MAR 1999

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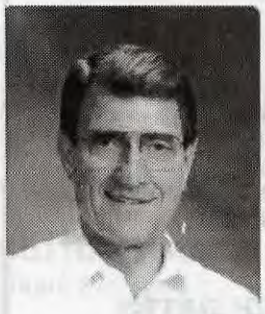
Bee Culture

THE MAGAZINE OF AMERICAN BEEKEEPING

MARCH 1999 VOLUME 127 NUMBER 3

FEATURES



JOHN ROOT
Publisher

KIM FLOTTUM
Editor

COVER

With Varroa mite resistance to Apistan spreading and the effect and distribution of the small hive beetle still uncertain, the development and use of the Bayer Bee Strip has the full attention of the U.S. beekeeping industry. Find out all about this newest weapon in the arsenal against these two pests.

Background photo by Jim Puvel was modified for this cover.

Bee Culture

THE MAGAZINE OF AMERICAN BEEKEEPING

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INSIDE COVER

I don't often get the time, and even when I do I less frequently take the opportunity to attend sporting events. Not that I don't enjoy a good game – whether baseball, football or whatever. And once in awhile I catch a game on TV especially if it's a Green Bay Packers or UW Badger football game (last year was great for the Badgers, not so great for the Packers).

But recently I went to a basketball game where all the players were 12. It's been a really, really long time since I was 12. But, as I watched it all came back. Well, some things have changed. Not one of them was wearing Keds high-top sneakers. I'm not sure what they wore, but they looked a lot different than the shoes I used to wear.

Anyway. For the most part these prepubescent players were pretty much all the same. There were a couple with real class, and a couple who weren't sure they were in the right place, but most were at about the same skill level.

On offence they tended to play the plays the coach had set up for them. Picks and fast breaks and screens. On defense they kept their eyes on the other guy, never quite sure where that guy was or what he was going to do, next.

Now I'm not, by any stretch, a basketball analyst. But even to me one thing was crystal clear. Experience counts. An experienced player, when on defense, knows his opponent well enough that he always has a feel for where he is, what he is doing, and what he *will do* next. That enables the defensive player to concentrate on what the other eight players are doing, where the ball is and to anticipate where he should be to get the ball and get back on offence. It becomes a sixth sense. Some players use their hands, without actually looking, to tell them where and what their 'guy' is doing. Some sneak quick looks. But those who excel have that sixth sense, that 'always knowing' ability to be at the right place at the right time.

Well, the good guys at the game I went to lost, but not by much. But this sixth sense thing got me to thinking about people who play the game we do – honey bees.

I've gotten to know a lot of people who keep bees at all levels – hobby, sideline and commercial. There are professionals at every level. Ah, professional?

Like that basketball player on defense, who always knows what's going on behind his back, a 'professional' beekeeper is one who knows the basics, the fundamentals and doesn't have to think about them.

They know what a frame tells them – brood, eggs, pollen, honey, disease, drones, workers, uncapped larvae, mites . . . a quick look and they know all a colony is, and, most importantly what a colony will be. It's that anticipation thing that enables a good beekeeper to do the tasks necessary to make that colony fulfill it's destiny – whether honey production, pollination, queen production, overwintering or whatever.

It's a feeling. You know where it is, you know where it needs to be, and you know what needs to be done to get it there. It's the fundamentals that get you there though. The basics. How long an egg? How long a larva? How long a pupae? When does the honey flow start? When do supers go on? See. It's all fundamental. Knowing that, you can anticipate. You know what rain or drought will do. You know when, without having to look, the colony reaches peak, and why. You know how much to take and how much to leave. You just know.

And when you do, you're a pro. One colony, ten or a couple thousand.

So, until next time, practice these basics, resharpen your hive tool and relight your smoker because it's full speed from now on.

Fundamentals

CORRECTION

In the article entitled Selling Honey in the January issue, information on Ken Eastman was incorrectly reported. He was not employed by the State Apiarist at the time of the interview, and had been keeping bees four, rather than seven years.

KEEP IN TOUCH
Write: Editor, 623 W. Liberty St., Medina, OH 44256
FAX: 330-725-5624
EMAIL: KIM@AIROOT.COM

MAILBOX

BC In Color?

I find this magazine and information to be invaluable in my learning process about my beekeeping. This is my second season as a beginner, and I do respect your talents and gifts. But it seems that it would be helpful and more intriguing if you could have full color illustrations and photos. This would also aid in keeping interest up for the hobby beginners.

Maybe a 30–minute TV show too.

Gary Hollar
Hickory, NC

Getting Discouraged!

In late Spring of 1998 I attended an antique farm machinery show in southern Ohio. A beekeeper there had a display and I received volumes of information on honey bees. Then I subscribed and received my first copy of *Bee Culture* which I was excited to read. Shortly I hooked up with a very nice and helpful local beekeeper (300 hives) in my county.

Then I wrote and received information on the Ohio State Beekeepers Association Fall meeting and I couldn't wait for November 7 to arrive. More people with my same interest and meet some of the people who have written in *Bee Culture*.

My time at this event was very rewarding. I learned a great deal and enjoyed meeting a lot of nice beekeepers. Dr. James Tew gave a talk and slide show that was very similar to his article in November '98 *Bee Culture* entitled "Not In Any Book." Included along with material from this article was that beekeepers in Ohio are down from about 10,000 to 3,000 and that this problem needs a helping hand.

As I said in the beginning of this correspondence I'm as some might say "just gettin' my feet wet." The sad part of this is I'm receiving very little support except as I said before the local beekeeper. I've tried to get more information on work shops and clubs but nobody corresponds back. I've written for information on the "Tri-County Beekeepers Workshop," nothing (yet), also some of the clubs listed on *Bee Culture's* website that a friend retrieved for me (I don't have internet at my home) and I've bought my share of books.

I don't wish to sound harsh and certainly understand that diseases and parasites and honey prices have taken their toll, these things certainly would make many leave. Still when new interest shows I believe that the support should be there. My reason for this correspondence is not to offend person or persons but to air this problem and maybe there won't be 3,000 beekeepers anymore but 10,000 again soon.

Steve Yarger
West Mansfield, OH

Graded By Taste

I am a 12-year-old boy interested in beekeeping, and upon reading Richard Taylor's article, *Dark honey has too long been maligned* in your December issue, I have a comment. Richard Taylor is a good writer, of course, but he left out how he thought honey should be graded.

When I read the article to my father he gave me an interesting idea. He said that honey should be graded similar to wine. Wine is graded and labeled by its traits and it is bought by its flavor. It should be the same way for honey.

Another idea that I had was, if you have a roadside stand, dribble some honey on a cracker for your customers as a "free sample" so your customers buy your honeys by taste.

Danny Stadler

Queen Articles Timely

I have just subscribed to your magazine and it is the highlight of the month. In spite of our season starting in September, your articles apply all over the world. Congratulations.

I am entering Fall with 350 colonies which will be going to *eucalyptus grandis* for two months (tough work ahead) and hope to reach next Summer with around 600 in all. With queens I will start rearing instead of buying. So, all your queen articles are especially valuable.

Maria Lyford-Pike
Uruguay, South America

Producers & Packers

I would like to commend you on your article on the problems of producers and packers. You hit the nail right on the head. Its never just one side wrong, but a combination of errors on both sides.

I produce honey and sell it at Farmer's markets in Seattle. I have been doing this since I retired 6 years ago. I produced 6,000 pounds this year and its about all gone and we are not even up to Christmas. I sell it at $5/pound. It is clean, meaning no pollution or chemicals. I don't heat it or filter it. There is a market out there that can blow your mind. It is barely tapped and I hear all kinds of complaining from both sides. It takes both sides to focus on a goal and then to do the work to accomplish that goal. It's not rocket science.

I have been a beekeeper for 30 + years. I have 26 years in management at the Naval shipyard in Bremerton Washington behind me. Now I use my skills giving talks to groups, Kiwanis clubs, Beekeeping clubs, and schools. Trying to educate the public about honey bees and Nature.

What I have learned over the past 4-5 years is really shocking.

Continued on Next Page

MAILBOX

The public in the U.S. are so very far behind Europe in regards to knowledge of the benefits of eating good honey. I sell a lot of Honey to the people from Europe. They like it dark and some spots in it, not that filtered clear stuff. One reason I sell a lot to the people from Europe is my daughter speaks 6 languages and she sells for me at the Freemont market in Seattle. She is finishing up her Sr. year of College in Sicily right now. Her degree will come from U of Wash. following her older brother, that received his degree in chemistry 2 years ago.

Why I put that is simple. I have a background in chemistry and physics myself and we used the lab at the U of Wash to check my honey for everything. It came out clean. I take my bees up to 4,500 feet in the Olympic Mountains to get fireweed honey. The wind comes in from the Pacific Ocean to the State. The next industrial nation is Japan to the west and a long ways off. Not everyone can have the same environment that I have, but they can work towards getting the very best possible environment for their bees.

I'm completely against putting any chemicals in a beehive. I have been on the Bee-l for the most of the last 6 years and have put in my nickels worth on that subject. I could spend a day talking about the problems with (liquid) formic acid at the levels they want to use in a beehive. They want a behavior problem, because that is what they will accomplish. Formic acid is the strongest organic acid known to man. All 200 plus pheromones in a beehive are organic acids. No need for a rocket scientist on that one.

I know that you're aware of the problems in putting low grade honey on the market. We all shoot ourselves in the foot. Your article was very well done. You have a position that has some power. You will never turn all of them. You only need to turn a few. When they do well, the rest will play catch up. Just like the car manufactures in the U.S. Quality always has to be job "1".

The Very best to You. Keep up the Good Work.

Roy Nettlebeck
Tahuya River Apiaries
Tahuya Washington 98588

A New Home

Enclosed is a photo of a swarm that I captured in mid-August 1998 from an owl nesting box in Newbury, MA. By the extent of the comb, it appears they had been residents for some time. This was my first attempt to salvage comb and bees from a wild hive, and I must admit that it was an enormous mess with all the honey and dead bees. The colony received a new Langstroth hive and I'm hopeful they will survive the Winter with the extra stores I provided.

Dave Riddle
Newburyport, MA

Wax Moth Dilemma

Thanks for your great publication. On many occasions I've used your articles and appreciate being educated on news in the bee world. One issue I'm perplexed about is wax moths. In the past 12 years of beekeeping it seems to be an increasingly difficult pest. Both in 1997 and 1998 I have had strong colonies (colonies that yield 4-6 supers each) go to the moths. Typically I treat for mite Fall only unless I detect a problem in the Spring. In the late Summer, early Fall (July, August) I pull my supers and extract – leaving Winter stores. When I return in September to medicate, the most disheartening site has greeted me on two occasions, each of the last two years. The bees are driven out, honey is dripping out the bottom board and inside is this incredible infestation of wax moths.

I'm sure you've seen wax moth damage, but these incidents are *really* disheartening. Three out of four of the colonies were very strong, one was weak. The weak one was at a beeyard where I'd lost a hive the previous year. The strong ones were at new, different locations. Now I'm feeling like I must protect all stored extracted frames with the approved moth ball treatment, but it really leaves a lingering smell and – I'll find out – taste. How does a seemingly strong colony go from thousands of bees, strong laying queen, plenty of stores, good weather, to a completely destroyed colony – equipment such a mess you want to never look at it again, in just a few weeks? Any help would be great.

Bruce Wachtel
Afton, VA

Editor's Note: *I suspect you still are having problems with* Varroa. *During late Summer check very thoroughly, especially uncapped worker brood. The situation you describe sounds very much like a* Varroa *crash, where moths are the opportunists, rather than the culprits.*

Price Too High

I read Mr. Abbotts (January issue) with a cold chill. It reminds us all that in a bureaucracy, the most incompetent usually rise to the top. One could think after the "Love Canal" incident that they would learn a lesson.

During World War II the backyard "Victory gardens" helped feed this nation and many would have starved without them. Bees and wild pollinators helped make these gardens possible. As you and I both know honey bees do a lot more than just make honey. I have never seen a bag of Sevin® flying around pollinating veg-

MAILBOX

etables or fruit trees. Of course if the gardeners cannot grow anything, the stores will be happy to sell you lots of produce. Any gardener will be happy to tell you which tastes better.

Thank the Lord, our constitution and laws give you the right to grow your own or raise bees the same as it gives the farmer the right to grow their crops. Most farmers care about the environment and are the salt of the earth. They are the first ones to send their sons and daughters off to war to defend us all. The farmer usually relies on their "fieldman" for advise on what products to use. The "fieldman" most often works for a chemical company or a chemical supply "house." The one that signs the "fieldman's" check has their loyalty. It is simple human nature. The farmers have been convinced that without product "X" their crops will fail. There are no simple answers to this problem.

Good luck, Mr. Abbotts, take heart as someday judgement day will come and a lot of people will have some serious explaining to do with their Creator.

Kim Naasz
Yakima, WA

Help!

Could you please tell me where I can get as a floral source Japanese Bamboo? I need the seed, roots or plants.

Mr. C.R. Green
165 East Clinton Ave.
Roosevelt, NY 11575

Balance?

I have noticed that whenever anyone writes on your policy on mite controls other than Apistan, they are put in their place fast. I suspect there are others that share Mr. Summer's views on the subject, but figure it is a waste of time to write you because the answer is always the same. The only reason I am writing is that it upsets me that your answers get more arrogant with each question on this subject.

You know full well that your readers for the most part, are not scientists and are busy running commercial, sideline, or hobby operations. Even under the best of conditions they couldn't put together a study that you wouldn't trash in your magazine. If you are so convinced that all controls other than Apistan are no good, what possible harm would reporting some good and bad stories on these methods do. You could also give your opinion and get yourselves off the hook by not endorsing these methods. Then your readers could make up their own minds.

It appears that there are two new controls – Formic Acid, available this Spring, and Bayer has a new method about to be approved and that is good.

I wonder if there were no other controls for mites other than Apistan and Apistan became ineffective, would you then report on methods other than Apistan. I suspect all our bees would be dead waiting for scientific results.

Mark Young
Ludington, MI

Editor's Note: *The initial studies on some of the essential oils are nearing completion and you can read about them in the National Meeting article last month. This month we present the updates on the Bayer Strip. And, in the Gleanings section you can read the announcement that Mann Lake Ltd. has been approved to sell a Formic Acid gel. BetterBee already has this, and both are developing packaging.*

I apologize if my answers appear arrogant as they are not intended that way. However, what two beekeepers discuss over the phone is not the same as what is published in an international journal. "Conservative by necessity" must be the rule relative to the purity of honey. Not only beekeepers read this magazine and discussing, in public, the trials and errors of whatever people put in beehives is not a practice to be pursued. I'm sorry if you feel this way about our policy, but until John Q. Public is comfortable with, and we can defend, a practice, any of these procedures will have to remain between two beekeepers on the phone.

WAY TO GO!

Just received my copy of *Bee Culture*. Thanks for including the mini-convention announcement. Way to go on your response to the guy criticizing your not wasting space on all these weird concoctions people are using in their beehives. It seems people will go to all ends to keep from following tried and tested means of control for the mites. If you put an article about everything going . . . especially on the internet the magazine would have to be a pound of paper each month.

Some of our members have already said they think we should enter the newsletter contest so I think they will be sending some in. I think a good newsletter does a lot to keep a club going. Thanks for everything.

Euvonne Harrison, President
NE OK Beekeepers Association

Invasion Of The Ants

We, like many Californians, are experiencing ant invasions during the colder months. I just cleaned up an invasion in the kitchen which was targeted at a bottle of honey.

After thinking about it, I thought that it was unusual that ants would be attracted to honey even if it was a sweet that they crave. If they did go after it, every beehive would have to continuously fight off an ant invasion. I am pretty sure they don't.

Like everyone else these days, I took my question to the internet, and came across your web site.

So if you don't mind scratching my cerebral itch, "Do ants invade beehives, and how do the bees protect the hive?"

Jon Shapiro
Palo Alto, CA

Editor's Note: *Ants do invade colonies, more in the South than the North. Beekeepers put obstacles in their way or control populations in the area, but if they get in bees 'normally' can control them. Weak colonies, or huge invasions can negate that control and the colony may abscond or die. Ants sometimes just live in the colony, not bothering the bees and vice versa.*

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MAILBOX

Ventilation Discussion

In response to an article in our November issue:

I read your article on ventilation in *Bee Culture* and it may have kept me from making a serious error.

I live in Golfito, Costa Rica, the southernmost province in C.R. Temps here are high ad we receive an average of 196" of rain per annum, this year, considerably more because of El Niño and now la Niña has prolonged the rainy season well into what is normally our Summer, December though May, plenty of humidity.

Another major problem here is Termites. They devour wood at an alarming rate; lay a plank down on the earth, and it is consumed in a week or so.

I had planned to start keeping bees here on my 34 acres of jungle. Wooden hives are out of the question because of the above. I had found plastic frames (Pierco, Cal-Mold), and plastic queen excluders (Dadant), and other plastic components. I had planned to make the hive bodies myself from sheet plastic; then I read *Ventilation.*

It seems to me that an all plastic hive in thie atmosphere would trap excessive moisture and create an unhealthy environment for the bees and retard the process by which nectar is turned to honey, (p. 23, same issue).

Short of moving back to Californi, what do I do?

I realize that any suggestion you may make is purely information and is *not* given as Professional Advice.

Thanks for any help you may be able to offer.

George Prosser
Golfito, Costa Rica

Response: *I am flattered at your accreditation. I suspect though that if you are surviving under the conditions that you have alluded to, that you would ultimately make the correct decision, with or without my help.*

My immediate reaction is to elevate the hives on some sort of non-wood structure, maybe cement blocks and employ a plastic or fiberglass bottom board. Between the bottom board and the cement block stands insert what are called termite shields. These are simply sheet metal (often copper) structures that the termites cannot eat through. This shield forces the termites to build their little clay tunnels out and around the protruding lip to get to the wood above. (See my enclosed diagram). Since it seems that you have access to sheet plastic, that material would work beautifully. These shields do not prohibit the termites. They do though inhibit them, at least here in temperate Ohio. The shields also allow you to see that they are making their advances on your hives.

Something else you could try to supercharge this whole thing. Lay out a sheet of roofing rubber on the ground below the entire assembly. This may help deter the critters completely. I feel it would be best if you could somehow continue to use the familiar wood hive bodies.

Here is something to keep in mind concerning your climate. Water vapor only transfers, one system to another, if a vapor pressure, or relative humidity difference exists between the two systems. Depending on your hive locations, none may ever transfer out of the hives naturally. If the surrounding air is at dew point (the maximum vapor holding level of air at any given temperature) no water vapor will transfer from inside the hive to the outside. The surrounding air is completely full and cannot hold any more moisture. This is when it rains, or is foggy.

Based on the above, your plastic sheet constructed hive bodies may not be all that risky. I would certainly tilt the hives toward the hive entrances to allow any moisture that may pool on the bottom board to flow out. During rapid downward temperature changes (if those ever occur in your climate) a tremendous amount of vapor could condense on the inside surfaces of the hive bodies. This needs to be able to quickly get away.

There are a couple of possible drawbacks to the use of the plastic construction. As your outdoor temperatures increase during your daytime hours, the moisture holding capacity of the air increases. It is during this time that the plastic construction would resist the transfer of moisture out of the hive. A chance would be (maybe) missed to dry-down things a bit inside the hives. I am also concerned about the possibility of out-gassing of components of the plastic. I don't think that "plastic is plastic". It may matter what kind of plastic that you use. This subject is so far-afield for me that I would ask you to seek advice from some other source. I will pass the question along to someone who may be able to help.

I hope that I have helped with your problem. Please keep me informed of the outcome. I'd like to know how it works out.

Wishing you the best of luck!
Brad Kurtz

Unrelated Questions

First question relates to cell size. Background: We are told of people recommending we return to the smaller cell size since this will help with disease and pest protection in some way. We are also told to recycle our older, darkened brood frames since the cells get smaller with use. Why don't these older brood frames provide similar benefits against disease and pests that the smaller cell size purports?

Second area: I would like to see *Bee Culture* expand to give more in-depth coverage and comparative data on effectiveness for products, suppliers and their products. Some specific examples. BeeCool spends a lot of money advertising, but I have not yet seen any data published by you that helps me decide if this is truly a worthwhile investment or not. Queens - while a sensitive topic, and no one wants to put suppliers out of business - we all need good comparative data on the various queen suppliers, where do they ship to, what traits do they claim (especially hygienic behavior, non-aggressiveness and honey production), what strains do they provide, how well do they live in various climates, etc. etc. Right now we are all left to repeat every purchasing experiment on our own, instead of being able to get more complete data from our collective numbers. Another critical area is pollen substitutes - what works, what doesn't, what actually harms the bees, and how to make your own if desired. There are a large number of topics (job security for life) that could be covered. I would like to see more data presented,

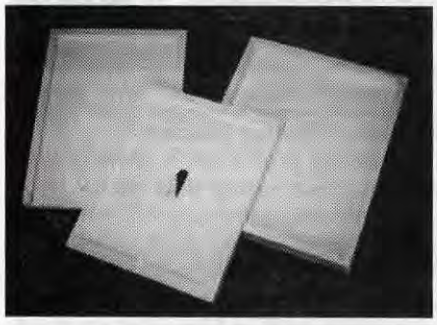
Continued on Page 15

NEW

New Age Products is a Medina, OH based manufacturing company that specializes in products made of polyurethane. The company's founders, Ray and Marsha Hulec, have turned a hobby into a profitable home based business. Their line of specialty products include a telescope cover, inner cover, and bottomboard. These products are all compatible with traditional wooden beehives. Some of the benefits include one-piece construction. They provide better year-round temperature control, are rot resistant and come painted and ready to use.

