

THE HIVE TOOL

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President Frame

"Is it raw?" That's the question I get over and over again when I'm selling honey at a fair, festival or farmer's market. The word has become ubiquitous in relation to honey thanks in part to Baltimore's own Really Raw Honey Company which markets its creamy crystalized honey with the unstrained extracting residue on top as "Really Raw." So when I'm asked the question I'm often curious what the customer is asking for, and more often than not the answer is, "Ah, I'm not sure." With a little prompting most people agree that what they are looking for is unprocessed, natural honey - honey that is unheated and unfiltered.

To call it "unprocessed" is really a misnomer; after all, any extracted honey is "processed." You want unprocessed honey? Look for it in the honeycomb - comb honey is the only truly unprocessed honey and by all accounts the only way to really enjoy honey in its purest form, just as the bees have created it.

But that's another story. What I am getting at here is the differentiation in people's minds between national brand name, commercially-processed honey (which is often pasteurized and blended with imported honey) and honey which is minimally processed. People are recognizing this difference, appreciating the health and nutritional benefits from eating "raw" honey. And they are looking for it! This is significant for hobby and sideline beekeepers who harvest small crops of honey for local consumption. There is a market for your honey!

"Is it local?" That's the next question I most often get and I can't tell you how many people swear to or seek confirmation of local honey curing allergies. I have to honestly reply that I know of no scientific evidence supporting this claim (although I hear some studies are ongoing), but there is certainly a wealth of anecdotal evidence to support the claim and the public certainly seems willing to accept it as true. My customers do! I sell as much honey to people looking for "local" honey as I do "raw" honey. And again, that's good news for hobby and sideline

beekeepers like you and me. The value of your honey is growing as people's perceptions change. Don't undervalue your honey; you produce a unique product. And there is a market for your honey!

After three years of "retirement" beekeeping I recently re-evaluated my operation. I took an Agriculture Business course from Penn State and formulated a business plan which in the end led me to the business decision to not become a business, but instead, remain a hobby/sideline beekeeper. To my way of thinking, the benefits of incorporating did not justify the added time, expense and headaches of running a business. But how could I make my hobby more profitable (and less like community service)? Taking a closer look at the pollination service I provide to growers and the quality of the honey I produce, I realized I was undervaluing my time and labor, my work and my honey.

My wife Sue has been telling me for years that my honey is underpriced, knowing how much time and work I put into beekeeping. And you know what? She's right! We tend to undervalue our beekeeping because it's "just a hobby." If we were real beekeepers we'd be in the business! Well, that's just plain wrong-headed. If we are serious about our beekeeping, if we pay attention, we care for our bees better than anyone. We harvest the finest honey (beeswax, pollen, etc.). We should be demanding more for our honey and our bees. That's the decision I recently came to. I've realigned my prices for 2008 across the board to more accurately reflect what I do, my work and experience.

For years I've set my honey prices based on the regional commercial honey reports in the beekeeping magazines. Well, I'm not a commercial beekeeper, nor do I wish to be one. The honey I harvest (and process) is superior to commercially graded honey. And so is yours! Hobby beekeepers may not be the backbone of the beekeeping industry, but we're the arms and legs and I'd like to see us influence the head from time to time.

There is a growing consumer demand for locally-grown produce, free from chemicals and pesticides (if not totally organic). Hobby and sideline beekeepers are well positioned to meet that demand and all of us here in CMBA are hobby/sideline beekeepers (well, Jerry's in a category of his own!). We have helped hundreds of people get into beekeeping; we educate the public and promote

beekeeping well. I'd like to see us promote local raw honey too. I'd like to see us not only help beekeepers become better beekeepers, but also help beekeepers better value their work and the products of their hives. You see a honeybee? - thank a beekeeper! You want the best honey? - go find a beekeeper!

I hope we have a big turnout for our next meeting. This is our Annual Meeting as called for in our organizational by-laws. The Treasurer will present the annual financial report and the proposed budget for 2008. As President, I will present a stewardship report on how well our organization is functioning and on how well we are achieving our goals and the direction in which I would like to lead. The election of officers will also take place. And - Deja Vu! - our guest speaker will be Dr. Robert Berthold (who didn't make it last month) on all things beeswax. It will be a full meeting so come early if you have questions about your bees; that why we call the half hour between 7:00 and 7:30 "Bee Talk."

