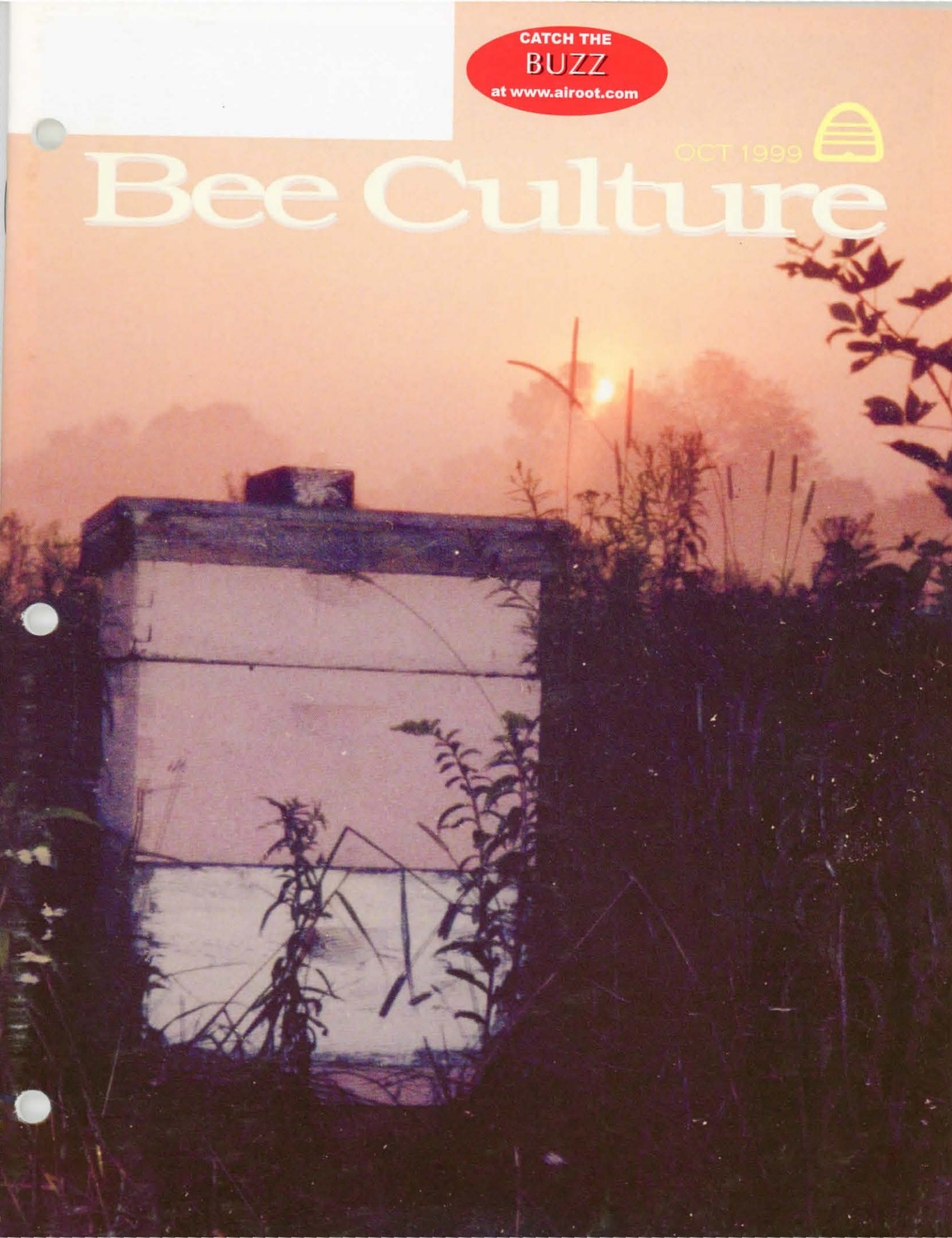
OCT 1999

Bee Culture



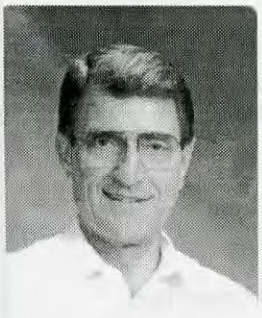
Bee Culture

THE MAGAZINE OF AMERICAN BEEKEEPING

OCTOBER 1999 VOLUME 127 NUMBER 10

FEATURES

COVER
Autumn mornings bring their own special beauty.
photo by Sally Mills
Coburn, PA



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INNER COVER

Ever present during the technological revolution that has taken place in the world of communication, were the books and journals that cradled the standards of our society. That set the ethical and moral tone for industry, science, religion . . . and even journalism.

Let's look for a moment at those traditions and standards. At their most fundamental a paper and ink publication has a stable of experts who evaluate a proposed idea . . . and here I mean such things as literature, government or religious policies, a historical analysis or perhaps even an opinion piece. In the case of scientific journals, not only is the proposal initially evaluated but the research itself is scrutinized by professionals in the field of the author's speciality. Those that survive these rigors are published. Those that don't . . . perish. This is a necessarily harsh and unforgiving mistress in the scientific process, and the advancement of knowledge.

News magazines, major newspapers . . . publications in the fields of science, the law, social and political comment . . . all the recognized sources of information have armies of fact checkers, story and proof readers and legal departments. All manner of checks and balances exist in these organizations, all to make sure that what the ink says is right. Exactly right. Every time. That's the tradition. And though it's not perfect it is seldom wrong.

Another genre, the entertainment industry, is less concerned with accuracy to the nth degree, but rather, profit and rumor are king and hold more sway than absolute truth. Tabloid tales carry their own credibility factor.

So . . . somewhere between these two extremes . . . pure perfection on the one hand, and pure profit on the other . . . are most of us in the world of journalism. Succinctly put, I think, the price of consistent accuracy and good information is, and should be, measured by the numbers of subscribers and the willingness of advertiser investments.

But the computer. That innocent looking box of chips and circuits has challenged those rules and traditions. Now . . . it's not the computer . . . actually . . . that's done this. Not the hardware and software that sits on your desk. It's not even the phone line that connects your computer to an anonymous server somewhere on the other side of town. But rather, it's how these tools are used . . . like the first hand-operated printing press, the typewriter, the linotype machine and the magic of computer to plate . . . new tools always change the landscape. Everything changes. The injection of on-line publishing into the traditional world of paper and ink has begun a revolution.

Let's look in some detail at two recent events . . . the advent of television and the computer, and their effects on society, communication and in particular the printed word.

Newspapers and other print media had already ridden the storm of radio's intrusion into instant news, entertainment and advertising revenue when, in the late 1940s television comes along.

In 1950 fewer than one household in 10 in the U.S. had a TV. and the print media were saying the fad wouldn't last. By 1955 . . . just five years later . . . 7 in 10 homes had a set in the living room, and the already-behind newspapers and magazines were both scrambling to figure out what was happening to their audiences and their revenue. The battle cry of all print media was what was called the "Credibility Factor". Depth, breadth, accuracy and analysis were said to provide more and better information than television ever could.

But television changed the world, and people watched. And advertisers watched. Businesses sell things, and cost effective advertising dictates that the greatest exposure to the right people at the right time for the least amount of money was the way to go. And go they did.

The dollar drain from newspapers, radio and magazines was slow to start, but within a decade became a torrent. And it hasn't stopped. Originally there were three main networks. Now, with cable and satellites there are literally hundreds of outlets for advertisers to choose from. And each focused on a specific audience . . . leisure activities, politics, news, business, entertainment, old people, young people, children . . . the list goes on and on. And, as the list becomes ever more diverse, the dollars are diluted even further.

Meanwhile, newspapers and magazines retaliated by piling on the 'credibility factor' as much as they could, which helped slow the bleeding. But during the transition, hundreds and hundreds of papers and magazines folded, were bought outright or merged with larger organizations with deeper pockets and advanced technology. The revolution's battlefield is littered with the dead and dying.

Other events were taking place in 1970, the year TV. reached the saturation point in U.S. households.

That was the year that Alvin Toffler published his landmark book "Future Shock", where he said that future shock was caused by the premature arrival of the future. Now remember, that was in 1970.

That same year electronic word processors hit the market, one of the first shots at the typewriter and the end of the line for hot metal typesetters. A year later the first silicon ship began replacing the tubes and circuits in those massive computers, that had, by the way, been around since 1946.

Continued on Page 47

Ink & Paper In A Digital World

KEEP IN TOUCH

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

MAILBOX

In Defense of NHB

This letter is in response to your article in the August, 99 issue of *Bee Culture*, more precisely "Inner Cover." That is the first article I read every issue, since I enjoy your views of what is going on in our industry. That is with the exception of this last issue. As you know, I am a National Honey Board member of Producer Region 5. I was at the June Board meeting, and wonder which Board members you talked to, to report the information that you did. It is certainly a disservice to the Board as a whole to report inaccurate information.

The Board knew that Bob Smith was leaving in the near future from our annual meeting June, 1998. This should not have been a surprise to us to have him give us his resignation at this June's meeting. After all June is the time for his contract to be renewed or not renewed for the following year. What was a surprise was that he was starting his own management company, and that some of our staff wanted to be part of his new company.

The resignation of Lyle Johnson came at least a month earlier. He was having trouble giving his time to Board work because of personal commitments. Many of us come on the Board not understanding the time commitment needed to do Board work.

The "straw vote" was done at the end of the first day of discussion, and was really not a fair vote since we had not gotten much information about exactly what a management company was capable of doing. The choices were to hire a new CEO, a CEO with management company involvement, or a management company with Bob Smith's company in consideration. I really can't remember exactly what the number in favor of a CEO was. I think it was either seven or eight for the CEO; with the remaining votes divided between the other two choices. The final vote came at the Saturday business meeting, after we had spent much time discussing the possibilities of how to lead the NHB into the next century. None of us took our responsibilities lightly, and "yes" there was much heated discussion. Once a vote was taken and a decision made, the Board members agree to speak in one voice. Apparently, this is not being adhered to. The search committee of which I am a part of, now has the responsibility of finding the best possible company to handle the NHB work.

Your statement of Steve Conlon being a three-year veteran of the Board is incorrect. I believe he is starting his sixth year on the Board, and was on the Nominations Committee for six years prior.

I do agree that the timing is very bad for this to have occurred, especially with the referendum due to be voted on early next year. Perhaps this did anger some of the Board members, but we have worked past that.

I disagree with your comment that our goal of increasing honey consumption "has not been fulfilled." The per capita studies are no longer being done, because they were not accurate. What we have to rely on, which is not perfect, but the only measurable figures we have, come from the assessments paid. In 1989 at the start of the NHB, the assessments represented 250 million pounds of honey. The assessments in 1998 represented 320 million pounds of honey. That's an increase of 70 million pounds going into the marketplace. The projection for 1999 is 390 million pounds. Divide that by our U.S. population, and the figure I come up with per capita is 1.5 pounds per person. That is up from .9 pounds per person in 1989. I know that we have accomplished our mission, and we are well on our way to accomplishing our goal of 400 million pounds by 2002.

Thank you for mentioning the good things that we, and past Board have accomplished. We have been carefully selected by industry representatives to be members of the National Honey Board. As in the past, we will do our very best for the industry we serve.

Sharon Gibbons
Ballwin, MO

Different Perspective

As Secretary/Treasurer of Miller's Honey Farms, Inc. I have reviewed the expenses MHF has borne as a company while my father, Neil and brother, John served as Board Chairmen of the National Honey Board. More than once I spoke with our accountant about writing off the expenses as a charitable contribution.

The National Honey Board is the least expensive business insurance this industry will ever have. Service on the NHB is expensive, voluntary, demanding, and done with little understanding or appreciation by many in our industry as Mr. Wise Guy ignorantly illustrates:

1. **Failure to Perform**. His opinion that members loose their resolve to perform in the best interest of the industry after appointment to the board is false. I hope everyone has served on a local committee, church board, civic club, or service project. It's an investment, a personal investment to make things better. Consensus and compromise is essential to any cause's success. Often greater insight is given to a goal or problem as a board wrestles with a problem. Public opinion can be swayed due to biased reporting by those with a different agenda.
2. **$150.00 Motel rooms.** Mr.

Continued on Next Page

MAILBOX

Wise Guy please document in the last 12 years a meeting when the NHB spent $150 on any room for a Board member. Few in the industry realize one of our biggest expenses is for USDA "oversight." USDA tries to impose the "Government Way" into everything the board does. The "Government Way" does not allow for a meeting to be held at Motel Six, room 211. That's a big room with two double beds.

3. **Meetings are not open to the public.** This a very spiteful and insulting lie. I have attended several meetings and all my questions were heard and answered. I was not surprised when I was not invited into the executive session portion of the Board meeting. By definition it is a closed meeting.
4. **Quality assurance is bad.** Why are there Grade A and Grade B dairies? One reason is a Grade A dairy has complied with higher standards. They are also paid more for their milk. I welcome standards that we can set rather than the "Government Way." There will have to be some consensus but if I can provide a better product to my customer and he pays me for my efforts, imported honey becomes a smaller issue.
5. **Packers are bad.** I drink Pepsi and it tastes the same all year long. When honey prices went into the $.90/lb. range some packaged honey changed in color, moisture, and flavor. True some packers have always cheated, but many of our noble honey producers watered and blended their crop before shipping. To me this explains our current market woe's. The NHB can't be blamed for our self-defeating behavior. We are in this together, the packers need us and producers need them. I like my packer "customers," I trust them, and they trust me.

Mr. Wise Guy, what goes around, comes around and many of the whining producers are getting what they deserve. Being so wise why not put forth constructive ideas to help the industry. Has the delight of seeing your thoughts in print caused you to sell out to your ego rather than to solving a Big Problem. We can lobby and impact what the NHB is to become. Producers it's time to ask what I can do for the Honey Board, not what's in it for me!

Jay Miller
Blackfoot, ID

July Wise Guy

I'm writing this letter in reference to our earlier phone conversation. The way I recall that chat, I told you I was pleased with the positive changes in your magazine over the past 15 years. I felt that due to your interest and affection for our industry and through your involvement you have taken a leadership role.

Where I'm having a problem and where I see a departure from your past performances is in your column referred to as "Wise Guy."

To probe and question the status quo is healthy and can be progressive. You and the Wise Guy both do that. In the July issue however, I feel the column was in very poor taste. The Wise Guy makes reference to brain transplants, loss of ideas, turning on important issues, miss use of funds, intimidation, retribution, price fixing, hiding information, illegal activities, inside deals, going to meetings to enjoy the hotel and airplane rides and getting mileage credits.

I know many current and past members of the board and I respect nearly all of them. They give their time unselfishly for the betterment of our industry. If they need to feel ashamed of getting a plane ticket and a decent hotel room paid for by us something is very wrong.

The Wise Guy refers to adversarial relationships. Where I come from columns such as his July issue only compound the problem.

I feel we need the honey board more than ever. Can it be improved? I think it can. Are we blaming the honey board, the packers, the co-ops, and our neighbors for the problems associated with a world economy? I think so.

This is not a time to turn on each other. It is a time for all of us to readjust our businesses in response to current ag trends. Its time for us to help find positive ways to improve our plight. Its not a time for name calling, innuendoes, and belittling remarks.

Yours in search of solutions,
Pat Heitkam
Orland, CA

Thoughts About NHB

I have read with great interest your 'Inner Cover' for the August issue. With the mess it describes, perhaps it should be renamed 'outer cover.'

It is both interesting for news – and comment. My father often said that it is "hopeless but not serious." How true. One need not read between the lines. I am no longer active in the honey business, but what you describe is almost like where I came in, in 1953.

How few times has there been a confab to iron out the different interests – interests which are diverse, but not as opposing as the environment would indicate. Perhaps, someday all of these interests can sit down and optimize the process from point A (when the bee first hatches) to point Z where the honey goes on the toast. Where to put the heavy commitment – somewhere between A and Z. Just maybe.

Your even handed evaluation of the Board is laudable. The bottom line is that it is very hard to 'add value' when, at the marketing and processing level nothing is added to enhance the product except the container. This automatically makes price the consideration whether one likes it or not. And we hear much about the Sioux Cooperative, whose only "sin," if that's the word, is to ignore measuring return on invested capital. This increases price pressure, but the contributions made by SHA should not be ignored.

MAILBOX

All of the above comes from someone with no vote. I shall now extinguish "my smoker."

John W. Straub
Chicago, IL

Excellent Article But...