Ray, who has years of beekeeping experience, has personally tested his products and found them to be far superior to the traditional wood constructed parts.

New Age Products can be reached by calling 330.667.2766. They will be happy to answer questions about their products and are able to assist you with any of your polyurethane manufacturing needs.



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System requirements: Pentium processor 166 MHz or greater, 32MB memory, 25 MB hard drive space, CD-Rom, laser or inkjet printer, modem (if using email or auto dialing features). Windows 97 or 98 (not NT). Runs on Microsoft Access and Word. Standard licensing agreement.

You're only going to have two problems with this software, and they are both your fault – you didn't take the time to learn the program, and you didn't take the time to enter the data. Because, if you do those two things your operation is going to take a quantum leap in improved management, improved record keeping, improved archiving of records, and improved tax and inventory data.

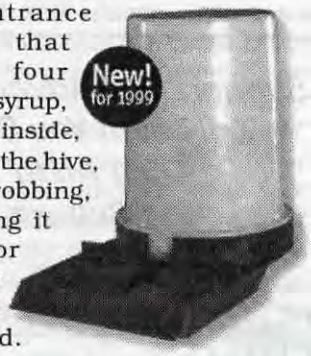
This one-of-a-kind program, though off the shelf, will work with your operation, even if you have bees on the moon.

It has an excellent instruction manual (with a healthy dose of humor thrown in) and covers growers, employees, supplies, moving hives, yard work, equipment inventory, work orders, honey harvesting, sales inventories of honey, wax, nucs, pollination, equipment. It has good year-end summary reports (avg #s/hive), and archiving all of this year's, so you can compare it to next year's results. There is much more on this program.

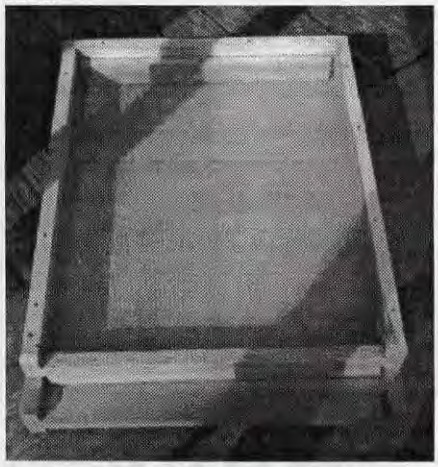
Easily worth five times the $250 price, upgrades and new bells and whistles are being prepared. Tech support is free. U.S. sales only.

Betterbee, Greenwich, NY, which celebrates its 20th anniversary this year, introduces a new Giant Hive Tool. Great for prying superglued supers apart. It's 14-3/4" long, has two frame raisers on one end, and both a 'V' shaped seam and canted end to give additional lift when inserting between boxes. Tough to lose and easy on the hands when using. $17.95.

They also have a new entrance feeder that holds four pounds of syrup, and feeds inside, way inside the hive, reducing robbing, and making it easier for inside bees to get to the feed. Only $2.75.



Brushy Mountain, Moravian Falls, NC, has some interesting new products this year. For Spring they introduce a screen insert that sits between the bottomboard and bottom super. Keeps fallen Varroa from getting back up into the colony. USDA says reduces infestation by 15%.



They also have a new honey-straining, double screen device. A course metal screen sets on top and nests into a bottom, removable very-fine nylon screen bay on the bottom. Fits nearly any container.

EAS 1999
Maryville, TN
July 26-30

THE WISE GUY

We do not need mandated quality assurance! You cannot legislate quality assurance the way it is being sold to U.S. beekeepers today. Please go to a presentation on quality assurance, and listen to the program and evaluate what is being said. You will shake your head. The quality assurance program goes like this: We can't tell you the rules of the program or guidelines or what quality assurance is, nor can we tell you the punishment for breaking these rules or guidelines. We do not know who will enforce these rules or what the punishment will be. So trust us and vote on this blank program, and we'll fill in the words after it is passed. Would you send a signed blank check to someone you don't know or don't trust? That's what this group, sponsored by the Honey Board, wants you to do.

If this program isn't the answer, what is? We need a labeling law that allows only the specific country of origin. This says that you cannot blend honey from the U.S. with any other country's product. This means the "rape" honey from Canada must be blended with Canadian honey so it doesn't crystallize on the store shelves overnight. Honey from China will have to be sold as that, and again not blended with a product produced here. Honey from the U.S. is now being used as a blended agent to make other countries' products saleable. In most food processing plants, that makes the product worth more because you are adding value to an inferior product.

Please review the facts before you think about quality assurance vs. new labeling laws. Quality assurance is being sold to us as a very vague program. There are no guidelines for this program, only promises. The people making these promises are the ones who are leaving American beekeepers' honey in beekeepers' warehouses. These people are buying foreign honey and then asking American beekeepers to sell it for less than the imported product. Again the only cases of adulterated honey have come from honey packers. The one quality assurance item we should put into place is that no honey packer should be able to sell corn syrup in the same location he packs honey. That may take care of some of the surplus honey.

•

How am I going to sell this honey? Not only is the wholesale price low but no one is interested in my product. BALONEY! Honey is being sold everyday, it's just not yours. We as an industry, have to get off our butt and get our product to the public. I've looked at every aspect of the honey selling business and believe the major stumbling block is rejection. Most people feel bad when someone tells them no. I'll explain later.

The true cost of packing honey is small. Producer packers can get into the business very cheap. My cost to equip my small packing room was less than $4,000. Stainless steel tanks are everywhere and they are very reasonable. The filling heads are the most expensive but you can use a manual valve with a scale for smaller operations. The largest cost to you is the containers.

Buy a container that fits what you want to do. If you are selling in an airport gift shop buy a distinctive glass jar. If your customer is the local Farmer's Market you may wish to sell in bulk or use less expensive containers. The most important item to me is the label and what it says. Tell everyone it is local. Tell the buyer what floral source this product comes from. When you convince a buyer your product is better because of the type of plant the honey came from you now have a buyer that doesn't just see all honey as the same but is looking for your floral source. Also why does everyone put a bee on the label? I would bet most people know where honey comes from so why be like the rest. Put your face on the label, your daughter or son or granddaughter, your whole family. People like personalized products such as Ben & Jerry's. They put their picture on ice cream for years. Wendy's owner, Dave Thomas does all the advertising.

Now the hard part. Selling to a retail buyer. Don't be afraid of the word no! No only means you have not overcome all of their objections. When someone tells you no let them tell you why and remember these reasons. If you can overcome these objections you will have a sale. At one major chain store we told them we would stock their shelves and would not have to store the product in back as we pass by their store daily and could check the shelf twice weekly. We now have a majority of the space for honey there. This is the only store in that chain that takes our product and don't let the objection of "we buy all of our product through the warehouse" stop you. Also we have never been asked to purchase shelf space. This seems to happen when you work through brokers or deal with a central warehouse. Don't let that scare you.

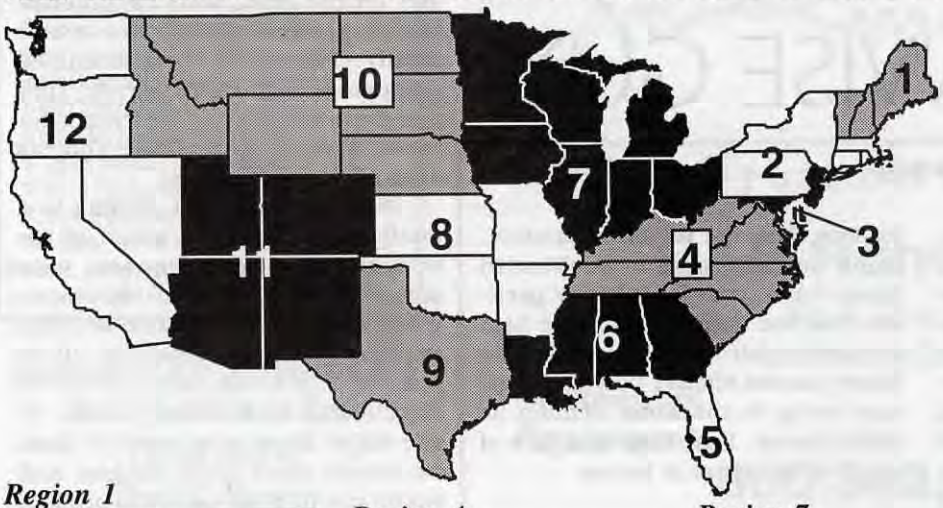
My best sales are at small town grocery stores. We have one in a community of 250 and everyone in town purchases our honey. I have even gotten calls from customers direct telling me there is no honey on that store's shelf.

Another sales idea that worked for us is door to door sales. We used an athletic team trying to raise money for our sales force and they sold over 1,000 pounds in one night, 12 ounces at a time. We got our product into peoples' hands that would never have purchased it. On that label we put another small florescent sticker with our phone number and said "Please call." Our success was fair and I will try this again.

All we are talking about is getting our product into the hands of the buying public without it being blended with another grade of honey. We need to educate the public on the importance of floral source and how it makes the honey taste and what it does to our product. Be proud of your product. Tell your future customers why they should purchase unadulterated honey from the U.S.

Wise Guy

MARCH – REGIONAL HONEY PRICE REPORT



Region 1

Prices down at all levels this month, especially bulk and pails, but wholesale and retail beginning to show drops, too. Glass more popular than plastic, with most unwilling to switch, or to even survey customers.

Region 2

Prices down bulk and in pails and at wholesale case lots, but steady to up a bit at retail. Glass and plastic both commonly used. Some reluctance to survey customers (but some already have), but most would change if asked.

Region 3

Prices down significantly at bulk and pails, but up at wholesale and steady retail. Plastic not popular with beekeepers, but most would change if asked.

Region 4

Prices down for bulk, steady for pails but both wholesale and retail down, but not by much. More glass than plastic sold, but not by much. Surveys not likely for most and change is tough, no matter the customer.

Region 5

Bulk, pails and wholesale down since last month, but retail increasing. Glass the favorite here at retail. Tradition, easy access to glass and reluctance to change cited as reasons to remain the same.

Region 6

Prices higher for pails but lower bulk, steady to up a bit wholesale and retail. Plastic and glass used by most without problem or prejudice.

Region 7

Prices up for pails and down wholesale but steady for bulk and retail. More plastic than glass used here, and a strong willingness to change if customers demand. Bias against plastic exists, but barely.

Region 8

Prices up for pails, steady at bulk and retail but down at wholesale. More plastic than glass used here also, but a stronger bias toward glass by sellers. Surveys favor what they sell though, so change is unlikely.

Region 9

Prices down for pails, bulk and wholesale, but steady at retail. Lots of resistance to switch to plastic on the sellers' side – quality, appearance, etc. given. Some want customers' opinions, and have changed.

Region 10

Prices down for pails, but steady at wholesale, retail and bulk. Retail containers more plastic than glass, but not much. Sellers willing to change, if customers ask.

Region 11

Bulk and pail prices way down, wholesale and retail way up since last month. Glass and plastic both popular, but plastic cheaper to ship. Customers seem O.K. with either.

Region 12

Bulk, wholesale and pail prices down, quite a bit, and retail only barely steady. Plastic popular here more so than glass in consumers' eyes, but sellers stubborn to change.

	Reporting Regions												Summary		History	
	1	2	3	4	5	6	7	8	9	10	11	12			Last	Last
Extracted honey sold bulk to Packers or Processors													**Range**	**Avg.**	**Month**	**Yr.**
Wholesale Bulk																
60# Light	54.96	51.00	58.40	69.33	58.40	60.00	45.87	58.40	62.60	58.00	55.00	43.40	33.00-85.00	57.19	60.86	63.18
60# Amber	50.19	56.00	46.18	65.00	46.18	57.00	45.07	45.33	56.60	46.18	50.00	42.60	33.00-85.00	52.89	57.16	62.07
55 gal. Light	0.62	0.68	0.65	0.67	0.63	0.61	0.64	0.65	0.65	0.62	0.62	0.66	0.54-0.75	0.66	0.75	0.78
55 gal. Amber	0.58	0.65	0.63	0.66	0.60	0.58	0.61	0.63	0.63	0.63	0.63	0.64	0.56-0.70	0.62	0.71	0.74
Wholesale - Case Lots																
1/2# 24's	28.26	28.35	29.05	30.51	29.05	28.50	31.08	29.05	29.05	29.05	29.05	26.00	20.40-37.20	29.55	30.04	29.98
1# 24's	42.05	40.37	43.81	43.78	43.81	42.50	41.75	39.44	41.40	44.00	54.00	44.80	29.90-58.50	43.02	42.91	44.18
2# 12's	37.92	36.03	40.11	41.80	40.11	38.30	38.54	38.27	37.75	37.50	40.11	37.33	28.80-52.58	38.94	39.57	41.61
12 oz. Plas. 24's	35.31	36.23	36.07	35.28	36.07	36.40	36.39	31.73	34.20	38.40	48.00	36.80	24.00-48.00	36.20	36.19	36.98
5# 6's	36.93	31.91	30.91	47.75	30.91	44.20	36.97	40.50	40.20	41.25	30.91	35.00	30.00-52.00	39.22	41.19	44.02
Retail Honey Prices																
1/2#	1.79	1.57	2.83	2.17	2.83	1.78	1.77	1.75	2.83	1.59	2.83	1.87	1.19-3.69	1.81	1.81	1.81
12 oz. Plastic	2.12	2.13	2.22	2.08	2.22	2.20	1.97	2.26	2.25	2.32	2.99	2.22	1.50-2.99	2.16	2.25	2.25
1 lb. Glass	2.68	2.66	2.97	2.70	2.97	2.74	2.52	2.71	3.00	2.45	4.19	2.86	1.99-4.19	2.72	2.75	2.65
2 lb. Glass	4.45	4.38	4.72	5.36	4.72	4.17	4.65	4.39	5.00	4.26	4.72	4.35	2.59-7.00	4.56	4.70	4.49
3 lb. Glass	6.29	6.83	6.48	6.55	6.48	7.35	5.99	6.34	6.00	5.77	7.89	5.76	4.94-8.00	6.49	6.46	6.30
4 lb. Glass	7.87	7.47	8.52	8.65	8.52	8.98	7.80	8.35	8.52	8.50	8.52	6.92	6.69-10.50	8.36	7.95	8.40
5 lb. Glass	8.92	8.74	8.75	9.57	8.75	10.60	8.94	10.02	8.75	8.95	8.99	8.15	6.00-14.00	9.26	9.43	9.00
1# Cream	3.05	3.09	3.30	3.18	3.30	3.00	2.88	3.19	3.30	3.89	3.99	2.96	2.00-4.78	3.12	3.24	3.27
1# Comb	3.73	3.69	3.78	3.93	3.78	3.75	3.56	3.73	3.78	3.78	3.78	5.17	1.95-5.50	3.89	4.31	4.10
Round Plastic	3.35	2.98	3.29	3.10	3.29	4.50	3.33	3.66	3.29	3.29	4.50	4.48	1.40-4.95	3.51	3.85	3.80
Wax (Light)	2.16	3.19	2.82	1.47	2.82	2.03	2.11	1.95	2.82	1.40	1.45	2.40	1.30-5.00	2.17	2.64	2.59
Wax (Dark)	1.89	2.56	2.31	1.32	2.31	1.95	1.91	1.68	2.31	1.20	1.00	2.38	1.00-4.00	1.92	2.21	2.56
Poll. Fee/Col.	36.58	38.00	39.23	31.25	39.23	36.50	38.63	37.33	39.23	39.23	39.23	40.00	25.00-55.00	37.69	38.89	36.80

MAILBOX

especially in a Consumer Reports style comparison matrix format. Help us make better buying decisions, in addition to our management and marketing and selling decisions.

I enjoy the rest of the magazine - just want to see it get more detailed in certain areas. Thanks.

Rick Grossman
Tualatin, OR

Editor's Note: *First, cells decrease in size almost 0 in width as cells get older, but old cocoons etc. pile up on the bottom. Cell walls don't increase substantially. Cut one from an old comb sometime so you get a cross section of sidewalls and bottom, or midrib, and see. So, this aging doesn't affect the cell size much, relative to the same cell size reported to reduce diseases and stress. Good try though.*

Second. A much tougher question. There is no doubt that good quality control in many queen producers is lacking or nonexistant. For many, the breeding aspect is to choose the best of the best and hope for the best. This was the technique seed corn producers used for years, until controlled crosses resulted in superior (and sometimes not superior) hybrids.

Evaluating queens from a typical queen producer is a difficult and expensive process because of the following factors. First, the vagaries of production from one year to the next - ie weather, will to some degree affect the mating process, thus the progeny produced. Since producers can't keep the same breeder queens indefinitely, there will be differences over the years, some good, some not so good. The mail, too, has an affect on queens before you get them. What chemicals are being used by the producer, this year vs last year, in the hive to control mites, beetles, etc., drones from the producer's chosen drone colonies, if there are enough, have some variance, plus there are drones in the area that don't belong there. And there are other variables, such as food sources, the quality of the employees, and other things that will throw wrenches into the works.

This does not mean that producers are innocent of all problems, and that queen buyers have little choice. Far from the truth. But there is absolutely no standard in the industry, no self regulating, or government regulating instrument for quality control. Inspectors can, and most often do inspect for diseases and mites in an operation, to insure you do not get these problems. But quality? Forget it.

Now, a consumer's report article has several problems. First, you need a fairly large representive sample of queens from a particular producer, say 25. Then you need at least a season, better 2, and in several parts of the country (south vs north, etc). And how do you measure honey production from the same queens in FL and in OH? I could go on and on. It could be done, and has been proposed, along with a centralized production of known quality breeding stock. However, queen producers have for years rejected that type of cost, and the loss of control.

Probably the best way to gauge the quality of the queens a producer sells is to ask the right questions before buying - nosema, t. and v. mite control, (and how), AFB and EFB control, drone production, shipping, and references (who bought queens last year that you can call). Some producers will answer all these questions, some will answer some, and some won't answer any. And, some won't answer truthfully.

A good friend has a formula that he holds is true, no matter where he gets queens - that is, for every 10 he buys, 2 are duds, 2 are superior, and 6 are average, no better and no worse than any 6 queens he can get anywhere. It's no wonder most people buy by price rather than quality!

Ask the right questions, ask other beekeepers, try some yourself and keep good records. Then, when all is said and done, raise your own.

Other products should be objectively analyzed, as you suggest. And, from time to time we try to do just that. Woodenware, metal equipment, plastics all have been at least looked at here (and no where else), but not to the degree you, or I for that matter, would like. Time, expense and bodies are required. And, market resistance (from those that produce products) has always been a factor.

?DO YOU KNOW?

Pests & Predators

Clarence Collison
Mississippi State University

Honey bees are susceptible to a wide range of micro-organisms, pests and predators. Mammals that can significantly impact beekeeping are bears, skunks, mice and humans. In the urban/suburban setting, people are probably the beekeepers worst enemy due to man's innate fear of stinging insects. As you move into more rural and wilderness locations, vandalism and hive rustling may be encountered. Humans are increasingly becoming a serious problem, especially in out-apiaries. Reports of hives being used for target practice are often encountered. Humans may damage hives with rocks, steal honey, leave covers off, and tip hives over. The most disturbing stories of humans as beehive pests are those of competing beekeepers poisoning colonies, stealing brood combs and honey supers or loss of entire bee colonies to bee rustlers. Care in selecting apiary sites and removing colonies from locations where trouble occurs are the best solutions. Out-apiaries should be visited regularly or located where someone can keep an eye on them.

Take a few minutes and answer the following questions associated with the mammals that can negatively impact beekeeping.

The first six questions are true and false. Place a T in front of the statement if entirely true and a F if any part of the statement is incorrect. (Each question is worth 1 point).