Looking ahead, make sure Saturday evening, December 1st, is marked on your calendar for our Annual Bee Dinner. . .doors open at 5:00pm with a Pot Luck Dinner at 6:00pm. Bring something good to eat! Bring the whole family - let them meet some of the other good people who share your strange fascination with honeybees. We always have a good time at the Bee Dinner. Call me if you'd like to help out. More details next month.

How do your bees look? Have you checked? Caught up on your bee work? Hope so!

See you soon. Good beekeeping to you!

Colony Collapse Disorder and Israeli Acute Paralysis Virus

Reprinted from <http://maarec.cas.psu.edu/>

A recent publication in Science established a link between a new virus, Israeli Acute Paralysis virus (IAPV), and CCD colonies. Of those colonies that suffered from CCD, all had IAPV present while healthy colonies did not have IAPV. Additionally, the research found that IAPV was present in bees imported from Australia and in royal jelly from China. Operations with CCD and sampled in the study had either imported Australian bees directly or had been closely associated with colonies that had Australian bees. We also know that IAPV has been previously found in Israel, suggesting that this virus maybe

more widely spread globally. No one knows where its origins are at this point in time.

Does this prove that IAPV causes CCD? No, what this article and research to date points to is that IAPV could be involved in CCD and more work is needed to prove or disprove this idea. We can conclude, however, IAPV appears to be a very good marker for CCD and its detection may aide in defining CCD.

So where did the IAPV in the U.S. come from?

It is not clear at this point but certainly Australian package bees are a likely source. Additional sampling in the U.S. and Australia is needed to be certain. We have begun discussions with Animal Plant Health Inspection Service (APHIS) and Australia with our concerns about package bees. Contacts have been made in Australia for additional samples and we are seeking the help of the Apiary Inspectors of America to gather additional samples here in the U.S. Samples are needed from colonies that appear to be suffering from CCD as well as samples from colonies that were established from Australian packages this past year.

What if I have Australian package bees in my beekeeping operation, what should I do? *The recommendations for dealing with CCD remain the same (see MAAREC website)*; 1) keep Varroa under control, 2) treat for Nosema if present, 3) do not re-use equipment from dead hives.

What else can I do now to further protect my bees from decline? We still don't know all the factors involved in CCD but there are no treatments for viruses; your best defense is a healthy well fed colony.

Are we sure if IAPV is causing CCD? No, we believe it is a marker and maybe involved in CCD but may be working in conjunction with other stressors like Varroa, pesticides, or poor nutrition.

Why would IAPV not be causing problems in Australia? At least two explanations are plausible, Australia does not have Varroa to vector and activate IAPV and it may have co-adapted to bees stock in Australia. If the virus has adapted to Australian stock then we may want to look at Australian bees as part of our breeding programs. Along this same line, a research group in Israel believes that some bees in Israel have incorporated part of the DNA of the virus into their bee DNA and this DNA incorporation is offering resistance to the colony. IAPV has been linked to some colony losses in Israel. While the DNA incorporation idea is novel and somewhat controversial, it does offer hope as a

means of combating IAPV or other virus problems. We do believe that breeding bees for increased resistance to Varroa and pathogens such as IAPV is an answer.

How can we maintain strong colonies? Do the things you know how to do; reduce Varroa, treat for Nosema if needed, and feed when needed. If IAPV is causing a problem with bees in the U.S. then strong colonies are our best defense

Efforts continue to try and understand the key components involved in CCD. Currently we are initiating experiments to try to determine if indeed IAPV is a causal agent in CCD. We will be exposing healthy, IAPV-free colonies to IAPV in conjunction with other pathogens, pesticides, or nutritional stress to see if we can get the colonies to develop CCD symptoms and collapse. Likewise, we are trying to determine methods that will work for treating equipment from dead out colonies. Others in the working team are asking about many other aspects, such as pesticides, etc. In collaboration with all, we hope to be able to answer many questions concerning CCD and bee health and deliver methods for mediation or prevention of the problems in bee health.

Bee researchers close in on Colony Collapse Disorder

Reprinted from <http://maarec.cas.psu.edu/>

University Park, Pa. -- Across the nation, beekeepers have seen hive after hive succumb to Colony Collapse Disorder (CCD); a team of entomologists and infectious disease researchers now report a strong correlation between the occupancy of CCD and a virus, Israeli Acute Paralysis Virus (IAPV).