Well, you did it again. Your article on feeding bees was excellent except you let a couple of unsolicited advertisements for Mann Lake get in the way. Your reporter is obviously a Mann Lake customer! He expounded on their feeder and their HFCS.

As this was not an article comparing feeders from various companies, nor was it an article comparing HFCS from various companies, we find it amazing that you would allow references to their products to appear in the content of an informative piece. Your magazine has a lot of impact on its readers.

There were no references to particular suppliers of sugar or feeder pails or different manufacturers of HFCS other than the reference to LSI in California. Why reference Mann Lake? Another fact is that LSI is not the only supplier or manufacturer of blends in California and blends are not used by "all the beekeepers" in California. In the past two years we have sold several hundred semi-truckloads of 55% in California including the largest beekeeper in the United States. This doesn't include the HFCS sold by others. It is a fact that many beekeepers in California (especially the queen breeders and package producers) use blends exclusively. They are mostly in northern California.

As always, we think your magazine is the best on the market and keeps getting better. We just wish you would be more careful of unpaid advertising appearing in articles, which are taken as fact by your readers because of their context. As you know, some of us who pay for advertising are sensitive to this.

On the other hand, our photographer is coming tomorrow to shoot the pictures for our upcoming article. This of course is also unpaid advertising, but the context is totally different. We will surely appreciate and benefit from it, as have others.

Bill & Robin Bernacchi
B&B Honey Farm
Houston, MN

Skunks - #1 Problem

I have been a hobbyist beekeeper for about 50 years and have read *Bee Culture* and many books. Quite often I hear about problems with skunks, most recently Jim Tew reported a skunk incident in the August issue.

To me, skunks have been more of a problem than American Foulbrood. AFB has touched me three times. I keep up to 12 colonies, and have experienced perhaps a dozen bee-eating skunks.

Here is my solution. Use a large box trap to easily catch the skunk, baited with peanut butter. Sardines work well, but can attract cats, etc. Of course, cats can be safely released. The trap is made of wire mesh on the bottom, must be set on boards or something solid. It is amazing how much grass and dirt a skunk can pull through ½-inch mesh wire.

Disposal is not a problem. I lay a feed bag over top of the trap to prevent being sprayed, but in about a dozen situations, I have never experienced it. To dispose of the skunk, I tie a small rope on the trap handle, and lower it into the water deep enough to cover it. Only once did the skunk release his stink under water. I left him submerged a bit longer. Burial is my method of disposal.

I think if the trap and live skunk were covered with a blanket, he could be transported safely by pick-up truck. I have used a farm trailer without incident.

Loren G. Sadler
Stevens, PA

One Man's Junk . . .

I thought you would enjoy this picture. This store is located in a small trendy town south of Nashville. They are selling used hives as tables for $55. They are definitely not in pristine condition! So next time someone wants to get rid of their unused supers, here's an idea for them.

Thais Carr
Thompsons Station, TN

Watering Bees

I have tried every method of watering bees imaginable and some have been successful, but none has been as successful as a new method that presented itself quite by accident.

We have rain barrels for garden watering and the water in them sometimes gets loaded with algae, especially during this hot and dry year. A friend suggested putting something she called "water lettuce" in the barrels and gave us a few pieces from her pond.

I do not know the scientific name of this plant, but it is the best bee watering device I have ever come across.

The plant is constructed so that water actually travels up into the center, above the level of the water in the barrels. The bees land on the plant, sometimes by the hundreds on hot, humid days, and have an easy time of getting a drink. The plant multiplies rapidly and will soon fill a water barrel, but seems to stop multiplying once the surface of the water is covered.

In addition to being a fine bee watering device, the plants do seem to keep the water in the barrels cleaner. There is no down side to this method of bee watering.

Steven P. Keller
Certified OH Beekeeper
& Publisher
The Telegram, Wellston, OH

Lloyd Does It Again

Lloyd Spear has done it again! He has written yet another timely

Continued on Next Page

MAILBOX

and informative article about comb honey production. Whenever Lloyd appears in *Bee Culture*, I know the piece will be a keeper. Reading his stuff makes me feel like I am at his side, learning things unknown to the common man. He is a good mentor.

The copy is almost completely highlighted in yellow and underlined in red because Lloyd packs his writing with facts and not much fluff. He does have a mighty big problem now though, he will have a hard time topping this one.

I hope you can get more good articles from him.

Ernie Gregoire
Canaan, NH

Bee Culture's Reader's Forum is open to information, opinions and comments. Send yours today to the address at the beginning of this section.

Guest Editorial

SUPPLY & DEMAND

David Hackenberg

Whether we consider ourselves primarily honey producers or not, most of us in the bee business still have some honey to sell. If you have checked the prices of honey lately, you can see it is not looking too good.

I get calls regularly from beekeepers across the country wanting to know what the problem is and what the ABF or the Honey Board is going to do about it. Unfortunately, I am not sure that I or anyone else has all the answers for the problem of low prices. However, I do know some of the reasons why the prices are depressed.

First of all, whether we want to admit it or not, the honey business is a world trade situation, and we are an importing country because we consume more than we produce (production – 200 million pounds; consumption – 340 million pounds).

Second, the price of honey is much higher than that of other sugars, making adulteration of honey very attractive to those people in the industry with low ethical values, whether they be in this country as a beekeeper or a honey packer or in a foreign country. Unfortunately, our government looks at this as economic adulteration and gives it low priority because it is not making anyone sick. Since it has not affected anyone's health, they are not going to do anything about it.

Gary Fairchild, a professor of ag economics at the University of FL and a recognized authority on adulteration of agricultural products, recently did a study for the National Honey Board. The results are staggering. You need to get a copy from the NHB and read it.

Five years ago, the ABF and AHPA agreed on a way to stop low-price Chinese honey, which was highly adulterated, from coming into the country. We brought the antidumping action against China to slow down the flow of adulterated honey.

We won but, in doing so, interrupted the flow of honey in the world supply and caused a shortage in the U.S. market, which was exaggerated by a worldwide shortage of honey. We took out the supply of Chinese honey, thus raising the prices unrealistically in 1995-'96, until the world supply had time to shift to meet the demand and fill the void with honey from other sources.

When the Chinese were shut out of the U.S. market, they didn't just stop selling their funny honey, but found a new market in Europe. This caused a reduction of Argentine honey sent to the European market. In turn, the Argentine honey came here to fill the U.S. void.

Beekeepers continue to scream that we need higher tariffs. Unfortunately, the United States believes in free trade. We are probably lucky to have the 1 cent per pound that we have, for whatever real value it has. And no, it can't be raised; it is set by international agreement.

We Americans, myself included, are always looking for the best deal when we buy something. Since many goods can be made elsewhere cheaper, we have brought this free trade on ourselves, beekeepers included. If you don't believe me, look around your home or warehouse and see how many imported goods you own.

We are now looking into doing something about stopping Argentine honey from coming into the US. Would this do anything more than cost the U.S. beekeepers another $500,000 to make another void to be filled by another country – maybe even China, if we are unable to have the Chinese suspension agreement extended?

Continuing the lesson in Honey Supply and Demand 101, let's back up to my earlier statement about Gary Fairchild and his study on funny honey. There have been estimates that the volume of this product could be in the 15 to 20 percent range.

If we could take this amount of product out of the honey supply, we would see prices rise. But until we have testing procedures to do this, and enforcement procedures to back up the tests, the beekeeping industry and the price of honey are at the mercy of those wholesale adulterators who can buy raw product, process and deliver it, and make up their cost just adding more low-cost sweeteners to the mix. Thus, the legitimate packers and beekeepers don't have a chance.

Suppose we had used the money we spent on the China antidumping actions (over $500,000 by now) to put into place a quality assurance program to stop this funny honey – both the home-grown and also what is coming in from abroad. Would we still be where we were then, five years ago, in terms of honey prices? Or would we have built a strong foundation to allow us to compete evenly and fairly with our competitors?

Also, unfortunately, with the unrealistic prices for honey in 1995 and 1996, beekeepers here and elsewhere increased colony numbers to produce more honey to take advantage of the higher prices of honey. More honey = lower prices. (This also made more colonies available for pollination. We are starting to see downward pressure being put on pollination prices.)

The second part of the beekeepers' question is what is the ABF or the Honey Board going to do about those honey prices. Well, as I stated earlier, the best solution is to get rid of the funny honey. We in the ABF leadership have over the past eight to 10 years made lots of trips and calls to government agencies, and we have been basically told that if you need to do something, help yourselves.

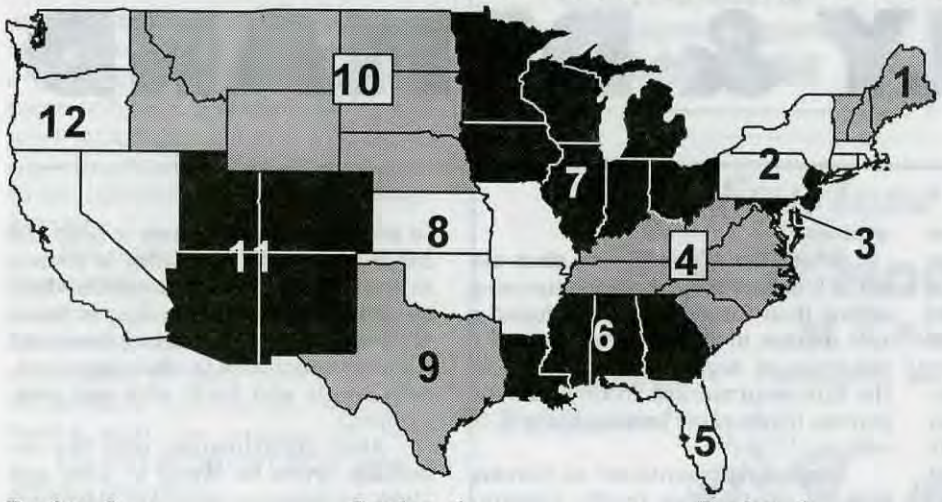
Well, that is what we have done with the changes we have proposed for the Honey Board. These changes will give the U.S. beekeeping industry, through the NHB's quality assurance program, a way to put a stop to this adulteration.

From where I stand, this looks like the best and only option we have. When it comes time to vote next year on the proposed Honey Board changes, if we as an industry do not pass this proposal, I believe we have not come close to seeing the bottom of the honey prices. Without passing these proposed changes, we will have just given our blessing to adulteration and to those who do it.

So please, I beg you on behalf of the bee industry, vote for these proposed changes. You also need to inform your neighbors and friends in the bee business what this is all about and the possible effects if this referendum is not passed. BC

David Hackenberg is the President of The American Beekeeping Federation. He is also a commercial honey producer and crop pollinator, from Lewisburg, PA.

OCTOBER – REGIONAL HONEY PRICE REPORT



Region 1

Pail prices up a little, but bulk, wholesale and retail prices steady. Sales are steady to decreasing so far goldenrod, aster, knapweed and bamboo have produced poor to average Fall crops.

Region 2

Prices steady across the board, but sales are increasing a bit for new crop. Average to poor crop from aster, goldenrod and bamboo.

Region 3

Pail and bulk prices down, wholesale and retail prices declining at a slower pace. Sales slower than expected. Aster and goldenrod didn't do much this year.

Region 4

Prices down for pails, wholesale and bulk since last month but retail steady. Sales are steady to picking up a bit in most areas. Drought dominated the news, and Fall crops of goldenrod, asters, ironweed, bidens, sumac and even soybeans were low to none.

Region 5

Prices down pretty much across the board, and sales at best steady, mostly slowing. Fall wet weather will change that. Fall crops of melaluca and Brazilian pepper average.

Region 6

Prices steady to increasing just a bit at the bulk and pail level. Sales average – some less, some more than expected. Aster, goldenrod, cotton and clover for the most part produced a disappointing Fall crop.

Region 7

Prices steady to just a small tad lower across all sections. Sales are for the most part only average, and a bit down for many. Goldenrod, aster, some alfalfa and buckwheat produced a fair only Fall crop.

Region 8

Prices up a bit for bulk but steady for pails, wholesale and retail since last month. Sales are down for almost all reporters, but some report increases. Dry weather stopped goldenrod, aster and the rest of the Fall flow.

Region 9

Prices up for pails, down for bulk up a little for wholesale and steady to down a bit retail. Sales more up than down, but not significantly changed. Fall crop poor from broomweed, goldenrod, aster, cotton and others . . . so far.

Region 10

Prices down for pails, wholesale and retail, steady for bulk. Sales, however, are strong. Alfalfa, sunflower and rabbit bush produced good Fall flows.

Region 11

Prices up for pails and retail and heading that way for the rest. Sales mixed . . . high in the eastern part, slow in the south and west. Alfalfa, clover, sunflower, wild buckwheat and wilflowers produced good Fall crop.

Region 12

Prices steady to up a bit for all but wholesale, but only a bit. Sales average to strong in most areas and outlook promising. Starthistle, blue curl, clovers and tarweed produced, at best, an average Fall crop.

	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 (retail)	70.56	67.50	45.00	72.00	75.00	73.00	62.33	66.00	77.08	62.00	107.50	67.50	42.00-145.00	71.23	69.14	58.23
60# Amber (retail)	68.58	60.88	45.00	67.43	66.00	64.50	72.00	52.20	85.00	62.00	97.50	64.00	45.00-125.00	69.86	65.22	57.01
55 gal. Light	0.59	0.60	0.58	0.62	0.55	0.60	0.66	0.78	0.60	0.60	0.61	0.64	0.44-1.50	0.62	0.59	0.78
55 gal. Amber	0.55	0.53	0.55	0.54	0.50	0.58	0.62	0.70	0.58	0.55	0.57	0.59	0.41-1.50	0.58	0.54	0.76
Wholesale - Case Lots																
1/2# 24's	27.06	29.95	26.03	29.37	21.00	28.75	27.06	26.03	27.51	26.03	28.00	30.00	12.24-37.20	28.65	30.33	30.68
1# 24's	41.65	39.49	41.28	41.88	37.00	42.50	43.21	39.00	45.62	42.00	44.00	45.40	24.00-57.00	42.84	42.90	44.15
2# 12's	37.10	34.45	38.77	41.01	38.77	38.30	36.37	40.10	40.19	36.00	33.00	38.00	25.59-52.58	38.14	37.95	40.84
12 oz. Plas. 24's	36.48	35.78	37.25	35.75	37.25	36.40	36.82	35.44	40.44	33.00	43.00	38.53	26.40-48.00	37.36	36.97	37.33
5# 6's	40.69	37.48	42.59	47.25	42.59	44.20	39.16	39.00	42.47	42.59	39.00	40.50	31.50-54.00	42.28	40.59	42.76
Retail Honey Prices																
1/2#	1.74	1.58	2.83	2.17	1.19	1.48	1.73	1.66	1.95	1.59	3.00	1.83	1.10-3.00	1.78	1.84	1.83
12 oz. Plastic	2.21	2.01	2.28	2.27	1.89	2.38	2.02	2.27	2.48	2.27	2.90	2.21	1.39-3.20	2.26	2.24	2.28
1 lb. Glass	2.67	2.22	2.77	3.12	1.97	2.82	2.43	2.76	2.98	2.45	2.85	2.88	1.58-4.00	2.73	2.77	2.79
2 lb. Glass	4.41	3.90	4.57	5.05	3.59	4.60	4.19	5.05	4.63	4.02	4.45	4.55	3.19-6.00	4.52	4.55	4.84
3 lb. Glass	6.09	4.70	6.90	6.83	6.90	6.89	5.85	6.58	6.09	5.77	5.61	5.85	4.50-10.00	6.20	6.05	6.52
4 lb. Glass	7.34	6.73	8.09	8.36	8.09	8.30	8.12	8.09	7.25	8.09	8.09	8.09	6.50-10.00	7.77	7.76	7.96
5 lb. Glass	8.90	8.67	9.59	9.27	9.59	10.00	8.56	11.99	9.43	9.59	9.15	9.00	7.09-12.50	9.19	9.14	9.36
1# Cream	3.41	3.24	4.07	3.54	4.07	4.12	2.99	3.24	4.07	4.78	3.68	3.08	2.25-6.50	3.46	3.30	3.37
1# Comb	4.04	3.69	4.05	4.24	4.05	4.67	3.81	4.00	4.34	4.05	6.00	4.30	1.95-6.00	4.20	4.28	4.10
Round Plastic	3.69	3.15	3.94	3.83	3.94	4.13	2.99	3.83	5.50	3.94	4.43	4.00	2.00-6.00	3.83	3.87	3.85
Wax (Light)	1.42	2.07	1.82	1.83	1.00	1.55	1.77	1.15	1.83	1.82	1.20	1.42	1.00-5.00	2.46	1.49	2.51
Wax (Dark)	1.12	1.38	1.55	1.26	1.25	1.50	1.50	1.00	1.57	1.55	0.93	1.20	1.00-4.50	2.15	1.14	2.16
Poll. Fee/Col.	35.82	39.25	37.30	35.29	30.00	35.00	37.17	40.00	27.50	37.30	52.00	34.00	20.00-55.00	36.90	37.88	37.13

THE WISE GUY

Large problems call for drastic actions! With the price of honey between the 40 and 60 cents a pound, we need some action. There is one problem – cheap, imported honey. I believe we have options to fight this, but how do we implement them? We cannot use the Honey Board, due to the fact they support all (good) honey. If their funding were tied to the price of honey, I believe the board would be looking for help also. The people who market our product worry only about the selling price, so they have no interest in raising the producers' price.