1. ___ Mice are most serious in honey bee colonies in late autumn and during the winter.
2. ___ Skunks typically forage at honey bee colonies during the day, feeding on adult bees at the hive entrance.
3. ___ Killing hive invading skunks by poisoning is the preferred way of controlling them.
4. ___ Opossums and raccoons sometimes attack colonies in the same way skunks do.
5. ___ Hives being visited by skunks frequently become extremely aggressive and difficult for the beekeeper to manipulate without incurring numerous stings.
6. ___ Bears attack honey bee colonies for brood, honey and adult bees.
7. Name three ways mice affect the honey bee colony and hive. (3 points).
8. What is the best way to control mice in honey bee colonies? (1 point).
9. Name three symptoms associated with skunk damage around the hive entrance. (3 points).
10. Describe how large livestock can inadvertently damage honey bee colonies. (1 point).
11. Name six requirements/management techniques necessary for an effective electric fence to protect colonies from bear damage. (6 points).
12. List five precautions beekeepers should take to prevent their bees from becoming a neighborhood nuisance. (Question is worth 5 points).

ANSWERS ON PAGE 55

Roger Morse

Research Review

"Some people think large apiaries are a bad thing."

In my opinion, modern agriculture is a great success. Food is delicious, nutritious, abundant, diverse, safe and cheap. And, all of these things are more true in this country today than at any time in our history. Modern beekeeping, with big apiaries, is very much a part of agriculture today.

But, there are contrary views. Some people think that large apiaries are a bad thing because the bees take too much pollen and nectar that are needed to support solitary ground- and twig-nesting bees. I don't think that any of us who work with honey bees would deny honey bees depress the populations of these solitary bees, but there are no data to show that these bees will be eliminated. If we are to have large fields of blueberries or orchards and groves of apples and almonds, we must have a large number of honey bee colonies to pollinate them. A loss of the biodiversity is high in the thoughts of those who are opposed to large apiaries and apparently worrisome to them. While this is not a bad thought, how we implement programs to prevent a loss of biodiversity vary, and I can see some that might be disastrous to modern agriculture.

A recent report from Europe suggests that "restricting honey bee densities" might be appropriate because if we do not we will lose solitary ground- and twig-nesting species of bees. I don't think this is true, but as above there is diversity of opinion. Is this amusing or is it serious and perhaps even sinister? While we do need to worry about how serious this kind of thinking is, it is important to understand that there are fewer farmers, with fewer votes, than ever before. Is the public aware of how much modern agriculture needs bees? Whose thoughts will prevail?

Ruijter, A de. *Report on a workshop on competition between honey bees and other bee species.* Bee World 79: 209-215. 1998.

Recruitment

The recruitment of new bees to rich sources of nectar or sugar syrup by dancing bees has been carefully studied. It has been found that richer sources of food stimulate scout bees to dance sooner and for longer periods of time. A recent study reports that much the same is true of pollen collection. While this is not startling information it is further proof of the importance of the dance language and the role it plays in colony life.

It was found several years ago that some strains of honey bees collect more pollen than do others. These bees have been called high and low pollen collectors. In the tests discussed here, high and low pollen collectors were used to study pollen collection from dishes in a cage about 10 feet square and eight feet high. The bees were offered pure pollen and that which had been diluted 50-50 with cellulose. The pollen had been collected originally by free-flying bees and from a number of floral sources. Under these confined conditions the foragers undertake round dances not wag-tail dances. However, the number of turns made by bees doing round dances can be measured in much the same way as it is possible to measure wag-tail dances.

"Bees from the high-pollen genotypic strain had a higher dance rate than those from the low-pollen strain, suggesting different assessments." The bees could also detect a difference between the pure pollen and that which was diluted, and chose the richer source. How they do so is not clear, but I think our knowledge of the importance of odors may be an important factor. The authors conclude that "the dance may function at the colony level to recruit bees to more profitable pollen sources."

Waddington, K.D., C.M. Nelson and R.E. Page Jr. *Effects of pollen quality and genotype on the dance of foraging honey bees.* Animal Behaviour 56: 35-39. 1998.

Transgenic Plants & Bees

A transgenic plant is one that has had new genetic material introduced into it. This makes a permanent change in the plant. Any seeds a transgenic plant produces will also be different and carry this new material. An example what is being done is the introduction of an insecticide into a plant that will protect it against attack. One such is pyrethrum, which is a daisylike flower. Because of this special property the plant is cultivated, the flowers collected, dried, ground up, and used as an insecticide on other plants. The active ingredient in Apistan strips is a synthetic pyrethrum that is chemically patterned after the real thing.

Corn is one plant that has benefited from genetic manipulation and the introduction of an insecticide into it. In recent years, corn has suffered as the result of the accidental introduction of several pests just as honey bees have suffered from introduced mites. *Bacillus thuringiensis* (Bt) is a bacterium that produces and carries a natural insecticide, and it is this product that has been introduced into corn. We have over 40 years experience using this Bt as a garden and farm insecticide with favorable results.

When new genetic material is introduced into a plant, it is everywhere in the plant, including the nectar and pollen. This could be a problem, but as is pointed out in a recent editorial, "bees are being carefully considered in the debate on

Continued on Next Page

RESEARCH ... Cont. From Pg. 17

the environmental impact of transgenic plants." There have been extensive tests regarding the effects of Bt on honey bees, and always there have been no problems. Bt is a selective insecticide; that is, it does not attack all insects. It is especially effective against the Lepidoptera (the butterflies and moths)

I think we will be hearing much more about transgenic plants in the future. The results, generally speaking, look good to researchers, but there has been a steady stream of critical papers. The editorial cited below takes a middle-of-the-road approach. BC

Poppy, G. *Transgenic plants and bees: the beginning of the end or a new opportunity?* Bee World 79: 161-164. 1998.

Mark Winston

Less Than I Thought

"Concerns about pollination are not matched by the data needed to make difficult management decisions."

I recently attended the annual meeting of the Entomological Society of America, held in the world's tackiest location, Las Vegas. OK, I admit it, Vegas is not my kind of town. My middle-aged brain can deal with only one sensory input at a time, maybe two on a good day, but the barrage of lights, noise, people and kitsch that makes up Vegas is well beyond my sensory limit. I found it difficult to move between the world of the casino and the professionalized meeting world, where serious suit-wearing speakers droned on in the ponderous language of insect-speak.

I sought refuge in sessions where I thought I'd be comfortable, especially those on bees. There was one all-day session that I hid in, a pollination symposium. Here I heard lecture after lecture about how crop pollination was in a crisis mode, and how we needed to cultivate managed alternatives to honey bee pollinators, import bees from one part of the world to another, and save the wild bees from extinction. Noble sentiments, and intuitively obvious, except for one little thing. If I was a grower dependent on pollination to make a crop, I would rather risk my livelihood at the gambling tables of Vegas than depend on the pollination data I was hearing at this session. I came away from this session impressed with the deep need for hard data rather than pontifical truisms in a field that is becoming increasingly controversial.

The pollination research community has to start coming up with some thoughtful information if pollination biology is going to be taken seriously as a grower-useful discipline. The good news is that there has been a recent flurry of media reports and scare stories that have focused attention on the importance of bees as pollinators. The bad news is that we haven't moved beyond the public's fickle attention span and into the realm of hard, disciplined and rigorous science. We're in a very unbalanced situation at the moment, where concerns about pollination are not matched by the data needed to make difficult management decisions.

Take one of the most basic decisions a grower has to make, whether to rent or purchase managed bee pollinators. Even if we assume growers believe that managed pollination is necessary to get off a good crop, what species should they use? I heard one lecture about blueberry pollination from an individual who also happens to sell bumble bees to growers. He extolled the virtues of the bumble bee, maligned the honey bee for its poor floral visitation habits, and claimed that purchasing bumble bees would increase yield six times over renting honey bee colonies. Sounds pretty good, except for one little hesitation I might have before buying some bumble bees: He didn't present any substantive data to support his sales pitch.

I am particularly attuned to blueberry pollination because one of my students, Margriet Dogterom, is completing her doctoral dissertation comparing a number of bee species as managed high-bush blueberry pollinators. Her approach has been to ask two questions simultaneously: Which is the best species biologically to pollinate blueberry, and which species is economically the most feasible? The results (and she does have voluminous data) clearly indicate that bumble bees are better pollinators on a bee-by-bee basis. A single bumble bee is equal to about four honey bees. Economically, however, the data are just as clear: pollination using bumble bee colonies would cost growers a minimum of 20 times, and up to 100 times, the price of renting honey bees, since a typical honey bee colony might have five to eight thousand foragers while a bumble bee colony at most has only a few hundred. Best case scenario: Pollinating an acre of high-bush blueberries with honey bees costs about $80 U.S., but even under ideal conditions the price would be $1,600 U.S. for the equivalent bumble bee pollination service.

Why aren't there more studies like this, that combine biological insights with economic realities? One reason is that the biology part is not quick and dirty. You need to be able to cultivate simultaneously a number of bee species, which requires considerable skill and a broad understanding of bee management. In addition, these studies need to be conducted at many levels, including everything from detailed, delicate and time-consuming manipulations in the laboratory, transferring known numbers of pollen grains between flowers, to field studies under often adverse weather conditions. Moreover, even the best pollination biologists often stop at this point, without slogging through the eco-

Continued on Next Page

"It would seem to be a good thing to preserve native pollinators, both ecologically and in terms of encouraging a diverse natural bee population that can supplement and perhaps in some cases even replace managed pollinators."

nomic analyses that can translate biological insights into the number-crunched form that growers need to make informed management decisions. Furthermore, you have to be willing to believe your own data and not be a true believer in a hoped for result. Margriet began her project wanting to demonstrate that bumble bees were an economically viable alternative to honey bees, and to her credit she went about the project in an unbiased way and proved herself wrong. Finally, it's not cheap or quick to do a thorough job of pollination research. Margriet's project took four years, employed two to three additional student helpers, and cost about $100,000 U.S. to conduct.

The true believer syndrome is another real problem in pollination biology, and this affliction is particularly evident in the issue of whether honey bees suppress native pollinator populations. This debate has been particularly vigorous in Australia, where nonnative honey bees are moved into national parks during eucalyptus blooms, and are thought by some to out-compete native bee species. This has been a classic example of the "dueling reports" problem, in which each side of the issue produces clear studies designed to support their point of view. There was an excellent review of this phenomenon in the *Quarterly Review of Biology* a few years ago by Vivian Butz Huryn, a Canadian scientist now working in Maine. She carefully went through all the studies worldwide on this subject, and concluded that almost all of them had serious design flaws that biased their findings in one direction or another.

This is an important issue that deserves the most rigorous and serious of scientific treatments. It would seem to be a good thing to preserve native pollinators, both ecologically and in terms of encouraging a diverse natural bee population that can supplement and perhaps in some cases even replace managed pollinators. If rented migratory honey bee colonies are suppressing native bee populations, perhaps we need to rethink our philosophy and strategy concerning how bees are used to provide pollination services. Yet, this is one of those "if-so," issues, since there are almost no reliable data that indicate honey bees are indeed having a negative impact on native pollinators.

Another subject in this symposium concerned whether foreign bee species should be imported to serve as managed pollinators. I found these discussions particularly long on rhetoric and short on data. The agricultural literature is replete with story after story concerning ecological and economic damage caused by moving plant and animal species between countries and continents, yet we know very little about how bee importations might affect crop production, beekeeping itself, or our environment. The bee community should certainly be sensitive to the problems that can arise from moving bees around the world. Remember the Africanized "killer" bees, and the importation of honey bees carrying the parasitic *Varroa* mite from Asia into South America and then north to the United States and Canada? Yet, advocates of bee importations tend to minimize the potential long-term problems that could arise from moving bees around the world, in favor of short-term solutions for undocumented and fluctuating pollination problems.

There were, of course, glimmers of good science and well-rounded data in this symposium, but my overall impression was of a field attempting to establish credibility but being swamped by politics, rhetoric and defensive biases. I had eagerly anticipated attending this session, hoping to find a maturing discipline with considerable ecological importance and management implications, but it turned out to be less than I thought. I shared a taxi back out to the airport the next day with a colleague who was similarly underwhelmed. She suggested that perhaps it's time for a summit meeting of pollination experts to provide direction and focus to a field that appears to be drifting into disarray. Both agricultural and environmental issues are at stake here, and these are subjects where there are already enough risk and gambling because of limited information upon which to base management decisions. The prospects for good science and sound management of a diverse natural and managed pollinator community are certainly there, but we need to move beyond posturing about pollinators and pollination problems and on to the hard work of data collection and problem solving. Perhaps if we met on the farm, or in a roomful of growers, or out in a blooming meadow instead of in a Las Vegas casino, pollination science could become less of a roulette game and more of a sure thing. Now where did I put that last quarter for the airport slot machine before I head home? BC

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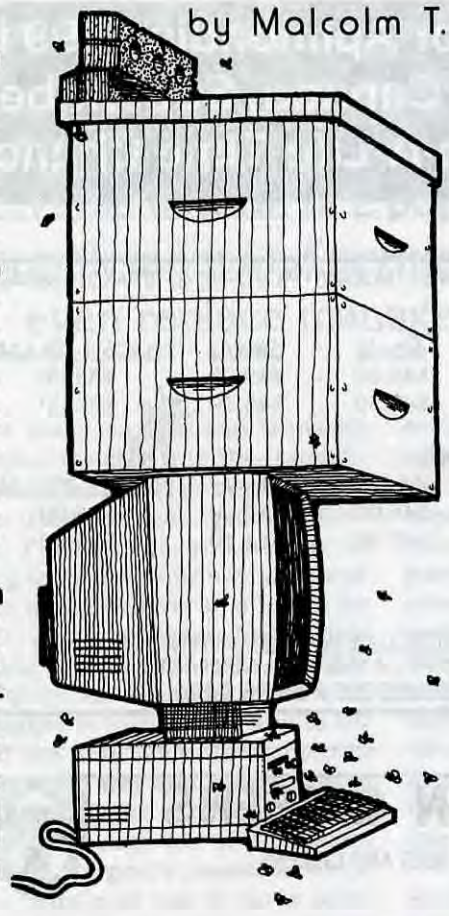
Beekeeping In The Digital Age

by Malcolm T. Sanford



The *Varroa* World Wide Web Hub

Without a doubt, the most catastrophic event to have affected modern beekeeping is worldwide introduction of the *Varroa* bee mite (*Varroa jacobsoni*). This eight-legged acarine (related to ticks) was unknown to those keeping Western honey bees (*Apis mellifera*) until the 1950s, when it transferred from the Eastern honey bee (*Apis cerana*), probably in what was then the eastern Soviet Union. Since then, it has been introduced onto every continent except Australia. New Zealand remains free, as do some Caribbean islands. Concomitant with its spread have been the death of let-alone beekeeping and increasing use of chemicals inside the beehive to control this parasite. Almost every *Varroa*-infested colony of *Apis mellifera* will eventually collapse unless the beekeeper intervenes to reduce the mite population. This is done either through the use of chemicals or by other management techniques. The importance of this mite cannot be overstated. Not only does it weaken brood and adults by penetrating the skin and sucking out nutrients along with blood (haemolymph), but it also is responsible for vectoring and activating viruses that contribute to weakening a colony.

Varroa warrants special attention by beekeepers and researchers on a worldwide basis. Predictably, a huge body of information about the mite is available, but it is scattered here and there on the World Wide Web. Thus, the folks at the United Kingdom's **Department of Entomology & Nematology**, IACR-Rothamsted, Harpenden, Hertfordshire, AL5 2JQ. United Kingdom initiated the *Varroa* WWW Hub. Its URL is **http://www.res.bbsrc.ac.uk/entnem/about/projects/varroa/alvarweb.htm**. According to the coordinator, the page is "aimed to be an easy access point for *Varroa* information on the Web. If you know of a site not listed, please **email** me (**Colin Denholm**) with the address."

The *Varroa* WWW Hub already contains a large amount of information cataloged under **General / Mite biology**, **Detection**, **Treatment / Acaricides**, **Secondary pathogens associated with *Varroa*,'*Varroa* resistant' bees**, **Research Laboratories**, and **Articles**. It also links to the USDA's National Agricultural Library **Tektran database** and contains an extensive photo gallery.

Because of its location, the *Varroa* WWW Hub has a distinct European focus. This is not necessarily a drawback. Because the mite is a world problem, it becomes important to know what experience beekeepers are having with it elsewhere. A particularly valuable resource is the United Kingdom's Ministry of Agriculture, Fisheries and Food **fact sheet** on the mite. It provides some good background, and concludes: "The experience of beekeepers in Europe, who have been managing colonies with *Varroa* for many years, suggests that the best policy for beekeepers is to become experienced in monitoring mite numbers in their own region at different stages of the year, and to learn to relate this information to the degree of infestation and subsequent performance of their colonies." This document summarizes the relative usefulness of **chemical vs. other controls**, lists commonly used **biotechnical controls** (without pesticides) and what materials are **licensed,** and discusses **treatment timing**.

As part of the European initiative to control *Varroa*, a site has been mounted in Sweden, which is linked to the hub. Its URL is **http://www.entom.slu.se/res/proj16b.html**. According to this document, "A Concerted Action (CA) has been initiated to promote development of control methods, for the parasitic honey bee mite *Varroa jacobsoni*, that minimize use of traditional acaricides in beehives. The CA will be in effect from January 1, 1998 to December 31, 1999. The work is carried out with financial support from the Commission of the European Communities (FAIR) specific RTD program, Contract CT97-3686, "Coordination in Europe of research on integrated control of *Varroa* mites in honey bee colonies." The next two meetings of this group will be in Hohenheim, Germany, and Brussels, Belgium, in 1999.

For an up-close and personal look at *Varroa*, the hub links to the Tucson Bee Lab's page known as **GEARS**. Several **scanning electron micrographs** found here show just how bizarre and scary a creature this mite is at honey bee scale. The hub also links to the **Beltsville Bee Lab's** information on *Varroa*.

Arguably, the folks at Rothamsted are those most involved with the relationship of viruses and *Varroa*. The hub contains a detailed discussion of not only ***Varroa* research**, but also what **viruses** attack honey bees and their specific characteristics. In addition, there is a discussion of **virus activation**, in which the authors conclude: "Our current thinking is that the mite activates normally inapparent virus infections to multiply to lethal levels and can subsequently act as a vector. Virus activation is known in other insects, but the mechanisms have not been studied in any detail. We

do know that by injecting foreign proteins into bees you can activate inapparent infections; this perhaps mimics what happens when the mite feeds." Detection of viruses using Enzyme-Linked ImmunoSorbent Assay (**ELISA**) is also discussed. These secondary pathogens are thought to be somewhat responsible for what has been called **Bee Parasitic Mite Syndrome**. These disease **symptoms** are also accessible through the hub.

With reference to breeding a bee tolerant to the *Varroa* mite, the site links to **remarks** by Dr. Tom Rinderer, director of the U.S. Department of Agriculture's Bee Breeding, Genetics and Physiology Lab in Baton Rouge, Louisiana. Activities by the lab and others have been reported in the *Detroit Free Press*. There is also a link from the hub to the **honey bee improvement program**. The coordinator, **Mr. Jack Griffes,** says, "The Honey Bee Improvement Program (HIP), a cooperative bee breeding effort, was started in early 1993. Our bee breeding goal is honey bee stock which has under 20 percent annual loss rate (all causes) while being totally untreated for either of the very troublesome parasitic bee mites, known commonly as the *Varroa* mite and the tracheal mite. We started with a stock base that had apparent Tracheal mite resistance. We are currently simultaneously selecting for *Varroa* mite resistance, high honey production, superior overwintering and disease resistance. We can see definite improvement. We also fully realize that the high level of genetic resistance we want is probably going to require another 10 to 20 (or more) years of hard work..."

The *Varroa* WWW Hub boasts an extensive collection of photographs of the mite. They can be found in smaller images called "**thumbnails**," as well as **larger sizes**. One of the most valuable innovations of the World Wide Web is the ability to distribute photographs. Users not only have the ability to look at these, but can also acquire them for their own use. The *Varroa* WWW Hub is certainly worth a look by anyone at all interested or concerned about this mite. For another treatment, readers can also access the author's database on this important honey bee parasite at **http://www.ifas.ufl.edu/~mts/apishtm/threads/varroa.htm**. BC

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LEGITIMATELY LOWER TAX BILLS

Mark E. Battersby

Nine Factors For Tax Savings

Our income tax rules are quite clear: If a bee-related activity earns any income, it must be reported, and taxes paid. If there are legitimate expenses associated with earning that income, they may be used to offset or reduce the activity's income before figuring the tax bill.

That's right: A beekeeper must add all of the extra income produced by the beekeeping activity to his or her personal taxable income and pay the taxes due. Or, the expenses of that beekeeping activity may be used to offset all or part of the activity's income. The result will usually be no activity income but a lot of left-over expenses with no activity income with which to make them count.

In order to declare losses from these activities, the money spent for which there is no income must qualify as a so-called "business loss." Is your bee-related activity a "tax" business? Do the legitimate expenses of that activity exceed the income it produces? It's surprisingly easy to qualify as a "tax" business; no profits are necessary.