"We have not proven a causal relationship between any infectious agent and CCD," the researchers report in the Sept. 6 issue of Science Express online. However, they note that the prevalence of IAPV genetic material in bees suffering from CCD, the timing of the outbreaks and the geographical circumstances "indicate that IAPV is a significant marker for CCD."

Many researchers are investigating CCD because domestic honeybees are vital to a variety of agricultural crops in the United States. Beekeepers truck their hives cross country to pollinate almond groves in California, field crops and forages in the Midwest, apples and blueberries in the Northeast and citrus in Florida.

Unlike other diseases that have plagued bees in the past, CCD leaves a hive with a few newly hatched adults, a queen and plenty of food. Researchers suspect a pathogen because while bees will not recolonize a CCD hive, once the hive is irradiated and therefore sterile, bees are happy to live there.

The disease was recognized in 2006, but beekeepers reported hive declines similar to CCD as early as 2004. An estimated 23 percent of all beekeeping operations in the U.S. suffered from CCD during the winter of 2006-2007.

After looking at other methods of identifying the cause of the disease, the researchers decided to sequence the genetic material in bees to try to find a potential pathogen.

"The genome of the honeybee had just been completed," said Diana Cox-Foster, professor of entomology, Penn State. "So it was possible to do the sequencing and then eliminate the genetic material of the bees."

W. Ian Lipkin, M.D., professor of epidemiology, neurology and pathology at Columbia University and director of the Center for Infection and Immunity at Columbia University Mailman School of Public Health, and his team prepared samples for 454 Life Science -- the company that developed the array-based pyrosequencer -- to sequence cDNA from the RNA of the bees. Researchers analyzed data using a unique set of algorithms generated at Columbia, did a large amount of viral sequence comparison, developed real time PCR assays and cloned the full length IAPV genome, among other things.

The samples sequenced included bees from four geographically separated CCD suffering operations, apparently healthy bees imported from Australia, non-diseased samples from Pennsylvania and Hawaii, and samples of royal jelly imported from China. Royal jelly is secreted by bees and used to feed all larvae, but those fed only with royal jelly become queens.

"We chose bees from Hawaii because at that time, those populations were free of varroa mites, a problem in all mainland hives," says Cox-Foster. "The royal jelly was not intended for bees, but for human consumption and cosmetics, but some beekeepers use it to create new queens."

The researchers grouped material for sequencing as presumed CCD positive, presumed CCD negative and royal jelly. The pooled RNA sequences were analyzed for bacteria, fungi, parasites and viruses matches.

Lipkin played a key role in the search for new or reemerging pathogens, contributing unique methods. The genetic sequences, minus that of the domestic honeybee, were eventually matched against GenBank, a database of genetic sequences maintained by the U.S. National Center for Biology Information, National Institutes of Health. Ninety-six percent of the genetic material matched that previously found in bees.

The bacterial sequences were those normally found in bees worldwide, analyzed by Nancy A. Moran, the Regents' professor of ecology and evolutionary biology, University of Arizona, and colleagues and Jay Evans, research entomologist, Bee Research Laboratory, U.S. Department of Agriculture, Agricultural Research Service and colleagues.

"The bacteria found were the same as those found in two previous studies from two different parts of the world at two different times," says Cox-Foster. "They represent mutualistic or symbiotic relationships with the bees, similar to those of humans and the bacteria found in the human gut."

Protozoans and fungi analyzed by Liwang Cui, associate professor of entomology, and David M. Geiser, associate professor of plant pathology, Penn State respectively, were associated with both CCD and non-CCD populations.

"We knew before we started that we would find a boatload of viruses in the bees given our preliminary research," says Cox-Foster. "Eighteen different types are known from serology and antibody work in England."

Cox-Foster's and Lipkin's groups analyzed the viruses. They found the expected viruses, and they found one that, while identified by researchers at Hebrew University in 2004, has just now appeared in scientific publication. This virus, IAPV, along with Kashmir bee virus (KBV), was found only in CCD populations. In the initial experiments, the researchers report that "IAPV was found in all four affected operations sampled, in two of four royal jelly samples and in the Australian sample. KBV was present in three of four CCD operations, but not in the royal jelly."

Other viruses and *Nosema* parasites had been suggested as the cause of CCD, but the researchers found that those pathogens appear in both CCD and non-CCD samples. Only KBV and IAPV correlated with CCD in the genetic survey. In a recently published study, Jeffery S. Pettis, research leader, Bee Research Laboratory, and colleagues reported

that *Nosema ceranae* had been in the U.S. for at least 10 years, along with *Nosema apis*.

