reasonably good hive entrance community.

of this disease. There is no reason to drop everything and panic, but colonies with this malady will probably not thrive. Without question, requeening, at some time, should be considered, but again, no real hurry. There is no chemical control for this disease that I should administer. It has rained a lot this season. Chalkbrood is a fungal disease. Maybe once the afflicted colony dries a bit, things will recover in this afflicted hive – or not. I don't know. But at this moment, I do know that the bees within colonies like this are susceptible to Chalkbrood while the remaining hives are not. Either way, this colony needs a new queen before Winter.

Generally, good features but hive garbage on the ground.

"Let the bees clean it out" is a common comment from beekeepers when putting on equipment that needs cleaning. Actually, I have to give colonies cruddy equipment at times. They really can do a better job than I at cleaning things up.

So if all else seems proper, good flight, no robbing, clean landing board, I suspect the hive detritus on the ground is probably okay. Bees are just refurbishing equipment for use that had some messiness about it. This refuse is primarily a mix of old comb cappings, wax moth litter, and dead bees. Strangely, some colonies will make a great effort to move hive garbage farther away from the hive and keep everything much neater. Other bees dump it at the hive front and call it done.

Cappings removal – a healthy mess.

When compared to the dark, con-



Chalkbrood mummies on the ground in front of a hive.



Swarm-like activity at the hive entrance, August 8, 2013.

taminated clutter described above, the hive front mess looks better, in a manner of speaking, when bees are cleaning supers for reuse.

As beekeepers remove caps, comb and cells are damaged and broken. Plus, wax fragments abound within the extracted super. When this equipment is given back to bees, they go over it and restore it to appropriate bee standards. I suspect this remodeling happens in two phases. At first, before bees need space, they are simply inspecting the newly added supers to garner any remaining honey fragments. No doubt, this activity results in some hive front litter. Later, as space is needed, serious reconstruction occurs as cells are reformed and combs strengthened. At this point, even more hive front litter is accumulated. Either way, I count this type of hive front detritus as a good sign. Bees are cleaning things and getting ready to store honey.

Robbing behavior

In my "Hive Front Features" listed above, do you remember that I said the bee flight activity should be energetic but not frantic? Frenzied flight combined with aggressive fighting would indicate a robbing situation. Once the defenses of the hive being attacked are overcome, robber bees will loot the hive's honey resulting in a significant pile of cappings at the hive entrance.

If you have recently put on supers of drawn comb, you can expect some cappings piled out front. If you have not recently put on equipment and there are piles of cappings, you should suspect robbing.

Bee color at the hive entrance.

Essentially, the color of bees milling about the entrance means very little, but it is an obvious feature of the hive front. If you have historically had one color or the other



A very crowded entrance compared to a more normal entrance.



A propolis worker on the job.

and notice that bees on the landing board are not the color they should be, I suppose you could suspect that your queen has been replaced, but not much more could be surmised without opening the hive. I notice the mix of individual bee colors, but I don't make much of it.

Ventilating bees on the landing board.

During this time of the year, a few bees will commonly ventilate at the hive entrance. Ventilating bees will put their rear ends in the air and furiously fan their wings. Look closely – in fact – very closely. If you can see a white membranous area right at the sting end of the bee, that particular bee is scenting to other bees using her Nasanov gland. If the bee is not exposing her membranous area, she is an air-conditioning bee and is simply circulating air. I suppose one bee could be doing both, but most times she will be doing one job or the other.

A hot hive.

Before you even switch off your truck in the beeyard, you can tell this kind of colony needs more space. Bees matting out front are a clear indicator that things are either too hot or too crowded – or both – within the hive. In some instances, there is no great harm in the bees clustering out front. If your nectar flow has already passed, I suppose you could

still put on some supers to give the bees a place to cluster, but you have already missed some of the crop. If the ambient temperature is high, the bees may still choose to cluster out front as a way to control internal temperature whether or not you give them space.

I am uncomfortable with categorically leaving bees clustered out front – even though I have told you that no great harm comes to pass. However, if my colonies are in a crowded neighborhood (two of mine are), I don't want the spectacle of thousands of bees hanging on the hive front to unnerve my tolerant neighbors. Plus, I don't like for the occasional thunderstorm downpour to drench my bees hanging on out front. So, while no great harm is done if the nectar flow has passed, administering some assistance would be helpful to crowded hive.

Wash boarding behavior

From mid-Summer on through Fall, bees will occasionally gather outside the colony and rhythmically move back and forth. The behavior is puzzling. Many beekeepers feel that propolis is being applied, but I do not see propolis-bearing bees in the vicinity. Generally, a wash boarding hive is healthy and productive. Last season a particular hive was really pumped up about this labor. I made a short video tape and posted it at: <http://goo.gl/QMxOM>

Landscaping bees

I have described these bees in past BC articles. Generally, there are

only about six to eight of these bees that seemingly have been assigned tough duty. They seem committed to clearing grass and litter from the hive front – but these are not the bees that remove dead bees from the colony and drop to the ground. These housecleaning bees are definitely in the mix, and are examples of other bees that work tirelessly at colony entrance.

Propolis workers

Commonly, workers can be seen manipulating propolis as though they were working wet cement. Sometimes they will be working in groups in a general area while at other times; they work alone on some self-assigned project. This group seems to be a particularly hard working squad.

Apiary odors

Obviously, there is no way to provide a photo or video that distributes apiary odors. A healthy beehive has an odor that can be detected throughout the apiary. That seems odd at first glance. One use of propolis is to disguise the colony entrance yet the entire area is permeated with *essence of beehive*. Many mammals – including humans – would eagerly use that clue to rob the colony's storage larder. But on the other hand, the blossoms are frequently perfumed to help the bees find the nectar reward. I suppose it carries over that pounds and pounds of concentrated flower nectar would have also have the odor of the floral source. For whatever reason, a healthy beehive with a honey reserve normally has a very pleasant odor.

Sooner or later.

You can only put it off so long. Sooner or later, you will need to actually open your hives. But on those afternoons when all is right with the world, just having a look at the entrance activity can give you a dependable appraisal of the colony's condition – without having to fire up the smoker and suit up, plus I don't have to work so hard. **BC**

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BIGGER PICTURE

Jessica Lawrence

Off The Grid, Not By Choice

I have had a few comments recently that various people noticed that I didn't have an article in the August edition of *Bee Culture*. Each article is submitted two months prior to the printing of the magazine so that there is plenty of time for editing and printing. I decided against my will to live off the grid in June, so I didn't have Internet access to do any sort of submission for my article.

Back in June, we had a storm with 80+ mph winds (I still think it was a tornado) that twisted the trees in half, ripped roofs off neighbors houses, moved barns off their foundations, and caused massive damage overall to my neighborhood. I was lucky because I was home at the time and the giant cedar tree that fell barely hit the house. Two weeks prior I had just finished having new windows installed and new patio doors. When the tree fell, the limbs just barely brushed up to the new doors. While this was a bit of comfort, there were seven large trees that were broken in half on my property in bad places and

a few large limbs from my pecan tree were on top of my backyard fence. A huge oak tree fell across the driveway and a maple in the backyard fell on my shed and smashed through the roof and cracked seven rafters. Besides that, the cedar tree ripped off the meter box and took down the power lines that run to my house, ripping off the siding where the lines go into the house and rearranging my shingles and gutters. To this point in time, that was the last night I spent in my house.

A bit of backstory: I was fixing up the kitchen with new cabinets, countertops, refinishing the floors, new appliances, etc. When the storm came, I had most of the cabinets in but no countertops. Also, the house was built back in the 1950s so it has one bathroom. I had just sealed the deal with the contractor to put in a second bathroom upstairs for the boys and a master bathroom

in addition. This means that the house is in even worse disrepair than just not having electricity. I am extremely lucky to be able to stay with my fiancée, and I'm sure my homeowner's insurance agrees.

I had everything worked out with the insurance and found people to do all the work. The tree guys had to come out and move the cedar before any electrical work could be done, which was understandable. He was a little behind because the entire area was having tree problems, and everybody was booked up, so this took a week or so to get cleaned up. My contractor had an electrician, who I told him was fine, but there were misgivings from the start

because I knew the guy was slow. He also waited so long to turn in my estimate that the insurance adjuster had already sent me a check and was going to have to cut a separate one to make up the difference. I had a couple trips coming up for work, so I asked the electrician if he could have everything done by the time I came home.

He said yes, no problem. I came home, no work done. He said he was going to get it done the next week (I had another trip) and again, I came home to no work complete (or started). At this point, we are into AUGUST and he has done nothing. The house is too humid, things are starting to mold, and I've had to throw away two pairs of shoes!!! This is outrageous. I start calling him daily to get to work. By the third day of this, he informs me that I am bothering him and he will call me; I don't need to call him back anymore. Now is the time that I fire my electrician. I call a different guy, who comes out right away to check out my problems. He takes about 20 minutes to look at everything and assess the damage, and then tells me that the initial estimate was a joke and wouldn't cover the equipment costs. Also, the job is so difficult that it would take him probably two weeks to do it, plus his six



week backlog of work. He also checks out a few things and says that there are other pieces in the electrical system that need to be updated or it won't pass inspection. I'm now coming to the two month mark of not having electricity in the house, which brings me to my revelation of how absolutely difficult it must be to live off the grid. I've always read that the best way to prepare yourself to do that is to turn your power off for a week and see how well you do. I realize now this is not something I am ever interested in pursuing.

There are a lot of things I never even thought about as far as being hindered by a lack of electricity. For example, my bees have not been fed in quite awhile because I didn't have water without electricity to run the pump. Without having power, there is no source of water on my property. This means no clean laundry, no water to drink, no water for the garden, and no water for cooking. It has been a rainy Summer so the garden didn't suffer too much, but that meant the grass and weeds took over. It is incredibly demotivating to know that when you mow and weed and work in the garden that instead of going inside and getting a shower, you have to get in your car all stinky and dirty and sweaty, then drive off and have crusty grass and dried sweat on you by the time you finally get to bathe. I think at the very least, I will have a few gallons of water on hand at all times in the future. I'll also have to think about this lack of water on my land and figure out some alternative source.