Every beekeeper is familiar with the rule that an activity must show a profit in at least three out of five consecutive years in order for the Internal Revenue Service to accept it as a business. In reality, that profitable years test means only that the tax laws require the IRS to accept the beekeeping activity as a business.

Another section of the same laws allows some beekeepers to make an end run around the profitable years test by utilizing a nine-point test to prove that a legitimate tax business exists. The nine-point test demonstrates to both the beekeeper and the IRS auditor that there is an "intent to show a profit" with the beekeeping activity. An intent to show a profit indicates the existence of a business.

In other words, if a beekeeping activity qualifies as a "business," a beekeeper can employ some of the expenses that are left over after the activity's income has been offset as "losses." Those business losses from the beekeeping activity can be used to reduce taxable income from other sources such as a job or savings. All that is required is not profitable years but, rather, an "intent to show a profit" from the activity.

Naturally, anyone involved in an activity strictly for pleasure with no hope – or intent – of ever turning a profit, should not attempt to fool the IRS. The tax rules not only add interest and penalties to any intentionally underpaid taxes, but there is also an additional penalty for willful misrepresentation of facts or outright fraud.

Whether the activity has profits or income, or even if there is only an "intent" to make a profit, using the routine expenses associated with most beekeeping activities as tax deductible business expenses makes a great deal of sense. Those business expenses, after all, offset income from the activity. Plus, the losses created from too many expenses and too little activity income can be used to offset income from other sources.

However, before rushing to convert a pleasurable, bee-related activity into a pleasurable tax business, it should be noted that business start-up costs are not immediately tax-deductible. Business start-up costs are the expenses that are incurred before business operations actually begin.

Business start-up costs often include accounting fees, advertising expenses, travel, surveys, legal fees and training. These start-up costs are capital expenses, and capital expenses are only deductible over a number of years.

When it comes to the assets or property used in the bee-related activity, most beekeepers usually recover costs for a particular asset (such as machinery, office equipment or even a shop building) through depreciation. Other start-up costs can be recovered through amortization.

Depreciation is a tax deduction that represents a reasonable allowance for the exhaustion of property used in a trade or business or property held for the production of income. To depreciate is to systematically write off or deduct the cost of a business asset over a period of time allowed by our tax laws. With depreciation, larger deductions are often available in the early years of an asset's life to help offset the costs of acquiring that property.

Amortization, on the other hand, means that the beekeeper deducts a portion of the start up costs in equal amounts over a period of 60 months or more. If you don't choose to amortize those start up costs, you generally cannot recover them until you sell or otherwise go out of business.

As mentioned, the costs of getting started in business, before business operations actually begin, are capital expenses. However, if the attempt to go into business, even a "tax" business, is not successful, the expenses incurred trying to establish that business fall into two categories:

1) The costs incurred before making a decision to acquire or begin a specific business. These costs are personal and nondeductible. They include any costs incurred during a general search for, or preliminary investigation of, a business investment possibility.

2) The costs incurred in an attempt to acquire or begin a specific business. These costs are capital expenses, and may be deducted as a capital loss if you do not go into business.

The costs of any assets (again, even shops), acquired during the unsuccessful attempt to go into business are part of the basis or book value of those assets. A beekeeper cannot take a deduction for these costs. The cost, basis or book value of those assets will be recovered when they are disposed of.

Proving Business

Surprisingly, our tax law doesn't differentiate between "hobbies" and businesses. Rather, the tax rules refer only to activities "not engaged in for profit." When it comes to determining whether a given activity is engaged in for profit, the tax law clearly states that all facts and circumstances must be taken into account. Thus, our nine-point test.

The income tax regulations contain nine specific areas that Congress felt the IRS should consider when making the determination as to whether any beekeeping activity is actually engaged in for profit. The nine factors are:

1) The manner in which the activity is carried on. What types of books and records are kept? What changes were made to eliminate losses? What type of promotion is being used to increase income?
2) The expertise of the taxpayer. What are your reasons for engaging in a bee-related activity? Do you have any prior experience in this area? What preparation did you do prior to entering this field?
3) The time and effort expended carrying on the activity. How much time do you spend engaged in the activity? How much assistance do you get from others?
4) Expectation that assets used in the activity may appreciate in value.
5) The success of the taxpayer in carrying on other activities.
6) The taxpayer's history of income or losses for the activity. How many years have losses been shown? Are the losses increasing or decreasing?
7) The amount of occasional profits, if any, earned by the activity. Has this activity ever produced a profit? How does the amount of profit compare to the amount of losses? Or, compare to the amount invested?
8) The financial status of the taxpayer. Do you have other sources of income? Is the activity being used to shelter other income?
9) The elements of personal pleasure or recreation. Just because something is enjoyable doesn't make it a "hobby," even to a skeptical IRS. However, the personal pleasure or recreational aspects of any activity must be weighed when attempting to qualify it as a "tax" business.

Naturally, no one of these factors will be enough to convince a skeptical IRS auditor that a "for-profit" or a "not-for-profit" exists or doesn't exist. However, taken as a whole, both beekeepers and the IRS can form a pretty conclusive idea of whether an activity is a "tax" business or not.

It Doesn't Pay To Be Passive

The rules governing what our lawmakers call "passive" activities are another stumbling block to benefiting from the losses generated by your beekeeping activity. A passive activity is any activity, including rentals, in which the investor does not materially participate.

With certain exceptions, losses generated by passive activities may not be used to offset active income or portfolio income. In fact, losses from passive activities are suspended until passive income is generated.

With a "tax business," every beekeeper can create a "tax shelter" to reduce his or her tax bills – legitimately. With a genuine "intent to show a profit, reduced tax bills will make it appear as if Uncle Sam, in the form of the IRS, is picking up part of the tab for your beekeeping activity. BC

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Be A Good Borrower

Borrowers often have frustrations with their ag lenders. "They don't understand my business," is a typical comment many producers make. However, being a good borrower is just as important as the banker being a good lender, emphasizes Steve Drazkowski, Wabasha County, MN, extension educator.

Drazkowski offers the following "commandments" to help you get along better with your ag lender:

1. *Be the authority on your business.* Keep good farm records, understand them and provide detailed information to the lender.
2. *Know agriculture.* Keep abreast of current management practices, government policies and other factors that can affect the agricultural industry. Share these with the lender.
3. *Invite the lender to the farm.* Insist that the lender visit the farm at least once a year to view the entire operation.
4. *Be committed to agriculture and the lender.* Be loyal to the lender and stay with plans once they are formulated.
5. *Be cooperative and listen.* Create a situation where the lender feels comfortable with the operation and ask questions about the financial arrangements.
6. *Respond quickly to information request.* Take action to provide the lender with up-to-date business information.
7. *Understand the terms of your loans.* Take time to read all documents and understand what the obligations are to obtain credit.
8. *Honor commitments to the lender.* Pay loans on time and meet other requests of the lending institutions.
9. *Maintain business integrity and professionalism.* Keep credit terms confidential. The lender will do the same.
10. *Know your credit institution.* Be aware of other services that are available and use those that are appropriate.
11. *Understand the lending process.* There is a system in most credit institutions through which loan requests must flow. Understand what the decision-making process is and be patient.
12. *Show appreciation for services provided.* It never hurts to thank the lender for services or funds.

From Farmer's Digest

Let's Take A Look At

OHIO QUEEN BREEDERS

Dana Stahlman

The goal is to supply a high-quality bee that is productive, gentle and hardy.

They claimed their bees were so gentle they could work them without bee veils and in shorts! I had to see that for myself. So I invited myself along on a visit to one of their beeyards. The beekeepers I am referring to are James A. McAdams and Joseph S. Latshaw whom I will refer to as just Jim and Joe.

Together Jim and Joe have established Ohio Queen Breeders. They are working with Cordovan Italians and have developed a line of bees that meets their very high standards. But the queens they produce are not just for anyone. They offer instrumentally inseminated queens that are evaluated individually. Joe and Jim evaluate each queen and as Jim explained to me, "We have to kill a lot of stuff." Queens are eliminated for a number of reasons. Just a few of them are: aggressive behavior (the bees are expected to rest quietly on the frames when the hive is opened), poor brood patterns (would you believe Jim expects queens to lay eggs in the bottom of the cells all in the same direction and that all brood is solid?), lack of hygienic behavior (failure to recognize and remove diseased brood as well as general cleanliness of the hive), and automatic disposal if they show signs of tracheal mites. I asked what they meant by signs of tracheal mites and the reply was: "We have a microscope to check for tracheal mites and if a queen produces bees in which even one tracheal mite shows up, we kill her." Only colonies that show zero mite levels upon sampling are further considered as possible breeders.

The focus of this operation is entirely on the queen and what she produces. Their goal is to supply a high-quality bee that is productive, gentle and hardy. When I asked Joe what I should concentrate on, his reply was, " THE QUEEN! How we are set up what's going on what we are trying to do, and how the nucs are set up." The beeyard we visited was one of the cleanest I have seen. All equipment was painted white, making a postcard impression. Jim is very particular about working his hives and doesn't have much good to say about sloppy beekeeping. Everything inside the hives was immaculate. Any burr comb was immediately scraped from the inner covers, and all frames came out of the hives without and prying. It was obvious to me that Joe and Jim work their hives often.

Jim and Joe taking a look at a honey producing queen which has survived the earlier evaluations. Joe inseminates these queens with a machine he designed and sells.

Working their hives is slow work. Both Joe and Jim examine the hives and individually rate each queen. All queens are marked, and complete records are kept from the time the queen emerges until she is killed, sold, or given away. Jim indicated that they give a number of queens away to friends. They don't measure up to the standard that allows them to be moved into the 50 full-sized production hives in which the best queens continue the evaluation process.

Some of these will be selected to breed their own stock and continue its improvement. How many? Fifteen to Twenty was the answer.

This new round of evaluations will include: checking to see how much honey was consumed over the winter, checking the bottomboard for debris, and then watching to see how fast the queen builds up the population of the hive. They continue

to watch for temperament—Jim doesn't want bees in his face. As he said, "Beekeeping is a hot and dirty job, and I don't need that abuse." As the season progresses they also check the honey crop that each hive gathers.

I asked how they are so clear on their evaluations, and Jim explained to me that it is not scientific. It is very subjective, but since two people are doing the evaluation and they consult about each queen, the evaluations tend to be very uniform.

The buyers of Jim and Joe's queens, by the way, are going to be queen producers looking to improve their own breeding stock or very large beekeeping operations that produce their own queens. Both Joe and Jim do not want to send out a queen that is not high-quality.

That last statement also describes why these two are in business. With the arrival of the mites in 1991 Joe and Jim lost a lot of colonies. Jim remarked at the time that he didn't know whether to stay with the bees or get out. Joe and Jim became interested in raising queens when he discovered that they couldn't buy satisfactory queens. They dealt with all kinds of problems with queens purchased from breeders. One of the problems that was especially disturbing was the lack of uniformity in the queens. Some queens were very small compared to others. It indicated the mass-produced queens were being gathered from breeding nucs with no regard to quality but rather with an emphasis on quantity. Breeders were making their money by selling a lot of queens, and the stock just wasn't as good as it had been back in the 1960's. The breeders Jim had bought from before were all retired and gone. He spent some time talking about one particular situation, and it upset him so that he made the decision that one contribution he could make to the beekeeping industry would be to improve stock. As he explained, he had ordered queens from a particular breeder and asked before the purchase if the breeder had tracheal mites in his bees. The response from the breeder was that he didn't have any tracheal mites in his bees! Jim got his queens. Just to show how thorough these guys are—they sent the attendants to Beltsville for a mite report. Sure enough, the report indicated that the attendants had tracheal mites. When the breeder was contacted, his response was, "I can't do anything about it." That really upset Jim.

Joe has the distinction of being one of the youngest bee inspectors in the United States. He started five years ago, at the age of 16, doing the inspections for Franklin County in Ohio. He started keeping bees when he was in the third grade, and got hooked up with Jim, a neighbor early in the process. He also had the advantage of hanging around the Ohio State University bee lab, and as he said, "Making a nuisance out of myself." He is attending OSU, and works in the honey bee lab helping Susan Cobey.

A smile came across his face as I asked probably dumb questions such as, "How many queens can you produce in a year?" He indicated that they have raised approximately 300 queens, but because the standards are so high they don't produce 300 breeder queens a year. As I have indicated earlier, a number just don't make the cut, but as Joe went on to explain, "The quality is getting better and better." What both would like is to be able to raise queens as well as bees raise natural supercedure cells. Jim indicated that it is hard to produce a super queen. "I started tinkering around with bees when I was 12, and now I am 55. I was just like everyone else. You had bees in a box in a field somewhere. You go out and put your boxes on, and every couple of years you would find someone to order queens from, and you would cuss because something wasn't right with them. And now if you understand something about queens, you understand the problems back then. But you didn't know any better..." and his voice trailed off. Then he continued, "Then the mite came along, and you had to decide, 'Are you going to stay in this?'"

They are producing beautiful, large queen cells, and that is the first step in quality queens outside the genetics of it all.

The only way to produce superior queens in their mind was to use instrumental insemination. Joe is the partner responsible for the insemination. It is slow work and not a lot of queens are produced. When the discussion turned to this important work, Joe pretty much took over. We got around to talking about the Latshaw Instrument. "Why did you come up with your device?" I asked. Joe indicated that it was the second hobby of his. "Just tinkering around and finding something you can put together," he said. "And simplifying things and making them easier to do. It is so simple to look at, and I have a neat opportunity to play with all of the instruments that come through there (OSU Bee Lab). And look at them and see what is working and what is not working and why did you do it this way when you can simplify it so much. I spent a lot of time doing that, and went through several steps, and it just kept getting smaller and simpler each time."

Jim examining a nuc into which the newly inseminated queens are introduced.

I was interested in why it cost so much. His reply, "All right, originally, we intended for it to be cheap. But the machining was so much, and we couldn't get around it. The tolerances are very low on it. We could have had a sloppy instrument, and sure we could have charged less, but if you have ever inseminated a queen using a poorly designed instrument, those little sloppy plays in there really screw you up. So people don't understand it! They say they will buy the cheaper instrument, but one will pay in the long run because it just gives you headaches. In the long run it is cheaper to buy a higher quality instrument. BC

Dana Stahlman runs a queen and package bee business traveling between Ohio and Georgia. He is a frequent contributor to these pages.

James E. Tew

Bee Culture's Beeyard

Getting Ready For Spring

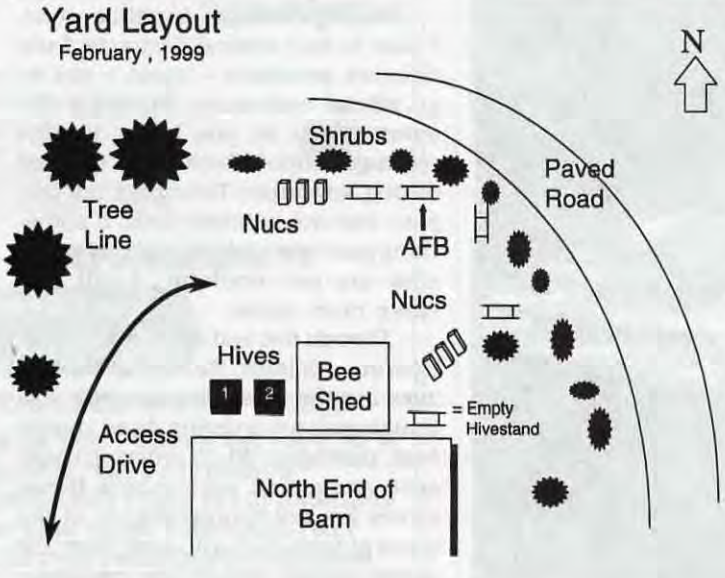
Selecting Bees for the Yard Currently, BC's yard only has a couple of hives though plans are to get up to eight to ten hives. How to increase colony numbers is a constant source of discussion amongst beekeepers. And nearly as long as beekeepers have kept bees, they have searched for the best strain of bee. We're still doing that today. The famous Italian honey bees (*Apis mellifera* ligustica) has become most widely accepted across the US, but other races are commonly available. As bee colonies are added to this yard, plans are for having a mix of races other than the Italian bee. I am not planning on a technical evaluation of bee breeds, but only a casual observation on different types of honey bees managed in traditional ways.

Carniolans (*Apis mellifera* carnica). Carniolans are from various provinces in Austria and the former Yugoslavia, but are even more widely spread than that. In many locations, Carniolans are as important as the Italian bee – if not more so. The Carniolan bee is grayish black and may even be a distant variety of the Italian honey bee. It is a slender, docile bee that is long-lived, hardy, winters well and is an aggressive forager. This bee is not an avid propolis user and produces snow white cappings. Carniolans' biggest problem is that is has a strong swarming characteristic.

Caucasians (*Apis mellifera* caucasica). Caucasians, frequently called Gray Caucasians, are another of the major economic races of bees kept worldwide. They originated in the high valleys of the Central Caucasus in Europe. A dark bee looking much like Carniolans, Caucasians are gentle and not inclined to swarming. However, they are prodigious propolis users; they are not known to winter well; and they tend to build lots of brace comb.

Italians (*Apis mellifera* ligustica). Worldwide, Italian bees seem to be the most popular and were first brought to the US in 1859. Their color varies greatly from leather-colored to bright yellow (Golden Italians). Italians have the expected characteristics of being gentle on the comb, excellent nectar collectors, minimal propolis users, good hygienic behavior within the colony, good comb builders, and producers of snow white wax cappings. Alternatively, this otherwise perfect bee tends to produce too much brood at the wrong times resulting in high winter food consumption and spring dwindling. They also drift from colony to colony quite badly and are known to be robbers.

Lastly, we are going to install some locally produced queens as well as some queens from the west coast. When all is in place, we should have a good mix of different queens



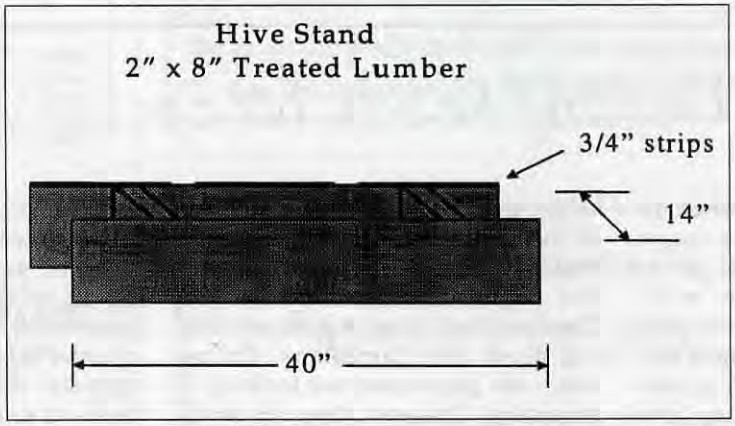
Continued on Next Page

BEEYARD ... Cont. From Pg. 29

of different races from across the US.

Record Keeping in the BC Yard Record keeping in the bee yard drives me crazy. I make the best plans every year and am unable to keep up the pace throughout the year. I envy others who don't have the problem. But because of this variation between beekeepers, record keeping among beekeepers varies from pebble configurations on top of the hive to a lap top computer in the field – with all kinds of variations in between. Record keeping in this project will be more of a beekeeping diary rather than a true system of columnized data. My single yard will be broadly compared both between months and between colonies. Comments can be made concerning the specific needs of individual colonies as well as comments concerning nectar flows. In true "real world" beekeeping, trips to the yard will have to be on an "as needed" or "as possible" schedule. Essentially, I will make note of what I did in the beeyard and also note what the bees did, or are doing, in the yard. I am planning to store these comments in a computer program in order to be able to search for various words or terms as needed. In this manner, I can record comments and find them later. I can do this fairly easily without having to devise a complicated data grid that requires completion each time I visit the yard.

Comments from the December Diary As I reported in the January issue, my comments for December, 1998, were sparse and direct. There are two colonies in the yard that are in decent shape, but need basic maintenance.



Otherwise, everything else was in disarray. Hive stands, grass cutting, painting - all kinds of maintenance work needs to be done. The weather is not in my favor just now, but it will be done before spring if there is an opportunity.

Hive stands available from most manufacturers are O.K., but a bit light.

Buying Packages As with queens, I plan to buy several packages from different providers – again – not as an official evaluation, but for a different flavor. As you know, ideally, packages should have been ordered during November/December but this plan was not hatched then. If something goes seriously wrong and packages are not available, I will just make more splits.

Though five and two pound packages are available, three pound packages are the most common size. I'm thinking about ordering three, maybe four, packages. When ordering packages, the actual worker bees themselves are not representative of the types of bees that will come from the queen caged within the package. They are not her offspring. Since some of the specialty queen producers don't shake packages, I had considered buying queenless packages, but I have decided against that. The presence of a queen within the traveling bees will help keep the bees calmer. I will plan on banking the extra queens after their arrival. A couple of extra queens are always useful.