One idea I have heard at different agriculture marketing meetings is to go directly to the public with the unknowns of the imported products. Under what conditions was the product produced? How was the product handled during and after the processing? What chemicals were used in the production process? In honey's case, what floral source did it come from, and how does it affect the product? The agricultural community may be ready to lose a portion of their market share just to have the buying public start to question the food they are buying.

How do you think an ad in *Redbook* or *Ladies' Home Journal* would go if you told the buying public that some honey is transported in second-hand petroleum drums? Or that holding tanks used for processing honey are old gas tanks? Also, the article may say that the conditions during the processing are unknown and suspect. We could compare this to the United States where most states not only have inspection services for honey processing plants but also conduct field inspections.

The public should be told that not all honey is the same and that the fact that it is sticky and brown does not make it honey. Does anyone test for lead contaminants in honey? We have people concerned about fluvalinate in honey, but in some overseas countries, lead is used as an agent to put tanks together. Does anyone test for other chemicals that are used in imported honey that we do not or cannot use? After attending one agricultural meeting I understand some imported fruits and vegetables are washed in EDB for insect control. How many other things don't we know? What obligation does the importer have to the buying public to know the quality of the product he sells?

If you think that food quality is not a problem, start checking into the protests that genetically engineered foods have caused. I believe we should inform the public that simply putting honey on the label doesn't mean you get what you think.

The feeling, again, in rural America is that we need to let people know the imported product they are consuming may not be of the same standard as food produced here. So what if 20 percent of the market disappears when the buying public panics over quality issues? We need to focus our aim on cheap imported products that may be of inferior quality.

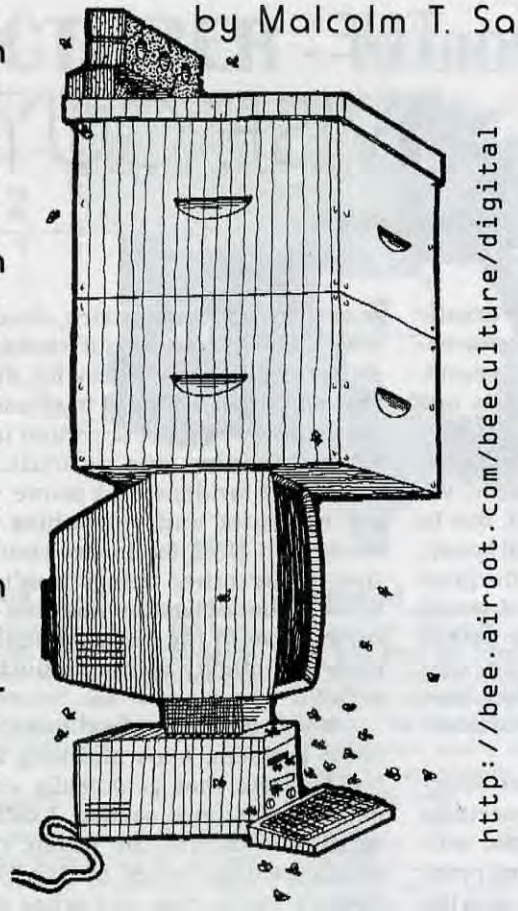
Does that sound like a quality assurance program that I hated when first proposed by the National Honey Board? We need a national trade policy that establishes standards based on U.S. standards, and that policy does not change when presidents change office.

I believe it's time we inform the public they may not be getting what they think they want in food products. Again, if we lost 20 percent of our market, so what? With the prices we have today, we are all going out of business anyway. Our industry needs to sell quality – not quantity.

Wise Guy

Beekeeping In The Digital Age

by Malcolm T. Sanford



http://bee.airoot.com/beeculture/digital

Apitheraby: Alternative Medicine On The Web

The World Wide Web has democratized information. This is probably no more apparent than in the professions. Once the domain of experts, many fields are now becoming more open. There is perhaps no better example of this than the medical field, particularly in reference to what is described as alternative medicine. Such therapies have been decried by many in the established medical community, while lauded by those who practice them at the expense of traditional practitioners (physcians). The fact that these methods are receiving more respect is shown with establishment of the National Institutes of Health's **National Center for Complementary and Alternative Medicine (CAM)**. The CAM program suggests potential consumers carefully consider many aspects of these therapies, including experience of the practitioner and cost, as they include "an assortment of drugs and vaccines not yet accepted by mainstream medicine." One of those listed is apitherapy, "the medicinal use of various products of the common honeybee to treat a variety of diseases: rheumatic diseases such as arthritis; neurological diseases such as multiple sclerosis, low back pain, and migraine; dermatological conditions (for example, eczema, psoriasis, herpesvirus infections); chronic pain; and cancer."

Apitherapy has a home page on the Web. The URL is **http://www.apitherapy.org/aas/**. This site is managed by the American Apitherapy Society. It contains a wealth of information and links to apitherapy societies in many other countries. The President, Dr. Theodore Cherbuliez, writes in his **June 1999 letter** that the organization will be continuing its **Apitherapy Knowledge Review Course** in conjunction with the Eastern Apicultural Society (EAS) and has an on-going project concerning the study of bee venom/apitoxin in Brussels, Belgium. Linda Day is the Society's Office Coordinator. She can be reached at 5370 Carmel Road, Hillsboro, OH 45133, Phone: 937.466.9214, Fax: 937.466.9215, E-mail: **lday@in-touch.net**.

Perhaps the most compelling part of the society's apitherapy site includes its many links to **news stories and testamonials**. Featured are a listing of presentations at the 36th **Apimondia Congress** in Vancouver, and an ongoing **bee venom experiment** with (multiple sclerosis) MS now accepting volunteers being led by Dr. Ross Hauser. A discussion of the four major stinging insects (bees, hornets, wasps and yellow jackets) and whether or not there is **cross allergic reaction** to their venoms is authored by Dr. Frank Bures. Another article describes the **superiority of honey impregnated gauze versus polyurethane film** (OpSite®) for burn treatement published in the *British Journal of Plastic Surgery*.

There is an interesting comment by Dr. Ross Hauser on a **letter** written by a New York beekeeper who suggests his reactions to bee stings were increased due to use of Advil®, a non-steroidal anti-inflammatory drug (NSAID). Dr. Hauser encourages testing for honeybee venom allergy both before and after taking some Advil® (under the strict guidance of the allergist, of course). He concludes: "As far as I know, the development of a honeybee venom allergy after taking Advil or other nonsteroidal anti-inflammatory drug has never been reported, and this would be important to report formally. At any rate, currently I would recommend stopping the Advil®. I should note that nonsteroidal anti-inflammatory medicines are not prescribed in my own practice. There is no disease that is caused by a nonsteroidal anti-inflammatory medicine deficiency. For chronic pain, there are much better natural treatments including honeybee venom injections, prolotherapy, DMSO, bromelain, glucosamine sulfate, or niacinamide." A rejoinder by another saying that there is a great deal of anecdotal evidence supporting the notion that persons who have been using NSAID's for long periods can have unusually severe reactions to even one bee sting did not change Dr. Huser's recommendation. This debate is continuing it seems, and other **links** within the site lead to more discussion of this important topic.

Several reports are also listed concerning the effectiveness of bee venom therapy (BVT) for **multiple sclerosis**, **chronic fatigue brought by Fibromyalgia**, and **Pyogenic Granuloma**, a tumor. Another **link** contains more testamonials, along with a detailed recipe on the **dos and don'ts**. In the latter article, Michael Broffman says to promote the use of BVT, but don't over-

sell BVT as a cure. The other points made by Mr. Broffman are extremely important for anyone considering practicing this therapy. **Frequently asked questions** are also addressed.

From the society's main page, one can access the **Apitherapy Reference Data Base** and its associated **links** with many other apitherapy societies around the world. From this resource one can find Dr. Stefan Stangaciu's **Apitherapy Internet Course**. The syllabus consists of over ninety lessons, presented in three levels. A certificate of completion is given to students scoring at least 70 percent on the examination, which covers the entire course. This diploma can be used by practioners to show they have a strong theoretical education in apitherapy.

The activity and information developed by the American Apitherapy Society and others interested in this alternative treatment as revealed on the World Wide Web show that apitherapy is becoming more and more acknowledged and accepted around the world. I said, in the **February 1994** issue of my **APIS** newsletter that the work of the American Apitherapy Society is needed not only to improve the health of humankind, but also that of the beekeeping industry. Ultimately, this boils down to delivering quality information to physicians, patients and beekeepers alike. Like most organizations, the Society will have to carefully choose from the many available sources. If a true demand for therapeutic products from the beehive existed, this would provide significant alternative income for many in the apicultural industry. It is incumbent on the American Apitherapy Society, however, to ensure that it has done the best possible job ensuring long-range survival of any product that might be developed as a result of its activities." It appears much of this advice is being followed by those currently operating the Society and this is materially being aided by the digital information revolution. BC

Dr. Sanford is Extension specialist in Apiculture, University of FL. He publishes the APIS Newsletter: ***http://www.ifas.ufl.edu/~mts/apishtm/apis.htm***

Explore *Bee Culture's* Web Page, which includes this article and more than a year's worth of archived articles exploring 'Beekeeping In The Digital Age.' Go to www.airoot.com/beeculture/index.htm And while you're there 'Catch The Buzz.'

?DO YOU KNOW?

Fair Questions

Clarence Collison
Mississippi State University

In late Summer and early Fall there are many county and state fairs that provide opportunities for the beekeeper and local bee clubs to promote their industry. This is an excellent way to promote beekeeping and the use of honey to the general public. In addition, if the beekeeper participates in the honey show, it is a good way to learn more about the factors that affect the quality of honey and beeswax. Educational displays help to inform the public about the benefits of our industry, and observation hives are always a big attraction. Beekeepers who staff these displays soon realize that the general public, based on the questions that are asked, has a very limited understanding about honey bees and their closely related stinging relatives, i.e., bumble bees, wasps, hornets, etc. How well do you know honey characteristics, bees and beekeeping?

Take a few minutes to answer the following questions to see how well you understand these topics.

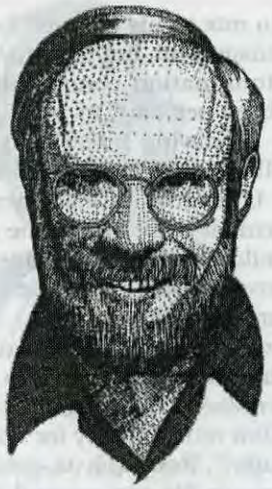
The first 14 questions are true and false. Place a T in front of the statement if entirely true and F if any part of the statement is incorrect. (Each question is worth 1 point.)

1. ___ All honey bee castes are able to sting.
2. ___ Honey bees and bumble bees have perennial colonies.
3. ___ Queen bumble bees mate in the Spring.
4. ___ All honey types are golden yellow in color.
5. ___ Honey is a high-energy carbohydrate food.
6. ___ In substituting honey for sugar in recipes, reduce the total amount of other liquids by one-half cup per cup of honey used.
7. ___ Sugars found in honey have greater sweetening power than cane sugar.
8. ___ The faster honey crystallizes, the larger the crystals.
9. ___ Honey is a vitamin- and mineral-rich source of food.
10. ___ The best way to keep honey from granulating is to store it in the refrigerator.
11. ___ Honey granulation (crystallization) is considered to be a sign of spoilage.
12. ___ Yellow jackets like honey bees can sting only once.
13. ___ Containers of liquid extracted honey packed by commercial bottling companies and found on supermarket shelves have been pasteurized.
14. ___ Drone honey bees and male bumble bees visit flowers for nectar and pollen.

(Multiple Choice Questions, 1 point each).

15. ___ Honey that has a moisture content greater than ____% is disqualified from most honey shows.
    A) 16.8
    B) 18.6
    C) 19.2
    D) 17.4
    E) 18.0
16. ___ Honey is an acid food with an average pH of about:
    A) 6.3
    B) 5.8
    C) 4.9
    D) 1.5
    E) 3.9
17. ___ When baking with honey, oven temperatures should be lowered by ___ °F, since honey is more sensitive to heat than sugar.
    A) 15
    B) 75
    C) 25
    D) 35
    E) 50
18. ___ The chief value of the beekeeping industry to the U. S. economy is attributed to:
    A) Honey production
    B) Wax production
    C) Pollination of agricultural crops
    D) Venom production
    E) Royal jelly production
19. Name five different forms of honey that are produced and marketed in the United States. (5 points)
20. Name two circumstances that will result in honey having an off flavor. (2 points)

ANSWERS ON PAGE 48



Mark Winston

How Much Is Enough?

"Virtually every agricultural, forestry or urban pest has been examined for its economic threshold, and management doesn't kick in until that threshold has been surpassed."

The easiest beekeeping question is, "What happens if I do nothing?" Do no *Varroa* mite treatments, your colonies are dead. Feed no sugar in the Fall, (assuming there is no honey) your colonies are dead. Leave those AFB-infested pupae in your hives, game over. What's tougher is the flip side, "How much is enough?" No *Varroa* treatments and soon it's no colonies, but continuous Apistan applications and you've got resistant mites. It's the middle ground of one, two, or three annual treatments at which wise management decisions get made. Feed extra sugar and you'll go bankrupt, but feeding exactly the right amount so your bees and your bank account both survive is where you'll make or break your beekeeping living. Burning an entire apiary because you've found one pupa with AFB may keep the rest of your operation free of foulbrood, but overreaction won't keep you in business for very long.

The "How much is enough?" question is the critical one, but it's often the question we are least able to answer or act upon. For example, we put on our final mite treatments late last month, and prior to treating we monitored the number of mites on sticky boards to determine what level of infestation we had. I don't know why we bother monitoring; after finding out that some colonies had a few mites and others were heavily infested, we went out and treated every colony the same anyway, with the recommended number and application duration of Apistan strips. We did a similar thing last Spring: We sampled mites from colonies, found out that some colonies were lightly and some heavily infested, then went ahead and treated everything with formic acid, regardless of mite levels.

Part of the reason for our kneejerk treatment response is a practical one. We run about 200 colonies of bees, and it would be too time-consuming to make decisions about each colony individually. For beekeepers who run 2,000 colonies, or 10,000 colonies, it would be beyond impractical to make treatment decisions for each colony individually, and even at an apiary level it's easier to simply develop a system for an entire operation and treat each apiary identically.

However, another reason that we treat every colony is that we don't know how much treatment is enough. Economic thresholds for *Varroa* levels have not been well-studied, and specific recommendations for the diverse climates and habitats in which bees are kept have not been well-developed. Two researchers, Keith Delaplane from Georgia and Stephen Martin from England, have been involved with the two most thorough economic threshold studies that I'm aware of, and both determined that mite levels somewhere around 2,000 per colony should be treated. Nevertheless, even their well-done studies suggested considerable variation depending on what time of year that 2,000-mite limit was reached.

Another "How much is enough" question that needs to be addressed is, "How much control is enough?" Apistan, for example, gives 95 to 99 percent control, at least for mites that have not developed resistance, but formic acid control generally is in the 70 to 90 percent range. Apistan obviously is better, but continued and repeated use of Apistan will lead to resistance. In our apiaries, we treat with formic acid in the Spring and Apistan in the Fall, and have few problems with *Varroa*, suggesting to me that the close-to-eradication control provided by Apistan is not necessary for every treatment. Yet, some Canadian studies by Rob Currie and students at the University of Manitoba indicate that colonies treated with formic acid alone will not do as well as Apistan-treated colonies, showing that alternating a "softer" treatment with a more synthetic pesticide like Apistan remains desirable.