I have had a handful of times in the Summer where the air conditioner goes out. You end up plugging in every fan in the house and calling frantically to whoever will listen until someone comes and fixes it. When I was growing up, I spent a lot of time at my grandpa's house and my great aunt, both of which didn't believe in the use of AC. I was fairly acclimated to the outside weather then because I was usually spending most of the day outside, or in their houses. When I moved out to the house I'm in now, I realized I don't like to pay the electric bill and maybe re-acclimating to the outside temperatures would be a good idea. Now, the thermostat is set on AC if the temperature goes over 90°F and heat if it goes below 50°F. Unfortunately without power, there aren't any fans to circulate the air, so you are completely relying on a nice breeze to carry wind through. It could be even worse in

the Winter than the Summer because you wouldn't want to freeze. My godparents installed a woodstove for me a few years ago in this house, so I rarely use the heat. I like it so much I have been known to have a fire when maybe it wasn't really cold enough to need one.

Since I was working on the kitchen, I had removed most of the food prior to the damage, but I still had a chest freezer on the back porch full of food. That was one of the most absolute nastiest clean-up jobs because I completely forgot about it for a good few weeks. Without electricity, there is no way to keep any food cold or frozen. I suppose you could work out something cooler than the ambient temperature, but not full-on cold. I hate hot Pepsi, so this is clearly an intolerable situation. I do a lot of canning and preserving, and I like that type of food, but I can't imagine relying on that for all of your food with no cold storage. The chicken eggs don't have to be refrigerated, but what about milk and butter? More importantly, what about my frozen waffles and ice cream? There are a lot of types of

food that I just don't think you could continue to have in your diet without electricity to keep it cold, but most of those foods are probably things that would be better to not eat in the first place. Even the canning would be difficult because you would have to get used to cooking with fire and not exploding your cans. I don't



know as much about preserving as I would need to know without electricity simply because I don't need to know it. I do think it's something worth investing more time in.

I think the most important thing I've learned is that I'm going to have to invest in alternative energy sources for the farm. In the next 10 years (I think that's a reasonable time frame) I want to try to incorporate solar panels on the house and also use them to run a greenhouse. Generators are going to be a must-have in the future, because an incubator full of eggs is not going to last long without power. I don't know what is going to happen to create a water source, but that will be a top priority in the planning. Having no electricity has made me realize just how completely unprepared I would be if I had nowhere else to go and had a few days of no power. Most importantly, I have learned the true value of a good electrician. **BC**

Jessica Lawrence is a Research Entomologist for Eurofins Scientific, an avid gardener, beekeeper and tattoo collector.

All The BUZZZ in...

Hello Friends,

I hope you had plenty of bees to pollinate your pumpkins.

Bee B. Queen

Bee B. Queen Challenge

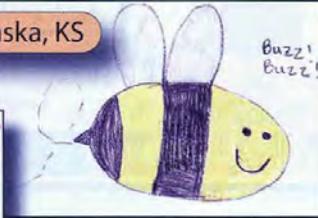
Send me a picture of a pumpkin or Jack-o'-Lantern.

Clare Prohaska, KS

Happy Birthday, Bee B. Queen



Toria Hering, 6, SC



Maile Borkoski, 4, PA

Pumpkin Song

(Tune: I'm a Little Teapot)

I'm a little pumpkin
Orange and round.
Here is my stem,
There is the ground.
When I get all cut up,
Don't you shout!
Just open me up
And scoop me out!



Plenty of Pumpkins

The Cucurbit family of plants includes pumpkins, summer squash, winter squash, cucumbers, melons, and gourds. There are both male and female flowers on the same plant. Let's take a closer look at pumpkins.

The male blossoms are first to arrive to help attract pollinators to the plant a week or two before the female blossoms open. There are more male flowers than female flowers on a plant. Pollen needs to move from the stamen in the male flowers to the stigma in the female flowers to produce a pumpkin. How does that happen? The flowers can't get up and walk around.

This is a job for the Pollinator!

Come on and make my day!



Honey bees and squash bees are perfect pollen movers. So, the next time you take a bite of pumpkin pie you can thank a pollinator!



Male Flower



Male flowers have long, thin stems.

Female Flower



Female flowers have a small bulb looking fruit between the stem and the flower. The female flower will be close to the vine on a shorter stem.

Photos by Anthony Fracasso

Fried Pumpkin Blossoms

20 pumpkin blossoms
1/2 cup milk
2 eggs
1/2 cup flour or corn meal
Salt and Pepper to taste
3-4 tablespoons olive oil

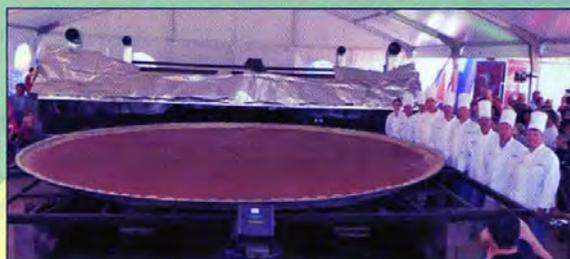
Directions:
Make a batter with the milk, eggs, salt and pepper.
Dip the blossoms in the batter.
Dip blossoms in the flour or cornmeal.
Fry in the oil until light brown.
Remove from pan and place on a paper towel to drain.

... BEE kid's CORNER

Produced by Kim Lehman -www.kim.lehman.com

www.beeculture.com

October 2013



The World's Largest Pumpkin Pie

The world's largest pumpkin pie was made in New Bremen, Ohio in 2010. Believe it or not, this pie was 20 feet across and weighed 3,699 pounds! Would you like to make your own record breaking pie?

All you need is 1,212 pounds of canned pumpkin, 2,796 eggs (233 dozen), 109 gallons of evaporated milk, 525 pounds of sugar, 7 pounds of salt and 14.5 pounds of cinnamon. You can see photos of how the pie was made at http://www.newbremen.com/life/2010_pumpkinfest.

The World's Biggest Pumpkin



Ron Wallace, from Greene, Rhode Island grew a pumpkin that was 2009 pounds in 2012. Yes, that is over one ton!

Photo from Topsfield Fair, MA
October 4th-October 14th

Winter Squash Word Search

Circle these winter squash varieties.

| | |
|-----------|-------------------------------|
| ACORN | F S I A C H B K A Z I H O V Q |
| AMBER | K P S I L C H U W I G S Y I X |
| BUTTERCUP | N A D D X X Y T T A V M J C T |
| BUTTERNUT | A G I R E D N F O T S X A A K |
| CARNIVAL | B H Z E A R B U T T E R C U P |
| CUP | R E D F O B Z A L H N R H R W |
| DELICATA | U T C C U S B M D I I L N J S |
| HUBBARD | T T A F H V J U V E V C D U J |
| SPAGHETTI | C I T W K D F A H N R B L E T |
| TURBAN | Z U M M L E L B K A U S N T S |
| | S Z P A T A C I L E D W V E S |
| | Q Z O H Y B Q N K S P S Q U N |
| | V S M Z J A G U R E U J Q K B |
| | A M B E R A L X Y O R T S G R |
| | X H X Z I C H J S W V S A Z J |

Jack - o' - Lanterns



The name "jack-o'-lantern" comes from an Irish folktale about a man named Stingy Jack. They were first carved in Ireland from turnips and potatoes.

It takes about 85 to 125 days to grow a pumpkin.

Pumpkin Honey Butter

- 1/2 cup softened butter
- 1/2 cup honey
- 3 tablespoons pumpkin puree (canned)
- 1 teaspoon pumpkin pie spice

Place the butter in a mixing bowl, and whip on high speed with an electric mixer until fluffy, about 1 minute. In another bowl, stir together the honey, pumpkin, and pumpkin pie spice until well mixed. Add the honey mixture to the butter, and whip on high with the electric mixer until the mixture is fluffy and smooth, about 1 more minute. Chill.
From Allrecipes.com.



Become a Bee Buddy

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

Name
Address
Age
Birthday Month
E-mail (optional)

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



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

BUILD A HIVE STAND

Ed Simon

Hive Stand – Double

Like most builders, we'll start from the bottom and work our way up. Of course, the hive stand is at the bottom. Although it is not necessary for your operation, it is cheap to build and will make your life a lot easier. Once you level it, it provides a secure base on which to place your hives. Hive stands come in many flavors and styles, from packing crates, pallets, cement blocks to pretty ones for use in well known gardens. Of course the White House in Washington D.C. has probably the best known and most elaborate hive stand in the world. The hive stand's purpose is to keep the hives from tipping over, to keep them off the ground and to provide easy access. The double stand that I'll describe is utilitarian in nature and is extremely stable when the ends are placed on cement blocks. It is made of pressure treated 2"x 4"s and requires no painting to protect it from the elements.



Parts (Thickness x Width x Length)

1. 2" x 4" x 48" – Front and back (2)
2. 2" x 4" x 15 3/4" – Stringers & Sides (4)

Two 2" x 4" x 8' pressure treated boards will make one hive stand with some wood left over.

Construction

Step 1: Cut all the pieces described in the parts list. (It can't get much simpler than this.)

Step 2: On a flat surface, position the pieces out as described in the accompanying drawing.

Step 3: Screw or nail the outside pieces together. Use two 3" screws or three 16d nails for each joint. Make sure the stand is square by measuring the diagonals. The measurements should be equal. If they aren't equal then add a diagonal brace to the stand to square it up before you add the internal stringers.



The internal stringers should then hold it square.

That's all it takes. Pressure treated wood can be placed directly on the ground and survive longer than the non-pressure treated wood.

Thoughts

It pays to have an extra hive stand or two installed, leveled and ready to be used. When you capture two swarms in one day, you can't be bothered with making and leveling a stand.