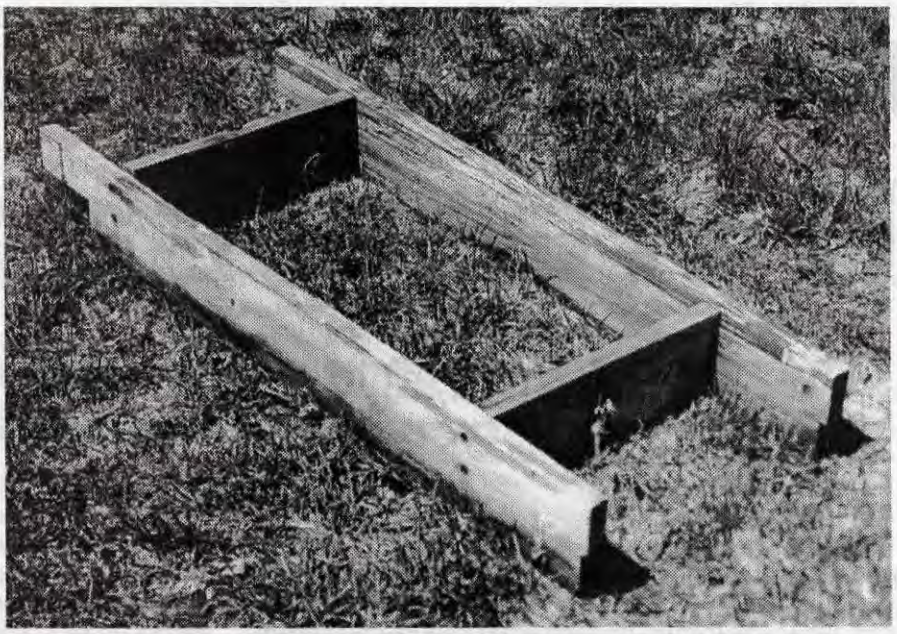
Banking queens is not too difficult, but is never really successful long-term. Storing the caged queens without attendant bees is the best technique. Individually caged queens are then placed above an excluder. Young workers on emerging brood are also placed above the excluder along with the rack used to hold the caged queens. It would help if thin sugar syrup was fed to the colony housing the extra queens. Queens held in such confining conditions can live for several months, but confined queens must be viewed as a temporary situation. Having a few extra queens in reserve can really speed things along next spring when the occasional "queen emergency" arises.

New Equipment I will need to order enough equipment for three - four colonies. I will plan on two brood chambers and a couple of supers for each. You may be expecting that I will plan on getting the equipment from different manufacturers. I don't yet know about the foundation types that I will use. I have historically used the traditional wired foundation, but the newer plastic-based foundations are popular. Should I use products that I know will work or should I experiment with some of the newer products? I'll let you know.

I want to use both styles of outer covers - both telescoping and migratory types. The migratory covers should be lighter and cheaper, but the telescoping cover should offer better wintering capabilities. I hope to paint equipment from different manufacturers different colors. As with the queens and packages discussed above, I have no interest in technical evaluations, but am plan-

ning on color coding in order to know which company made it.

Used Equipment As with many beekeepers, I have acquired some used equipment. Much of it is little more than firewood, but I hate to totally eliminate anything. Used equipment is usually cheap when compared to the new stuff, but it will require your time to bring it up to standards. Propolis and burr comb scraping is always a miserable job that can even result in blisters, but it needs to be done. Next spring, those freshly scraped frames will slide into those freshly scraped hive bodies with professional ease. Cleaning and repairing used equipment is a job well suited for winter months when little else can be done in your beekeeping efforts. Though I feel good about the appearance of the newly housed hive in my used equipment, I still dread the task.



This is the Morse Hive Stand. I added a 3/4" strip to one side of the top to give colonies a bit of a cant, to help water run out.

Next month In all honesty, I must write about a month behind what you read. By the time you and I talk again "next" month, spring will not be all that far away. With that admission, my immediate plans for the yard are to continue to clean things up, be certain that all my bees and equipment are ordered, and make a final decision on what types of hive stands I want to use. For those of you on the web, Editor Flottum and I will continue to develop that system and get it running in the virtual apiary. Now I'm off to do some bee yard work in order to show some progress. BC

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Focus on . . .

Bayer Bee Strip

The newest weapon in beekeeping's arsenal against *Varroa* also controls the Small Hive Beetle.

The Environmental Protection Agency (EPA) has granted a Section 18 exemption label to use coumaphos (Bayer Bee Strips) in several states to control *Varroa jacobsoni* bee mites and the small hive beetle (*Aethina tumida*). At this writing Florida, Mississippi, Georgia, South Carolina, Minnesota, Wisconsin, Washington, Oregon, Idaho and Pennsylvania have all successfully applied. North Carolina and Tennessee, plus several other states are in application. Anyone using the material should be sure that a label is in hand before applying it.

Bayer Bee Strips are 8-3/8" x 1" white plastic strips containing 10% coumaphos designed to release sufficient active ingredient for up to 45 days for *Varroa* and small hive beetle control. Data provided by Bayer indicates that when the strips are used as label finite coumaphos residues will not occur in honey or wax removed from the honey supers. Consequently no coumaphos tolerances have been established for honey or wax. Bayer is developing additional data for a Section 3 registration (full federal registration) which should be submitted to EPA later this year. When it receives this registration the product will be named CheckMite+™. (The + is for additional control for small hive beetle.)

Beekeepers should contact their state bee inspection service before beginning any application in case special restrictions apply. For example, the Florida label limits treatment of *Varroa* to twice a year, small hive beetle to four times per year and dictates a limited number of strips that can be sold for each application. These regulations may differ based on the information provided by different states to the EPA during the application process.

The Section 18 Label

In accordance with Section 18 of Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), EPA may temporarily authorize certain pesticide use not permitted by existing federal registrations. Generally these are for emergency situations. The Section 18 label for coumaphos is to control fluvalinate-resistant *Varroa* and small hive beetle. This special emergency label for coumaphos differs from other labels associated with chemical products in use by the beekeeping industry and includes the following provisions:

1. Each state will only be allowed a certain number of strips based on specific use (*Varroa* and small hive beetle). Again, some states will only have a label for *Varroa*, others will be valid for both the mite and the beetle.

2. States must report on the number of strips used. No distinction between *Varroa* vs. small hive beetle need be made.

3. The exemption expires in one year and the application process must then be repeated.

As with any chemical or pesticide use, **the label is the law**. To be legal, applicators must not only apply materials in accordance with the exact wording on the label, but also must have it physically in their possession during application. Again, depending on the state, the Section 18 exemption label may be strictly for use on *Varroa* or both the mite and small hive beetle. If small hive beetle is not listed on the label, which may be the case in certain states, the use is not granted.

The use of Bayer Bee Strips has been authorized under a Section 18 exemption label as a non-food use. Thus, treatments must be applied when bees are not producing a surplus honey crop. Honey supers are to be removed before strips are applied and cannot be replaced until the treatment is complete. **Gloves must be worn** when handling strips. Other specifics that may vary include the length of time the strips may be left in a colony for *Varroa* (42 to 45 days in Florida) and small hive beetle (three to seven days in Florida).

Coumaphos is not new to the beekeeping community. A liquid coumaphos formulation has been used successfully in Europe for several years for *Varroa* control (Perizin®). The new coumaphos strip is more convenient for beekeepers, is less likely to contaminate honey or wax, and adds the benefit that it can be used for the small hive beetles.

When to Use Bayer Bee Strips

Clearance of these strips is good news for beekeepers experiencing fluvalinate (Apistan®)-resistant mites and/or small hive beetles. There are, however, some important caveats:

1. Until fluvalinate-resistant *Varroa* are detected in an apiary, Apistan® will still be effective and should be

used. As Bayer Bee Strips are limited in supply, they should not be used unless resistance has been determined.

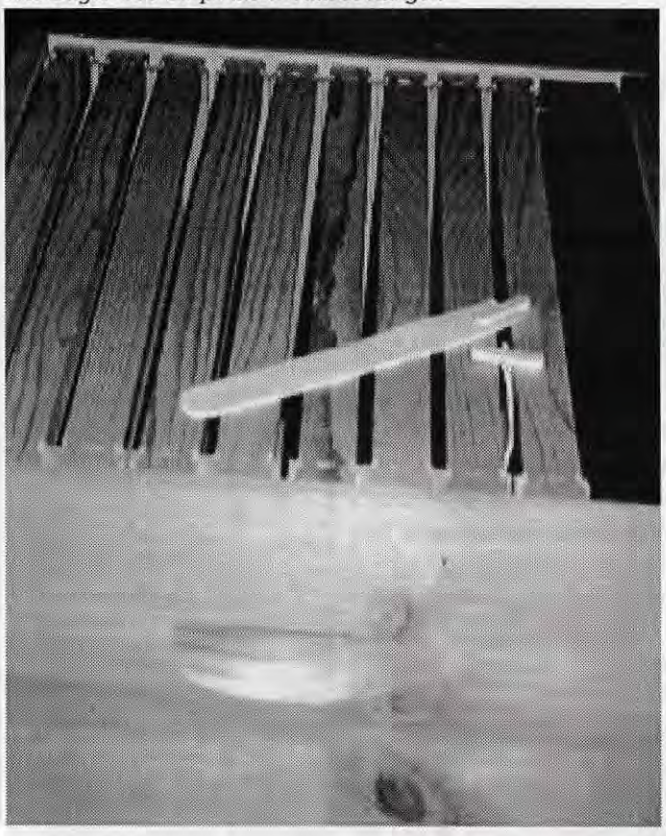
2. The small hive beetle will not be a problem in all bee colonies. There is little reason to use the coumaphos-based product until a beetle problem has been demonstrated.

A powerful reason for adhering to the above conditions is the limited number of strips that may be sold for each use. In Florida, for example, whereas 300,000 strips can be used for *Varroa* control, only 60,000 are allocated for small hive beetle. When that number is reached, no more are scheduled to be available. However, states may request more strips if needed. EPA makes no distinction between strips used for *Varroa* vs. hive beetles.

Although not known exactly, it is thought that after a period of time, resistant *Varroa* mites could again become susceptible to fluvalinate. Thus, Apistan® can continue to be a part of the beekeeper's arsenal against *Varroa* and be used in rotation with Bayer Bee Strips. Both products should not be used together in the same colony. Results of the interaction between the two active ingredients (coumaphos and fluvalinate) are not known, and the practice could result in mites resistant to both labeled materials. Treatment rotation using coumaphos and fluvalinate along with other chemicals (formic acid is on the horizon as a labeled product) and physical means (drone trapping, smoking, and modified bottom boards) should all be considered as part of an integrated approach to *Varroa* mite control. Beekeepers could then choose particular methods most compatible with their own operating style.

Efficacy data developed in the U.S., Germany and Guatemala indicate Bayer Bee Strips are 97-99% effective against *Varroa*. Data obtained last year in Florida indicate the strips are 99% efficacious against small hive beetles. The strips have shown no adverse effects on bees.

The Bayer Bee Strip has a built-in hanger.



Determining Resistance by *Varroa* to Fluvalinate (Apistan®)

Unfortunately, it is not easy to determine when *Varroa* mites become resistant to fluvalinate (Apistan®). The phenomenon is a moving target. Thus, it becomes a judgement call by the beekeeper in determining when to switch from one chemical to another. If done too late, bee colonies may be so harmed that they will not recover. Dr. Jeff Pettis at the Beltsville Bee Laboratory has developed a field test, which compares 2.5% and 10% fluvalinate (Apistan®) strips. It may be modified by employing only one kind of fluvalinate strip, resulting in determining a relative resistance level. Resistance can also be suspected if one observes failure to control mites immediately following treatment by Apistan® using ether roll or sticky board as confirmation or if it is demonstrated in nearby apiaries. Generally, only one colony need be tested in an apiary as resistant mites can be assumed to quickly populate nearby hives. For a quick test, see page 48, November, 1998 *Bee Culture*.

Determining Small Hive Beetle Infestation

Effects of beetle infestation, like fluvalinate resistance in mites, may be difficult to determine. The beetle is so new to U.S. beekeeping that there is limited information about when treatment becomes necessary. This is complicated because adult beetles are not considered the real problem. Only when they lay many eggs, which develop into large numbers of larvae, are colonies in danger of being overcome. It is not known what triggers egg laying and many colonies may harbor adult beetles with impunity.

The Food Quality Protection Act and Beekeeping

Implementation of the FQPA (see *Bee Culture*, May 1998) is ongoing and controversial. Of specific concern is how EPA will assess risk. The analogy used is a cup. According to the American Crop Protection Association, before FQPA, each pesticide had its own risk cup. However, with FQPA, EPA has shrunk the risk cup in several ways by including not just residues on food, but also those found in drinking water, home gardens, golf courses and other uses. On top of this there could be another ten-fold reduction based on children's' health considerations. A final reduction is that the risk cup is not just for an individual pesticide, but a whole class of chemicals. If the FQPA is implemented in this fashion, two classes of the most common pesticides will be extremely limited, the carbamates and organophosphates. The Crop Protection Association considers the latter as the nation's most valuable pesticides.

The EPA reviewed the available data and concluded there is no reasonable expectation of finite residue in honey or wax when used as labeled. Use of the material, therefore, is not expected to affect the risk cup. Thus, EPA has made the Section 18 label a non-food use. This may not be enough to gain general or Section 3 labeling, however, if the EPA continues with its strict risk assessment procedure as outlined by OPP. For ex-

Continued on Next Page

BAYER ... Cont. From Pg. 33

"Once a Section 3 label is attained, Bayer will call this product CheckMite+™"

ample, it may be difficult to explain how using the material inside beehives is less risky than using it on golf courses.

The Section 18 label puts the burden of possible contamination on the beekeeping community. Experience in Europe reveals that coumaphos has an affinity for beeswax and the possibility of it being absorbed by this bee product exists. However, in that application it was used as a liquid drench, not as plastic strips formulated for slow release. There are indications that documented misuse of coumaphos or detection of any residue, no matter how slight, in honey or beeswax on the food market could result in withdrawal of the Section 18 exemption.

However, granting of the Section 18 for Bayer Bee Strips is notable for several reasons. In spite of data developed over the past two years demonstrating that coumaphos strips were highly effective against resistant *Varroa*, the EPA indicated early last year that they would not consider the registration of a coumaphos product for bees regardless of the severity of fluvalinate resistant *Varroa* in the bee industry. Coumaphos is an organophosphate, and compounds (including other organophosphates widely used in agriculture such as malathion and diazinon) are under special review at EPA. The review may require several years to complete and EPA stated they would not register further uses of these compounds until their review was complete. Consequently, a cooperative effort was initiated by the Florida Dept. of Agriculture, Florida beekeepers, and research personnel from the USDA bee research lab in Weslaco, TX and other industry leaders, to convince the EPA of the crisis the bee industry was faced with and the need of an effective alternative treatment to fluvalinate. The emerging developments with small hive beetles in the Southeast U.S. and the use of the coumaphos strips to combat this problem provided greater justification for use of the strips.

Additional studies will be initiated this year in Florida to obtain more information on the biology of small hive beetles and the use of the Bayer Bee Strip under different types of conditions.

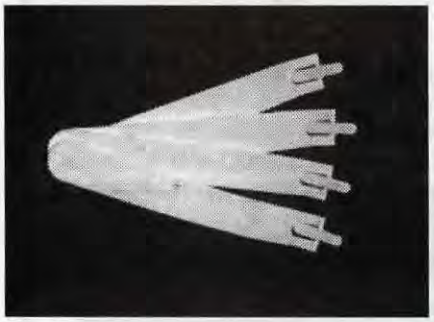
Other Varroa treatments and chemicals collected from a variety of Web sites. Bee Culture *does not recommend nor suggest that beekeepers use these treatments. They are only provided for reference.*

Name	Active Ingredient	Application	When normally applied	Features
Bayvarol	Flumethrin (a synthetic pyrethroid)	Impregnated plastic strips hung between combs in brood chamber	Autumn or early Spring for 6 weeks	High efficacy; very low toxicity to bees;
Apistan	fluvalinate (a synthetic pyrethroid)	Impregnated plastic strips hung between combs in brood chamber	Autumn or early Spring for 6 weeks	High efficacy; very low toxicity to bees;
Perizin	coumaphos (an organo phosphorus compound)	Emulsion in water trickled into bee spaces between frames	Autumn or early Winter 2 applications	High efficacy; may cause noticeable bee mortality
Apitol	cymiazle hydrochloride	Solution in water trickled between combs or fed in syrup	Autumn or early Winter 2 applications	High efficacy; may cause noticeable bee mortality
Api-Life VAR	thymol and other essential oils	Impregnated mineral block placed over brood combs	Late Summer or Autumn for 6-8 weeks	Naturally occuring ingredients; correct conditions required for full efficacy
Apivar	amitraz	Impregnated plastic strips hung between combs in brood chamber	Autumn or early Spring for 6 weeks	high efficiency
Folbex VA	Bromopropylate	Impregnated cardboard strips lit and left to smoulder in sealed hive	Autumn or broodless period (4 applications)	Bees must be confined to hive; broodless conditions required for full efficacy
I.M.P. Plates	Formic acid solution	Saturated cardboard pad placed below combs of brood chamber	Late Summer or Autumn	Naturally occuring ingredient can kill mites inside brood cells, correct conditions required for sufficient efficacy;
Formic acid	formic acid solution	Method varies	Late Summer or Autumn	Naturally occuring ingredient; can kill mites inside brood cells; correct conditions required for sufficient efficacy; may be adverse effects on colony;

About Bayer

Information from Bayer states that Bayer's animal health group, headquartered in Shawnee Mission, Kansas, is a worldwide leader in producing vaccines, parasite control and prescription pharmaceuticals for dogs, cats, horses, cattle, swine and poultry. It is part of the Agriculture Division of Bayer Corporation, with headquarters in Kansas City, Missouri.

Bayer Corporation is a research-based company with major businesses in health care, life sciences and chemicals. The company had 1997 sales of $9.3 billion and employs more than 26,000 people. Bayer Corporation is investing $9 billion in capital expenditures and research and development from 1995 through the year 2000. 1998 capital investment and R&D expenditures are projected to total $1.7 billion. Bayer Corporation, with headquarters in Pittsburgh, is a member of the worldwide Bayer Group, a $32 billion chemical and pharmaceutical company based in Leverkusen, Germany. BC



This article was put together with the help of Tom Sanford, Kim Flottum, Dr. Bob Arthur from Bayer and several web pages.

For more information:

Sanford, M.T. 1998. Apis — Apicultural Information and Issues, Florida Cooperative Extension Service, Vol. 16, No. 8, August 1998. <http://www.ifas.ufl.edu/~mts/apishtm/apis98/apaug98.htm#4>

Sanford, M.T. 1998. Apis - Apicultural Information and Issues, Florida Cooperative Extension Service, Vol. 16, No. 10, October. <http://www.ifas.ufl.edu/~mts/apishtm/apis98/apoct98.htm#1>

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Academic Course on Pesticides. 1998. Western Maryland College, Westminster, MD. <http://www.wmc.car.md.us/HTMLpages/Academics/Biology/EH96/pesticides/organo phosphates.html>

Environmental Protection Agency on the World Wide Web. <http://www.epa.gov/oppfead1/fqpa/index.html>

American Crop Protection Association on the World Wide Web. <http://www.acpa.org/public/pubs/ocfqpa.html>

EPA Office of Pesticide Programs on the World Wide Web. <http://www.epa.gov/oppfead1/fqpa/sciissue.htm>

Bayer Corporation Home Page on the World Wide Web. <http://www.bayer.com/>

Bayer Corporation Sports Page on the World Wide Web. <http://www.sport.bayer.com/home en.htm>

HEADING SOUTH WITH HARVEY'S HONEY

Jim Puvel

In the late 1950s, as a young Irish senator from Massachusetts was being groomed to become the president of the United States and preparing to take his place in the Oval Office, a 13-year-old boy was taking his first whack at beekeeping and preparing for his future in the NJ honey industry. The young man was literally "taking a whack" by attempting to dislodge his first swarm from a tree with a baseball bat. As you can imagine, this attempt at capturing a swarm was met with bitter defeat. With a few more years of experience, this young man learned the ropes of beekeeping, and today he fondly remembers one of his first honey harvests, a five-pound glass jar, being dropped on his mother's kitchen floor.

Since that time, Harvey's Honey, with Bob and Dottie Harvey as owners/operators, has become one of the largest, if not the largest, beekeeping operations in the state of New Jersey. Their migratory pollination operation of somewhere between 2,500 and 3,000 hives is not only their occupations, but the business also keeps their three children busy, especially during the Summer months when school is out and pollination contracts and honey extraction are full-time jobs. Along with an income from pollination fees, the Harveys produce somewhere in the area of 100 tons of various types of honey annually.