How much control is enough year-round? If, for example, we can get 80 percent control with a botanical oil like thymol or neem (and our own research suggests this is easily achievable), would a Spring and a Fall application alternating these two products be economically acceptable, or do we need 85 to 90 percent, or 90 to 95 percent control, in order to cross the boundary of economic viability?

The "How much control is enough" question also hangs on dose, another area for which we could use much better information. The problem in dosing bees with

Continued on Next Page

"Pollination is another field where "How much is enough?" remains to be seen. Recommendations for the number of hives per acre can vary by a factor of two or three."

many of the miticides under investigation today is that the mite-killing and bee-killing dosages are dangerously close to each other. Synthetic pesticides such as Apistan have one significant advantage over botanical substances like thymol, neem, formic acid, wintergreen, clove oil and others: The dose that kills bees is many hundreds or thousands of times higher than the dose that kills mites. For botanicals, bees die at only two to three times the dose at which mites are killed, making precision in applying the proper dose unusually critical for managing the pest.

These are not unusual questions to ask in pest management. Virtually every agricultural, forestry or urban pest has been examined for its economic threshold, and management doesn't kick in until that threshold has been surpassed. Also, any pesticide licensed for application must be used at a dose that doesn't induce collateral damage in non-target organisms. What is surprising is that beekeeping pests have not yet been approached with thresholds in mind, and some of the alternative controls available today are supplied in formulations that can kill bees too readily. Our industry remains behind other farming enterprises in adopting the threshold-based and dose-dependent management paradigms that are at the core of integrated pest management (IPM).

We're beginning to catch up, however. The latest apicultural research bandwagon is to develop IPM techniques for *Varroa* management, and more broadly for all honey bee pests and diseases. We're already at a point that perhaps we haven't realized, a point where two annual treatments against *Varroa* with the same synthetic pesticide no longer are necessary. For example, *Varroa* can be adequately controlled today by alternating Apistan with properly formulated formic acid and coumaphos (if it stays registered), and miticides like thymol and neem are just around the corner. If everyone alternated treatments, we wouldn't need to worry much about *Varroa* resistance to Apistan.

Pollination is another field where "How much is enough?" remains to be seen. Recommendations for the number of hives per acre can vary by a factor of two or three; it's not unusual to see a recommendation for "two to five hives per acre," with no definition of what a pollinating hive means. Even where you might see a precise recommendation, say "two hives per acre, with each hive containing a minimum of six frames of brood and eight frames of bees," there are few data connecting recommendations for hive strength and numbers with fruit set and yield. Yet, even a one percent improvement in predicting the right number of hives and their proper strength would translate into $100 million a year in improved yields in North America, based on one percent of the $10 billion estimated value for bee-pollinated produce in the United States and Canada.

Data for colony pollination recommendations may not be as difficult to obtain as they appear. Yes, it would be virtually impossible to do a mega-experiment putting out one, two, three, four, or five colonies per acre in a variety of situations and measuring yields, if for no other reason than growers would not be willing to risk their incomes on such an experiment. But, it is feasible to count the numbers of bees on crops, evaluate the number of pollen grains transferred per bee and the optimal number per flower, and relate those values to fruit set and yield. Again, the beekeeping community lags behind other areas of agriculture in providing precise quantitative values for management. A grower, for example, knows exactly how many liters of fertilizer or pesticide to mix in his sprayer for optimal management, but has only qualitative information concerning how many bees per acre to rent. Fortunately, a growing interest in funding pollinator and pollination research is leading to more accurate management data, and in the future we should be able to provide more data-driven advice about "How many hives are enough?"

Another useful "How much is enough" question to ask is "How much research is enough?", or perhaps "How much money for research is enough?" Research is a bit like government: We can expand indefinitely, and if funding increases we would have no problem finding projects to spend money on. On the flip side, short dollars mean we need to develop a better ability to spend limited funds on the really important problems, and we need to make sure that funds are being distributed wisely and used well.

We all tend to judge the state of the world based on our own experiences, and since I have never experienced great difficulty in obtaining sufficient research funding, I tend to believe that there are enough dollars out there. If there is a problem with funding, it may lie more in how and to whom it's distributed. We probably have enough money to address many of the major issues; what we don't have is enough innovation, quality, selectivity and organization in the resources we put toward formulating and answering questions.

Perhaps the "How much is enough" question would be a useful one on which to hang a bee research summit meeting. First, we need a well-respected group of researchers and beekeepers to make a list of areas in which we don't know enough to make wise management decisions. Next, we need to rank and prioritize these areas, and then get into the more difficult arena of who and what projects and how much money to fund. Finally, we need some control over the funds to insure that the deliberations of our wise men and women get implemented. Hmmm . . . sounds like an industry-driven research fund, doesn't it? BC

Mark Winston is a professor and researcher at Simon Fraser University, Burnaby, B.C. Canada.

Roger Morse

Research Review

"If a city or other community wants to eliminate bees it is easy to do. You eliminate their food."

The New York City Health Code bans keeping animals that are "wild, ferocious, fierce, dangerous or naturally inclined to do harm" according to the July 15, 1999 edition of *The New York Times*. A spokesman for the city's Department of Health stated that "by nature, bees are wild, and people are in danger of being stung." This same spokesman continues an old myth by stating "for those who are allergic to bees, its a-life-or-death issue" because of an allergic reaction. For the most part the allergy problem has to do with wasps, not bees – their venoms are different. A person who violates the New York City code can be fined up to $2,000.

This is not a new issue, and there is much experience and research to indicate that honey bees are not a threat to most people. However, it is obvious that beekeepers, large and small, need to get more information out to the public.

The *Times* reporter did an excellent job of talking to the right people. He visited with beekeeper David Graves from Becket, MA who retails honey at one of the city's green markets. Graves said he was aware that there are at least 13 colonies of honey bees in Manhattan, Brooklyn and the Bronx. I never kept records of numbers but am very much aware that there have been bees on the city's rooftops all of my life. A few decades ago there were some colonies in the Brooklyn Botanical Garden under the auspices of a club that as I remember called themselves the Brooklyn Bee Buffs.

Bees and wasps

A major problem in our industry is that the average person does not know the difference between wasps and bees, especially yellow jackets and bees. The bees themselves are a big group of insects with many species, of which the honey bee is only one. For example, there are 12 species of bumble bees in New York state alone. There are also carpenter bees, leaf cutter bees, sweat bees, mason bees, green bees and a host of others. We probably have 500 species in my state, and I would guess you could find 100 species in New York City alone. The important point to remember is that all bees live exclusively on pollen and nectar. The females all have stingers, but the purpose of their venom is to irritate and drive an enemy (intruder) away.

If a city or other community wants to eliminate bees, it is easy to do. You eliminate their food. It must be forbidden to grow pollen- and nectar-producing plants in the area. I hasten to point out that there are many flowering plants that produce neither. *The New York Times* reporter talked to American Museum of Natural History entomologist Michael Engel who pointed out that New York City was "home to millions" of bees other than the honey bee. Food is the key to where there are and are not bees of any species! For example, I had a beekeeper friend who kept several colonies and made a good crop of honey in Malden, MA where the city fathers had lined the streets with basswood trees many years earlier.

The nature of wasp venom

Many species of wasps use their venom to paralyze other insects, both adults and larvae, which they use for food for their young. Paralyzing their prey is a form of food preservation. The stung insects remain alive and fresh for several days. Because of this feature, the chemical nature of wasp venom is different from that of bee venom. If honey bee venom was a serious problem there would not be 200,000 hobby beekeepers in this country. We can't say that honey bee venom is never a problem as regards allergies because there are some well-documented cases, especially of relatives of beekeepers becoming sensitized to honey bee venom through breathing dried venom from the beekeeper's clothing.

Guidelines for city beekeeping

I have seen beehives in many cities; even London, England, has a good population of honey bee colonies. City beekeepers do the following: They build a six- or seven-foot-high fence around their colonies, or they keep their bees on rooftops where they will fly above the heads of people in the vicinity of the hives. Water is provided to keep the bees from collecting it from birdbaths and swimming pools where they might be a nuisance. A city beekeeper should open and examine colonies only on warm, sunny days when the bees are much less inclined to be aggressive. It is probably a good idea to keep the gentle races of bees in a city. Carniolan and Caucasian bees are readily available. These races are gentler bees, and there is good research and experience on that score. And last, occasionally giving neighbors a pound or two of honey is a good idea no matter where you keep your bees.

Avoiding stinging and biting insects

Both stinging bees and wasps as well as biting flies are more likely to sting and bite people wearing dark-colored, rough cloth such as wool, leather and suede. That is why beekeepers usually wear white cotton

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RESEARCH ... Cont. From Pg. 19

bee suits or khaki clothing, both of which are light-colored with a smooth finish. When you meet people who worry about stinging insects you might advise them to wear such clothing and to cover as much of the body as is reasonable. Avoiding the use of perfumes and pomades that might cause a stinging insect to investigate them because of the flower odor is also helpful.

People often send me articles from their local newspapers and magazines about beekeeping. I like to read these. We need more such publicity. If you have an opportunity to be interviewed by your local paper about your beekeeping, I encourage you to do so. Education is a never-ending process, and this industry needs all of the good publicity we can get! I have a one-page paper entitled *How to Avoid Stinging Insects* that I would be glad to send to anyone who writes. BC

Contact Dr. Morse at Stinging Insects, Cornell University, Comstock Hall, Ithaca, NY 14853

Finding & Keeping Good Labor

Mary & Bill Weaver

Good help is hard to get, and hard to keep. Yet lots of beekeepers out there have it And they keep it. Let's see how.

Binford Weaver said, "It's difficult to pay agricultural workers what they can get in the industrial job market. We basically attract people who are attracted to the great outdoors."

Lyle Johnston in Colorado echoed this idea. "One of my workers is a real good welder," he said. "In Maine he was making $20.00 an hour welding, but he didn't like it, and came back to work for us."

Binford offers medical insurance for employees (the employee pays for coverage for his dependents) and gives a year-end bonus based on how the business did – even sometimes a seasonal bonus.

"We closed our retirement plan, though," he said. " It didn't seem to mean that much to people. They would rather get the money now."

Binford also tries to give employees as much responsibility as they demonstrate they can handle. He currently has 10 full-time workers, several of which have been with him for many years.

To get and keep good employees, a first requisite is paying them what they are worth.. All of the beekeepers with whom we spoke were starting their workers above minimum wage – most between $6.50 and $8.00 an hour, or about $1400 to $1700 a month.

Richard Adee also pays benefits to full timers: group health insurance; one personal leave day every two months; and six vacation days (plus all major holidays). "It's tough to get good workers," Richard said, "and without them, we would not be where we are today. I give our employees all the credit for our success. The bee business is hard work. We take that into consideration, and recognize that effort.

"Good workers attract other good people," Richard continued. "People like to work with competent people. And we want our employees from top to bottom involved in decision making. They like that, and most have good ideas."

The Adees also pay a travel bonus to employees away from home working in Mississippi and California, a $1,000 bonus once a year. To qualify to receive a travel bonus, a worker must be on the road, away from home, for five consecutive weeks. "Most qualify by May," said Richard. "It amounts to another $200 a week, so they like being on the road." Workers are also provided with good housing away from home, and food is provided, sometimes prepared by a cook. "We try to treat our workers the way we would like to be treated," said Richard.

If the operation has a real good year, the employees get a Christmas bonus, and if a plant has gone 90 days without any injuries, everybody gets a safety bonus of $25.00

"We do this on a plant by plant basis," said Richard. "We want everybody to look out for each other."

The Adees also make good use of part-timers who don't get the costly benefits. Many of their current part-timers used to work full time for them, then married wives who didn't want them travelling, and so moved on to other employment.

"We have several such part-timers – I call them part-time full-timers – working for us mornings and evenings," said Richard. "They have mechanical abilities and can do welding, which is very helpful in keeping our fleet of trucks and forklifts rolling. They also do a lot of the bee moving late at night and early mornings. They have a lot of energy and initiative."

These part-timers are not in the group health plan and don't get personal leave days, but they do get paid holidays.

Another source of part-time labor is a state university 12 miles away. "The best students to get are the ones in landscaping. They have good muscles," Richard chuckled. "And we bring on high school students in summer and after school when we're extracting. Many just stay. Our top foreman worked for us in grade school, high school, and college, and stayed on to become top foreman.

"One eight-year-old asked me once, 'How much would I have to pay to work here?' He worked for us all through high school, and now heads the night crew. We grow our own work pool."

Harvey and Scott Price, with a home base in South Dakota, have two full-time, year-round workers. One has been with them since the mid-80's, and the other for three years. In an interesting arrangement, the workers are paid on crop

"When all the migratory guys meet at the same restaurant, besides all the bee talk, most of the talk is about labor."

Doug Hauke, Wisconsin

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"American workers consider $11 to $12 an hour an insult."

Lyle Johnson, Colorado

share. "They get the honey off so many colonies," said Scott. "It saves writing down hours all the time. In dry years, we pay a little more than that share.

"They pretty much have the winter to themselves from November to February," he continued. "There is work, but not full-time." Then they go south to Texas in March, living in a trailer the Prices own. A lady comes in and cooks supper for them every evening.

They also hire two Mexican migrants with green cards from May through the end of extracting season.

Allen Seilheimer, with 5000 colonies in Wisconsin, has no ddifficulty finding help in Winter for his Texas location. He runs ads in local papers in Wisconsin offering work for one to two months at $400 a week with expenses paid, and last time, 50 Winter-weary Wisconsin residents responded. (If the folks he hires don't like it in Texas, he promises to pay bus fare back.)

For his full-timers, who are salaried, Allen offers good benefits. Workers moving hives for cranberry pollination get a bonus of $1 a hive for each hive moved. A large truck can haul 150 hives, he pointed out. The bonus for hive moving in apples and cherries is 50 cents.

Allen gives a production bonus figured at $1 for 100 barrels extracted, $2 for 200 barrels, and so on. Last year they extracted 700 barrels, and multiplied by seven, this rounded off to $5000 per full-time employee.

"The employee must stick around till the first of the year to get it, though," said Allen.

He hires five full-time workers in addition to family, two for extracting and three for field work. In 1998, his employee expenses were about 35% of his total expenses.

"Reg Wilbanks' employees," said employee Rose Morris, "enjoy good wages, health insurance with a small life insurance policy built in (the employee pays the premium for his dependents), a mutual fund retirement program, seven personal or sick days a year, major holidays, a weeks' vacation, plus a week at Christmas, all paid.

"In agriculture," said Rose, "it's not easy to get benefits and enjoy the job you're doing."

She also appreciates the good supervision and good communication at Wilbanks, which, she believes, affects morale. "Raises depend on your review," she said, "and Reg will call you in personally to go over your review with you. Wilbanks know their employees' needs and do what they need to do to keep them," she said, "and this is why they have many long-term employees."

David Miksa, queen breeder in Florida, has figured out a way to avoid hiring a lot of help to care for his 1500 colonies (he also has 3200 mating nucs), for much of the year: he leases them out to two beekeepers, one in Michigan and one in New York.

They pay a flat fee, and the only condition is that the hives must come back in the same condition as they left. The two leasing beekeepers take care of the hives and pay the trucking both ways, and any honey or pollination fees are theirs. They leave with the hives in April, and come back in September.

David believes that the best labor is family, and there are four family members working in the business at present. "The kids punch a time clock whenever they start and stop," said David. Some work, such as putting together queen cages, is done on a contract basis.

Bill Draper in Pennsylvania gives the best hourly starting salary of any beekeeper with whom we spoke, and has a waiting list of people who have contacted him hoping for work.

"I've never put an ad in the paper," he said. "I can't stand a boss who drives his Cadillac to work at the expense of workers driving rusted Chevys." He currently has eight full-time workers, and most are long-term.

Bill feels particularly fortunate in his main beekeeper, a Russian who, before emigrating, was a queen and package producer, and migrated to Siberia for a honey crop.

"He is a prince of a man," said Bill, "the best I've ever seen. He's very dependable and speaks English well. He has a green card, but he's working on becoming a citizen."

Bill also generally has a waiting list for part-time help for extracting season. "This area is not too rich," he said, "and people are looking for work."