Researchers then analyzed samples collected for 30 CCD colonies and 21 healthy colonies in the past three years for four pathogens: KBV, IAPV and *Nosema apis* and *Nosema ceranae* -- both fungi that infect bees. They found that all samples that had IAPV had KBV, but KBV also occurred in both sick and healthy samples.

"IAPV was found to increase the risk of CCD with a trend for increased CCD risk in samples positive for *Nosema apis*," the researchers said. "Neither KBV nor *N. ceranae* contributed significantly to the risk for CCD nor did they alter the influence of IAPV on CCD."

However, while IAPV may be a marker for CCD, proving that any organism is the cause of IAPV is somewhat more difficult. The researchers will now try to infect bee colonies with CCD. Beside general health stress from the heavy load of pathogens normally carried by bees, other suggested contributors to CCD include pesticides, drought and nutritional stress.

Timing also may be the key to pinpointing the cause. The United States began allowing importation of bees from Australia in 2004, which coincides with early reports of CCD. The same year, IAPV, described by Israeli researchers with symptoms of shivering wings, progressed paralysis and bees dying outside the hive appeared. While CCD does not seem to have the same symptoms, this may reflect a different strain of the virus, co-infection with another pathogen or the presence of other stressors.

The researchers note that "the Varroa mite, for example, absent in Australia, immunosuppresses bees making them more susceptible to infection by other organisms." Beekeepers used mitocides, chemicals used to control Varroa, on both CCD and healthy colonies.

Edward C. Holmes, professor of biology, Penn State and Gustavo Palacios, Columbia University, were instrumental in determining the evolutionary relationships of the viruses found in CCD colonies compared to previously known viruses and isolates from Australia.

While unquestionably it is important to identify the cause of CCD, this total genetic study of bees and their fellow travelers also may lead to a better understanding of other disease causing agents in the population and to an understanding of the beneficial organisms that reside within the bee.

Other researchers on the Penn State team include Dennis vanEngelsdorp, senior extension associate and State Apiarist for the Pennsylvania Department of Agriculture, and Abby Kalkstein, research technologist. Other researchers at Columbia University include Sean Conlan, Phenix-Lan Quan, Thomas Briese, Mady Hornig, Andrew Drysdale, Jeffrey Hui and Junhui Zhai. Vince Martinson, University of Arizona and Stephen K. Hutchison, Jan Fredrik Simons and Michael Eghom, at 454 Life Sciences, also contributed.

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Sideline Beekeepers

By Larry Connor

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Sideline beekeepers – Where do they fit into the fabric of the beekeeping industry in the United States? Who are these people and how can we best describe them?

For me, sideline beekeepers offer their own bees' honey for resale (and most often a lot of other hive products) and offer it for sale locally; a few offer their honey for sale via the Internet. They do not produce honey to put it into drums, but use five-gallon (60 lb) buckets to store and later process their honey. From the buckets they process honey for clarity (or not, in the case of some who sell 'really raw honey', complete with bee parts and pollen), or make it into creamed honey, infused honey, or use some in cosmetic or health food products.

Sideline beekeepers are too big – have too much honey sales, too much income, or too much something – to be considered a hobby operation. Maybe they never were a hobby operation, but jumped into beekeeping with profit in their eyes from the very start. From an accounting perspective, a sideline beekeeper is one that seeks to make enough from his or her bees that they must keep detailed financial records and report income to taxing agencies, filing either schedule C (business) or F (farm) to report their beekeeping income and expenses. Since the Internal Revenue Service has its own rules for defining a business, I tend to avoid this aspect of describing the parameters of sideline beekeeper's activities. But I do know that the IRS requires hobby beekeepers to report income, but not expenses, from their bees. This differs for the sideline and commercial beekeeper – folks who are

running the bees as a business, or at least trying to do so.

Our two national beekeeper associations consider sideline beekeepers as those that seek income and profit from their beekeeping activities. This differs from hobby or amateur beekeeping, where any financial income is minor and insignificant to the beekeeper. In the American Beekeeping Federation, Sideline Dues cover beekeepers who have 26 to 300 colonies. So, by their thinking if you have 25 colonies you are a hobby beekeeper, and if you have 301 colonies you are a commercial beekeeper. But there is little difference from a beekeeper owning 24 colonies, and one owning 25, or between 300 and 301. This is a self selected category anyway, and is not the result of an audit by the hive census committee ...