Their modest yet comfortable home on a farm in the southern New Jersey town of Elmer is their "base camp" of operations and is the location of their New Jersey honey extraction process. It also serves as the construction and repair facility for the woodenware used in their operations, with a complete wood workshop on the premises. The farm, complete with Black Angus cows, is also used as one of their many outyards between pollination contracts. At any given time, an unannounced visit to the Harveys' domain will find Bob and one of his boys out somewhere moving bees, collecting honey supers, or inspecting yards.

The Harveys basically work crops in two states. In the Fall months, they transport their hives to Florida for overwintering and in preparation for the Orange Blossom season. The Harveys actually begin their pollination year in Florida in February, pollinating the blossoms in the Orange groves, although they ship their bees down south in the Fall to keep them healthy and strong and to take advantage of some of Florida's nectar-producing plants. When the Florida honey crop is harvested and extracted, the Harveys prepare for a return north.

April 15 is the approximate return date of the Harvey caravan to New Jersey. Upon their return to the Garden State, they begin the apple pollination, followed by blueberries, cranberries and vine crops. In New Jersey, blueberries and cranberries represent a major portion of the pollination performed by the South Jersey crew, although pickles, pumpkins, melons and other types of vine crops figure into the picture. In preparation for their trip to the Sunshine State, Bob places his bees in outyards in late August or early September, to replenish honey stores with goldenrod, clethora, Spanish needle and other Fall-flowering weeds.

I joined the Harveys at the end of their New Jersey season last September, as they prepared the first shipment of honey bees for their Winter vacation in Florida. The ride to South Jersey took about 45 minutes from my house to the outyard, stretching through the outside fringes of the great New Jersey Pine Barrens. The directions were excellent, and I was the first to arrive at the reasonable-sized clearing in a mostly wooded area. As I pulled my pickup truck off the paved road and onto the edge of the open field, I questioned my riding companion, my 12-year-old daughter, wondering if this was the right location. Shortly after the question left my lips, I knew I was in the right spot. There, about 100 yards from the paved road, sat about 1,000 hives in 10 neat rows with all hives sitting on pallets.

Shortly afterward, Bob Harvey arrived with his oldest son, Rob. They did some preliminary work while waiting for Dottie and the rest of the crew to arrive with dinner. Eating on the run becomes a necessity due to the hectic schedule of extracting and relocation during this time of year. Bob held up a gaffing hook, similar

Bruce and his dad tie up loose ends.

Continued on Next Page

HARVEYS ... Cont. From Pg. 37

to the ones used on ocean fishing boats, and with his usual broad smile, said, "Are you ready to go fishing?" I later found out that the gaffing hook was used to pull the polypropylene ropes that had become loose from underneath the pallets. Following a quick dinner, the crew, which consisted of Bob and Dottie Harvey, their three children and three friends, all donned veils and work gloves and proceeded to their respective jobs. The thing that most impressed me was the fact that everyone worked together as a team, knew exactly what to do, and that it was more than just a family affair. Two of their friends helped out preparing for the trip southward. Like a well-oiled machine, the troop went about their maneuvers.

Bob and Bruce prepare the trailer bed by stapling burlap to the floor.

Rob climbed aboard the BobCat and began double-stacking the pallets. His request for "a little smoke over here" was clearly heard over the roar of the machine. It seems when you lift a pallet of honey bee hives and jostle them around, the residents become upset. Bruce and his dad rushed over to assist Rob, with smokers raising a thick cloud of smoke. Bob proceeded to tie the hives with rope in groups while Bruce and his dad continued to smoke the hives in an effort to keep the bees off Rob. Dottie and the two girls, daughter DD and girlfriend Denise, helped with the smoking and removal of excess rope from the pallets.

In the middle of the hustle and bustle, the tractor-trailer arrived, already 25 percent loaded with shrink-wrapped, empty honey supers. I didn't see the driver until the sun had almost disappeared and the bees were quite calm. A friendly fellow, I attempted to speak to him through the window of his cab. Apparently Bill suffered from severe allergic reactions to honey bee venom. After the hives were secured and excess rope removed, the ladies removed their gear and remained ready for their next assignment. I watched as Bob orchestrated the men, who laid a strip of burlap material onto the edge of the trailer, smoothed it out, and tacked down the edges with a staple gun. I wasn't quite sure what this was going to be used for, because the burlap was only three feet wide. However, I quickly realized what it was for by examining the empty honey supers already on the truck. The burlap acted as a skirt, along the base of the trailer, for the netting that would be placed over the hives at departure time. It also secured the bottom of the netting and made an enclosure that would limit the number of escapees. Bob now took over in the BobCat, lifting double-stacked pallets of hives onto the trailer while the other three men applied an occasional puff of smoke. In methodical fashion, one side of the tractor-trailer bed was loaded a quarter of the way, and then double stacks were again doubled, making the stacks four high. The other side of the truck was loaded in the same fashion and carefully balanced as to maintain a level trailer. The BobCat swung back to the original side to fill the remainder of that side, completing the loading operation.

Bob stacks the double stack one side of the truck at a time.

Dottie took her turn in the BobCat lifting two of the younger men atop the stack of hives. They unrolled the netting while Bob and Bruce's dad worked the netting along the bottom of the trailer. When all the netting was in place, they stapled the burlap skirting onto the netting.

Dottie drove the BobCat over to a group of utility trucks they came in to pick up the wooden supports used along the top of the stack of hives to protect the netting and prevent the straps from sliding. Three-inch-wide straps were removed from a metal utility box below the trailer, and now even I got caught up in the action. The ends of the straps had to be tossed up to Bruce and Rob, then dropped over the other side of the cargo. I couldn't resist the challenge to reach the men on a single toss. It was not as easy as it appeared, although Dottie had some helpful hints on the proper procedure. Fastened on both sides of the trailer, these mobile homes were not about to shift.

Once totally secured, the cargo was ready to begin its trek southward. The tractor-trailer driver, Bill, told me he would head back to South Jersey, to "catch some sleep," and then head out in the early-morning hours. He was comfortably certain that upon his arrival in central Florida, and once the colonies were inspected, there would be another crew to remove the colonies as methodically as they had been placed on the truck. He would not have to even get out of the cab, for which he was eternally grateful.

The whole experience brings to mind a certain realization that keeping bees for a living is not only more than a 40-hour-a-week job, but requires a group effort. This group, whether they are volunteer or paid, must not only have job knowledge and stamina, but must also have a true respect for the job. Over the years, Bob and Dottie Harvey grew into their career as migratory beekeepers and felt many of the growing pains associated with every expansion. They started out with several hundred hives and grew to several thousand, and have paid their proverbial dues along the way. "Someday, maybe Rob will take over the business," Dottie says. "He has been a godsend and has the drive to take over the business someday." "Not an easy way of making a living," Bob exclaims, "but I like it."BC

The last few colonies.

Jim Puvel sells honey, and keeps bees in Crosswicks, NJ.

EASY COMB HONEY *PRODUCTION*

Lloyd Spear

Not All Comb Honey Is Equal

In 1998, almost all manufacturers and dealers of beekeeping equipment reported unprecedented demand from new beekeepers. This was wonderful news as the arrival of parasitic mites 20 plus years ago has led to a 50 percent decline in the number of U.S. beekeepers and, some say, has decimated the wild honey bees. As our gardens, many fruits and vegetables, and even our milk and beef supply depend on honey bees for pollination (honey bees are used for pollination by alfalfa growers), we need more beekeepers who can help keep these precious insects alive until the bees can develop natural mite defenses. During 1999, many of the new 1998 beekeepers will be looking forward to their first honey crop, and this article is meant to help them, as well as more experienced beekeepers, better enjoy beekeeping.

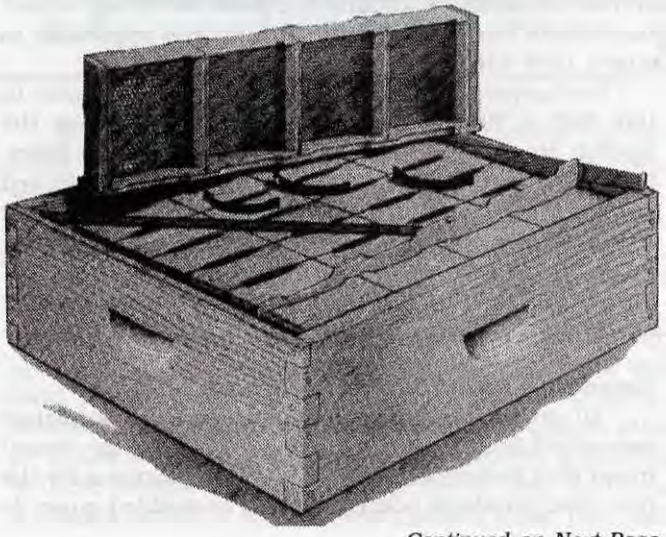
The catalog of one of the largest beekeeping equipment dealers in the United States says, "After the bees fill the first deep hive body or two medium brood nest supers with brood and honey (beekeepers should) produce . . . surplus honey as *comb honey*, thereby avoiding the cost of an extractor, uncapping knife, tanks . . . etc." Similar advice has been given by many well-known beekeepers and authors, including George Imirie, Roger Morse, Richard Taylor, and, most recently, Mary and Bill Weaver, in the January 1999 issue of *Bee Culture*.

I also strongly recommend that small beekeepers produce only comb honey, whether they are brand-new to the hobby or have a few years of experience. By producing comb honey, beekeepers minimize their investment, maximize the amount of revenue they receive for the surplus honey produced, and maximize their learning about bees! I was given similar advice when I started beekeeping, and for the past 30 years, I have produced comb honey exclusively. I will outline the procedures I follow to easily produce several thousand sections and a few hundred frames of comb honey every year. These procedures are applicable to a new beekeeper with two hives as well as to one with several dozen or over a hundred hives.

There are four different types of comb honey produced today. Listed in order of simplicity to produce, they are:

- Round combs produced with plastic equipment. This is by far the simplest and least expensive type of comb honey. The equipment is sold under the trade name Ross Rounds™. Round combs account for 90 percent or more of the section comb produced in the United States today.
- Square sections produced with plastic equipment. Producing comb honey with this equipment is relatively simple, but the annual equipment cost is the highest of any of the alternatives.
- Cut sections of comb honey produced in a full frame. This type of comb honey requires considerably more hive manipulation, and therefore more labor, than either of the types described above. However, this type of comb honey is in great demand, and many beekeepers produce both the round sections and cut comb.
- Square sections produced with wood equipment. This type of comb honey is the most difficult and most labor-intensive of any. During the early 1900s, several million of these sections were produced annually. Initially, development of extraction equipment reduced the demand, and when round sections were popularized in

The classic square section super showing sections, springs, m-boards and spacers. Lots of work.



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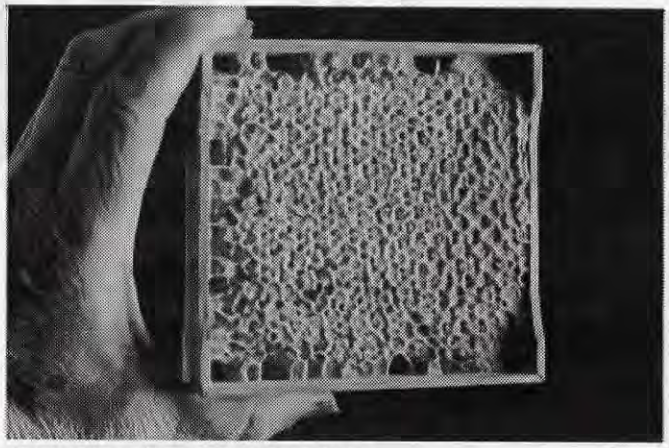
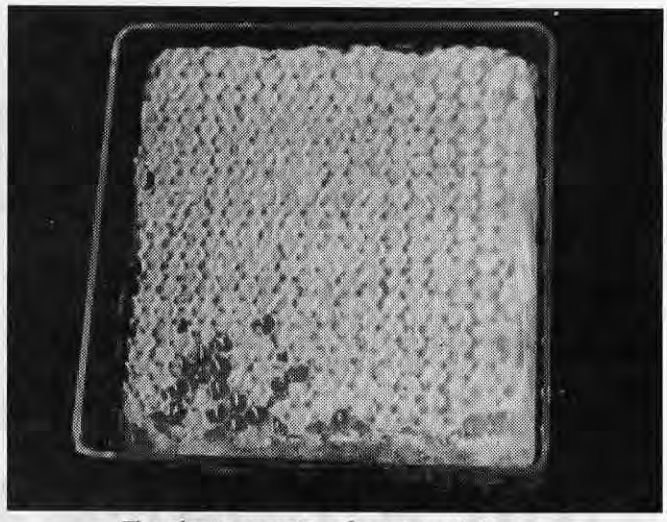


A square section. Note corner holes.



The plastic container for cut comb honey.

COMB HONEY ... Cont. From Pg. 41

the 1970s, demand was further reduced so that today very few are produced. (And many thousand Basswood [or Linden] trees were saved.)

I will outline procedures and techniques to successfully produce both round sections and cut comb, as they are the most popular types of comb honey produced. However, with some minor modifications, these techniques can also be used to produce the square sections in plastic equipment. Production of the square sections in wood equipment requires very different techniques, particularly concerning setting up the equipment and preparing the crop for market, and will not be discussed.

To consistently produce quality comb honey, the beekeeper needs:

- Proper equipment
- A young queen
- A good understanding of the local nectar flow
- A good knowledge of the bee brood cycle

I will describe simplified methods for producing, harvesting, packaging, and marketing round section and cut comb honey, starting with preparing the supers and concluding with overwintering the colonies. As far as possible, I will describe the timing of the steps by reference to climate conditions and plant flowering, so that beekeepers can readily determine timing applicable to where they live.

Beekeepers should assemble their equipment in late Fall or during Winter, so they are ready in the Spring. However, if a beekeeper has only a few hives, he or she can delay until the pussy willows and red maples bloom, as only a few hours' work is necessary to assemble as many as 10 supers. The necessary equipment is relatively straightforward, consisting of supers, frames and comb honey foundation. However, the specifics vary.

Assembling Round Section Equipment

All major bee equipment dealers sell completely assembled Ross Round™ supers, and I strongly recommend that beekeepers producing round sections for the first time purchase one completely assembled super to use as a template. Thereafter, additional supers and equipment can be made by the beekeeper or purchased separately and assembled.

Supers for round comb sections should be 4½" deep. Unless beekeepers have access to a table or radial saw, and are willing to trim ¼" off all four sides, supers measuring 4¾" should not be purchased, as the bees will produce considerable amounts of burr comb with such supers. When 4¾" supers are harvested, the burr comb will break, causing honey to drip down on the face of combs below, making a mess in your truck or car, and in your kitchen, garage or basement. No burr comb is constructed with 4½" supers.

Each super for round sections requires:

- Eight frames
- 64 rings
- Four follower boards
- Three springs

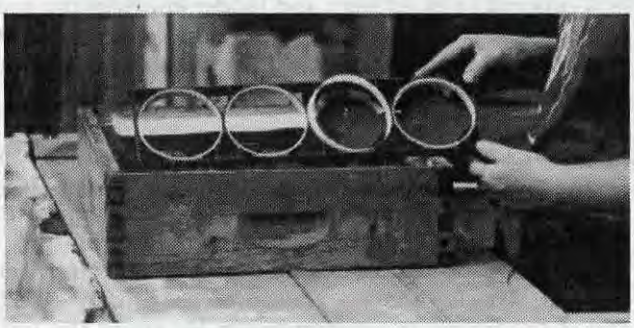
The complete super purchased will have follower boards nailed or screwed onto three sides of the super. These largely overcome the tendency of the bees to not completely draw and fill comb immediately adjacent to the outside of the hive. Metal springs firmly hold the fourth follower board between the eight frames and the inside of the super.

By following the pattern provided by the complete super, beekeepers can make their own follower boards. Alternatively, they can be purchased from a dealer, usually by buying a "super conversion kit," which will include the follower boards as well as the springs.

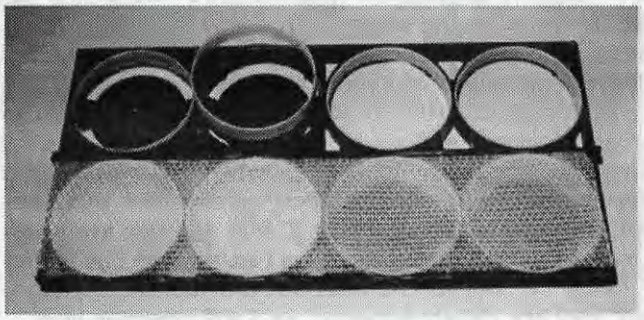
When you are ready to assemble the frames, they should be taken from the box and opened so that the insides face the beekeeper. Place the two frame halves vertically on a table, and place eight rings nearby. Each ring has cutouts that fit into corresponding nibs inside the frames. When fit properly, the rings sit flush with the tops of the frame openings. If they are not initially flush, gently turn until they seat in place. When four rings are in each frame half, place a sheet of foundation on one frame half, and close the two halves. The frame is then complete and can be placed in the super.

Most dealers include assembly instructions in the

Round Section Construction

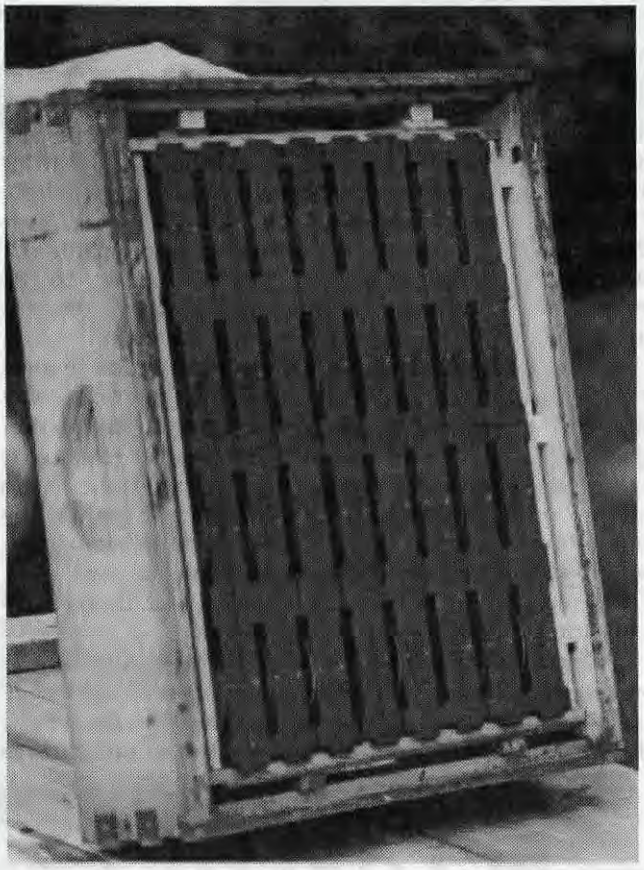


Snap rings into place on each side of each frame.



With rings in place lay in foundation and fasten frame halves together to form one complete frame.

Put frame into super. Place spacer board in place and secure with super springs.



Completed round comb honey super, ready for the bees.

box with each complete super, or will furnish such instructions upon request. In addition, the instructions may be ordered directly from Ross Rounds, Inc. at P.O. Box 582, Guilderland, NY 12084, or by fax at 518-381-6370 or email at LloydSpear@msn.com.

Assembling Cut Comb Equipment

There are three "standard"-size supers for producing cut comb honey. While sizes might vary between manufacturers by as much as 1/8", the "standard" super depths are:

4-3/4"; 5-3/4"; 6-5/8"

While any of these are perfectly suitable for cut comb production, I recommend the 5¾" super as best, with the 6 5/8" super a close second.

To produce cut comb honey, the beekeeper uses a full-size wood frame, and special foundation which is less heavy than that used for brood foundation. When the foundation is drawn and the cells filled and sealed, it is cut into pieces; thence the term "cut comb." In my opinion, the best cut comb container available is the hard plastic container, offered by all major dealers, measuring 4¼" square. The 4¾" super takes frames with an inside measurement of 4¼". If cut comb is produced in these frames, they have to be perfectly filled, as there is almost no room to cut away unfilled cells. For that

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COMB HONEY ... Cont. From Pg. 43

reason, I do not recommend using 4¾" supers. The 6-5/8" supers have frames that measure well over 5" on the inside, allowing plenty of room to cut away unfinished cells. The frames for the 5¾" super have an inside measurement of about 5 inches.

I recommend that beekeepers use the 5¾" super to produce cut comb. Four-inch pieces cut from frames for these supers result in considerably less waste than those cut from frames for 6 5/8" supers and, more important, special frames with a split top bar are available for this size super. As far as I know, only The Walter T. Kelley Co., Inc. (800-233-2899), provides these frames, but they are clearly superior, as I will describe later.