Doug Hauke of Wisconsin entered the beekeeping business in his mid-20's. He initially obtained employees through Job Service, and later by running ads, but the results were disappointing. Then he asked a young man to work for him who had helped with hay baling on Doug's father's dairy farm, and, "Things just clicked. We couldn't function without Dale," he said. "He's part of the family. I value his suggestions on all management decisions."

Doug also relies on family members to help in the operation, as well as family friends. For bottling the million pounds his operation packs a year, he relies on individuals who can accommodate a part-time, casual schedule. For example, one woman is a full-time dairy farmer. Her daily schedule is flexible enough to allow her to do part-time work during the day. To reduce bookkeeping, part-time employees log their own hours using a centralized weekly chart. Part-timers are paid $8.00 an hour.

Dave Hackenberg also makes good use of part-time workers. To run his 2700 hive operation, there are only three full-timers: himself, his wife Linda who handles the office work, and his son Davy. "The best thing you can do is get your family in the business," he said. "Back years ago, I had a hired man who wanted more money than I was making."

For additional help, he looks to other independent beekeepers in the area as he migrates from Pennsylvania to Florida and then up the east coast for pollination.

"In blueberry pollination, I work with another beekeeper who has 1,000 hives," he said. "That gives us an extra man, extra truck, and extra forklift."

A commercial beekeeper in upstate New York helps out for an hourly wage, and in Florida, he's

assisted by a retired beekeeper and several beekeepers who use his shop, and will sometimes be able to work by the day for Dave.

Back home, a neighboring farmer helps out, as does Dave's 77-year-old Dad, and he hires college students for work at his home base in Pennsylvania. "Although, he said, "it's sometimes a lot of work just trying to keep everybody busy all the time." And since the fire that destroyed his honey house awhile back, the Gambers have been doing all the bottling for the Hackenbergs.

The Hackenbergs run 2700 hives, and , Dave said, "We probably move more bees with less help than anybody else in the business." Their 2700 hives give them 5500 pollination rentals, and each hive is moved thousands of miles in the course of the season. Each hive is picked up and set down with a forklift 18-22 times, and their hives get to three major honey flows . To accomplish all this with minimal labor, the Hackenbergs are constantly looking for the most labor-efficient ways to do things. "You've gotta have a plan before you go to the yard," said Dave. "Davy is a good thinker, and we discuss things before we go."

Here's how that idea works out in practice in making nucs. Dave believes that making nucs one at a time, pulling the brood, checking for the queen, filling the nuc box, then adding the queen is inefficient and time-consuming. Instead, for the Hackenbergs, making nucs is a two-day, two-step process.

The first day, all they do is pull brood. They pull a frame of brood, then shake all the bees off it back into the hive. So there's no need to spend time looking for the queen. They know she's in the hive.

The pulled brood is then put in an empty box above a queen excluder on the same hive. Younger worker bees quickly come up through the excluder to care for it. At the end of the yard, the boxes of brood are put on the truck and covered with a net.

The next day, with the brood still on the truck under the net, before the Hackenbergs even put on their veils, they lay out the nuc boxes, with two frames of empty comb already in each.

Then, one person puts in the brood, and another follows, putting in queen cells or queen cages. Finally someone checks to see if any of the nucs need more bees added – a quick, very efficient and non-labor-intensive way to make a lot of nucs.

Dave mentioned another tool that has saved him a lot of miles of driving and man-hours: the cell phone. "I have one on my hip and one in each truck," he said. "The almost instant communication is one of my biggest labor savers. It's utterly amazing how much cell phones have cut down on time and labor.

"I guess you could say we run a let-alone bee operation," Dave continued. "We do try to cut trips to the beeyard.

But it's clear that the important bee work is getting done, albeit very efficiently. The operation averages better than 400 barrels of honey a year.

Walter Diehnelt of Honey Acres in Wisconsin has two beekeepers working on his 1500 hives, both of whom have been with him for over 40 years. He offers health insurance, a good policy, "The same policy I have on myself," and some profit sharing. New employees come by word of mouth, even toward Christmas time when their normal crew of 20 full-timers swells to about 50 workers.

"In 1980, we moved the plant," said Walter, "and all of our employees were willing to make the 20-some mile longer drive to stay with us."

As you can see, although good labor can be hard to find, it is out there if you look hard enough and have a little luck, as these beekeepers show. Many of the beekeepers with whom we spoke described their key employees as "like family" and "completely indispensible."

Richard Adee said, "I give our employees all the credit for our success."

Tom Sachs, who deals with agricultural labor relations as an extension associate for Ohio State University said, "The biggest factor in keeping good labor is communication. Ninety percent of problems with the workforce are caused by miscommunication. The employer must be proactive, and reach out and communicate with his workers."

If you are fortunate enough to locate good employees, keep the lines of communication open. Be willing to take the time to listen carefully to suggestions, questions, and complaints, and find prompt solutions to problems as they come up. Good employees can be found, but often it is the employer who has to do his part to find them and keep them. BC

"Kids just don't come looking for work anymore like they used to."
Scott Price, South Dakota

Mary and Bill Weaver are producer/packer beekeepers from Pennsylvania and are frequent contributors to our journal.

WINTERING BASICS FOR NORTHERN BEEKEEPERS

Roger Morse

Here in upstate New York, my experience with Wintering bees is that giving colonies some form of Winter protection is worthwhile. This has been especially true in recent years as we have been plagued with several new diseases that place additional stress on colonies. Properly protected colonies are stronger (have more bees and brood) in the Spring. We believe they also consume less food. Wrapping colonies for Winter also protects the equipment, which is a small consideration but still worthwhile.

Still, some beekeepers in my area do not give their bees any special attention or protection for Winter, and yet their colonies survive. Bees are tough animals. If you do not wrap or otherwise protect your colonies, I suggest that it is worthwhile to paint your supers a dark color. I paint mine barn red. A dark color helps to absorb the sun's warmth on sunny days in Winter when the bees might otherwise not be able to fly. It is important that bees be able to take cleansing flights in Winter. A dark color also helps to hide the colonies (at least in the Summer) and thereby reduce vandalism.

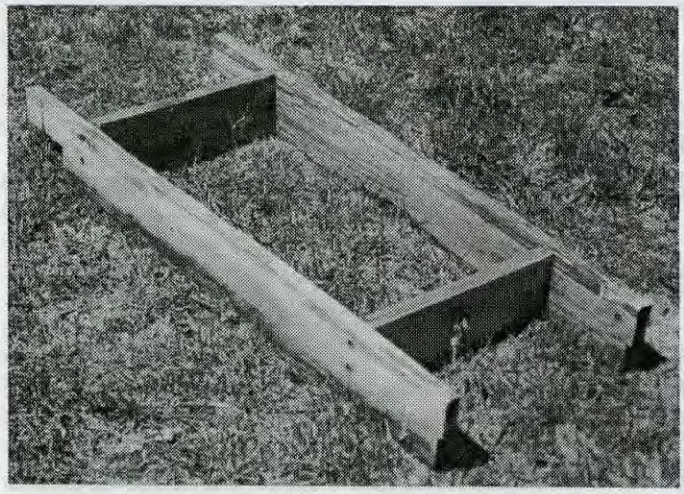
The four major factors that affect how well bees will survive the Winter include: disease control, a good population of relatively young bees in the late fall, ample high-quality food and protection against cold weather.

Location, Location

The guidelines for a good Wintering site are similar to those used for a Summer site. Good bee yards are exposed to full sunlight, have a slope to the east or south, and have good air and water drainage. A nearby source of water is helpful. Honey bees use water to control the hive temperature on warm days, to dilute honey fed to larvae, and to dissolve the sugar crystals that form in honey. A good year-round access road is important, as is hiding the colonies from general view, but these factors are for the benefit of the beekeeper, not the bees. A Winter windbreak, either permanent, such as a line of evergreens, or temporary, as in a removable snow fence, is also recommended.

Up, Up, Up . . .

I have always used some kind of hive stand to raise my colonies off the ground six or more inches. The purpose is to help keep the bottomboards dry and to avoid blocking the entrance with grass in Summer and light snow in Winter. We currently use hive stands made with pressure-treated two by sixes that hold two colonies. A hive stand is built so that when two colonies are pushed together for Winter wrapping there is a dead air space under them with outside dimensions of 32-1/2 inches by 20 inches. Standard bottomboards are 16-1/4 by 22 inches.



A hive stand that allows two colonies to sit together and provides a dead-air space below is a good foundation.

Healthy Bees

Beekeeping was complicated enough before the new diseases were found in this country. Today's beekeepers must contend with chalkbrood (1972), tracheal mites (1984), *Varroa* mites (1987) and small hive beetles (1998) in addition to the diseases that existed prior to those dates. The small hive beetle is proving to be less of a threat than first thought but is still a darn nuisance.

The disease problem is complicated by the fact that several states have abandoned their apiary inspection programs. There are pressures to switch much tax money over to social programs as agriculture's lobbying efforts are less effective. Today's beekeepers are being forced to become expert at identifying and treating bee diseases.

Cover Up . . .

My favorite method of protecting colonies for Winter is to have the bees in two standard 10-frame supers. I weigh the hives at about the time of the first frost and feed those that weigh less than 130 pounds (including bottomboards and covers). I wrap the colonies in a lightweight black building paper. Plastic wrapping material is also available that works as well, and is probably more

durable and less expensive. Eight to ten inches of mounded straw is placed over the open inner cover hole to absorb moisture, and the pack is covered with a piece of black paper that is 36 inches wide and 34 to 40 inches long. The pack is tied together with binder twine as is used on bales of hay.

Several bee supply companies offer black, waterproofed, cardboard or plastic sleeves that fit down over colonies. Straw is placed over the inner cover, again with the hole open, and the standard cover is placed over the top. I have never used these sleeves, but beekeepers have told me they are effective – both cost-effective and labor-efficient.

Push these colonies together, leave the covers off.

All Through The House . . .

My experience with keeping bees in the north is that mice are more destructful of beekeeping equipment than any other animal or pest. I have been in apiaries where every hive contained a mouse nest in the Spring. I find it fascinating that mice are able to enter hives in the Fall of the year, chew away comb, build a nest six or seven inches in diameter near the bottom of the hive, rear young in the Spring, and survive. While I admire their ability to do so, I am a strong advocate of mouse control using some kind of a bait or poison. Mice do not eat honey, pollen or live or dead bees, or, if they do the quantity is negligible. Mice like the fact that a bee hive is warm and dry and the bees are not able to enter their nests made of leaves, straw and grass to drive them out until late Spring.

A few decades ago we used a mouse poison made with strychnine, but the Environmental Protection Agency decided that the chemical is too toxic to use for pest control, and it is no longer available. We are left with weak-kneed poisons that deteriorate rapidly and so do not give protection throughout the Winter. As a result, I have been in the habit of placing some poison bait in an *empty* beehive in the apiary in September, just before frost, to attract and kill mice that may otherwise overwinter in my hives.

Several of my beekeeper friends use mouse guards over the entrances of their colonies. This usually consists of half-inch hardware cloth (two wires per inch). While it is true these usually work quite well to prevent mice from entering a colony, they also may hinder flight if many bees die in the hives in Winter as they often do. Other guards are available that help, but don't eliminate this problem. If you use a mouse guard, I advise that you create an upper entrance that the bees may use if the normal entrance is plugged. This is usually a hole three-quarters of an inch in diameter drilled *under* the handhold of the top super. The hole is placed *under* the handhold to prevent your covering it with your hand and being stung when you lift and manipulate supers. Having one or more holes in your equipment does no harm, Winter or Summer, so far as I have observed.

Checking Up . . .

I like to check my colonies two or three times during midwinter. Rarely, I have a deer open the top of a pack to eat the straw. Sometimes, a hive is tipped over by vandals, though more frequently someone has used one of my hives for target practice. Shooting a hive doesn't do much damage to the bees themselves.

The greatest problem in Wintering bees is that the entrances may become plugged with dead bees on the inside. You should not be concerned if your hives are buried in a snowbank as the bees can obtain all the oxygen they need even under these circumstances.

Starvation is a serious problem in late Winter, especially with colonies that are rearing a large quantity of brood. This is why Fall weighing of colonies is important. Is it possible to open and inspect colonies while there is still snow on the ground? The answer is a guarded yes because the alternative, starvation, would be more serious. I have never seen data on how much chilling brood can stand in the late Winter, but I suggest that any examinations that are made should be done quickly.

Bodies Everywhere . . .

Seeing dead bees on the top of the snow in the dead of Winter is a good, not a bad sign. If you examine the bees that are dead on the snow, you'll notice that most usually have frayed wings and less body hair. They are also usually filled with fecal matter. These are the older bees, and it is best that they die outside the hive than in it where they might block the entrance and/or create a bad odor. What I prefer to see after a warm day in mid- or late Winter is the snow covered with little brown spots of fecal matter indicating that the bees have had a good flight and have been able to return to the hive without difficulty.

Kids . . .

At one time we thought it was abnormal for bees to rear brood in Winter, but now we realize that this is not true. Few worker bees are able to live through a whole Winter. As a result it is important that the bees grow replacement bees in Winter. Winter brood rearing is probably controlled by day length, with shorter days in the Fall discouraging brood rearing, and long days, starting in late December and January, stimu-

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WINTERING ... Cont. From Pg. 25

lating it. Wrapping colonies helps the bees to maintain a normal brood rearing temperature of 92 to 94°F in Winter and is the chief reason that protected colonies have more bees and more brood in the Spring.

In The Cellar . . .

At one time it was popular to Winter bees in cellars. In fact, the U. S. Department of Agriculture issued a bulletin on how to do so in the early part of this century (E. F. Phillips and G. S. Demuth. "Wintering bees in cellars." *Farmer's Bulletin* 1014. 1918).

The chief problem with cellar and indoor Wintering is that the bees have no opportunity to void fecal matter while they are confined. This is no problem if you use a high-quality honey for Winter food (light color and little protein) or if you remove all or most of the honey and feed the bees sugar syrup. This is what most cellar-Wintering beekeepers did, but it is expensive. It is also effective as there is less accumulated fecal matter than if the bees Winter on goldenrod or some other darker fall honey with more protein and other contaminants.

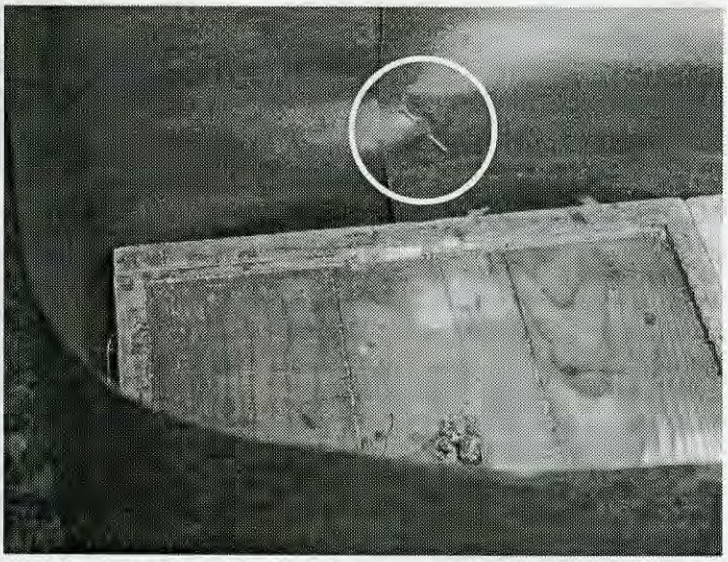
Inside . . .

In Canada, it is popular at present to overWinter colonies in climate-controlled buildings. Control over the quality of Winter food is important for the same reasons as it is with Wintering anywhere under any conditions. I have been reading a chapter entitled "Fall and Winter Management" in a 1999 book by John Gruszka on *Beekeeping in Western Canada*. For those who wish to try indoor wintering, this book is a good place to start.

It is recommended that beekeepers who winter indoors make certain that two-story colonies contain 140 to 150 pounds of honey (ten to twenty pounds more than we use for outdoor Wintering in New York state). It is pointed out that, in a building, bees continue to produce water vapor and carbon dioxide and provisions must be made for these to be removed. Any size or shape of building may be used, but it must be insulated. Thermostaticaly controlled fans are used to control hive temperature and for oxygen control. Sometimes it is necessary to feed the bees in Winter, a chore that is costly at any time. I have heard that several successful Wintering buildings also exist in Quebec. Every time this subject comes up I think of the North American Free Trade Agreement and wonder how long it will be before we move bees freely across our borders with Canada and Mexico.