Here's a definition I like: *a sideline beekeeper is one that actively seeks income from bees, AND has another source of income.* This may be another job, retirement income, winnings from a lotto prize, or whatever. This means that a sideline beekeeper is under less pressure to turn a profit on everything they do. They can travel to meetings and participate in the leadership of local and state organizations because their beekeeping time is what they want to make of it. If they want to spend more time with bees, honey, beekeepers they can elect to do so. Or they can trim back drastically when something else comes along that peaks their interest.

Regardless of the number of colonies a person owns or the percentage of their working time they put into bees and beekeeping, it is clear that sideline beekeepers are major participants in the diverse aspects of the craft. It is my opinion that they are the most rapidly growing part of beekeeping in the United States and control a critical part of the growth and success of national beekeeping.

They are not the most numerous beekeepers. There are more hobby beekeepers than sideline beekeepers, but the hobby group is very fluid, with perhaps a third to a half of them starting or restarting beekeeping every year. They start a hive or two, get involved with a local beekeeping club, but then the bees die for some reason. After a couple of times they give up for a bit, but may start another hive in a future year. We are seeing a growing number of hobby beekeepers who have just recently entered beekeeping because they want to help bees and overcome the decline in hive numbers as reported by the media this year. I applaud their efforts, but know that there will be a significant number who will

lose interest after a year or two of tough beekeeping conditions, no honey crop, and dead bees.

There are, certainly more sideline beekeepers than commercial beekeepers. It is pretty clear to me that the number of commercial operations is shrinking while the number of colonies owned by each remaining commercial beekeeper is growing. We are entering the era of large corporate beekeeping, although they are often family-owned businesses. This provides stability to the honey production and pollination needs of the country. But these are barrel beekeepers, selling their product wholesale to industrial honey buyers. They are often migratory so are not often in one place long enough to become an important part of local associations fighting for legislation or funding needed by that particular state. They are, however, the beekeepers who write the large checks that support national beekeeping programs and agendas.

Besides honey production in all its diversity, sideline beekeepers generally provide pollination services for local growers, produce queens, nuclei and packages for local beekeepers, and provide a huge spread of bee hive products, from skin and beauty preparations to wax products, for local consumers. Generally these beekeepers sell their products at a price between wholesale and full retail, although many have learned that local means profitable, and sell their products at a premium price because they know that production is limited and consumer expectations are high. They have learned that buyers in some farm markets are not looking as much for a bargain as for local and fresh. With so many food groups tainted in the minds of the consumer with a possible link with China, the buyer is looking for local honey – honey produced in the same town or county as the farm market, and from a honey producer who can look them in the eye and say that they have never purchased any honey from outside the state.

So, you want to be a sideline beekeeper?

If you want to be serious about becoming a sideline beekeeper, there are two factors that you must consider: First you **MUST** be serious about keeping bees and making top quality honey and selling it for the maximum amount of money. One way to do this is to find local roadside farm markets where you sell your honey to the farmer/operator; or find a city or town sponsored farmers' market where you sell your honey yourself. The roadside market owner will want to purchase honey at the local wholesale rate and you can use this magazine's market report to get an idea how much honey sells for in your zone. A good thing about selling to a

farmer's market is that once the honey is sold your job is done.

On the other hand, if you decide to rent a booth at a local farmer's market you need to look at the contract, evaluate the number of days you are required to be at the booth, be available for the hours of operation, and have enough product to supply the needs for this particular setup. The good news is that you have the right to charge whatever the local economy will support for your local honey. It may be different in different markets just a few miles apart because the buyers' perspectives about honey are different. Costs will add up: you will have booth rental, the booth itself (purchased or constructed yourself), labor and the family cost in terms of lost soccer games, missed birthday parties, etc.

If you currently have five or 10 colonies, you need to develop a plan to grow to about a hundred colonies, the final number depending on your total time commitment and potential market. Perhaps you will decide to build up gradually, adding ten to twenty hives per year, and get into a comfortable place with each out-apiary location and their owners. Or maybe someone has given you a golden offer, a series of locations to place your bees in safe and secure areas surrounded by great nectar sources. Maybe someone has offered you money to purchase equipment and bees to meet their pollination needs (this seems to happen more and more with the shortage of bees). So you may decide to jump in and get in over your head (as far as experience is involved) and hope you float upwards rather than sink to the bottom.