The double hive stand is easier to level and more stable than the



single hive stand. It is wide enough to support four five frame nucs or two Langstroth style hives with a nuc in the middle. It can also be raised to an easily workable height given enough supporting material.

Hive Stand – Single

Follow the same instructions for building a double hive stand. Like the double hive stand, the single hive stand is made of pressure treated lumber. Because of the smaller footprint it is more difficult to level.

A couple of these sitting in your shed can be a lifesaver when you need to move a hive at the last minute.

Parts (Thickness x Width x Length)

- 1.2" x 4" x 16 1/4" - Front and Back (2)
- 2.2" x 4" x 15 3/4" - Sides (2)

Construction

Step 1: Cut all the pieces described in the parts list.

Step 2: On a level surface, position the pieces out as described in the accompanying drawing.

Step 3: Screw or nail the outside pieces together. Use two 3" screws or three 16d nails for each joint.

Thoughts

Hive Stands are easy to make and easy to use. A hive stand will extend the life of a bottom board significantly. For the cost it can't be beat.

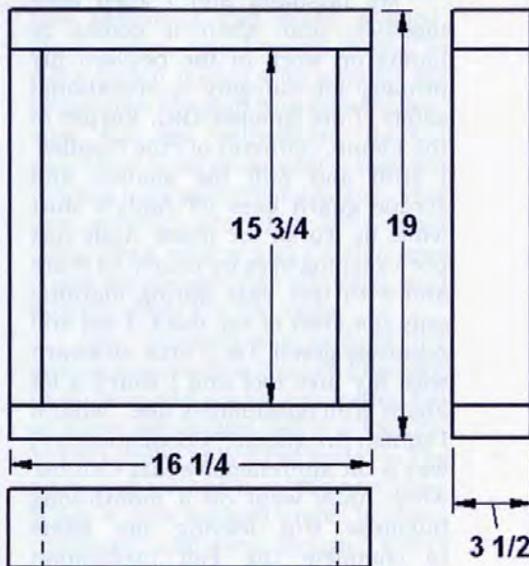
Notes

This article is the first in a series that will provide instructions on how to build a complete bee hive. Get a copy of Ed Simon's book *Bee Equipment Essentials* with detailed drawings, construction hints and how-to-use instructions for dozens of beekeeping tools and equipment from www.wicwas.com. Ed can be contacted through Ed@TheBeeShed.com. **BC**

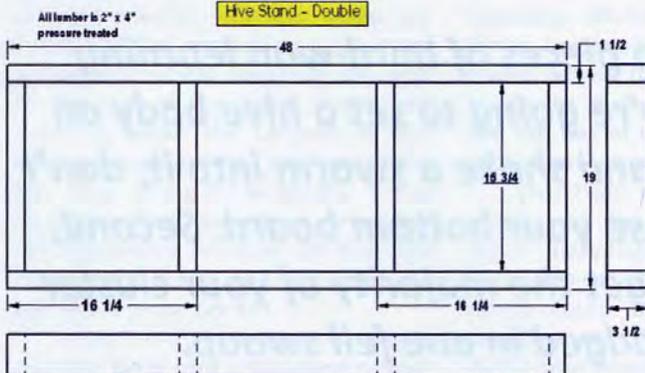


All lumber is 2" x 4" pressure treated

Hive Stand - Single



Hive Stand - Double



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OCTOBER SWARM

Beginners, when it comes to beekeeping, there are two certainties. First, you're gonna lose some bees. Second, there will be miracles. That's just part of it.

Heather Luther

My husband and I keep bees together, and when it comes to hands on work in the beeyard my primary job category is operational safety. I am Smoker Girl, Keeper of the Flame, Gatherer of Pine Needles. I stuff and puff the smoker and scrape guard bees off Andy's shirt while he works the hives. Andy has been keeping bees for nearly 15 years and with this past Spring marking only the start of my third, I am still relatively green. I'm a little awkward with my hive tool and I worry a lot about grim possibilities like, "what if I squish the queen?" Consequently, I was a bit apprehensive last October when Andy went on a month-long business trip leaving me alone to complete the Fall medication

mark my transition from beginner to intermediate beekeeper." From there, I launched into hyperdrive. I became a spectacularly motivated and yet fantastically bumbling beekeeper. A goofball extraordinaire, really.

Remembering that Andy had once stopped a robbing episode by spraying the marauding bees with water until they returned to their own hive I hotfooted over to our heavyweight garden hose and in full protective gear wrestled all 75 feet of it across the lawn to the bee yard. "These little devils," I thought, "I'll fix their wagon." Standing at the top of the yard, holding my garden hose like a well-armed action hero, I furiously misted the supposed aggressors, chanting to myself

Andy and I call the gentlemen with decades of bee experience and expertise that we've met through our monthly bee meetings the "King Bees." One in particular, Lionel, has been a very kind and generous mentor to us, and we appreciate him greatly. That day I called Lionel. I told him Andy was away and our bees were acting squirrly. I described the situation to him and he confirmed it was a swarm. A wacky thing to see in October, sure, but a swarm nonetheless. He had had his own just the day before. He told me I should try and hive it, not with the expectation that it would survive as a whole, but because it had our queen, and the odds of the original hive's new queen getting successfully online at that late date were slim. He asked if I had a spare hive body. I told him I thought so. He described basic swarm hiving procedure to me, and told me to call him back if I managed to get them all in the box. I thanked him and set out, hopped up on adrenaline, to hive my first swarm.

It was dusk, and I had to work quickly. I was certain the bees would depart for their chosen location before night fall. I don't know where I got that notion but I was very committed to it. Panicky about it, really. I pawed through our bee supplies. Plenty of unused supers but no spare hive bodies. What kind of slipshod operation was this? There was no way I could get a proper box in time. I was sad about the inevitable loss of our bees, but I chalked it up to a lesson learned: inventory for contingencies. On the bright side, I could park a camping chair down in the beeyard and at least witness the miracle of a departing swarm. That was a decent consolation. I settled into my chair to await this natural wonder. I estimated it was T minus 20 for departure, maybe less.

Here's two pieces of hard-won learning: first, if you're going to set a hive body on the ground and shake a swarm into it, don't forget to use your bottom board. Second, it's best to get the majority of your cluster dislodged in one fell swoop.

regimen for our six hives. In the end, I got it done, and it was no big deal. The big deal turned out to be the swarm that materialized before me just as I tucked the last hive in for the season.

At first, I didn't recognize the ever-expanding spray of bees as a swarm. Robbing frenzy was my diagnosis. After all, it was October, awfully late for a swarm. Plus, they issued from the parent hive only to land again one hive over, collecting around the edges of the outer cover as they would in a robbing situation. I thought, "Aha! Now here is a problem I can handle and when I do it will

"get back villains!" I was prideful, thinking matters well in hand.

On the contrary, it became apparent that the only effects of my campaign were 50 feet of wet dirt and a whole lot of wasted water. Humbled, I dragged the hose back across the lawn and went inside to devise a new approach. An hour later, sans plan, I returned to the bee yard out of pure curiosity. There I found a cluster of wet, docile bees pasted onto the face of our second hive in a beard-like formation. October or not, it certainly looked like a swarm. I thought, "this situation calls for a 'King Bee.'"

Darkness came, coyotes howled, and the bees remained clustered. The cluster did not turn into a pumpkin. This was a head scratcher; could it also be a second chance at hiving them? Nah, they'd be gone at first light. Still not enough time to produce the supplies. I packed up my chair and went inside.

Early the next morning I carried my coffee out to the beeyard certain I'd find the girls long gone; and yet, there they were, all dew-kissed and sun-lit. That cluster may as well have been the American flag the day it inspired the Star Spangled Banner, I felt such a surge of hope and renewed industry. The bees had stayed overnight, maybe they'd hang around long enough for me to rustle up a box. A catalog order was out of the question, but I remembered hearing about a guy in Decatur, not far from me, who did woodworking for beekeepers. Lindsay Trousdale. Yes, indeed; he was the man to save the day.

Half out of breath and already plugging his address into the GPS, I called Lindsay up and asked if he could sell me a hive body - right now, today - for my new swarm. I think he initially pegged me for a high-pitched, high-strung female with a head full of half-baked notions. Nonetheless, he agreed to sell me a hive body though he was clear that it would be near impossible for the swarm to survive so late in the season. I told him I didn't care. Lionel said I had to save the queen, and by golly I was gonna do just that. Pedal to the metal I drove to pick up my hive body. Pedal to the metal I drove home. Time was of the essence, and it would soon rain. I strapped on my gear and my game face and puffed a trail of smoke down to the beeyard.

Here's two pieces of hard-won learning: first, if you're going to set a hive body on the ground and shake a swarm into it, don't forget to use your bottom board. In retrospect, this seems elementary. At the time I just assumed the bees would *want* to stick to the frames. Not true. Lots and lots of them will fall helplessly into the dirt and stay there. Second, it's best to get the majority of your cluster dislodged in one fell swoop. A swarm hanging neatly from a low lying branch is tailor made for this; all it takes is one quick snip and you're up the road humming a

The only thing worse than herding cats is herding social insects.

tune. However, if you end up like I did with a rascal swarm plastered flat against a wall, you're going to have to scrape it off. Don't be timid here. Instead of your hive tool, you may want to use a dust pan for the extra surface area. The reason is if you get a quarter of the bees into the box only to have them fly out again while you're trying to dislodge the next batch you will quickly develop a not-so-Christian vocabulary. The only thing worse than herding cats is herding social insects.

I wound up carrying my box with but a small fraction of the original swarm inside it up to the shop, bees flying out the bottom all along the way. I set the box down under the carport. I'd had such tunnel vision for corralling them I'd given hardly any thought to where to put them afterwards. I had to think. Although it would be ideal it wasn't feasible for me to put them a full mile away. Instead, I settled on five hundred feet away alongside the boat trailer and hoped for the best. Next I needed to hunt up and arrange a platform of cinderblocks. All the while my relatively few remaining bees were slowly but surely escaping the hole in the top of the inner cover and loitering under the carport. It was now raining and the dog was there too, also trying to keep dry. I was thankful that swarming bees are not aggressive because the dog had been stung before and it swelled his ear like a pizza pocket.