Waiting Time . . .

Once your colonies are bedded down, draft proof, ventilated, raised, fed, mouse-roof and healthy, you can take a short, but well deserved break. But don't take too long . . . Spring is just about here. BC



Detail of how to fasten the edges of the tar paper using a nail.

No-Time-To-Wrap

If you don't wrap your bees for Winter, I suggest you paint your supers black or dark red or green. The reason for using a dark color is to help warm the hives on those days in the Winter when the sun shines so as to help the bees get Winter flights that otherwise might not be possible. Our experience is that having your hives painted a dark color poses no problems in the northern tier of states and Canada. In warmer climates, hives should be painted white, or at least a light color, to help the bees control their hive temperature when it is warm.

Select your wintering site with a vengeance. It is the single most important factor. The apiary must have full sunlight, a slope to the east or south and good air and water drainage. Face the colonies to the south. A windbreak is essential. Drill a three-quarter-inch diameter hole below or to the side of the upper handhold in your topmost super for an upper entrance. Place mouse poison in an empty hive adjacent to your colonies about two to three weeks before the first frost to kill what otherwise might be pestiferous mice. Use some kind of a hive stand to raise colonies off the ground and to help keep the bottomboards dry.

Disease control becomes even more important for those who do not wrap their colonies. A late-season check for American foulbrood is especially helpful. I have never worried too much about nosema, but the addition of new bee diseases adds new stresses on the colonies. It will be helpful if you feed five pounds of sugar syrup that is loaded with a nosema-controlling medicine about the time of the first frost.

Make a New Year's resolution to do better next year and hope for a mild Winter.

The step-by-step process of wrapping, using building paper. Other materials are available.

GROWING A CANDLE BUSINESS

This Northern Michigan Beekeeping Operation Spawned A Candle Business To Be Envied

Mary & Bill Weaver

Sharon and Kirk Jones are exceptionally astute business persons. Starting with three hives 20 years ago, they have developed a fully equipped beekeeping operation with 3,500 hives, extensive pollination contracts, and four full-time employees, producing about 400 barrels of honey last year in their northern Michigan location. (That was a low year for them because of very dry weather. Their output is usually 500+ barrels.)

Sharon began making beeswax candles 19 years ago, but was also occupied with home schooling and with working as an LPN in the early years of the business. She began working at candlemaking in earnest when their daughter announced that she wanted to go to college, and Sharon started making beeswax soap five years ago. Today she has a lovely retail shop and has had a national and international sales rep for her dipped, rolled, and molded beeswax candles. She employees three workers in Summer and one in Winter.

Sharon has a word of caution for beekeepers who use brand melters. Get the wax out of the melter as soon as possible. "I'm training the guys I buy wax from on this," she said. Heated too long, the wax is damaged in two ways. First it will darken, and second, it can become permanently brittle, and therefore more difficult to work with.

When we first watched Sharon dipping candles several years ago, we were struck by the beauty of the colors she used. She shuns the pastels so common in candlemaking in favor of deep, rich shades that she aptly refers to as "gem tones."

These deep, rich magentas, greens, and cobalt blues have become something of a trademark for Sharon, and the exact formulation of the colors will remain a trade secret.

She has, however, graciously consented to share with *Bee Culture* readers much of what she has learned in her many years of trial and error and experimentation in making beeswax and beeswax blend candles.

When Sharon first started making candles 19 years ago, her first customer was a local co-op, which is still a good customer today. "They buy a lot of candles," said Sharon.

Soon she set up a shop in the garage of their home, and news of her high quality candles began to spread by word of mouth.

Then her candles were taken in by a local imports and housewares shop, and the buyer there later introduced her to a sales rep who traveled nationally and internationally (to Canada and Mexico, and as far away as Hawaii) selling a line of cookbooks. For a commission, she agreed to carry samples of Sharon's dipped, molded, and rolled candles. The rep would take orders, and Sharon would drop ship the candles, mostly by UPS. Such sales reps, Sharon told us, generally have commissions of 10 to 15%.

Be very careful, if you go with a sales rep, Sharon warns, that the rep is financially responsible. Under some arrangements, the rep will receive the money from the customer, and theoretically, will take out their commission and promptly send the rest to you.

A financially strapped rep, though, could hold onto your money for long periods, or possibly never send it at all. A better solution, Sharon, said, and one that is more common, is for the rep to send the orders to you, and you collect the money. Then at the end of the month you send the rep the commission. That way, you also deal with credit applications yourself. First time orders are usually COD, Sharon told us. And make sure you have a clear contract with the rep. You have to protect yourself.

Sharon's days became long and busy, as she turned out seemingly endless candles, and spent long hours carefully packaging them for a safe UPS ride to their destination. Her business was too big for comfort, and, with the rep's commission taken out, her profits were smaller that she would have liked.

"I felt like I was on a treadmill," Sharon said, "and I realized this was not the direction I wanted my business to go."

The Jones family had since moved to a home that had no space for a candle shop. Sharon had moved her candlemaking temporarily to their honey house. But her heart was set on having her own retail shop as a separate building next to her home.

Four years ago, the shop became a reality. Purposely built to look like an older building (we thought it was), Sharon planned it to harmonize with the house, even matching the pitch of the roof on the two buildings. Built of wood, the shop has a timeless look, and is fronted

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Sharon straining wax dipped from the back section of the tank into the front section through a Bounty™ paper towel.

Sharon continuing to string the jig for dipped candles.

The bottom of the jig has been cut off the pencil diameter candles.

by a large herb and flower garden.

Inside the shop, one's eyes automatically travel from floor to ceiling and around the walls because there are so many lovely touches – bunches of fragrant dried flowers and herbs from her garden hanging from open beams; multicolored dipped candles; shelves of homemade soap; beautiful candles decorated with pressed dried flowers; beeswax for sale in various shapes and sizes; metal candle molds; her husband Kirk's specialty creamed honeys displayed on an old fashioned black stove; canisters of colored wax; and equipment for melting wax and dipping candles.

Sharon said, "We're trying very hard to stay small. I like retail, but we need a mix of products to make it worthwhile."

Now that she has laid off her sales rep though, to keep some wholesale sales going, Sharon is planning to go to some regional shows, where she can show prospective customers her products herself, and take orders for shipment.

"We go to regional shows," Sharon said, "to keep shipping costs down." She'll be going to the International Herb Association Show and the Herb Business Getaway this year, where she'll learn as well as display her products, and hopes in the future to attend the Chicago Gift Show, The Gift Basket Show, and the Northern Michigan Gift Show.

In addition, while she and Kirk are in Florida this Winter to tend to the colonies they truck there each Winter, Sharon is going to attend the Herb Grower's Network Association, which will be only a 40-minute drive from their bee location. Kirk will help show their products and take orders, and Sharon can also take classes and workshops.

When Sharon became interested in making dipped candles, the only helpful resource she could locate was Richard Taylor's book *The Joy of Beekeeping*. She and Kirk studied the book, and Kirk designed their "jigs" (the devices that hold the wicking straight and taut for dipping candles), according to Taylor's specifications, and had a friend fabricate the wax tanks they needed.

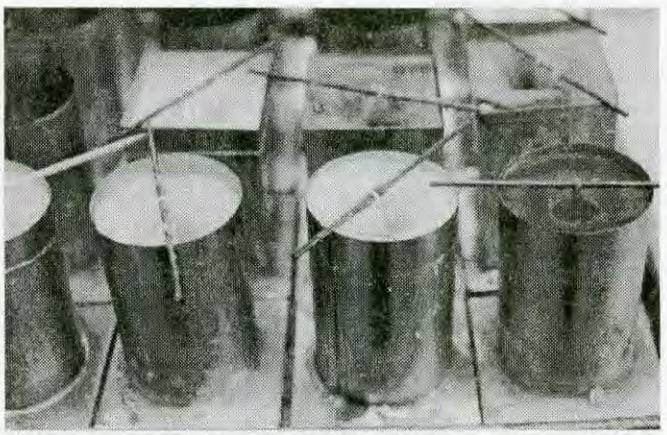
Later, they changed Taylor's design of the jigs somewhat, making them longer, so Sharon could dip eight pairs of candles at a time. Kirk designed a rack for holding the dipped candles, as they hardened between dippings, from bicycle wheels. "We use low-tech equipment around here," Sharon commented.

Sharon uses square braided 1/0 wicking for dipped tapers one inch or less in diameter. She puts the bottom and top of the jigs together, and strings wick from top to bottom.

The first dipping of this device in hot wax (about 176°) is the "soaking dip," as Sharon calls it, to soak the hot wax

Finished candles.

When pouring candles, to be efficient, you need a lot of molds.



The new wax has shrunk, leaving a concave top that needs to be filled in.

Jennie trims wick.

Pillars with dried pressed flowers.

into the wick, and she holds the jig in the hot wax for a longer time than for later dips.

Later dips are a steady, smooth, down into the wax and right back up, with each dip coating the wick with another layer of wax, gradually building the candle. (If you hold the jig in the hot wax too long, you can melt off layers of wax previously laid down.)

When the candles are about the thickness of a pencil, it's time to cut off the bottom part of the jig. Sharon uses a pair of clippers that have been heated, so that they cut easily through the wax and wick. Then the bottom part of the jig is removed entirely, so that the candles are hanging free from the top section. The dipping continues until the candles are the desired diameter. But building a nicely shaped candle is not quite as simple as this may sound. The tricky part, Sharon told us, is to get a nicely shaped, rounded top on the candle. Be careful not to overdip the tops, she cautioned. Don't totally immerse the wick until the last two or three dips.

Making a nicely rounded top takes some practice, and is made more difficult if you're using wax that has been overheated and tends to crack.

But now that you've seen the basic technique for making dipped candles, we need to step back a step or two, because before you make dipped candles, or any candles, it's vitally important that you properly clean your wax.

Sharon learned this the hard way early on in her candlemaking career. At first she used Kirk's wax, which was quite clean to begin with. When she began buying other beekeepers' wax, she wasn't aware that it could need more extensive cleaning up, until she made some candles that contained too much propolis.

The candles burned badly, and Sharon had the embarrassment of having to do a recall. Luckily, she didn't have too many customers yet, so the recall was not too difficult to carry out.

Today, she cleans all the wax she uses for candlemaking in a multi-step sequence that involves at least three strainings. "There are fancier and more expensive materials to use for straining wax," Sharon told us, "but milk filters (used for the first, coarse straining) and Bounty™ paper towels (used for later, finer strainings do the job for me."

The first step to cleaning wax, Sharon said, is to bring it to a vigorous boil in a kettle of water. Sharon

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CANDLE BUSINESS ... Cont. From Pg. 29

recommends a double boiler for this, or a double walled kettle with an element in it. "Be very careful," she cautions. "Beeswax is highly flammable."

Next she skims off the wax that rises to the top. Then she turns off the burner and lets the propolis and slum gum and other impurities settle out in the water while more wax floats to the top, which she also skims off. "A cup of vinegar added to the water helps to separate the water and wax and impurities," Sharon said. "You can either add it at the beginning, or add it later if the wax is not cleaning up the way you would like."

She then pours the hot wax she's skimmed through a milk strainer into the back section of a reservoir with several parts: a metal shell filled with water heated by an immersion heater, into which fit two removable compartments. She has a number of these interchangeable compartments that she uses for cleaning wax, for dipping candles, and for holding wax of various colors.

She strains the wax into the back removable compartment, (through a milk strainer) and when the dirt and slum have settled, she uses a coffee can to dip the hot wax through a Bounty™ paper towel into the front removable compartment. She goes through this process as many times as it takes to get the wax clean, which is usually three strainings.

Sharon has a word of caution for beekeepers who use brand melters. Get the wax out of the melter as soon as possible. "I'm training the guys I buy wax from on this," she said. Heated too long, the wax is damaged in two ways. First it will darken, and second, it can become permanently brittle, and therefore more difficult to work with.

Keeping the same heated wax in the dipping tank too long can accomplish the same thing, if, for example, you keep replenishing the same tank of wax over and over as you dip. "My wax never sits in the tank more than a couple of days," Sharon said. "Then I get it out and start with fresh wax the next time. But if your wax has overheated and the candles you dip crack, use colors. This can help cover up the cracks."

If you use paraffin in candles, the same cautions against overheating apply. "I've smelled bad paraffin," Sharon says. "Some candlemakers just let it sit there week after week, heated. It smells bad and rank, and you get a petroleum smell on your clothes."

Sharon buys the paraffin for her beeswax blend candles from a local petroleum company (this saves shipping) in 55 pound boxes, and gets different types with different qualities – as in harder and softer paraffin. She mixes the harder paraffin with beeswax for her aromatherapy candles and for the pillar bases she puts pressed dried flowers on. "The combined waxes make a good, hard, long-burning candle," she said. She uses the softer wax in her tie-dye candles, "where you want to be able to see into the candle."

To make molded tapers and other tall candles of various shapes, she uses metal molds, cleaned of residues between uses with a torch, and sprayed with a mold release called "Fast Release 2000" from Candlewick.

Her best selling candle, Sharon said, is her 12-inch hand dipped taper. Her second most popular is the 15-hour votive. The metal votive molds also need to be sprayed with mold release. To make votives efficiently, Sharon said, you need a lot of molds. She puts her votive molds on trays holding about 90 molds, and when she sets up to pour votives, her work table is spread with three such trays.

She first fills the votive mold with wax, then puts in the wick tab, and then tops off the wax. Because beeswax shrinks slightly as it hardens, she pierces the top of the candle near the wick several times as she tops off, topping off until she has a level surface.

In deciding which prewicked tabs to use in her votives Sharon spent a lot of time experimenting with papercore wicks until she finally settled on the right one. She likes papercore wicks better than zinc ones in her votives. Since wicking varies from company to company, Sharon suggests you consult with the wicking representative of the company you choose for guidance on this.

All the wicks Sharon uses with beeswax are square braid. With dipped paraffin candles, though, she would use flat braid.

Getting the right wick is tricky. For a hollow burn, for example, Sharon told us, you use a different size wick than for a candle you want to burn completely to the outside. An all-beeswax candle takes a different size wick from a paraffin and beeswax blend. To get a candle that will not drip, you must use the right wickings.

"I consider beeswax candles mostly dripless and smokeless," Sharon said, "Although any kind of major draft will cause a problem." Sharon purchases most of her wicking from Candlewick Co. in New Britain, PA (215.348.1544) and Pourette (206.525.2793).

Sharon doesn't produce a lot of figurine type candles other than skeps in a number of sizes. She also sells in her shop beeswax coins, and several sizes of beeswax bars, with a sign explaining the ways beeswax can be used.

Sharon makes 100% beeswax rolled candles also, and when she had the national sales rep, rolled candles were included in the samples the rep showed. "Sales are slower on rolled candles than dipped," Sharon commented. "Some people think they're more for decoration, and don't burn them."

Some of the most beautiful candles Sharon makes are decorated with pressed, dried flowers. Sharon's love of gardening shows here. She grows the flowers herself in the gardens in front of and beside her shop, and presses pansies, larkspur, lobelias, verbenas, and some herbs, in addition to wild flowers she gathers, such as Queen Ann's lace.

She makes pillar candles for use with the pressed, dried flowers, in an off-white shade, which shows that they are a paraffin/beeswax blend. To attach the dried flowers, which she arranges in artistic patterns, she warms the candle, and puts warm wax over the flowers.

The results are striking. She has also found a market for special order wedding candles made with pressed flowers. For these, she arranges small pressed flowers in a heart shape, and uses the name of the bride and groom and the date of their wedding.

In addition to pillars, she uses pressed dried flowers on small, eggshaped candles, which are uniquely beautiful. We asked her if the time spent growing, gathering, drying, and arranging and attaching the flowers to the candle actually made her a profit.