Frames for all sizes of supers come with either a split, solid, or grooved bottom bar. I recommend the solid, principally because there is no space provided for a wax moth to hide her eggs. The bees will readily attach the comb to the bottom bar. If using the 6-5/8" super, I recommend the wedge top bar. As previously stated, I recommend the split top bar frame for the 5¾" super. Purchase the foundation most appropriate for the frame size, making certain it is termed cut comb, thin surplus or thin super. If you have a choice, purchase the cut comb foundation. Do not worry if it is not of a depth to go from the top bar all the way to the bottom bar. The bees do not care, and will draw it straight down to the bottom bar, and fasten it.

To fasten foundation to the top bar of a frame for a 6-5/8" super, break away the wedge and scrape away any loose splinters left on the bar. Lay the foundation against the frame, and replace the wedge. Holding it tightly in place, fasten by placing one nail close to the end bar on each side. Lift the frame and be certain the foundation is hanging straight. If not, redo, as wavy foundation will produce wavy comb, unusable for packaging. If the foundation is hanging straight, put three more nails into the wedge (for a total of five).

When wedge top bars are used, the foundation is held in place by the pressure exerted between the wedge and the top bar. If this wedge is not *very* tight, the weight of the bees and gravity will cause the foundation to entirely or partially pull free of the wedge and drop down to rest against the foundation in the adjoining frame. Since they have nowhere else to store honey, the bees will proceed to build burr and ladder comb in the space provided, and will generally ruin three combs for every frame with loose foundation. (The frame with the loose foundation, plus the two adjacent frames, will all be ruined.)

Split top bars, where the foundation can be firmly fastened, are clearly superior to wedge top bars. Insert the foundation through the slot. Most beekeepers find it easiest to do this by drawing the foundation up through the top bar, rather than pushing down through the bar. The foundation should be just flush with the top of the frame, or approximately ½" above the top. If the foundation is ½" above the top, gently fold it over so the extra ½" lies on the top bar. (In order to fold the foundation over without breaking, the foundation cannot be cold.) Whether the foundation is flush with the top or folded over, use a single staple to draw together the two portions of the wood forming the slotted top bar, trapping the foundation firmly within the slot. Again, be certain the foundation hangs straight in the frame. My experience is that it is much faster to fill frames with a slotted top bar, and it is much easier to get the foundation to hang straight in the frames.

Early Spring Management

When the pussy willows, skunk cabbage and red maples bloom (or the earliest of the three if they bloom at different times in your locale), treat for American foulbrood and *Varroa* mites, according to label instructions. Do not worry about opening your hives for the necessary few minutes, as it will not damage your bees or the brood. If it is cold, disturb the bees as little as possible by keeping smoke to a minimum.

Next month I will continue to describe early Spring hive management, including procedures for swarm control and timing for placing the supers on the hive. BC

Lloyd Spear is a round comb honey producer living in upstate New York. And yes, he manufactures Ross Round Supers.

Snare Your Own Packages!

Mary & Bill Weaver

With the cost of a two-pound package at about $40 with a stiff fee added for shipping, you might want to consider using swarm traps with pheromone lures, available from Mann Lake and other suppliers, to snare your own "packages." Swarms from your apiaries, which will often be considerably larger than two pounds, can be hived and put to work immediately, and carry no shipping charges.

We ordered two of the swarm traps for each of our beeyards last year, when unexpected and time-consuming responsibilities came up, just at the beginning of split-making and swarm-control season.

We saw we wouldn't have time to do much swarm control or make many splits, and we hoped we could maybe catch some "splits" made by the bees themselves before they flew away to some treetop.

The results exceeded our wildest expectations. We lost count of the actual number of swarms caught in the traps along the way, but it was clear that the traps more than paid for themselves in "packages" caught.

Several of the swarms were huge, containing over 10 pounds of bees, making each swarm captured very valuable indeed. And at the end of the season, the swarm traps were still in brand-new condition, ready for use in future seasons.

Since we are in our mid-50s and not given to climbing, we did not place our traps high. We looked for a handy crotch in a limb as high as we could comfortably reach.

Because we were in a hurry, we simply set some of the traps on stacks of supers at about five feet high, with a brick on top to keep them from blowing away. (The traps are very light in weight.)

At our home yard, we had two traps side by side, both on top of stacks of supers. One sunny afternoon, we saw a huge swarm leave one of our established hives.

The tornado of bees headed straight for the two swarm traps, and neatly escorted itself, about half in one trap and half in the other. (Two queens had emerged with the swarm.) It was quite a sight to watch. It took them a while to funnel into the traps because the entrance holes are rather small. But finally the air was still above the traps.

We waited until evening, plugged the hole of each trap with a wad of Kleenex (the backs of the traps have a bee-tight fit), and took the swarms to another yard, where we shook them into empty equipment containing a frame of drawn comb and a part frame of honey. Now we had two strong "splits" ready to go to work drawing comb and making honey, neatly "split" by the bees themselves.

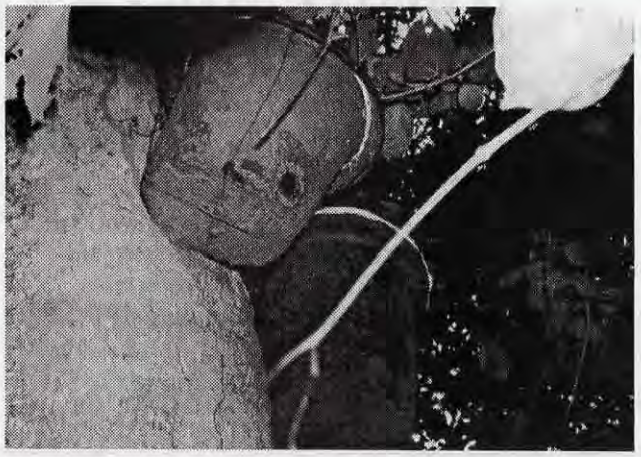
We made the rounds of our yards as often as we could to get the swarms in the traps hived before they put a lot of energy into drawing comb and putting away nectar in the traps.

A word of caution: Don't chintz on the pheromone lures. You need to use two for each trap as instructed. We spoke with another southeastern PA beekeeper who had been using the pheromone lures in actual bait hives – deeps attached to trees – in hopes of catching swarms. He caught none, but it turned out he was using only one pheromone lure per hive, rather than the two needed.

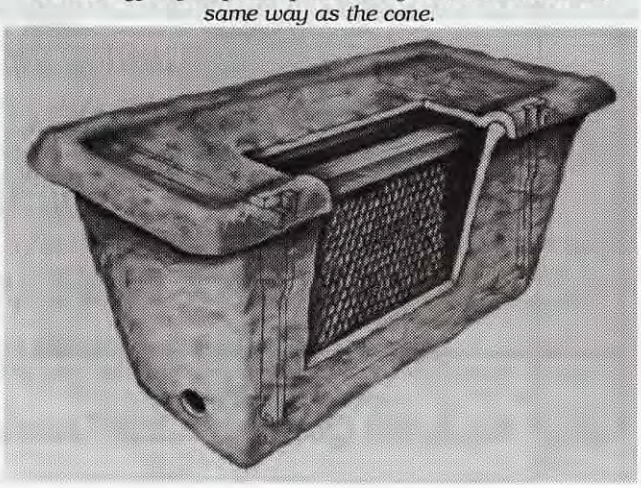
The construction of the traps themselves seems to be particularly attractive to bees. Considerable experimentation went into their construction. They are made of reinforced wood pulp from recycled newspapers, plus an asphalt reinforcer and inhibitors for termites, rot and mold.

The brown wood pulp body of the trap excludes light, and simulates

The typical 'flower pot' shaped trap. Entrance on the bottom, removable cover on top.



Another type of trap, complete with frames. It works the same way as the cone.



the interior of the cavities of trees, which scout bees naturally choose as new homes for their swarms. The interior volume of the trap is about nine gallons, sized to compare with the size of cavities bees naturally choose for themselves.

The traps are waterproof even in heavy rains, and don't rot or deteriorate in normal use. (In fact the makers of the trap maintained a trap with a continuous pool of water inside for four months at 91°F and a high relative humidity, and at the end of the four months, detected no rot or weakness.)

The traps are made with grommets through which wire or twine can be strung to attach the trap securely to the tree. We didn't use wire or twine. We simply jammed the traps into tight tree crotches, and fortunately, we had no problems. But certainly, wiring the trap in place is more secure.

The lure contains a three-part blend of Nasanov bland components, and was developed in the United Kingdom. Put into slow-release tubes, the lure is attractive for nine to 12 months according to the makers of the trap.

We, as instructed, put the lures in our freezer when they were not in use to conserve the pheromone. Caps should be left on the tubes so there is no danger of the material leaking out.

The lures provided by Mann Lake come in a brown paper envelope, with instructions to attach the envelope with the lures inside to the inside of the trap with a thumbtack.

The developers of the trap recommend placement in partial shade, about 10 feet high (although ours worked quite well at somewhat lower elevations), and along the edges of streams, where the traps will be readily visible to scouts flying over the water. Edges of forests and along fence rows are said to be other good locations.

Not all swarms that exit from your hives will choose a nearby swarm trap, although many will. But if you arrive at a yard and find a swarm hanging from a branch, bush, etc., here again the swarm trap is very valuable.

It is much easier to hold the lightweight swarm trap, with a wad of Kleenex in the entrance hole and the back removed, under a swarm and shake it in, than it is to bobble a deep on a bottomboard under a swarm.

All you need to do is shake in the swarm, put on the bee-tight back, and you're ready to take the swarm to its permanent home. It sure beats paying for packages.

And don't take down all your traps at the end of what is the expected swarming season. We left up a few traps with pheromones through the Summer, and caught two late-Summer swarms. Through the next months, these swarms put away a lot of fructose, and were heavy, with good populations, going into Winter, with every promise of being strong colonies in the Spring, ready to store supers of honey for extracting. BC

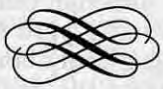
Mary and Bill Weaver are producer/packers and swarm catchers from Pennsylvania.

CLUB CORNER

by Ed Weiss

Designing Your Programs

A series of articles designed to provide ideas, guidance and a road map for regional beekeeping clubs. Prepared by members of The Back Yard Beekeepers Association (BYBA). Founded in 1993, the BYBA's membership consists of 150 hobbyist beekeepers from Fairfield and Litchfield Counties (Connecticut) and Westchester County (New York). www.fairfieldweb.com/byba



When, a compatible group of beekeepers come together and thus form a club, usually the basic requirements are confirmed:

- Officers are chosen – president, vice president, treasurer, etc.
- Club dues amounts are established (more is better).
- Board of Directors are selected; (the workers).
- Meeting Place (location) and Dates affirmed. Caution on the date!
- Method of notification to members. Generally by newsletter.
- The club's mission (beyond the social aspect) is determined.

➢ Move Ahead

Could the club prosper and grow at this point; or would it just continue as a neat little social? A "coffee klatch" group who could exchange boasts as to how much honey and how many hives each member had accumulated in the past month. Instead, provide a meeting that offers an informative and entertaining program, and your club will continually grow to become a thriving association of ever increasing numbers.

➢ How To

The first step is obvious; choose and appoint a Program Chairperson.

Qualifications:

1) If possible, a beekeeper with a few years of beekeeping experience.
2) One who attends meetings of larger bee-related organizations on a fairly regular basis like the Eastern Apicultural Society (EAS) or the American Beekeeping Federation (ABF).
3) The candidate should be able to make a presentation, if needed, as an emergency substitute speaker.
4) This person should be able to call on a friend or two who could put on a program connected with beekeeping.
5) Must be a communicator; one who is at ease with the phone, email, plain mail and face to face discussions.

RESPONSIBILITIES AND HOW TO ACHIEVE THEM

Scheduling Speakers

The first speakers are the most difficult for the new program chairman, however, they are right there in your club. Our first speaker had an observation hive and was asked to provide us with all the information as to its installation and care. He enthusiastically described his project. He told everyone how he decided on a particular model and how he came to the choice. During the presentation, many facts about the life of the honey bee were revealed, especially their behavior.

Our next speaker was an accomplished beeswax worker. He gave a wonderful presentation with actual dipping and molding procedures demonstrated and explained with a running commentary on each move in the process. Both meetings were well received by the attendees and proved that workshop type meetings would be popular in the future. You don't require a *professional-big name*, every time. In fact, many non-members attended, and became members. *We had started to **grow**!*

How to obtain the real headline speakers

If you are like me, you are deeply immersed in bee-

keeping. If so, you probably attend the larger association meetings. At these meetings, there are generally a number of speakers who are well known and extremely knowledgeable (i.e. EAS annual meeting). As you listen to these interesting speakers, consider their appearance on your club's podium. If you liked what you heard, your club members will enjoy it as well. Don't be afraid to consult with these candidates and discuss some of the points you found interesting. Then too, let them know what did not please you.

Your point of view will be appreciated by most professionals and will also pave the way for that invitation you are about to extend. Be prepared to follow your invitation with a statement about the honorarium they will receive for their appearance. You must know beforehand what you can offer. Obviously, you should have this knowledge, before these discussions take place. Our club has a budget and we hold to the limits established by the Board. In our area, for instance, we range from $150 to $250 as the honorarium proper. If your speaker travels a considerable distance, it is only fair to help with those expenses, as well. It is interesting to note that most speakers are generally flattered when invited, and honorariums, while essential to all, appear to be secondary to most.

Consider your speaker's schedule. They are usually very busy people. Ask them where in their calendar they may have some open time. It generally works well if you give them a bit of a lead by calling out a particular month that you had in mind. Then make a TENTATIVE date that fits into your club's schedule. Firm up the date by phone at a later time.

Another treasure to mine for Candidate Speakers, is the abundance of contemporary book authors. True, not every writer is necessarily a good speaker, but you usually can determine that when you have a one on one conversation with your candidate over the phone or in person. Don't use the mail for this evaluation. Use the phone and speak directly with the person. Did you read their book? So much better if you did! But do listen carefully to this person. Do their ideas come across to you clearly? Do they enunciate fairly well, so they can be understood? Great! Then if you want this speaker-author, clinch the deal by suggesting they bring copies of their masterpieces for sale at the meeting. The club meetings almost always close on an upbeat when the speaker offers their "art" for sale, whether it is a book, in the instance of an author as speaker, or photographs from a photographer. We had a great time when Ukrainian Easter Eggs were offered by a lady who showed our club members her wonderful craft.

One more reservoir of speakers resides in the "Who's Who" list, published in the April issue of *Bee Culture* Magazine. Draw on this list if you think *that name* that you spot, will be of interest to your members. A phone call during this person's working hours will get results. Don't call these folks at home. Respect their privacy and they will show their appreciation for your invitation.

PROVIDING THE ESSENTIALS

Most presenters will bring the equipment they use to make their presentation, but not always.

Discuss this with them and be certain everyone is clear on the subject. It is a most unhappy moment when your speaker hands you a packet of 35mm slides and neither you nor he has a projector on site. The few items listed below should always be on hand, even if your speaker said he or she would bring their own. It never hurts to have backup equipment available.

1) Projector – 35mm or overhead, extra bulbs.
2) Extension cords – a short one and a long one.
3) Convertible electric plugs – the three wire type.
4) A pointer. Electronic (laser or flashlight type).
5) Microphone and speaker system, podium if possible.
6) Projection screen.

Does your speaker require lodging? Make the reservation and let him know where and what.

Mail clear directions to your guest, well ahead of time (maps and your personal message of directions, regarding your local area). Are you to meet the speaker at the plane or train? Is a "meet" for dinner in the schedule?

Those are just a few of the considerations that a good Program Chairman will provide. Your guest will give you an even better performance than you thought.

Ask For Feedback

Speak to a few club members, male and female, to hear their opinions and suggestions about some of the past programs. Listen to their desires and criticisms for good programs that entertain and inform. Even better, distribute an informal scoresheet to the members at the next meeting. You might ask them what was most interesting, or the least. What did you expect to hear from the speaker, but did not!

You need speakers who are communicators, who can talk easily and teach at the same time. There are those who have the ability to clearly express their ideas on a given subject in which they excel. It's the Program Chairman's responsibility to find these people.

If the membership becomes an "informed" group, then each of them becomes an emissary with a platform to inform the general public and subdue the "I'm allergic and I hate bees" clan. In addition, we must convey factual information to the uninformed municipal lawmakers. There is a serious threat to the growth of beekeeping, from ordinances, as yet, still in the wings. An educated town official is sure better than one who does not understand the difference between a yellow jacket and a honey bee. It is the informed clubmember-beekeeper who becomes the educated messenger.

As the calendar pages peel off, it is easy to forget about the new members who recently came aboard and did not hear the information given at earlier meetings. Don't be afraid to repeat some of the good basic programs. The new members who recently joined should not be ignored and need the information previously discussed. Do bring on the Basic Knowledge in Beekeeping first – before the more sophisticated material.

MISCELLANEOUS MEETINGS OF MERIT

Do not neglect to mix in to the calendar of meetings, those that your membership will thoroughly enjoy, such as various *workshops* that involve the members. How about:

Build It Better – How to assemble various pieces of

Continued on Page54

?Do You Know? Answers

1. **True** Mice are primarily a problem in honey bee colonies during the autumn and winter after the evenings become cold. Colonies in fields or at the edges of woodlots are especially vulnerable.
2. **False** Skunks forage at the hive entrance at night in a slow, deliberate fashion. The skunk typically scratches at the entrance of the bee colony and eats adult bees that respond to the disturbance. Skunks may feed for hours in front ofbee colonies.
3. **False** Since no toxic materials are currently registered in the United States for skunk control, poisoning is not the preferred or legal way of controlling these pests. Skunks may be discouraged by screens or queen excluders attached to the front of the hive above the entrance. These devices hamper the skunk in scratching at the front entrance, and if it climbs up the screen over the entrance, its belly becomes vulnerable to stings. Elevated hive stands will also help prevent visits by skunks but can make beekeeping manipulations more difficult. In many states skunks are protected by laws so trapping and shooting may not be legal control methods.
4. **True** Raccoons and opossums can be occasional pests of honey bee colonies with similar nocturnal feeding habits as that of skunks.
5. **True** In addition to rapidly depleting the bee population, skunks make a colony very aggressive and mean since they usually return night after night.
6. **True** The bear is an omnivorous animal which means they will eat almost anything. Bears cause severe damage to hives as they feed on honey, adult bees and brood.
7. Chew frames and combs to make room for building their nests. Mice feed on bees, honey and pollen. Smell and odor created by their urine and droppings repels bees. Mice may disturb and disrupt bee clustering behavior. Destroy stored beekeeping equipment.
8. Mice control is not too difficult. Early in the fall, hive entrances should be reduced with entrance cleats or hardware cloth (three mesh to the inch) to keep the mice out.
9. Front of the hive being scratched up and muddy Grass in front of the hive will be packed down or torn up Small piles of chewed up bee parts (cuds)
   Skunk fecal material near the hive entrance
10. Large livestock such as horses, sheep or cattle may damage bee colonies by knocking over hives. Some animals will scratch to remove flies or pests or become skittish around buzzing insects and as a result may inadvertently upset bee hives. To protect against these possibilities, colonies should be maintained outside areas where large livestock are kept or the apiary site should be fenced.
11. Easy to construct and relatively inexpensive. Dependable.
    Designed to operate in a wilderness area.
    A wire mat should extend at least 18 inches out from the fence to prevent bears from digging under the fence.
    Battery should be placed in a hive body with a beehive above it to help protect it from theft.
    Reliable battery that holds a good charge or solar power source.
    Good electrical connections to avoid shorting from rust or corrosion.
    Overhanging trees and limbs should be removed so they will not fall on the fence and make it inoperable. (It is common for bears to climb trees and then drop down inside the fence).
    Weed control should be practiced outside and inside the fence to keep it from shorting out.
    Proper grounding to ensure adequate apiary protection.
    Some type of bait such as pork rind attached to the wires so the bear receives proper introduction to the electricity when it touches the tempting morsels with its moist tongue or nose.
12. In order to keep bees in an urban/suburban area, there are many things that beekeepers should do to keep their bees from interfering with their neighbors' activities.
    A. Maintain gentle colonies, use strains that have been selected for their gentleness and requeen on a regular schedule.
    B. Practice good management, preventing robbing and control swarming.
    C. Furnish a water supply.
    D. Use a hedge or fence to keep colonies out of view. This helps to reduce vandalism and concern by neighbors, and forces the bees to fly above head level thus reducing the chance of stinging.
    E. When manipulating and examining hives, keep the neighbors' activities foremost in mind. Work the bees on warm sunny days, when the field force will be actively foraging.
    F. Having sufficient equipment to manage your colonies is a must.
    G. Top entrances should be avoided in congested areas during the summer season. Whenever a hive with a top entrance is opened and supers removed, hundreds of bees will be flying around, confused because their entrance is gone.
    H. Do not keep more colonies in the backyard than the area forage can support or more than you have time to care for adequately.