Atop the cinderblocks I arranged my hive body now containing maybe only a handful or two of bees. I tapped in the entrance reducer to protect those precious few. Standing there in the rain, I marveled at both my incompetence and bullheaded determination. I was taking a beating but I'd invested too much in my effort to save the queen to turn back. Most likely she was still in the middle of the original cluster that had reorganized back in the primary beeyard. I had to go after her one more time, but first, I needed to

rework my strategy.

I would need to wait out the weather. On second thought, maybe I could use the rain to my advantage. Cold, wet bees are less apt to fly. Weighed down by water a cluster seems roughly paralyzed, if only for a moment. In any case it should be long enough for me to slip my hive tool behind it and make a good, clean swipe. Also I would switch to a five gallon bucket with a lid for my receptacle. My plan was unorthodox, sure, but my methods up to that point had been fit only for a how not to keep bees pamphlet anyway. This new strategy proved to be a great trick. Start with a wet cluster, give it one big swoosh into a bucket, and quickly apply the lid. Voila.

After shaking the rest of the swarm into the new hive all I had left to do was add a hive top feeder full of sugar syrup and call it a victory. Yeah; hardly. I filled the feeder in the shop and walked it to the new hive. When a rock wedged under my boot I teetered, and even though I didn't drop the feeder, there was some sloshing. Blood was in the water. When I opened the hive to add the feeder it was the first and last time I saw the queen. She scurried over the top bar of the outermost frame, and down, away from the light.

The best minds in Hollywood could not have choreographed a more diabolical scene once word spread to the other hives that simple syrup could be found just a few waggles north. The grisly, protracted battle that ensued was nothing short of biblical. Herculean wrestling matches took place on the ground and in the air. Corpses were flung into the dirt from a hive entrance littered with severed heads, thoraxes and abdomens. No amount of smoke would deter the savage cavalcade of robber bees, and no measure of devastation would persuade the swarm hive to concede defeat. There was no tap-out. Down to the last nurse bee, my new colony fought to its extinction.

My crusade to save the bees was actually the catalyst of their undoing.

My crusade to save the bees was actually the catalyst of their undoing; and for that, I am sorry. I should have left the swarm alone from the beginning, free to zip off into the pines when the time was right. I realize now that my intense drive to hive that swarm may have stemmed from the simple fact that I just didn't want to let them go. Beyond saving the queen or the parent hive, creatures I had cared for, and even sung to, were fixing to up and leave without a thought for me, and I wanted to stop them.

Bees fly away. As my husband would say, "that's just part of it." In other words, get over it lady. Pick up your smoker and puff on. Bees are not puppies. They are purely wild creatures, and sometimes war-mongering savages. No matter how sweetly you sing to them they are not going to love you. That's just a fact; don't let it ruin your mascara.

True enough. Bees could care less about their keepers. The good news is the ineffable force that animates those bees thinks you're pretty special. If you want proof, open a super in the spring. Tell me all that sparkling sweetness doesn't look and feel like grace. Tell me the lavish abundance of a bottling bucket full to bursting isn't a big, sticky-wrapped Valentine from the Powers That Be. Every pound of honey is a pound of miracle, and the more you learn about bees the less you can argue with that.

Beginners, when it comes to beekeeping, there are two certainties. First, you're gonna lose some bees. Second, there will be miracles. That's just part of it. **BC**

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Winter Honey In A Top Bar

How Winter honey is organized in a top bar over Winter is critical.

Wyatt Mangum

Top bar hive beekeepers need more information disseminated on seasonal management and to assist colonies in surviving the Winter. So I was pleased to see Christy Hemenway's informative article *Winter in a Top Bar Hive* in the September *Bee Culture* (page 58). We are also fortunate that Kim Flottum, the editor *Bee Culture*, has been publishing articles to help top bar hive beekeepers, who are among the newest members of our beekeeping community.

Having kept bees for over 40 years, the last 25 years with some 200 top bar hives and studying how the bees work in this hive design, I would like to add some bee behavior details that should complement Christy's article. I will confine my descriptions mostly to the *organization* of the Winter honey in a top bar hive and to uncapping honeycomb, an important bee survival behavior seen in early Spring. I have plenty of interesting photographs, and this is the first time publishing the uncapping photographs. So let's begin.

In addition to the amount of honey Christy described to survive a top bar colony through the Winter, the organization of that honey in the hive is critically important for colony survival. The Winter cluster forms at the former brood nest location, although no brood may be present (Figure 1). During the cold period, the Winter cluster must stay in contact with its honey reserves to produce warmth. Individual bees do not leave the cluster to feed on honey from other places in the hive since the cold would kill them. To continue fueling the Winter cluster, it moves up slowly on the comb, which typically happens

over the Winter. (The cluster cannot move horizontally in the cold.)

Therefore initially in the Fall, the proper honey organization in a top bar hive is to have wide bands of honey over the former brood nest location. On the lower parts of those combs, specifically in the central core of the cluster, empty cells should be present for the bees to crawl into, filling that space with the bees themselves, allowing the cluster to become more compact and to retain additional heat. Figure 2 shows a Winter cluster in a single-comb top bar observation hive, one of 30 hives I employ for various experiments throughout the year. Think of this little colony as a "slice" of a larger multi-comb top bar cluster. Note how the wide band of capped honey surrounds the upper part of the cluster. A larger colony would have a similar configuration of bee coverage and capped honey on several combs. Finished combs of honey, that is, solid capped honey from the top bar to the hive floor (Figure 3), should be close to the cluster on its side away from the entrances, which is the natural storage location for most of the honey in a top bar hive.

During warm spells, temperatures above 57°F, especially as Spring approaches, the bees break cluster. Some of them venture to these honeycombs (and to other honeycombs further back in the hive). The bees chew open the caps, and move the honey to the cluster. Figure 4 shows the bees moving honey during the Spring in one of my top bar hives. Note the uncapping pattern on the comb, which is a bit subtle, but typical. The bees start uncapping mostly from the upper corners and proceed



Figure 1



Figure 2

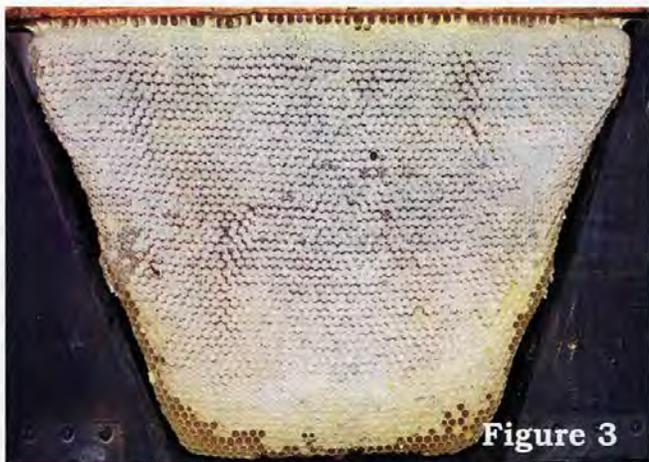


Figure 3



Figure 4

towards the center of the comb. This uncapping behavior tends to leave a shrinking central patch of capped honey on an otherwise empty comb as opposed to a thinning upper honey band, a common condition seen in a Summer dearth. Figure 5 shows a closer view of the uncapper bees on another comb. Most of the bees form a partial ring right where capped cells meet uncapped cells, precisely the work area for uncapping. Figure 6 shows a close up of uncappers almost finished uncapping a comb. The bees continue to chew open the caps, forming a ring around an area of capped honey, curiously clear of any bees. When opening a hive, any vibrations through it could easily cause the bees to scramble across the comb, obliterating the ring-uncapping behavior. The uncappers immediately appear as merely non-descript bees wandering aimlessly on a comb far from the main cluster. Beekeepers routinely miss seeing this interesting behavior. With training however, top bar hives can be easily opened with stealth, preserving this and other delicate and easily disturbed bee behavior.



Figure 5

This honey movement is limited by uncertain episodic warm snaps. From a bee management perspective, I do not depend on uncapper bees to (mostly) fuel a strong colony, particularly one expending a considerable amount of extra food supporting a growing brood nest while low on close-contact honey. This condition is seen notably with depleted honey bands that may now be substantially occupied by brood. Besides feeding sugar syrup, another food consumption that can be stopped by the cold, I also move honeycombs to contact the *edge* of the brood nest during my early Spring inspections (being careful not to break up the brood nest with honeycombs). These honeycombs come from areas of the hive well away from the cluster or from donor colonies with excess honey. Figure 7 shows such a donor colony. Look at the honey bands, which would not be quite wide enough for placement over a Winter cluster starting in the Fall. Nevertheless, the combs have sufficient honey for Spring feeding including any additional honey in the uncapped cells.



Figure 6

I load these feeding combs on the bee truck when preparing for early Spring inspections of my out apiaries. With these combs, I can quickly correct emergency feeding problems at distant locations (usually without a return trip). Also while tempting, one may want to move finished honeycombs (Figure 3) deep *inside* a brood nest, giving the bees maximum honey per comb. That is not recommended because as noted above the bees need some open cells to crawl inside to properly form a Winter cluster



Figure 7

when the cold returns. In the Fall, a related error would be moving finished honeycombs into the former brood nest location, where the Winter cluster will form, trying to feed a colony. On the other hand when feeding sugar syrup, the bees organize it correctly in the hive provided there is empty comb storage space.

The information and photographs described here are just a small part of a much larger and compelling subject: top bar colony *management*, which is the application of honey bee biology to maintain healthy productive colonies in a horizontal hive design. Most importantly, a top bar hive beekeeper should learn colony management.