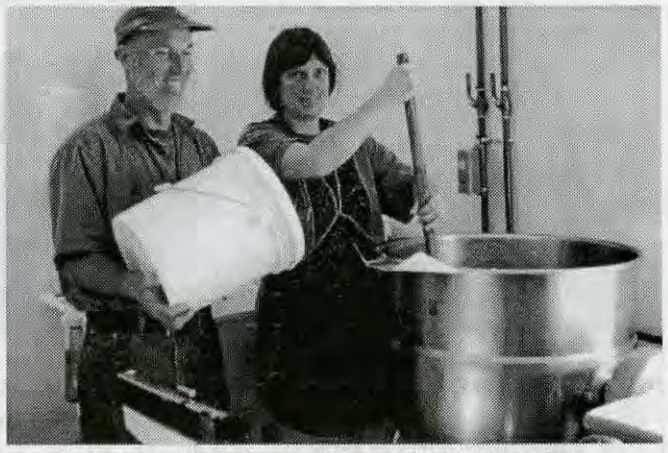
"Yes," she said, "or I wouldn't be doing it. I use a spread sheet where I can enter time spent and cost of materials, and it works out the price I should charge." Sharon has also recently started using pressed dried autumn leaves on pillar candles, especially the brightly colored leaves of the sugar maple, which abounds in Michigan.

Sharon doesn't make container candles. She leaves that area to her daughter, who is making what she calls "Kitchen Candles," in small canning type jars, to help earn the money for college. For these candles, her daughter uses a blend of paraffin and beeswax to produce brightly colored scented candles called Sunflower, Peach, Pumpkin Spice, and Rose Petals.

To avoid the shrink so characteristic of paraffin, which could cause the wax to pull away from the jar, the top of the candle is pierced several times around the wick as it hardens, and the candles are repeatedly topped off to make them level. Each container is topped off three or four times.

For the Christmas season, Sharon makes bayberry candles – a bayberry beeswax blend, actually, because bayberry is so brittle. She's also interested in learning about the properties of carnuba wax, "which is a real hardener," she said.

Sharon uses scents in some of her candles, although, she said, she thinks the scent of beeswax itself is the most pleasant scent of all. "I sell a lot of lavender scented candles, too," she said. "People find it relaxing. And I have different formulas for other scents."



Sharon and husband, Kirk, work at soap-making.

Her Aromatherapy candles contain five to seven percent scent by weight. She buys essential oils for scents. "I hope aromatherapy is not a fad in the U.S.," Sharon commented. "I really like what I'm finding out about its uses."

In addition to growing flowers to dry for decorating pillar candles, Sharon has found another use for her gardening skills in products to sell in her shop. She makes infused honeys. For lavender infused honey, for example, she cuts flower buds from the French lavender plants she grows in her garden, just before they bloom.

About a teaspoon of buds to in an eight-ounce jar of warm honey, and in addition, she ads a drop or two of oil of lavender, an essential oil she purchases. In the warm honey, the flower buds infuse their fragrance and flavor throughout the jar, and are left in the bottle offered for sale.

Sharon bottles her infused honey in fancy jars. She has used both a wire bail type jar and a small canning jar, and gets $6.00 for eight ounces of this product.

"Lavender honey is good in baking," Sharon said. "I like lavender scones and lavender butter cookies. It's also good as a spread."

Another flavor of infused honey she offers in her shop is a spicy, flavored honey, which is particularly popular in Winter. In the warm honey, she infuses orange peel, cinnamon sticks, and whole cloves. Most of these are removed after the honey has been infused, but she leaves in a little cinnamon and cloves. "It's delicious in tea and for baking," Sharon says. She has also infused sage leaves and hyssop leaves in honey, for a more medicinal effect.

Five years ago Sharon started making a beeswax soap, and she's developed a line of soaps with attractive names such as Pollen Pleasures (which actually contains pollen collected in pollen traps on Kirk's hives), Wilde Honey (which contains honey, useful in soap as a humectant), Comfrey Aloe, Gardenia, Tangerine, Aunt Bea's Lavender, Geranium Rose, and Peppermint Patch. The comfrey and mint used in the soaps come from her garden.

She buys the vegetable oils for her soaps by the barrel, makes the soap in small batches, and uses only natural scents and oils. Anyone wishing to contact Sharon about her soaps or other products can call her at her shop, 616.882.7765. BC

James E. Tew

Bee Culture's Beeyard

When Is Good Science Bad Advice?

Well, one thing of which I am certain about this bee project is that I am sick of cutting grass. I just made the mowing rounds, and all is neat for a couple of days. The bees really don't like the mower, so I cut the grass briskly and with purpose. Mowing the bee yard is one of those contained jobs. Maybe I should have been checking hives for American foulbrood (AFB), or monitoring for mite population buildups, or painting equipment, but cutting the grass is a highly visible, manageable job having a clear beginning and a clear ending. When the job is done, it looks as though I have accomplished something, leaving me with a temporal sense of achievement.

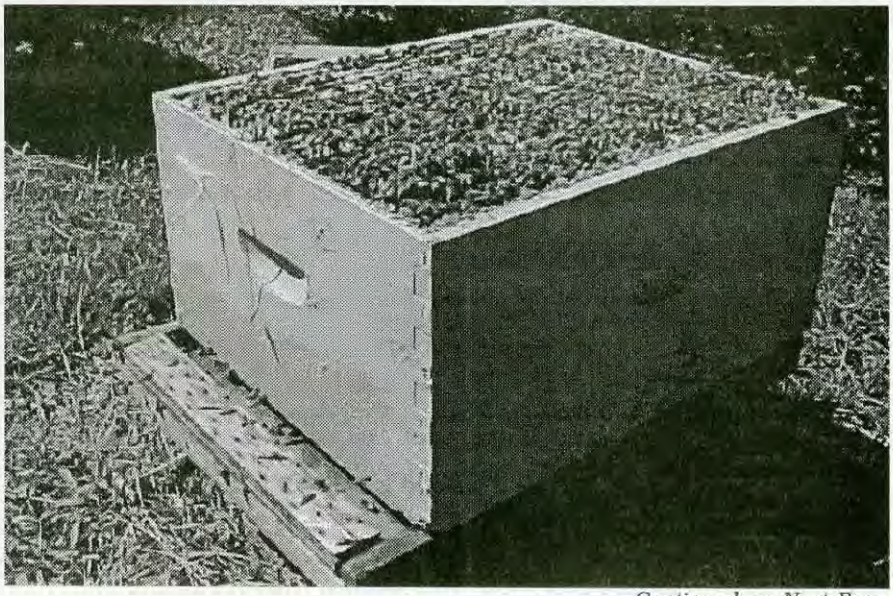
Since the beginning of the year, I have honestly tried to recapture the procedure of thinking like a beekeeper rather than thinking like a university employee who keeps bees. Honestly? It hasn't been real hard to do. I just feel as though I am always behind. I worry about mites, beetles and diseases. I go through periods of highs and lows – for a month I am on the bee job and get a lot done. Then, due to vacations, other job requirements or droughts, the next month seems haphazard. Aren't these some of the feelings of a normal beekeeper?

The Small Hive Beetle The small hive beetle (SHB) was found in several yards in Ohio this past Spring, and what a flurry of activity it caused! In fact, one of the infested yards is hardly eight miles from my yard. Probably incorrectly using the *Varroa* mite protocol as a model, Ohio and other states developed emergency policies and formulated recommendations. In Ohio, the real bottom line of all those recommendations was to "*watch for the beetle and contact the state apiarist if you think you have found them.*" Is that good advice? In my opinion, yes it is. More later.

Last week, I presented a generalized bee talk to a diverse group of local beekeepers – some new, some old. The subject of the SHB came up, and I gave my spiel. Yes, the beetle has been found in about 14 Ohio counties, and yes, one of the yards was not from the original infection but from a migratory beekeeper. What to do? Really . . . nothing. I could immediately see the expressions change on some of the beekeepers' faces. It was the "Yeah, right!" look. Across the U.S., we have the tools to use in controlling the beetle, but the big question, as with all bee diseases, is when to use the tool and then, how often to use such control procedures.

When is good science bad advice? The possible answer to this simple question requires intelligence beyond the level that I have been allocated. We as citizens seem to have a love/hate relationship with the concept of scientific exploration. I sometimes think that we use generalized scientific recommendations as standards or cues from which we form our own personal

Colony #5 began this past Spring as a small swarm. It could have used another deep, but I expect I will Winter it in a single deep.



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BEEYARD ... Cont. From Pg. 33

opinions and beliefs. We don't always embrace the conclusions presented in various technical papers, but we like to know that someone is working on deriving answers. Scientific research is always evolving. It's always changing. Today's scientific recommendation is sometimes tomorrow's bad advice. Scientific research is a tool that is used by different people with different qualifications in different situations to explore for answers to different questions. When do the findings of good science go bad? That can't be predicted, but usually, it's a slow process.

For years, we have been told by the scientific medical community that severe sun burns were directly related to the onset of skin cancer. No doubt they are. Having spent my early years in the hot, sunny, climate of Southern Alabama, I have personally endured approximately 20 to 30 serious sunburns – by scientific standards. Yes, at some point, I am expecting to be told by a somber-faced physician that I have a "suspicious spot" someplace on my face. Recently, I was interested (Amused? Surprised? Annoyed?) to read that a group of researchers found initial evidence that the occasional sunburn – one resulting in skin flaking – might actually be helpful in preventing some incidences of skin cancer. Now, as the owner of a fair amount of human skin, what am I to do? Do I now commit myself to intentionally getting the occasional burn? Do I drink a glass of wine every day? Do I take one aspirin per day for my heart? I already drink skim milk. Should I eat more poultry? Do I stop breathing the air in my house? Should I drink bottled water? Give me a break. In all cases, common sense simply must prevail.

The arrival of the small hive beetle brought about the use of coumaphos (CheckMite+) as a control chemical for this new pest. Also, it was noted early on that the insecticide yielded good control of the *Varroa* mite. Recently, a few technical papers have been published (I haven't personally seen them) indicating that coumaphos is an excellent agent for controlling mites on fluvalinate-resistant bees. In some circles, it has been implied that the traditional use of fluvalinate and yet-to-be-used formic acid gel packs are already obsolete. At some point, no doubt they will be, but are you at that point now? I can't answer that for you any more than I can advise you on your personal health policies. Clearly Apistan (fluvalinate) has done an excellent job of bringing us out of the first stage of Varroatosis (varoosis). Will this productivity of this chemical last forever? No. Is this product finished now? No. Am I, Jim Tew, endorsing fluvalinate over coumaphos? No. What I am trying to say is that most good science changes from time to time. What is good science now may very well be bad science later. And it's not easy to tell when the change occurs.

Therefore, when the current Ohio recommendation is to "monitor for the small hive beetle" rather than prophylactically treat with yet more insecticides, it is the current best advice. Though I hope it won't, that beetle advice may change at some point.

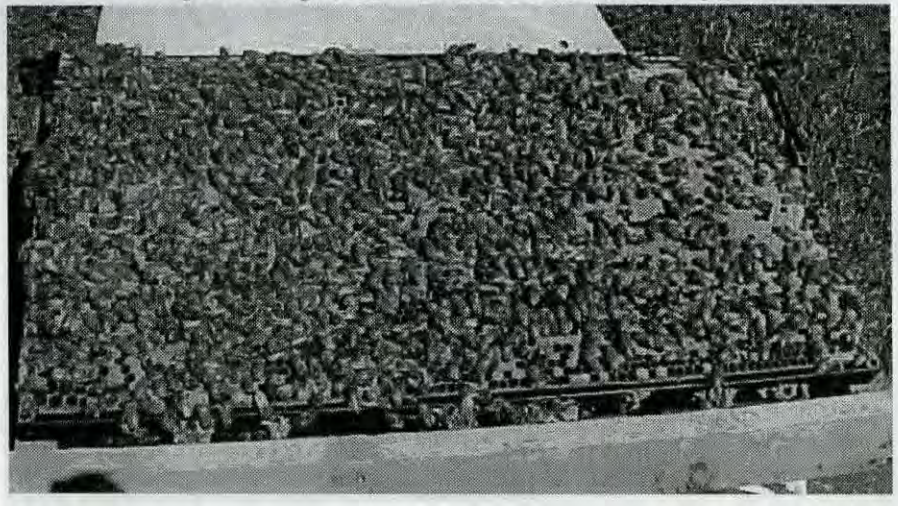
Keeping Bees with One Hand Recently, I was forced to realize that the best friend my right hand has is my left hand. During a complete lapse of all common sense, I managed to get my left thumb and left index finger in a power saw I was operating. Compared to the damage that could have resulted, my wounds were insignificant; though I will spend the better part of the next few months regrowing a thumb nail. For reasons of good taste, I have decided to forego a photo of my mutilated thumb in this article. Actually, my wounds are minor and temporary, but I realized that there must be beekeepers who live with such restrictions on a daily basis. For nearly two weeks now, I have done nothing in the hive for the simple fact that one generally needs two thumbs to remove one frame. I know that gadgets such as frame-grips exist, but I just wasn't in the mood. This is just one more unorthodox reason that trying to keep a beeyard in Nirvana is so difficult – unexpected hindrances.

Skunks I hope that I never write anything else about skunks. As some of you may recall, I have had skunks tormenting my yard for a couple of months (June - July). In previous articles, I described my fortifications and plans. Well, for whatever reasons, the skunks are gone. Since victories are hard to achieve and are usually temporary, I claim this as a victory for the bees and for me. Who knows? The skunk may have croaked from old age or have been eliminated by a passing Chevrolet. Either way, I appreciate the skunk break.

Currently, it's late August I went out, on your behalf, and opened several hives but the report is somewhat ho-hum. Golden rod and fall asters are just cranking off so there is not much of a flow ongoing. Most of the colonies are strong with heavy flight. For those of you who keep up with such minutia, I still don't have all of the colonies painted. Rest assured that it's on my "to-do" list.

The smoker is just outside the door, smoking away. Smokers have an uncanny ability to stay lit when I

A Pierco frame nicely drawn out with both brood and honey present.

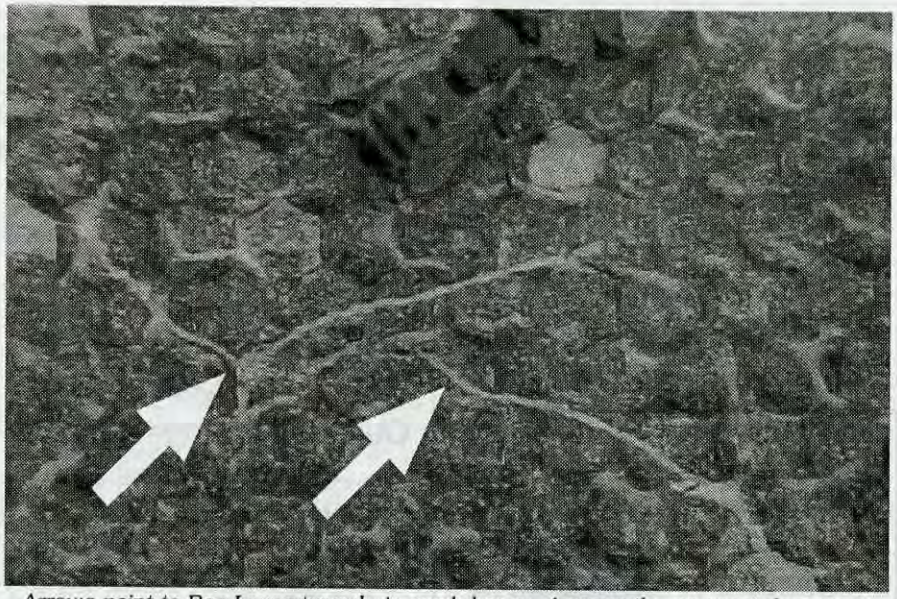


don't care if they go out. However, when I am in the colony, it seems as though I can't keep the thing going with a copper-smelting furnace. I've been using some of the liquid smoke product currently on the bee market. Again, no scientific evaluation here, but the stuff may work to some degree. The bees react to the liquid smoke spray by "hunkering down." I plan to continue to play with the product. Some of you may remember the Hive Bomb product that was available a few years ago. It was the canned version of the essence of hardwood smoke. One problem that I recall was that the odor of smoke would linger for quite some time. For instance, within the cab of my truck, the odor could linger for years. I truly don't care for the smoke component of beekeeping. Some of you don't seem to mind. After working bees, I just don't like to go back into society smelling like I was burning trash all day.

The odor of a cigar is definitely not an improvement over the smell of most smoker fuels, but a cigar is concisely packed and is designed to stay lit. Many years ago, I bought a couple of cheap cigars and experimented with them in lieu of a smoker. You really don't realize how much smoke a smoker puts out until you try to do it by mouth. I would puff on the stogie for a few minutes and work bees for a few minutes. This process went on for about half of a cigar. With no warning, a sickness descended on me that was nausea in its purest form. I was abruptly sick. With both the world and my stomach spinning, I staggered to a quiet shady place – any place where I could die quietly. Forget the open hive. Let the survivors worry about that. However, survive I did, and today am a wiser man. Though bee smokers may smell up the world, a cigar is no substitute. I do have some data on that observation.