I tell folks new to beekeeping to find a mentor. The same advice holds true for a beekeeper who is trying to develop a sideline business. Outside of beekeeping you may be a teacher, an accountant, a fire fighter, a contractor, or a stay-at-home parent. You are probably very good at being a teacher, accountant, firefighter contractor, or parent, but you don't know a great deal about running a business or bees on a large scale. This is where a mentor may be of great help to you.

A mentor should be someone who is doing or has done what you want to do. Maybe they appear to be, at first glance, your most direct local competition. But they may suggest markets where you can move into because they feel they are too busy and cannot service another account. Or they could be someone you met at a regional or national meeting that you pumped dry and then visited on a trip so you could see and touch the things he, or she, is doing.

I do not have a list of folks that would fill that need. But they are out there and you only need to start asking folks for their help and see how they respond.

Recently I visited a sideline beekeeper (by my definition, since both he and his wife are teachers). It sure seemed like they were doing everything, from honey production, crop pollination, varietal honey, queen rearing, agri-tourism, cosmetics, related food lines (dressings, sauces), creamed honey, flavored honey, and a lot more. They employ three folks as needed to help them run four farm markets a week. That's a week. And they have a stand at the State Fair where they sell product like mad, requiring weeks of packing and labeling to meet the needs for this intensive sales period. Yet all the equipment was neat, the operation was clean, and the bee droppings were cleaned off the windows. Pretty amazing, and reflecting a lot of energy going into the business.

Okay, some of you will call this beekeeper a commercial beekeeper. I don't want to quibble about it. But I do want you to understand that every item they sell there was a decision made at some point, and the decisions were made to continue selling a particular line (should we dip candles this year or stick with molded candles) or drop it.

And the formula they use to operate is one all sideline beekeepers could easily use. Each product line was added when they were ready for it, and not before. They took their time, grew slowly, relied on family for support labor, and seem to enjoy every minute of it. Maybe that is why sideline beekeepers seem to be so happy, they enjoy what they are doing, because if they did not enjoy it, they would get out of it and do something else.

There will be a Sideline Symposium in Sacramento in conjunction with the joint industry meeting in January. For further information, contact Dr. Connor at Wicwas Press, 1620 Miller Road, Kalamazoo, MI 49001. Email ljconnor@aol.com.

Low Impact Beekeeping

By James E. Tew

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The concept?

There may very well be no concept. It could just be me and where I presently am on my beekeeping journey. Low impact beekeeping¹ could be called 'non-invasive beekeeping' or by any of several devised names. Essentially my perception of the concept is to be helpful to the bees but leave them to their own ways as much as possible. If I have

opened a colony and have brood frames out of the hive, I am causing stress to the colony. Do my reasons for opening the colony outweigh the stress that I cause by over-running the colony's defenses? It's a conundrum – if I open the colony needlessly, I cause unintended injury but if I don't open enough, other problems such as mites, brood diseases, or queen problems drag the colony down. No easy answers here, but there rarely are.

A quiet reason for my philosophical change

I need to confess, before I make more comments, that every year, I am a year older and every year honey weighs the same. Last July and August, my colonies were powerful and fully populated with deep supers full of honey. It would have been a hot, sting-laced, miserable task to open those big colonies to implement various seemingly important management tasks. What better time to embrace the principle that the bees do better if I work them less? Very possibly my truest intentions are not true bee intentions at all, but just me adapting to my present place in life. I have opened hives many, many, times. While I still enjoy the suspense and wonderment of looking to see how the colony has fared since the last time I was there, I don't need the task as much as I once did. Newer beekeepers who are still learning the basics and acquiring experience and, importantly, are not as long in the tooth as I am, might profit from more hive openings – even if the colony is somewhat set back by the intrusions. Maybe low-impact beekeeping is good for me, but not for everyone.

Justifying my uncertainty

For many years – even during the *Varroa* establishment years - management recommendations were fixed and traditional. For example, you should requeen your colonies every two years (*now probably every year*). You should treat regularly for mites (*now treat only if the colony needs it*). Apistan® strips were essentially the only control for *Varroa* we had; therefore, treatment recommendations were easy (*Now the list of control materials changes every year*). You should feed weaker colonies at the onset of Winter (*I did that last Fall and killed more bees than I fed*). You should install screened bottom boards (*I did with mixed results*). Then last Winter hit and I lost more colonies that I have lost in years. Using traditional methods, the path to good beehive management became cloudy.