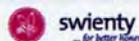
I started keeping bees when just 10 years old upon meeting my first beekeeper, who enticed me away from my first stinging-insect love – wasps. I had a routine of knocking down and collecting the paper nests, which I kept in my bedroom in a little box, letting the wasps emerge, definitely a dicey occupation for a youngster. Since I was not from a beekeeping family, I learned most everything on my own. As a result, I considered apiculture books written by experienced veteran beekeepers of high value. Over the years, I accumulated numerous books on all aspects of beekeeping. And I still have them today. While learning beekeeping, sorting out the basics, my books, like wise friends, saved me considerable expense and time, sparing me the misery of repeating the mistakes of others, giving me new ideas. Priceless. That book collection was for frame hives, nevertheless it helped me build up my operation to 125 frame hives by my high school days, producing honey by the ton. Top bar hive

beekeepers should likewise be well read in their version of beekeeping and in my opinion build up their personal beekeeping libraries.

Recently a few books on top bar hive beekeeping have appeared in America to fill a void in the literature: *The Thinking Beekeeper* by Christy Hemenway and *Top-Bar Beekeeping* by Les Crowder and Heather Harrell. My contribution is *Top-Bar Hive Beekeeping: Wisdom and Pleasure Combined*. For more information on my book and to see numerous pictures of my top bar hive operation including training videos, please see the website TBHSbyWAM.com. **BC**

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Manuka Fraud

All manuka honey comes from New Zealand and UMF Honey Association research shows that while 1,700 tons is produced each year, as much as 10,000 tons is sold annually worldwide. It's a loaves and fishes miracle!

Alan Harman

The New Zealand Bee Products Standards Council says part of the problem with the global scandal now engulfing the country's lucrative NZ\$120-million-a-year manuka honey industry is the lack of a recognized single standard defining the honey and its properties.

Council chairman Jim Edwards tells Radio New Zealand the industry needs to agree on the parameters that should be used for manuka honey across the whole industry.

"There are different properties that different producers are claiming so what we need to see is a uniform, agreed body of standards that can be applied," he says.

In a statement, signed by Edwards, the council said it has been aware for some time of the positive results for testing done in some importing countries.

"The BPSC has no evidence of any deliberate adulteration occurring in New Zealand," it said

The Unique Manuka Factor Honey Association has set a standard, but other groups have developed their own values.

Edwards commented after complaints from as far apart as Hong Kong and the United Kingdom that manuka honey flooding the markets was either adulterated with syrup or not even manuka honey.

The honey comes from the nectar of the manuka tree, *Leptospermum scoparium*, a species of flowering plant in the myrtle family Myrtaceae, native to New Zealand.

It is also called manuka myrtle, New Zealand teatree, broom teatree, or just tea tree.

The honey sells for 10 to 20 times more than other types of honey because of its medicinal and anti-bacterial properties.

All manuka honey comes from New Zealand and UMF Honey Association research shows that while 1,700 tonnes is produced each year, as much as 10,000 tons is sold annually worldwide.

The *New Zealand Herald* reports Britain's Food and Environment Research Agency tested five brands of manuka honey taken from shop shelves. Only one, made by Comvita, the biggest manuka honey producer, was up to standard. The other four showed no detectable non-peroxide activity, the anti-bacterial properties special to manuka honey.

It says Britain's Food Standards Agency (FSA) then issued a nationwide warning about misleading claims on manuka honey jar labels.

An FSA spokesman tells *Bee Culture* the agency was responding to a Sunday Times investigation into the issue of mislabeled manuka honey.

"Manuka honey represents about 2% of the UK market and we believe most is genuine and labeled according to the law," the spokesman says. "The FSA and Defra

(Department of Environment, Food and Rural Affairs) have been alerted to potential labeling issues with Manuka honey and have asked local authorities to undertake surveillance to show whether this is the case."

However, UMF Honey Association data shows 1,800 tonnes of "manuka" honey is sold in Britain each year – more than New Zealand's entire annual production.

A 250-gram (8.8-oz.) jar of manuka honey – a genuine or fake – sells for as much US\$55 in the UK.

It is so pricey, UK retailers now put security tags on the manuka jars after a spate of shoplifting losses.

The UMF Honey Association says of 73 samples it tested in Britain, China and Singapore, 41 failed to show the non-peroxide activity claimed for manuka honey. Hong Kong authorities found 14 of 55 manuka honey samples tested were adulterated with syrup. Other tests found some of the honey was not manuka.

Association president John Rawcliffe tells the Herald there are higher and ever-increasing volumes of honey labeled as manuka which are not manuka.

"We knew we sold more 'manuka' overseas than has ever been produced . . . we've been spending everything we've got to work out how to stop this fraud, and the only negative thing is that we should have done it quicker," he says.

But the problems besetting the industry should come as no surprise.

It was given a heads-up warning by Primary Industries Associate Minister Jo Goodhew back in June when she warned the National Beekeepers Association conference there continued to be questionable marketing of manuka honey.

"Misleading overseas consumers about the quality of product labeled manuka honey has the potential to seriously damage not only the industry, but New Zealand's international credibility as an exporter of premium food and beverage products," Goodhew said at the time.

The wide variety of claims made about manuka and the different ways of advertising its 'activity levels' were confusing to overseas consumers, and making it hard for buyers to be sure of what they are getting.

"I know that there has been disagreement within the industry over branding and standards of manuka honey," she said. "Getting consensus on these issues for such a high value, in-demand product can be challenging, but I believe it is an issue which needs to be resolved in order for the industry to gain the full benefit from exports of manuka honey to overseas markets."

Goodhew gave a warning that the health food sector does not forgive easily.

"Any tarnishing of the value of manuka honey through misleading labeling or tainting of the product would be

extremely difficult for the industry to come back from.”

Goodhew told the conference that Chinese authorities last year told the Ministry of Primary Industries last year that they estimate that there is four times as much manuka honey being sold in China as is being sent there from New Zealand.

She announced that the ministry would be leading a process to develop a definition of manuka honey.

“The definition could be used as a basis for labeling rules and provide a yardstick against which competing products labeled as “manuka” from other countries can be assessed in offshore markets,” Goodhew said.

“Once developed there may need to be changes to how some “manuka” products are marketed.”

Food Safety Minister Nikki Kaye says in a radio interview she expects new labeling rules to emerge in the next month from work the industry and the ministry has been doing.

New food legislation now before a parliamentary select committee will also contain harsher penalties for incorrect labeling.

Meantime, the UMF Honey Association is working with overseas agencies to create a testing regime.

“We’ve got a network of labs, both in China and the UK, we’re working with Europe and hopefully the United States, we’ve worked with Singapore and we also are linking getting verification done on our work with Australia and within Germany as well,” Rawcliffe tells reporters.

Always ready to make a political buck, the opposition Labor Party’s Primary Industries spokesman Damien O’Connor blamed the Ministry for Primary Industries for failing to protect producers.

“The ministry just stood by despite the industry acknowledging New Zealand was selling more manuka honey than it produced,” O’Connor says in a statement.

The unique anti-bacterial properties of manuka honey were first scientifically established in 1982 by Prof. Peter Molan of New Zealand’s Waikato University.

But Kaye didn’t help the situation when she said one of the problems with manuka honey labeling difficulty was that there aren’t any clear scientific markers – a claim stridently denied by the industry.

The UMF Honey Association grades the nectar on its Unique Manuka Factor rating ranging from 10 to 25 with the higher the rating, the more potent the honey. But some manuka honey producers say this system is unreliable.

Exporter Manuka Health New Zealand Ltd. chief executive Kerry Paul says scientists in New Zealand and Germany agree the key non-peroxide compound – methylglyoxal – responsible for the antibacterial activity of manuka honey, can be measured and quantified.

“Manuka Health has led the way in developing a robust scientific method to quantify the actual amount of methylglyoxal in our manuka honey products,” Paul says in a statement.

He says Prof. Thomas Henle, head of the Institute of Food Chemistry at the Technical University of Dresden, identified methylglyoxal in 2006 as the dominant, measurable ingredient responsible for the antibacterial activity of manuka honey.

Henle says a labeling system has to be scientifically sound, based on a method which is published and can be used in any laboratory. “This is definitely the case for methylglyoxal manuka honey labeling,” he says.

New Zealand’s Federated Farmers group is encouraging manuka honey exporters to test their product prior

The unique anti-bacterial properties of manuka honey were first scientifically established in 1982 by Prof. Peter Molan of New Zealand’s Waikato University. Prof. Thomas Henle, head of the Institute of Food chemistry at the Technical University of Dresden, identified methylglyoxal in 2006 as the dominant, measurable ingredient responsible for the antibacterial activity of manuka honey.

to export following the identification of cane sugar (C4), by the Consumer Council of Hong Kong.

“Manuka honey is different to other honeys; it causes a standard sugar test to inaccurately report contaminated samples,” bees committee of management member Peter Bell says in a statement.

“This is why the industry has invested money and effort to work with, Dr Karyne Rogers of GNS Science, to evaluate the conventional test that has been used to date, for accuracy with regard to manuka honey.

“This process has led to GNS Science developing a test, which is now accepted by the Association of Official Analytical Chemists as suitably identifying C4 sugar contamination in honey.

Results reported by GNS Science, that tested samples, returned only a 6% fail rate compared to 30% under the existing testing methods.

“We are concerned about the damage to our industry’s reputation from the few occasions where C4 sugars have been identified,” Bell says. “Feeding sugar to bees is a common practice during periods of low floral resources, to build them up in preparation for honey flow. However, when using best practice for this method, there should be no contamination issue.”

Comvita chief operating officer Scott Coulter says the sector needs to be cleared of cowboys.

He tells the Herald pots of manuka honey labeled with meaningless numbers and certifications are designed to confuse customers who thought they were getting UMF product with measurable health benefits.

“They can buy a 20+ honey thinking it is manuka and it is not,” he says. “People will use it and not get any benefits and that damages the reputation of the product and the industry.”