There were a possible 25 points in the test this month. Check the table below to determine how well you did. If you scored less than 12 points, do not be discouraged. Keep reading and studying- you will do better in the future.

Number Of Points Correct
25-18 Excellent
17-15 Good
14-12 Fair

Clarence Collison is a Professor of Entomology and Head of the Department of Entomology and Plant Pathology at Mississippi State University, Mississippi State, MS.

Ann Harman

Home Harmony

Cooking On The Internet

Well, since it was a nice, rainy day, I decided to see what the Internet had to say about cooking with honey. Certainly everything seems to be available on this vast encyclopedia in the sky.

I read some instructions for efficient searching and selected two words connected with "and." I chose "honey and recipes." Success! Overwhelming success. My first try showed me the top 10 of 150,671 matches. My next try showed the top 10 of 113,878 matches.

Now, if look at each for one minute (hardly enough time for a good evaluation), looking at each will take 113,878 minutes. Divide this by 60, and we get about 1,894 hours. Let's assume an eight-hour day since we have to eat, sleep, peruse the mail, and feed the dog. So divide 1,894 by 8 and got 237 days. Almost a whole year of viewing! Not much time left for cooking. One other problem. During those 237 days more recipes are added. I have a feeling this is a never-ending search.

Nevertheless, we can find some good recipes on the Internet. The National Honey Board has an award-winning site. Here you will find various recipes, including some for children. Burleson's Honey Web Site is an active one, with recipes plus other interesting information about bees and honey. Burleson's also has wonderful tips on caring for honey.

One discovery was the site for the Stanly County, NC, Beekeepers Assn. Here is a local association promoting the use of honey through recipes. What a great idea for other associations! Honey promotion does not have to be limited to those people in your neighborhood.

I can't give you the 237-day tour. So here is a sampling.

SPICY HONEY DRUMMETTES

3 pounds chicken drummettes
1 cup honey
2 tablespoons curry powder
1 teaspoon ground ginger
1/2 teaspoon cayenne pepper

Rinse drummettes and pat dry. Arrange in single layer on a baking sheet. Bake at 400°F for 10 minutes. Meanwhile, in a small bowl, combine remaining ingredients until well-blended. Spoon half of honey mixture over drummettes; bake 10 minutes. Using tongs, turn drummettes over. Spoon remaining honey mixture over drummettes; bake 10 minutes longer. Let cool slightly before serving. Makes about 28 pieces.

National Honey Board Recipes

HOLIDAY GREEN SALAD

Somehow "surfing" and "crawling" seem to be associated with traveling around the Web. You decide which we are doing. However, next we arrive at Burleson's Recipes. Although this particular salad was listed under the "Winter" recipes, it certainly can be used year-round.

1 bag (10 ounces) Romaine lettuce OR European-style salad greens
1 Braeburn or other red apple, cored and sliced
1 cup alfalfa sprouts
1/4 cup sweetened dried cranberries
1/4 cup chopped pecans, toasted

Honey Mustard Dressing

1/4 cup Burleson's clover honey
1/4 cup water
2 tablespoons Dijon mustard
2 tablespoons balsamic vinegar
1 tablespoon canola or vegetable oil

In a large salad bowl, combine all salad ingredients. In a small bowl whisk together dressing ingredients. Pour dressing over salad; toss gently.

Burleson's Recipes, Winter

ROSEMARY PORK CHOPS

Sue Bee has an excellent Web site with a large selection of recipes. Why not try this easy and excellent one for pork chops?

4 center-cut pork chops
1 tablespoon rosemary
1 teaspoon pepper
1 teaspoon sage
1 teaspoon salt
1 cup apple juice
1/2 cup cranberry juice
1/4 cup Sue Bee honey
1/4 cup lemon juice

Mix together all ingredients except chops. Place chops in a shallow pan and pour marinade over them. Cover and marinate in the refrigerator for 2 to 24 hours. Grill until done.

Sue Bee Honey Recipes

OATMEAL PIE

Brian Knapp of Waterville, NY, lists many recipes for using honey. He also references other sites that you may find interesting. I tried this pie with dried cranberries and found it excellent.

3/4 cup honey
2 eggs, beaten
3/4 cup quick-cooking rolled oats
3/4 cup coconut
3/4 cup dried cranberries, currants or raisins
3/4 cup chopped walnuts
9-inch unbaked pie shell
whipped cream, if desired

Combine all ingredients except pie shell and whipped cream, mix well. Pour into pie shell. Bake at 350°F for 40 to 45 minutes or until filling browns and knife blade inserted near center comes out clean. Cool. Top with whipped cream, if desired, and serve. Makes 8 servings.

Honey Products
Brian Knapp

Perhaps I've saved you a few of those 237 days. I encourage you to open up the Internet and use several of the search engines available. Each one brings up different sites, along with the popular ones such as the National Honey Board and Burleson's.

You can print out the recipes you wish to try and make yourself a honey cookbook. I also encourage you to contribute your favorite recipes to those sites that request them. In that way your good cooking is bouncing around the world and encouraging the use of honey. That certainly is quick, easy, cheap advertising.

CLUB ... Cont. From Pg. 49

our honey bee's home. Frames are always a problem for new beekeepers; let a few veterans show the other folks how! Inserting wax foundation into the frame isn't easy at the beginning either. Show them how. How to build: Slatted Racks, Bottom Boards, Inner and Outer Covers, Nuc Boxes etc. Assembly on all of the above, was done at one of our club meetings and the members were so enthusiastic, that by demand, it was repeated on an off-meeting day.

Harvest Time – A live demonstration with member participation uncapping combs of honey, became a finger licking party. Then came the Extracting and the Bottling plus many more exciting harvest time activities. Everyone had a great time.

Beeswax Crafting – This is always a welcome and informative meeting, usually scheduled to precede Christmas by a month or so. After dipping candles and pouring beeswax into all varieties of molds, gift giving of one's own creations becomes very satisfying.

Hiving Packaging Bees – Our club holds a demonstration of this caper every year, about a week before the truck from the south arrives with everyone's reserved packages of Bees and Queens. One of our very experienced members shakes the package of bees into a previously set up hive. The proper way to introduce the Queen is also shown at this workshop. Questions and answers abound, showing the great need for this demonstration, especially for beginning beekeepers.

How To Catch A Swarm – This workshop always takes place a little before swarm time in our area. Your locality will dictate the timing for your scheduling. Our demonstrator casts a package of bees with Queen on a tree to assemble the swarm; and then she catches it later. It eases everyone's fears for their future first time encounter with that bustling bundle of nature.

The "Mighty Mite" Meeting – One of the downsides of beekeeping is of course the two major mites that infest our beehives. The best way to fight the enemy is to know him (actually her). Acquaint your membership first hand with frames of capped drone brood to open and show the *Varroa* mites inside the cells. Provide microscopes and slides to see the Tracheal mites, (*A. Woodi*). This close-up contact with these pests makes a real and lasting impression. Non-believers become believers.

THERE IT IS: Open your calendar and fill it up with informative and entertaining programs of speakers, workshops, and field sessions. Decide on backup programs that can be substituted in emergencies. It doesn't always pan out the way you plan and schedule it; for instance, one of our speakers on schedule to appear found out at the last moment that his mother-in-law threw out his 35mm slides covering his European trip to a historic beekeeping site. It just happens, and you must prepare for that kind of event.

Decide On Meeting Dates: Some months and some days of the week are not the best ones to use. They can easily defeat good attendance by conflict with your members other commitments. We found that Mondays and Fridays just don't work. December, because of the holidays, is a poor month for meetings. Even a Christmas party meeting takes a back seat to all the other parties that are attended at that time. July and August are vacation months and attendance is poor. Test it out and then decide. It is your choice!

Finally, if you want more members. You must "advertise" for them! Public Relations is imperative. Instruct your PR person to announce your meetings to the public at large via the newspapers and local radio. Stress "Everyone is Welcome." It's free to all. This will bring people who are and who are NOT beekeepers to your meeting. Some folks will join your club who are beekeepers, but did not know of your existence, and others, who have been tinkering with the idea of becoming a beekeeper, decide at your meeting: "Yes, I'm going to become a beekeeper," but only if your program is first class. BC

Ed Weiss is a beekeeper, sells bee supplies, honey, pollen and propolis, and is one of the original Back Yard Beekeepers. He lives in Wilton, CT. You can reach Ed at beeweiss@erols.com

SPEAKER FEEDBACK SHEET

Name of Speaker_____ Date_____

Your Name (*optional*)_____

Directions: For each of the seven items listed below, please provide your rating by circling a whole number from 1 to 5.

Thank you for taking the time to give us your feedback.

	Poor		Average		Excellent
1.) Demonstrates knowledge of subject	1	2	3	4	5
2.) Presents ideas clearly to audience	1	2	3	4	5
3.) Handles questions from the audience	1	2	3	4	5
4.) Paces delivery of presentation	1	2	3	4	5
5.) Involves the participants	1	2	3	4	5
6.) Uses audio/visuals effectively	1	2	3	4	5
7.) Your overall rating of speaker's presentation	1	2	3	4	5

In what ways can the speaker enhance his/her presentation? (*Use back of page if you need more room*)

This form is provided by The Back Yard Beekeepers Association www.fairfieldwes.com/byba/

Topsfield Fair

America's Oldest
Founded 1818

Kim Flottum

Selling Honey At The Fair

Another installment in the Topsfield Fair Experience. There will be more because this group, and for that matter most groups, are multi-faceted, and no single article, no complete issue of this magazine could cover them all and do justice.

Selling honey at a county, state or regional fair is an opportunity many associations have. Not all unfortunately, and some have a financial requirement that is, or seems to be too formidable.

At the Topsfield Fair, the Essex County (MA) Beekeeper's Association sells honey, honey stix, comb honey, several kinds of candles, beeswax ornaments and other products. But they have standards. And guidelines. In fact, they have an 11-page booklet on how to prepare your product for sale. There are no shortcuts.

Each seller, who must be a club member, can sell any of the inventoried products that they actually produce. A check-in session is set up and everybody who sells brings in their stuff. Then the quality control troops give it the once over and they have the final say – sell or not. Each seller is assigned a processing number for identifying each item sold, and each must sign a Seller's Agreement. At check in, each item is inspected, counted, priced and mixed into the inventory (mixing is done so that each seller's product reaches the display proportional to the amount delivered – if you bring 20% of the 1lb. jars, those displayed are roughly 20% yours).

Everything sold has a ECBA (Essex County Beekeepers' Association) label, purchased from the club at cost. No reproductions are allowed which makes for a very uniform, and professional looking display. And, the fair is the only place the labels can be used.

To be able to *sell* your products at the booth you must *work* at the booth, a set number of fair-hour-shifts during the 10-day run of the fair. If you don't you can be assessed an additional 25% commission on the products you sell. The original assessment is only 10%. If the privilege of selling, and not working is severely abused you may lose that privilege in the future. Interestingly, and correctly the staffing of the building for each shift has as a priority, educational areas first – observation hives and the like – with the selling area having lowest priority. That's an A+ decision!

PRODUCTS Wax products. Candles can be molded, dipped, rolled, votive or ornamental and must be made of pure plain or colored beeswax. Accepted sizes for molded candles range from 4" to 15". Dipped from 4" to 30", rolled from 4" to 16" and ornamentals are 3" or less, or over 3". Pillar candles have to be an inch or under and over 3" tall. Votives need to be made of an ounce of wax. Wicks – type, size and length are also monitored. Candle packaging is standardized by type, style and number and ID number placement.

Ornament size, packaging, labeling and hanger placement are also monitored as are plain wax cakes. But at the end of the section there is a long list of reasons wax products may be rejected by the QA people. This offers sellers a good check list for producing and packaging a top quality product.

HONEY You gotta believe that honey is monitored, scrutinized, and checked. It is.

Sizes of bears, small and large regular containers, hex jars, salt and pepper jars and chunk honey jars are described, and the lids to use on each detailed. The produce inside, obviously, must be free from foam, crystals, foreign matter and be below 18.6% moisture. Jars should be clean, and filled to the right height.

Each size and style container has its own label, which must be placed in the right spot. Chunk, creamed, cut comb, round comb and sections all undergo the same level of scrutiny relative to packaging and labeling. There is a laundry list of faults that will disqualify a product, again giving the seller every chance to produce a top-quality product and sell it at the fair.

At the back of this multi-page how-to is a wonderfully done single page detailing label placement, fill lines, jar sizes, comb size and placement for chunk honey jars, and packaging style and boxes for every product previously outlined. Picture perfect.

At the back is the sign-up sheet necessary for shift work, plus some other volunteer activities that occur during the fair.

This may seem a bit overdone for something as low-brow as a fair. But these people have taken the position that there is no compromise on quality. Every jar sold is as perfect as the bees, and the beekeeper can make it. The honey, the jar, the label are all first rate. Candles, too, are top shelf. And should be.

The selling area is a professional looking booth that any beekeeper would be proud to work at, and sell from. And customers must appreciate this, because they sell thousands and thousands of dollars worth of honey each year.

One final note. No taste tests are given. And, since all labels are identical customers have no way to discern who produced the honey, what part of the region it comes from. And they still buy it. Light, medium or dark. Essex County Beekeeper's Association products – whether honey, wax or whatever – sell and sell and sell. BC

Glean ings

MARCH, 1999 • ALL THE NEWS THAT FITS

MANN LAKE GETS FORMIC GEL PERMIT

In early February Mann Lake Ltd. received EPA approval for Formic Acid Gel, effective in the treatment of Tracheal mites and the suppression of Varroa. It will be sold in a pre-packaged gel pack – safe and easy to use with a pull-tab that regulates the rate of discharge. If production procedures go as planned the Formic Acid gel pack should be on the market by August 1.

Mann Lake has been working toward this goal for a few years now. They actually declined EPA approval on a bulk form two years ago, because of liability concerns. The application was put on hold until a safe delivery system could be achieved.

Formic Acid is the latest in a series of disease treatments Mann Lake has made available to the beekeeping industry. They are also responsible for Mite-A-Thol®, used to treat Tracheal mites and Para-Moth®, an effective treatment for wax moths.

The development of this new product was a combined effort of Mr. Dan Davis, Mann Lake Ltd., and Drs. Bill Wilson and James Baxter of the Weslaco Bee Lab, along with Dr. William Biehn of IR4. Without their help Formic Acid would not be available to the beekeeping industry.

Watch these pages for more information on packaging, pricing and availability.

Released by Betty Thomas
President of Mann Lake Ltd.

ORNERY ORGANICS?

Despite Environmental Protection Agency leaflets urging consumers to purchase organic foods to avoid harmful pesticide residues, new studies show organic foods have their own problems. Since organic foods rely heavily on animal manure for fertilization, people who consume organic foods are about eight times more likely to be attacked by E. Coli bacteria. Organic consumers are also at increased risk from natural toxins like fungi, salmonella, compylobacter and listeria, organisms that kill thousands of people every year.

$5/Pig DIRECT PORK

Agriculture Secretary Dan Glickman outlined (January 12) ways the U.S. Department of Agriculture will assist struggling small hog producers with approximately $50 million in direct cash payments. Producers will receive up to $5 per slaughterweight hog (or the equivalent for feeder pigs and other swine) marketed during the last six months of 1998. Producers will only be paid for up to 500 market hogs (or an equivalent number of feeder pigs). The maximum payment will be $2,500 per operation. Producers apply for direct payments at their local Farm Service Agency office.

U.S./ARGENTINA TRADE

The U.S. and Argentina reaffirmed on January 12 their shared commitment to free trade during a bilateral meeting held at the State Department. The U.S.-Argentina Joint Statement, signed by U.S. Agriculture Under Secretary August Schumacher, Jr., and Argentine Agriculture Secretary Gumersindo Alonso, emphasizes the importance of agricultural trade for both countries. Schumacher said, "The statement reaffirms both countries' commitments to resolve trade issues and to maintain a strong and cooperative bilateral trade relationship. This is a significant step in bringing about free and open trade between our two countries and toward working closely on the upcoming World Trade Organization Agricultural Ministerial, particularly with respect to eliminating export subsidies."

MARKETING PLAN FOR SMALL FARMERS

The U.S.D.A. announced January 21 a plan to help small farmers sell their agricultural products directly to consumers. The "Farmer Direct Marketing Action Plan" is available to the public. Michael V. Dunn, under secretary for marketing and regulatory programs said, "The Farmer Direct Marketing Action Plan is designed to assist farms with less than $250,000 in annual gross receipts, or about 94 percent of all farms in the U.S." The "Farmer Direct Marketing Action Plan" will enable AMS to identify and promote the development of marketing opportunities for small farmers by conducting and supporting research and providing information on farmer direct marketing activities.

HONEY GUIDE GETS UPDATED

The National Honey Board has recently updated its publication *Honey – From Nature's Food Industry*, also known as the technical brochure. Several thousand copies of the brochure, a reference on honey for food industry professionals, have been distributed over the last 10 years. The updated brochure has been renamed *I'm Here to Tell You the Bear Facts About Honey – A Reference Guide*. New to the brochure is information on honey's antimicrobial, antioxidant and microbiological properties, statements on honey and diabetes and honey and infant botulism and more. Primary audiences for the technical brochure are food scientists, engineers and product developers. University students and extension agents will also find it useful. The brochure is available to members of the beekeeping/honey industry at a cost of 75 cents per copy. It can also be downloaded from the Honey Board's Web site: www.nhb.org/foodtech/. Click on "technical brochure."

Display Advertisers

It is important to understand some basic biology when considering races, hybrids and species of honey bees. This chapter will explain the differences and similarities, and why knowing the basics is important.

In the 1997 Edition of *Honey Bee Pests, Predators and Diseases*, Dr. Roger Morse discusses the basics of honey bee species. He concludes, from the literature, that there are four species of honey bees: *cerena, dorsata, florea* and *mellifera*. All, of course, are of the genus *Apis*. Species of any animal, you'll recall, are defined as distinct because they cannot cross breed and produce viable offspring (the horse and donkey cross breed and produce a non-viable mule). The four species of bees are the same.

Apis mellifera is European and African in origin, but has been spread essentially worldwide. It is the bee of commerce. The other three species are Asian in origin.

Each of these species is distinct morphologically, and there are two nest types – closed (hollow trees, etc.) and open (exposed combs).

Apis cerena is the most widespread of the Asian species. It is used commercially, on a limited basis, and is found in all Asian countries. It lives in protected cavities. It is the original host of *Varroa*. Two, perhaps three other species belong in the *cerena* group.

Apis dorsata, the giant bee, is also Asian, and nests in the open. Nearly twice the size of *mellifera* it is of little economic importance, but has been investigated thoroughly. A previous Editor of this magazine sold specimens in alcohol in the U.S. for a dime. That was around 1900. There is perhaps one other species in the *dorsata* group.

Apis florea, the dwarf bee, also nests in the open, with small combs suspended beneath branches. It is a tropical bee, which limits its use, and spread. Another species is in the *florea* group, *A. andreniformis*.

The subspecies of *Apis mellifera* are many, and range in natural habitat from Norway in the north of Europe to South Africa. There are over 20, maybe as many as 26 identified, subspecies. With the advent of molecular genetics, many more may be decided, as morphological data is variable, and limited.

Dr. Walter Sheppard, in the same book states that for many of the European subspecies, isolation (the primary cause of genetic change), due to glaciation led to the initial separation of honey bee populations. Then, as the glaciers retreated the bees began to move north, repopulating past home lands.

However, barriers such as mountain ranges prevented redistribution of some groups, effectively isolating them from other groups of honey bees.

The isolation of the African subspecies is less clear, however shifting weather patterns probably changed the desertification and vegetarian areas of the continent. But there has been, and continues to be hybridization between the subspecies in both areas where they overlap.

From Ruttner's book on honey bee biogeography and taxonomy the bees of economic importance in the U.S. are primarily from moderate to harsh environments. These subspecies have evolved several traits and characteristics that enable them to survive harsh Winters, seasonal food availability and long broodless periods. All, however, nest in cavities rather than use exposed combs.

These traits include large size (or at least larger than their more southern relatives). With this is efficient thermoregulation of the nest. To accomplish this bees have a tight cluster, conduct heat from the center to the edge of the cluster very poorly, produce metabolic heat individually, and rotate from the surface to the center of the cluster to 'recharge' as it were.

Winter bees are physiologically different than Summer bees. This includes protein and fat accumulated in glands and an increased ability to contain stored fecal material.

Low and early swarming enables a swarm the greatest chance for survival through the Winter, along with the parent colony. Along with this is the long broodless period, which reduces food consumption.

However, there is a significant amount of variability between subspecies with respect to broodless period, amount of food stored, clustering behavior and time and number of swarms produced. This is what makes studying each subspecies important relative to where managed and style of management in this country.

Each subspecies we examine will consider these traits and how they apply to managing them in the area you live.

Races . . . Basic Biology

Kim Flottum