The Survivor Hive saga

More uncertainty developed when I stumbled onto the hive that I named the *Survivor Hive*. For those who missed my previous writings on this

event, I found a thriving colony, that had not been worked for as long as 16 years, living in abandoned equipment in an abandoned yard. The combs had never been exposed to any mite chemicals. Never treated for mites. Never requeened. Nothing had ever been done. It was exactly the colony that I needed to justify my growing beliefs that, in many instances, we are overworking our hives. I mentioned this colony in several previous articles and readers responded instructing me to leave it alone. With its bee-made propolis outer cover and completely rotted bottom board, it was making its way very well without me. I did just that – left it alone. This single survivor colony became a testimony for the way bees could run their lives without our constant intervention. This past Winter, like so many other colonies, it died – apparently of starvation. Like a popular musical band without a lead singer, what management lessons had I learned from this single, unusual hive? It was confusing.

The Winter of 2006-2007

My uncertainty was only fueled by the dramatic die-off that so many of us experienced during the past Winter. Due to routine colony dwindling, my colony numbers had dropped to something like 45 or so. At that time, I felt like I could manage about 80 hives on my own. During the Spring of 2006, I made splits and bought packages and pushed my number to 80. The Spring nectar flow never came – I mean did not come at all. Not a drop of surplus honey did my bees make. Just about a year ago, I wrote about feeders, feeding techniques, and robbing. I knew robbing would be a problem, but if one is feeding 40 colonies in two yards, robbing can become an unmanageable problem. It was very easy to tell that the traditional recommendation to 'feed light colonies' was causing much more harm than good. Bees were killing each other by the pound. I stopped the feeding effort and hoped that the Fall flow would be miraculous. Of course, it was not. In fact, it too was nothing. I went into Winter with about 65 of my 80 colonies light in stores. I hoped for a mild Winter and for a while it was, but then it turned into a real Winter. Though I didn't open colonies, I knew that my light colonies were dying in significant numbers. Seemingly, Spring arrived and my 40 remaining colonies tried to get their year started, but then another two weeks of hard cold hit and killed those remaining colonies back to 27. That remains my trauma today. What should I be doing differently? Twenty-seven of my original 80 colonies survived. And those surviving colonies were ragtag. Sixty-six percent of my colonies died – most with new queens – after I had tried to implement 'traditional' management recommendations. There were

extenuating circumstances, and I am not truly as inexperienced as I sound, but to go into all the details would be tedious. Suffice it to say that too many of my colonies died last Winter. I have essentially spent all Spring, Summer, and Fall preparing for the upcoming Winter. I do not want a repeat of last Winter.

If you have made it to this point

I have used more than half of my article space to justify why I feel differently about the annual management scheme for my bees in my location and at my age. I am not commercial nor do I frequently move my colonies for pollination. I make no pretense of offering advice for beekeepers in those enterprises. For a variety of reasons I have made or am considering making the following changes.

Low-impact beekeeping procedure #1

So much as possible I have left my 37 colonies alone all Spring, Summer and Fall. When supering I looked at a frame or two of brood in the upper brood body, but I tried to keep my intrusion minimal. I did stagger the upper supers to allow for more ventilation. I supered pretty much on time and did a reasonably good job of keeping the grass knocked down. Otherwise, I have not intruded on my bees.

Low-impact beekeeping procedure #2

I have tried to earnestly review my concerns about requeening. The queen needs to be truly a bad queen before I elect to put the colony through the confusion and disruption of requeening. I suspect that the occasional marginal queen is as good as one that I can quickly get and install. By the time the requeening procedure has finished, the nectar-flow will have essentially passed and I am left with a new queen in a weak colony that has missed the season. Would it be fair to say that a minimally invasive recommendation would be to requeen once per year and, unless disastrous, to live that year with the queen you get?

Low-impact beekeeping procedure #3

I try to treat for mites in the Fall of the year. I try to treat correctly and keep my hive openings to a minimum. I realize that mites and bees are developing both good and bad resistance to each other and to chemicals, but for the present, I am assuming that my bees will need some kind of mite treatment at least once per year.