One Manuka honey producer says he knows the way to get rid of those cowboys.

Mossop’s Honey managing director Neil Mossop tells Sun Media that halving the price of the honey would rid the industry of many fly-by-night beekeepers.

“It sounds extreme, but a significant drop in price would weed out the cowboys who have entered the industry just to make a quick dollar on the reputation reputable beekeepers have built up over 20 years for the benefits of manuka honey,” he says.

Mossop says the closest some of the bees claimed to have produced manuka honey have come to manuka flowers, “is when their hives are driven passed it on the roadside.” **BC**

THE WALT TOP BAR HIVE HONEY EXTRACTOR

Walt Dahlgren

Now An Easy Way To Process The Odd Chunks Of Honeycomb

Well, you have built the Walt Bee Vac shown in the September 2012 issue of *Bee Culture* and built the Top Bar Hive from various available plans. Then you captured a swarm of honeybees with the Walt Bee Vac and installed them into your top bar beehive. That was all last year.

Now the bees have produced many honey combs and you want to make comb honey and strained honey. But how do you process the odd chunks of honeycomb?

Make the Walt Top Bar Honey Extractor!! (Bees Work And Love Them).

Review the pictures!! Simple!! Four five-gallon pails, one square foot of $\frac{1}{2}$ inch wire mesh, a few screws and nuts, one honey gate and a paint strainer bag are all the materials required.

I assume you have your table saw and a saber saw in your workshop.

First, cut an eight-inch diameter hole on the bottom of #1 plastic pail with your saber saw. Then cut a 10-inch diameter piece of $\frac{1}{2}$ inch wire mesh to fit into the bottom of this pail. Secure the wire mesh with eight screws and nuts. Your comb crusher is complete.

Next, cut about 2-3/4-inches from the top of pail #2. Check to be certain when inverted this pail will set into the top of pail #3, which will be the honey storage unit. Then cut off about one inch of the bottom of pail #2. Now check to be certain pail #1 will fit into inverted pail #2. Trim more if required for the fit. (Note-this pail is inverted





to allow honey to flow through the sides of the strainer bag as well as the bottom portion giving more area for the strainer to function).

In pail #3, cut a hole and install the honey gate.

Now cut a one-inch high ring from pail #4 as shown in the pictures. This ring holds the strainer bag in pail #2 to prevent sliding into pail #3 when straining honey. Cut another ring if the first doesn't work. I had some rings left over from making the Walt Bee Vac.

To use this simple inexpensive honey extractor:

1. Place pail #2 inverted on top of pail #3.
2. Fit straining bag into pail #2 and secure with locking ring, push firmly down to hold bag in place.
3. Fit pail #1 into pail #2. If all goes well with your fabrication, the stack should stand firmly upright and be 33 to 36 inches high.
4. Place your odd chunks of honeycomb in pail #1 and crush gently with a wire style potato masher (ask your wife if you may borrow hers or where you may buy one).
5. The honey and some wax particles will fall through the screen into the straining bag. It is not necessary to force all of the wax through the

screen, just break all of the honey cells.

6. Place cover on pail #1 and leave in warm room to allow the honey to drain from the crushed honeycomb.

7. Using the honey gate on pail #3, this honey may be easily bottled without messy transfer of the honey from one pail to another.

I originally made the extractor to process honey combs found when removing colonies from buildings. The odd pieces of honeycomb needed to be crushed to drain the honey. Squeezing by hand was messy. This works much better and is less sticky.

Here is another use for this extractor. Various articles in bee publications suggest scraping the honey cells from the frame when plastic foundation is used. The honey and honey cells can be scraped from the plastic foundation into pail #1 with a putty knife. Then scrape the remaining honey from the foundation with a flexible rubber spatula. This is an easy inexpensive way to harvest honey for those of you who have one or two supers.

Wow!! Another use for the beekeepers favorite versatile piece of equipment - the plastic five-gallon pail. **BC**

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What's Next After The Honey Harvest?

Here's what you need to know about labeling.

Ann Harman

Your settling tanks are filled with beautiful honey so it is time to bottle some and ready it for market. But first you decided to put some into containers for your family's use and some for giving to other family members. Stop for a minute! Did you just grab some old mayonnaise and spaghetti sauce jars? You probably think that Uncle Ned and Aunt Mary don't care what the honey is in; they just would like some for tea and toast. So your lovely golden honey will be sitting in disguise in their kitchen in a jar that says 'Tasty Mayonnaise' on the lid but no label.

Golden honey looks almost identical to apple jelly; dark honey can resemble sorghum or molasses; very pale or water white is a bit of a mystery. Perhaps you think why waste a jar and label on someone who knows what is in the jar. But your family and Uncle Ned and Aunt Mary are not the only ones who will see those jars on a kitchen table. Friends and neighbors stop in for a cup of coffee or a short visit. 'What's that stuff in the jar?'

Oh-oh - your honey has just been called 'stuff.' That is not nice. Your label on those jars would have prevented that question. But there may be other reasons why reusing containers with their original lids are not good ideas. Plastics absorb both colors and odors. These do not necessarily wash out, even after a trip in the dishwasher. The plastic gasket fused to a pickle jar lid will impart that pickle odor and some faint

taste to the honey in that jar. (A gift of Washington State wild raspberry honey sent to me smelled and tasted of the previous jar contents - pickles, as proclaimed on the lid.)

Honey containers come in all sizes and shapes, and the lids for them are new and odorless. Those nice containers with your labels are an extremely important part of marketing. The jar with the label is what attracts a customer and makes the customer want to purchase the honey. After someone has bought a jar of your honey you really have no idea of how many other potential customers your labeled jar will reach.

Perhaps you have already found what sorts of honey containers your customers prefer. So now we need to consider labels. Before you start to think about your own personal honey label there are a few things you need to know.

First of all, and very important, there are legal requirements for food labels. Yes, honey is a food. Now, before you start grumbling about being told what to put on a label, please keep in mind that the requirements are actually quite simple and excellent marketing. So let's see what is required.

The word 'honey' must be very visible on the front of the label. After all you want to attract a customer, no matter whether in a shop or at a farmers' market. You can use a floral source ('sage honey' for example) only

if that is the predominant blossom. That can be difficult to determine, even with pollen analysis.

You need the net weight. This must be in pounds and/or ounces AND in metric weight. If you look at the cans, jars and packages of food you buy you will see both on their labels. For one pound you will use 454g. You can easily figure out other weights. Now this information goes on the lower third of the front label in easy-to-read type.

The next requirement is called contact information. Produced by (or packed by if you bought bulk honey and put it in jars) your name or apiary name and address. You may put telephone number or email address if you wish. This information goes on the front label in at least 10-point type (1/16 inch tall). (The type on this page is nine point, so the type on your label will have to be one point larger.)

You certainly can put decoration on the front label but it cannot obscure the three essential items given above. See, the main requirements are really quite simple. In addition the customer - and their friends - know where to obtain your delicious honey. Good marketing.

Now we need to look at some other aspects of labeling.

The Nutrition Facts Label. You are probably familiar with this black and white label on the containers of foods you buy. Must honey have one of these labels? If you are a small producer or company you can apply for an exemption. 'Small' means selling less than 100,000 units per year for a small company having fewer than 100 employees. In addition you do not have to file for exemption if you are not an importer, have fewer than 10 employees and sell less than 10,000 units per year.



If you use certain descriptive words like 'healthy,' or other nutritional claims, on your label you must have a Nutrition Facts Label and, in addition, indicate where that label is to be found ('See back panel,' for example).

Fortunately the Nutrition Facts Label for honey can be a very simple one. Don't try to design it yourself – there are specific requirements. You can purchase this label from bee equipment suppliers that sell labels. It is interesting to note that this label actually encourages sales simply because it shows 0% fat. It may seem difficult for beekeepers to think of honey containing fat, but your

customers are not beekeepers! I have sold quite a few jars of honey to customers who read the 0% fat on that label.

Universal Product Code(UPC) You know this label by its common name

– **bar code.** You only are required to use this label if asked by a store that will sell your honey. These codes are used by retailers, large and small, to keep track of inventory or sales and orders. You cannot just create one. You must contact GS1 – US (formerly Uniform Product Code Council), 7887 Washington Village Drive, Suite 100, Dayton, OH 45459. Phone: 937-435-3870. Website: www.gs1us.org. Email: info@gs1us.org. You will be assigned an identification number. You then can have the labels printed

Organic Labeling Requirements

The words 'organic' and 'natural' do not mean the same thing. You cannot use the word 'organic' and the green and white label unless your bee operation meets the national standards. For information visit the National Organic Program website at www.ams.usda.gov/AMSv1/nop. Misuse of the word and label carries a fine.

What about the word 'natural?' You will see it on so many products

today. Just walk the supermarket aisles and you will find it everywhere. The Food and Drug Administration has a specific position in its use, but does not have a formal rule. 'Natural' can be used to indicate that nothing artificial or synthetic has been added.

Customers frequently ask if the honey is 'raw.' In their minds the meaning would be that the honey has not been heated by the beekeeper. Basically it is a marketing term that has no official definition.

Sometimes beekeepers like to add something to their honey to give it special appeal. If anything, natural or artificial (synthetic), is added to honey, you are *required to list the ingredients* in order of quantity. Depending on the additives, the nutrition information may need to be changed.

Powdered flavorings, such as lemon, have been popular. Such flavorings can be freeze-dried or artificial. Even if only a small quantity, an ingredients label is necessary. Cinnamon is another favorite additive. Yes, it and other spices must be listed on an ingredients label. If you are creating a product with peanuts or tree nuts these are considered two of the eight major food allergens and must be listed.

Today essential oils have become popular for a variety of reasons. You cannot just lump them together as 'essential oils.' Every oil must be listed in the order of quantity, highest to lowest, on an ingredients label. The consumer needs to know exactly what has been added to the honey in case the consumer is allergic or sensitive to one or all of the oils.

Any words on your label that indicate that your product, whether pure honey or honey with additives, is beneficial for a disease or condition puts your product into an unapproved drug category and can cause investigation from the Food and Drug Administration. Unsubstantiated or undocumented claims or comments or terms should not appear on your label.

Remember that shipping your honey across state lines to be sold is considered interstate commerce and is regulated by the Food and Drug Administration. Your honey, with or without additives, must meet all the requirements for correct labeling, as well as for safety and sanitation in

preparation.

It is interesting that different colors on labels convey information to customers. Green, for example, means decaffeinated or low fat. Yellow suggests cheap. Black is used for upscale or gourmet honeys suitable for that type of shop. Blue is frequently found on seafood. However a yellow flower would not indicate cheap but rather something for the bees. Transparent labels have become popular. Remember in selecting a transparent label you must consider the color of your honey in the jar. That is the 'background' color of the label. Be certain the words are very visible with the combination of a transparent label and your honey.

Small labels are available: 'local honey' is useful especially in farmers' markets or shops for tourists; a label explaining natural crystallization and how to reliquefy is quite helpful for the customer who may think the honey has spoiled.

You may decide to design and computer-print your own labels. Many problems exist with this approach. First get help from a commercial artist who can design a simple but effective label. College students taking commercial art classes could use designing a honey label as a class project.

Another problem with homemade labels is the ink in inkjet printers. Normal ink is not waterproof so when the customer wipes off a sticky honey jar the print is immediately smeared. Waterproof ink is available. But this type of ink leads to another problem. The label stock commonly available is not waterproof so that after a few wipes with a wet cloth the surface of the label is degraded. In addition waterproof ink may not print out onto waterproof label stock. In order to have a presentable label the solution is to have your label professionally printed.

So before you begin your search for or design a good honey label with correct information, open up the National Honey Board website: honey.com. You can read through their sections on labels and be sure to go to 'More Information on Labeling' that gives you other sites to visit including the Food and Drug Administration (FDA).

Labels are about marketing. Your honey deserves beautiful legal labels. **BC**



Got A Question?

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Phil Craft

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From Phil to Bee Culture readers:

Honey bee colonies can be maintained in man-made hives utilizing a variety of materials and architectures. Even the traditional Langstroth hive accommodates multiple configurations. Though most beekeepers – including me – use two deep brood boxes, some prefer three or more shallows or mediums. Some like eight frame hives. As my friend Kent says, “The bees don’t care”! In recent years we have seen an increased interest in what are known as top bar hives. For those of you not familiar with them, they are an alternative to the Langstroth hive based on a horizontal rather than a vertical design. Instead of multiple boxes stacked on top of each other, they comprise a single box which contains well over ten frames. The frames themselves consist of a top bar only, instead of the four sided frames in a Langstroth. These bars fit together snugly, limiting the ability of the bees to come boiling out in large numbers when the hive is being worked with the lid off. This is a real advantage in Africa, where I am told the top bar hive was developed, and where the bees are much more defensive than those in most areas of this country.

Whereas honey production from top-bar hives may be less than that of Langstroths, they also have the advantage of low production cost if you make them yourself, and their simple design makes home production very feasible for those with even the most basic woodworking skills. Perhaps another reason for their growing popularity is that their single level construction means no removing and replacing of heavy boxes in order to work them. In top-bar hives, the entrances are typically one or more drilled round holes instead of the wide horizontal entrance most of us are accustomed to. That leads in to the following question.

A beekeeper in Oregon writes:

Help! Is there anything else I can do about robber bees raiding my top-bar hive? These robber bees are larger than my bees (a Russian/survivor stock mix that have overwintered well since I began beekeeping last summer on my ranch at 2500 feet in North-Central OR). They have solid black abdomens and emerge from my hive licking their chops (do bees have “chops”?)! I’ve reduced my entrances from three holes to one hole, but it seems like these large bees are just too overpowering. I’ve thought about putting some bee syrup inside my hive, and closing it up for several days to discourage these robbers to find another source – is this wise? Can you suggest something else? Thanks for your input!



Robber screen on a top bar hive. (photo by Ronnie Johnson)

Phil replies:

Robbing is a common problem for beekeepers, and top-bar hives are obviously not immune to it. In my July 2013 “Ask Phil” column, in response to a question from a beekeeper, I discussed the behavior of strong hives robbing other, typically weaker, colonies. Reducing your hive entrance to one hole may be enough on its own to solve the problem. One of the first things we do when robbing occurs in a conventional hive is to insert entrance reducers which give the bees in the hive being robbed a smaller area to defend.

I have found that robbing is sometimes a one day affair; if I can slow it down until dark, it often does not reoccur the next day. I will sometimes completely seal the entrance during the day, using burlap or grass, and remove it in the evening. Better yet, one could use screen, which would allow for ventilation. In Summer, we have to be careful about reducing ventilation and causing a hive to overheat. If your colony has sufficient food stores, feeding with syrup inside the hive should not be necessary. In fact, it can trigger more robbing.

On a conventional hive, if the robbing behavior persists, I use a robber screen which prevents access to the hive by robber bees, see the photo. Perhaps you could construct a modified version for your top bar hive? The idea is that the robber bees come to the screen and attempt to enter the hive directly. The bees which belong there will find and use the more indirect route through

the hole at the top of the screen. This design also allows me to completely shut the gate type openings and close off the hive, if the screen alone does not work, then easily reopen it later. I have found these screens – whether purchased or homemade – to be very effective. Good luck! Let me know how it goes.

I love the ingenuity of beekeepers. Here is a follow-up from my Oregon correspondent:

Thanks, Phil, for such a quick reply to my plea. My research on the Internet had informed me about the existence of a robber screen device for a Langstroth hive. My husband helped make a version of a screen for my TB hive, which we then modified after I received your email reply to my plea (thank you, again), along with the photos of your superior rendition. I screwed the screen directly onto the body of my hive, which has three side entrance holes instead of end holes, after the bees had returned to the hive for the night (after 9 pm). I took the photos the next day. The two entrances at the top were made from pieces of a plastic cream cheese container lid (recycling!). The robber screen worked. I did see a few of what I identified as robber bees on the bottom of the screen, in the vicinity of the three original entrance holes, now protected behind the screen. I didn't see any finding their way up to the new entrances.

A beekeeper in Indiana writes:

Thanks for your newsletter! Glad to hear you are still finding time to share your expertise!

You were a great help to us last year as new beekeepers, although my husband and I still managed to lose our hive. We started this year with two nucs and have had to re-queen one of them one time and the other twice. This is not sounding so great already is it! The one that has only been re-queened once, appears to be doing fair, with lots of honey in the top deep and some capped brood, larvae and some eggs in both top and bottom box. Most of the honey is in the top box, in fact it is so heavy my husband can hardly lift it. My question is about some of the capped honey – the caps on one of the frames are half very dark brown and half tan on each cell. It looked like a problem to me, so I opened some of the cells and it looked like regular honey. Do you think everything is OK? Any advice you can give would be appreciated.

Thanks so much,



American foulbrood. (photo by Zachary Huang)

Phil replies:

When honey is first capped, whether in honey supers or in the corners of brood frames, the cappings are typically very light in color – sometimes almost white. However, it's natural for cappings to discolor over time; this is not a sign of disease. The darkening is caused by bees *tracking* propolis or other debris over the cappings with their feet. The change is often more evident in overwintered frames, since honey left on the hive all winter has more time to age and the cappings to darken. Capped honey in supers is normally harvested before it has time to darken excessively, so we usually do not see extremely dark wax in supers. Beekeepers preparing comb honey for sale or to show at fairs prefer to use freshly capped honey, harvested before the bees wipe their little feet on the cappings. I recall how my mother reacted when I tracked up her freshly mopped kitchen floor with my dirty, bare feet in Summer. I guess there is no one to teach the bees better manners.

I understand your concern, however, about discolored – almost black – frames of honey. Dark cappings (though on brood, not honey cells) are frequently mentioned as a symptom of American foulbrood (AFB). I get more than one desperate message each year from beekeepers: *I'm seeing dark cappings – do my hives have AFB?* I made a similar call to one of my beekeeping mentors when I inspected the brood frames of my first hive. Since it's such a common cause for concern, maybe this is a good



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opportunity to talk a little about AFB and what it looks like when it is present.

AFB is a bacterial disease which infects larvae when they are very young, but symptoms are not obvious until after the brood cells are capped. Hence, diagnosis is typically made by inspecting capped brood. The textbook description of a frame infected with AFB is: scattered brood (many empty cells present), and cappings sunken and irregular, often containing holes or punctures. Beekeepers frequently describe the cappings as also being very dark in color, but having observed the disease many times (luckily, only once in my own hives), I can assure you that other symptoms are more definitive and dark cappings alone do not confirm a diagnosis of AFB.

While AFB is, fortunately, not a common problem for beekeepers, it is an extremely BIG problem when it strikes. Infected cells often contain scale – the dark, dried up remains of pupae killed by the disease. This scale, in turn, contains the spores by which the disease is spread. Think of the spores as seeds. Bees consume them while cleaning the cells, then spread them to honey and to uninfected larvae as they are fed. AFB is extremely contagious, and if not detected early (which can be difficult for new beekeepers), will likely contaminate nearby colonies as those bees rob the weakened, infected hives. Since the spores can remain viable for years – decades in fact – the disease is also spread by beekeepers through re-use or moving of drawn comb. Commercial and sideline beekeepers with numerous hives are more likely to

experience problems with AFB, because they have more opportunities for exposure to the infection. Getting rid of the disease typically involves burning equipment – most certainly all brood frames – so it is an economically costly disease. Historically, state apiary programs were created to deal with American foulbrood. For beekeepers with only a few hives, the best way to avoid getting AFB is to be cautious when buying used equipment, especially existing hives or frames with drawn comb.