Low-impact beekeeping procedure #4

So much as possible, I have eliminated supplemental carbohydrate feeding for both survival and Spring stimulation. I can't stop it all together and am not suggesting you do, either. At times it is necessary, but I have completely stopped allowing

bees to rob extracted supers or honey cans. Robbing is a vicious behavior that results in weaker colonies (sometimes even stronger colonies), if not killed outright, becoming so depleted that they have little hope of surviving the upcoming Winter.

Low-impact beekeeping procedure #5

For colonies that you really care about, prepare for the hive opening event. Have extra equipment on the truck to replace worn or broken hive parts. In a perfect bee world, you would even have access to a spare queen from nucs that you set up earlier in the Spring. A working number is about one nuc per 10 colonies. I presently have two nucs for 37 colonies. When the hive is open, perform as many chores as possible in order to reduce future trips. On double-sided bottom boards, I use the shallow side (3/8' opening) year round. That way, I avoid having to install and remove entrance reducers.

Low-impact beekeeping procedure #6

Set up an observation hive. Not yet, but maybe soon, I will come around to saying that observation hives are presently undervalued as a management tool. Currently, they are used as educational devices or as novel seasonal hives. They could be so much more. Rather than opening full-sized colonies, I can get an idea of the field events by looking at the observation hive activity. Pollen collection, nectar collection, drone production, and the status of the queen are readily viewable in an observation hive. The performance of a new queen can be evaluated before transferring her to a full sized colony. Brood from the observation hive can be used to subsidize needful field colonies. As it were, both observation hives and nucleus hives provide living spare parts. Plus, after looking at bees in an observation hive I've satisfied a bit of my beekeeper need to see the inside of a hive. Should the recommendation be one observation hive for every 10 colonies rather than a nucleus hive per 10 colonies?

Low-impact beekeeping procedure #7

Consider putting on some deeps as supers in order to have spare honey for the Winter months when things go particularly bad. Deep supers are heavy – even difficult to handle, but wintering bees can readily use bee-stored honey when nearly nothing else will do. If stored properly, deep supers can be held for several years without undue harm. If stored pollen is minimal, wax moths will not do much damage to stored comb. Not only useful as Winter feed, deep supers of honey can be used during Spring seasons to make splits or to boost Spring colonies needing some help.

Low-impact beekeeping procedure #8

I top super rather than bottom super, but I provide upper entrances. To decrease the distance bees must travel to store nectar, bottom supering stipulates that the empty super goes just above the brood nest and partially full supers are placed above the empty super. It's considerable work for me and much more disruptive to the bees to remove all supers before adding a new one and frequently burr comb must be removed or a poor fit results and bees are crushed. Top supering is easier for me and causes less disruption to the colony.

Low-impact beekeeping procedure #9

Don't use any more smoke than necessary and only blow cool, white smoke. I'm afraid that too often rather than *work our colonies, we bully our colonies*. With our protective gear and our smokers ablazing, no doubt we are the bees' most formidable enemy. Use only the smoke you need so the colony can recover as quickly as possible. Though it's common sense, don't kill any more bees than necessary to open and close the colony. With their sensitive olfactory systems, the bees know you've just killed several hundred of their kin. You think that makes them appreciate your efforts?

Low-impact beekeeping procedure #10 (totally impractical but interesting)

I enjoy working my colonies on nice memorable days, but these are the very days that bees should be out foraging for Winter stores. We cause our bees to lose a significant part of a good foraging day when we choose that day to open colonies. Should we select cooler, rainy days or possibly go for late afternoon sessions or could such tasks as adding supers or filling feeders even be done at night? It *could* be done then. (*Just so you know, I will not be adding supers or filling feeders at night. If you want to, have at it.*)

My point: So much as possible, let your *bees be bees*. I'm afraid that many times we hurt more than we help.

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DATES TO REMEMBER

General Meeting – November 6, 2007 – at Oregon Ridge Nature Center. 7:30PM

November's speaker is Dr. Robert Berthold, Professor Emeritus of Delaware Valley College in Pennsylvania and master wax worker. His talk, "Beeswax and Its Many Uses," is one you won't want to miss. When it comes to beeswax, he wrote the book on it—literally.

Board Meeting – November 19, 2007 – 7 PM at Oregon Ridge Nature Center.

Annual Dinner Meeting – December 1, 2007 - at the Oregon Ridge Nature Center. The social part of the evening starts at 5 PM and dinner starts at 6 PM. Bring a dish to or two to share. But be sure to bring your family.