I don't offer these comments as an adequate education on American foulbrood. Many beekeeping schools and conferences offer classes on its prevention, diagnosis and control, and I highly advise attending one if the opportunity presents itself. I also tell beekeepers that it is easier to learn what normal looks like in a hive, than to learn the symptoms of every beekeeping disease and parasite. One of the problems with AFB is that even many experienced beekeepers have never seen it (which is positive, but makes diagnosis more difficult.) Watch that the capped brood in your hive is a constant color (varying from light tan to fairly dark due to the bees' sometimes reworking old wax on brood frames), and that the cappings are uniformly slightly raised and without holes once capped. If you are only seeing what seems to be healthy brood, the odds your hives are not infected with American foulbrood. When you observe brood that appears abnormal, you can ask for advice, as you have done here.

It was nice to hear from you again! **BC**

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Survey Says:

From this year's management survey, beekeepers who reported having **below average honey production** in the fall reported **losing more colonies** than those reporting average production. This result suggests that if your fall flow was light, you should **make sure your bees are well fed for winter!**

For more details on these and other results, go to Beeinformed.org

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WORLD NEWS

MORE IMPORTS?

With an eye on the export potential to the United States and other countries, the Fiji Beekeepers Association is conducting an industry survey to produce accurate data to assist planning and development in the South Pacific island paradise.

Association president John Lewis believes there is great potential for the industry to grow, a view backed by government honey industry national coordinator Kamal Prasad who says there is a potential to boost the 10,000 beehives in the country to 50,000.

About 1,000 commercial beekeepers operate 8,000 hives.

On average each beehive produces 25 kilograms (55 lbs.) of honey and at the present retail prices of F\$17.50 a kg (US\$4.33/lb.), honey could generate a gross income of more than F\$21 million (US\$11.4 million) annually if the industry operates to its full capacity.

Prasad said the association is working aggressively towards developing the industry.

"We have opened up small markets in Australia and there are some markets in the Californian areas," he says.

"We are mostly local suppliers of honey and we are not importing honey into the country because of the business risks that do not allow for any importation of honey and live bees."

Lewis says to achieve its growth potential beekeeper training needs to be expanded.

"Government has very effective basic beekeeping training programs," he says in a statement. "We have worked closely with government at selected workshops and the association itself holds seminars and assists with groups of beekeepers, but funding is limited so much more needs to be done."

He says contrary to popular belief, beekeeping is not easy-money.

"Anyone who goes into beekeeping as a simple way of making money is bound to fail," he says. "Successful beekeeping requires commitment and dedication. Every successful beekeeper takes a personal interest in keeping his bees alive and healthy. He develops his skill by continual learning and training."

Alan Harman



RETREATING SUBNIVIVUM?

Climate change is creating a threat to plants that tough out harsh winter weather under the coverlet of snow that blankets the north country.

The stable beneath-the-snow habitat gives an essential respite from biting winds and subzero temperatures, but in a warming world, winter and spring snow cover in the Northern Hemisphere is in decline.

A team of scientists from the University of Wisconsin-Madison report in the journal *Frontiers in Ecology and the Environment* on the gradual decay of the Northern Hemisphere's subnivium, the term scientists use to describe the seasonal microenvironment beneath the snow – a habitat where life from microbes to bears take full advantage of warmer temperatures, near constant humidity and the absence of wind.

UW-Madison professor of forest and wildlife ecology Jonathan Pauli says that underneath the blanket of snow is an incredibly stable refuge where the vast majority of organisms persist through the winter.

"The snow holds in heat radiating from the ground, plants photosynthesize, and it's a haven for insects, reptiles, amphibians and many other organisms," he says.

But since 1970, snow cover in the Northern Hemisphere has diminished by as much as 3.2 million square kilometers during the critical spring months of March and April.

Maximum snow cover has shifted from February to January and spring melt has accelerated by almost two weeks.

"The winter ecology of Wisconsin and the Upper Midwest is changing," says Benjamin Zuckerberg, a UW-Madison professor of forest and wildlife ecology. "There is concern these winter ecosystems could change dramatically over the next several years."

Pauli says there are thresholds beyond which some organisms just won't be able to make a living.

"The subnivium provides a stable environment, but it is also extremely delicate," he says. "Once that snow melts, things can change radically."

Plants exposed directly to cold temperatures and more frequent freeze-thaw cycles can suffer tissue damage both below and above ground, resulting in higher plant mortality, delayed flowering and reduced biomass.

As an ecological niche, the subnivium has been little studied. However, as snow cover retreats in a warming world, land managers, the Wisconsin researchers argue, need to begin to pay attention to the changes and the resulting loss of habitat for a big range of plants and animals.

"Snow cover is becoming shorter, thinner and less predictable," Pauli says. "We're seeing a trend. The subnivium is in retreat."

Alan Harman



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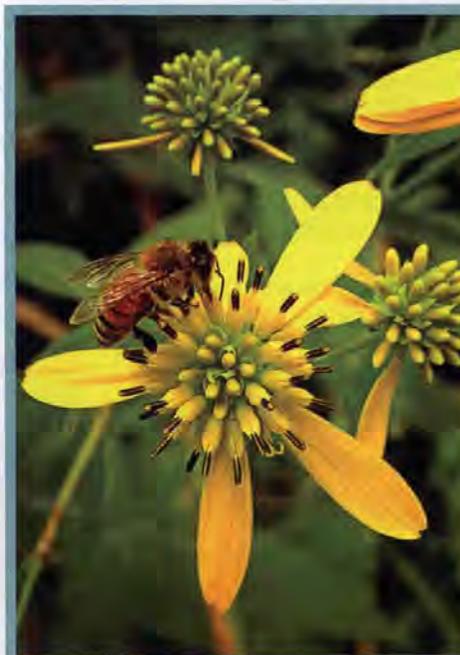
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Wingstem blooms from late August to early October. If it's warm it's a great sidedish to Goldenrod. (photo by Mel Samples)

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My gal Marilyn's all wound up about our trip to Kiev at the end of September, for Apimondia. She dances around the house, chirping in Ukrainian. At first, when they didn't have a Ukrainian language course at the library, she checked out a Russian CD, just because Ukrainian and Russian are closely related languages. She can count to 10 in Russian. Now she studies from the Pimsleur Conversational Ukrainian CD set, which she talked me into buying.

The official language of Apimondia is English. Most members of our Ukrainian host family speak English. Victor is the beekeeper. It would be nice if I could communicate with him, even a little, without an interpreter. It would be great if I could say "the queen" or "American Foulbrood" or "hive tool," in Ukrainian. Or even "Good morning!"

Marilyn came in yesterday with the first cucumber from her garden. It wasn't what I'd call a big cucumber. It was the size of a small dill pickle. "The cucumber blossoms are alive with your little darling honey bees," she gushed.

Fifty years ago in high school I picked cucumbers one summer. There must have been honeybees around for pollination, but bees were creatures I avoided in those days. My friend Steve's father owned the cucumber patch. We called them "pickles," not cucumbers.

This was piecework. Steve and I were picking partners. We had an assigned portion of the planting to pick. We were expected to keep up. The other part of the pickle patch got picked by a family that came across the border under the government's "Bracero" program. The Braceros came here for summer farm work. In the winter they went back home.

Now the irony of picking pickles is, or at least used to be, that the smallest pickles are worth the most money. You had to keep up in the pickle patch, or all those valuable little pickles quickly turned into worthless big ones.

The Mexican family worked from dawn until dusk. They filled sack after gunny sack with small pickles. They stacked them by the scales and went right back to work. Steve and I, being teenagers, arrived late. We started just as the day got hot. We wilted under the afternoon sun. We found excuses to go home early. The pickles in our patch got big.

It didn't seem like we were making very much money, so when Steve's dad handed me my first check, I was pleasantly surprised. "Wow!" I said to Steve. "I didn't think it would be this much!"

"I traded some of our pickles with the Mexicans' pickles," he smirked. "They'll never know the difference."

At first, I was shocked at the callous brutality of his statement. We were stealing – from the poor. And what did I do about it? I went along.

I don't remember how long this went on. But like any practiced sinner, I got over my qualms. I became Steve's eager accomplice. Of course the Mexicans caught on. When they went to Steve's dad to complain that we were stealing the fruits of their labor, he never confronted us, or at least he never questioned me. He simply fired them.

After the Mexicans left, Steve and I took over their portion of the patch. At first there were plenty of little pickles to pick, but of course we fell behind again, and the pickles got big. Finally the whole patch went to giant cucumbers, and we both quit.

Robbing a hardworking family of the fruits of its labor might rank as the lowest thing I ever did in my long, un-saintly life. But you can't undo the past, can you?

Varroa mites look like they might not be so numerous in my colonies this year. That's dangerous talk. I got complacent twice before, and both times the mites punished me severely.

Varroa like to breed in drone comb, and I encourage them to do so by providing them with a frame of plastic drone foundation. When the frame gets full of capped brood, I take it out and use my hive tool to scrape the brood – and all those mites – into a bucket. Afterwards, the frame goes right back into the brood chamber. When the scraped frame is all gooey with squashed larvae, the bees seem to like it. They waste no time drawing out that frame again.

I don't do this with all my hives. When you've got honey supers stacked on the hive, it's a ton of work to get to the drone comb.

I've been feeding the drone brood in my slop bucket to the chickens. Is this a waste of a valuable food resource? Drone larvae are rich and tasty for humans, too, which you already know if you've ever popped one into your mouth out in the bee yard. On the radio the other day they were talking about the skyrocketing price of meat, and how insects might play an important role in our dietary future. Marilyn can cook, and she says she's game.

You get old, and the memories still haunt you. I wonder what became of the Bracero family. They never forgot, either. I suppose the pickle swindle became part of their family lore. As for my partner in crime, I read his name in the paper from time to time. He grew up to become a lawyer. He's doing well, I guess. I saw him 25 years ago at a class reunion. We never talked about the pickles.

Ed Colby

A Bad Memory

BOTTOM BOARD