In the hives The hives are essentially full. A beekeeper who was keeping these bees for maximum honey production would be scurrying around searching for more equipment or extracting frames in order to get them back on and refilled.

I have said all along, that I am predominantly keeping these bees for enjoyment and for observational purposes. A nectar flow is a mystical thing. For the entire month of July, these colonies were in a hard drought, and only water was coming into the hive. However, some gifts come in strange packages. Since the weather was so dry, flowering alfalfa was not cut on schedule. In fact in many cases, it was not mowed at all. I am guessing (only guessing) that much of the water-white honey within these colonies is from alfalfa.



Arrows point to Bee Louse tunnels in comb honey. Apparently, no great damage is done to the colony by the quiet pests.

I do feel guilty about colony number five. It is a single that was a small swarm earlier this past year. It should have had another deep added several weeks ago, but I was either away on vacation or healing from my saw caper. Number five is packed full and would probably survive the Winter as is, but its potential has been blunted by being crowded. Beekeeper neglect.

The plastic frames have worked out very well. All were filled out and were readily used by the bees. When full of honey, these frames will twist or rack more readily than wooden frames, but I love not having to assemble and wire them. The frames seem to be used equally well either for brood or for honey storage. My comments are only from initial observations and do not represent long-term use.

The Bee Louse When *Varroa* invaded this country, requiring heavy treatment to control, I wondered what else these miticides were killing other than mites. Though I had no plans for mourning the passing of the bee louse (*Braula coeca*), I felt certain that it would be a "non-target" victim of the process of mite control. Again, no scientific observations here, but all these years later, I have absolutely no problems finding the bee louse within my colonies. In more than 25 years of keeping bees, I have never found an adult within the hive, but the tunneling of the larvae (maggots since the bee louse is actually a fly) is common and readily visible to the human eye. The bee louse doesn't seem to be a pest within the hive. Their biggest sin seems to be tunneling through cappings causing honey to "weep" from comb honey. The uncapping process obliterates the signs of the bee louse. All in all, the bee louse seems to be a tolerable, long-term intruder within the colony.

Epilog This will be my last leisure month within the yard. It's soon to be time to initiate Fall *Varroa* programs and remove the small honey crop. I will need to continue to check colony number 11 for signs of recurrent AFB and begin to think about Winter in the beeyard. Even though, temperature-wise, it is in the mid-80s right now, I have a sense that the Autumn of 1999 is approaching – and I'm not quite ready. BC

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Apimondia '99

GLEANINGS FROM THE EXPERTS

Excerpts From Talks and Articles

The 36th Apimondia Congress held in Vancouver, British Columbia is history, although just barely, as I write this on the plane ride home.

I made comments last month on the critical necessity of carefully planning meetings, no matter the size of the group. This meeting had just over 3,000 people attend according to unofficial but reliable reports, so making sure everything went as planned was important.

Always on the lookout for better ways to do the things I often do, I observed the details of this meeting with both a critical, and inquisitive eye. I saw some bumps, but no major flareups during the four-day event, and I learned a lot about handling large groups of people. I was also told that, compared to many previous Congresses, this one was incredibly smooth, so like all things, "compared to what" should always be considered.

A major player in this was the staff and facilities of the Convention Center the meeting was held in. Not unlike the meetings the ABF holds, room reservations were handled by the participants directly, or almost directly anyway, with the hotel, leaving out a middleman, and source of confusion. Vendors worked with a Customs broker who made it easy, if expensive, to send goods to Canada from any country, and an independent trade show management company made it easy, if expensive, to get goods sent from Customs directly to a rented booth. Both were, to their credit, easy to work with, efficient and helpful. Other than expense I heard no complaints, but I didn't talk to every vendor.

Advanced registration for the Congress was used by about two-thirds of the attendees, a record for a beekeeping meeting in my experience, and it seemed to work well. Each registrant received a tote bag with a 300-page Proceedings book (more on this later), a program of events and several promotional pieces for Vancouver, plus a few items from advertisers.

On site registration hit a bump or two, but after the first day smoothed out. This can be a frustrating time for those who stand in line, but it seemed good-natured enough, and chatting with the person in front of you, who happens to be from another country can be entertaining and educational.

Volunteers, it seemed, were lining up to help. Literally hundreds helped registration, information and souvenir booths, standing at doors, checking name tags, running projectors, lights, standing at busy intersections in the very large building at the ready to answer questions and give directions. They all paid full fare to be there and got no favors. I need to get the recruitment package used.

The facility itself was, to put it mildly, spectacular. More than enough rooms that were more than large enough. Excellent audio/visual equipment, and a view of the bay just outside the meeting rooms to keep you outside all day. It was an easy place to be.

But all this is just window dressing to what went on for four days from 8:30 a.m. to 5:00 p.m. Two hundred plus speakers addressed absolutely every aspect of the beekeeping world – helping solve problems, new techniques and ideas and much, much more.

Bee Culture was able to attend many of the talks, but with two, three, sometimes four occurring at the same time we couldn't cover them all. Which is where the Proceedings Book I mentioned earlier comes in. Combined, we can offer overviews and even specifics of many of the topics covered. This time we'll cover two topics – American Foulbrood control and problems, and the role of pollen in the colony. In subsequent issues we'll look at pollination, pesticides, marketing, hive management, *Varroa* management and other topics, all with an international flavor, but keeping in mind the you-can-use-it today requirement.

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I. Barton Smith gave a good overview of control strategies for AFB in the U.S. This is followed by excerpts from the Proceedings from Australia and New Zealand. Comments from Germany, and the results of non-chemical control experiments in Denmark.

THE CONTROL OF AMERICAN FOULBROOD IN THE UNITED STATES, I. Barton Smith, Maryland Most states perform some colony inspections that include checking for AFB. Inspections are usually carried out by state departments of agriculture although in a few states, this function is conducted by the state department of natural resources (Alaska, Indiana), the state university (Texas A&M), or by county departments of agriculture (California). Most states examine a percentage of their colonies on an annual basis. Maryland uses a trained dog to sniff honey bee colonies for AFB during winter months.

The incidents of AFB detected by state inspectors varies widely from state to state; the amount reported ranges from 0 to 4.0% of colonies inspected. Large commercial beekeeping operations have a lower incidence of AFB than sideliner or hobby beekeeper's colonies.

When AFB is encountered, a smear or comb sample is usually taken for subsequent laboratory examination by the U.S. department of Agriculture's Bee Research Laboratory in Beltsville, Maryland or by the state department's laboratory. All inspection agencies take action to control and abate AFB problems detected. In some locations, AFB infected apiaries are quarantined until the disease is eliminated. Some states (Florida, Illinois, South Carolina) order the elimination of hives when one cell of foulbrood is confirmed while other states allow the treatment of very light to moderate infections with Terramycin. Most states order the destruction of hives with heavy AFB.

Diseased AFB colonies are killed with soapy water or the pesticide Resmethrin. Most hives are disposed of by burning or burying at a landfill. Many states assist or allow the beekeeper to salvage the diseased bee equipment by scorching contaminated bee boxes, heat treating the equipment, or boiling the equipment in lye or chlorine solution. West Virginia has a portable chamber in which it autoclaves diseased equipment. Maine, Maryland, and North Carolina operate ethylene oxide fumigation chambers in which diseased equipment is sanitized and Florida operates an electron beam radiation chamber on a limited basis for the sterilization of beekeeping equipment. Beekeepers must absorb the monetary loss of losing AFB diseased bees and equipment in all states except two; Florida and Illinois pay an indemnity to beekeepers for colonies ordered destroyed because of an AFB infection.

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APIMONDIA ... Cont. From Pg. 37

CONTROLLING AMERICAN FOULBROOD IN AUSTRALIA, Michael Hornitzky, Australia Destruction of total hive unit: Any hives that are not gamma irradiated are destroyed by fire and the remains buried. This control strategy has the advantages of being completely effective but has the disadvantage of the total loss of the hives destroyed.

In 1983 NSW Agriculture and the then known Australian Atomic Energy Commission completed investigations to determine the dose of gamma radiation from Cobalt 60 required to decontaminate hive equipment from colonies with AFB. Gamma irradiation was then approved in New South Wales as an alternative to hive material destruction. Since that time other States have also approved the use of this strategy and about 83,000 hive boxes have been irradiated. This figure does not reflect the number of diseased colonies in Australia during that period, as in many cases apiarists irradiated not only diseased material, but also hive boxes and frames associated with their diseased colonies.

CONTROL OF AMERICAN FOULBROOD IN NEW ZEALAND WITHOUT THE USE OF DRUGS, Cliff Van Eaton, New Zealand The New Zealand programme included the government inspection of 4% of apiaries, voluntary inspections of further apiaries by NBA members (called "diseasethons"), the counseling of beekeepers with AFB problems, a research programme to study the factors contributing to the spread of AFB, and an extensive education programme.

During the seven years of the programme, AFB incidence in hives decreased on average by 12% per annum, to a low of 0.38% in 1998. Beehive numbers decreased by 14% from their 1987 peak to approximately 298,900.

In 1998, government replaced existing AFB control legislation with a Pest Management Strategy (PMS) structure, and gave over responsibility for control programme policy and delivery to the NBA. Government maintains an auditing role to ensure the objectives of the PMS are met and legal powers are not abused. The goal of the PMS is to eliminate AFB in managed colonies in New Zealand. The primary objective is to reduce AFB incidence by an average of 10% per year, with an incidence no greater than 0.1% at the end of the second term (2008).

EPIDEMIOLOGY OF THE AMERICAN FOULBROOD IN GERMANY, Christoph Otten, Germany Investigation of the Fachbereich Bienenkunde Mayen and the University of Jena (OTTEN et al. 1998) showed, that infestation at different strengths in the counties of Germany was caused by different biochemical strains of the pathogen. Different strains could be assigned to different regions. Strains from joint flight areas of the colonies were similar. Samples from different apiaries of one beekeeping business were identical or very closely related. This bears out the assumption of an infection by drifting from apiary to apiary or by employment of contaminated equipment.

In Germany no drugs against AFB are licensed. Severely affected colonies are killed. With this a selection of more resistant colonies will take place. Infected but still strong colonies also will be treated by forming artificial swarms. In this method all brood will be destroyed. After two to three days of a period of hunger adult bees will be put into disinfected hives. In this time the number of spores on the coat of the adult bees and in the honey sac will be reduced noticeably (OEHRING, 1998).

By correct handling later on in the new colonies often no spores could be detected. This form of treatment in 95% of all cases was successful; this means in the following years no new symptoms of AFB could be observed (OTTEN and RITTER, 1995).

PREVENTION AND CONTROL OF AMERICAN FOULBROOD WITHOUT USE OF ANTIBIOTICS, Camilla Juul Brodsgaard & Henrik Hansen, Denmark In Denmark, in order to control AFB without use of antibiotics a variation of the shaking method has been used for the past 90 years. The adult bees from colonies with clinical symptoms are shaken onto frames fitted with strips of wax. After three to four days, the bees are shaken onto frames with new foundation. Colonies in the apiary without clinical symptoms are not treated.

In 1998, field experiments were carried out on a small Danish island. The aim was to elucidate the changes in the spore levels in honey from bee colonies in an apiary with outbreak of AFB before and after treatment of the diseased colonies with the shaking method.

In early summer, a test group of 15 bee colonies were fed honey containing 1.0-109 *P.l. larvae* spores. Furthermore, four uninfected bee colonies placed in another apiary served as a control group. After the feeding, honey samples were taken from each colony regularly and examined for *P.l. larvae*. At each sampling, the colonies were also examined for clinical symptoms of AFB. The colonies were observed for three months.

At the second sampling, 43 days after the spore feeding, 12 of the colonies in the test group showed clinical symptoms. Only these 12 colonies were treated with the shaking method. The remaining three colonies did not show clinical symptoms at any of the samplings in the rest of the observation period either.

At the first sampling after the shaking procedure was carried out the spore level in the honey samples from the treated colonies were reduced with 99.94% to a mean of 1043 spores per g honey. Hereafter, the level increased slightly during the remaining observation period. The spore levels in the honey from the non-treated colonies in the test group were reduced throughout the observation period and at the end the level was slightly below the level of the treated colonies. The control colonies did not have detectable spore contents in the honey or show clinical symptoms at any sampling point in the observation period.

The results of the present experiment with induced infection show that even though all colonies were fed the same number of spores 20% of the colonies never showed clinical symptoms. These colonies were able to reduce the number of spores in the honey to a level where outbreak was prevented. Hence, even though the bees of the colonies in this experiment were very closely related major differences in the ability to control the disease were seen.

The results shows that after the shaking method has been carried out a major reduction in the number of spores in the treated colonics are seen. The spores are reduced to a level at which they do not provoke further outbreak of AFB.

The advantages of the shaking method are that it saves the bee colonies and that there are no residues from drugs in honey and wax after the treatment. Another reason why the shaking method is a viable control option is that strains of *P.l. larvae* have developed resistance to antibiotics.

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All pollens are not created equal it seems, but how bees react to that fact, and some insights into pollen collection were offered by several speakers. Knowing what your bees are collecting, and why, can perhaps reduce some potential nutritional problems.

THE IMPORTANCE OF POLLEN FOR INDIVIDUALS AND FOR THE HONEYBEE COLONY, Karl Crailsheim, Austria For the honeybee, pollen is the main source of protein and an important source of fat. Pollen's nutritional value depends on its digestibility and its amino acid composition; several of its amino acids are essential.

The amount of protein that is available to the adult individuals of a colony affects their rate of maturation as well as that of the brood, and thus the popu-

lation dynamics of the colony.

The importance of pollen as food for an individual bee varies during her lifespan. Only during the nursing stage does she have high levels of enzymes to degrade pollen protein. During this period the movement of the midgut contents towards the rectum is slow and she is able to digest and utilize a high proportion of ingested protein. Very young workers (much younger than nurses) and foragers do not consume pollen in significant amounts and are not able to digest it. Some pollen can be found in the gastrointestinal tract of a drone at a few days of age, but the ability to digest it is generally low compared to that for worker bees.

The nurse-age bees consume most of the pollen in the colony. They use the amino acids to increase their own body protein content, but mostly it is used to synthesize protein-rich jelly in their hypopharyngeal glands. This jelly is then fed to the larvae and to all adult members of the colony, and it provides valuable and easily digestible protein. The queen requires exceptionally large amounts of protein for egg laying; she can lay enough eggs each day to exceed her own body weight. Even more than the other non-nurse adults, she depends on the food provisions of worker bees. In contrast to the brood and other adults, who seem to receive less jelly (indicated by the frequency of brood feedings and by the rate of trophallactic activity) the queen is always fed well, even during periods of bad weather when the pollen stores are low.

Foraging for pollen is a well regulated process (Camazine et al., Apidologie 29: 113-126). The amount of pollen collected by foragers depends on the amount of pollen stored in the colony and on other factors such as the amount of brood. The foragers do not themselves check the amount of pollen in several square meters of combs before starting to forage in the morning. Therefore the question arises as to how they know about the adequacy of the pollen stores. The only individuals that continually look for pollen in the colony are the members of the nurse caste. The willingness of nurse bees to give jelly to foragers was shown to depend on the amount of pollen available to the nurses. This trophallactic transfer of protein might provide the information the foragers need to decide whether or not to forage for pollen.

THE NUTRITIONAL MIX AND MATCH OF POLLEN: IT ISN'T ALL THE SAME FOR BEES, Justin O. Schmidt, Arizona If bees are restricted to only one or two pollen sources over an extended period, they may suffer from deficiencies of nutrients such as protein, or from excesses of other nutrients. Other important factors include the acceptability of pollen to both foraging and hive bees. Perhaps surprisingly, the criteria for evaluating pollen acceptability appear to be different in foraging bees and hive bees. For foraging bees, factors such as pollen grain size, texture, and packing properties, plus color and odor are important. Hive bees, the individuals that actually consume the pollen, have different criteria. Texture appears to be a factor, but protein levels are important, as are other poorly understood factors. The differences between foragers and hive bees sometimes cause unusual situations in which foragers collect pollen that hive bees eat only hesitantly, or not at all, or in which they collect pollen of extremely poor nutritional quality with the result that its consumption provides little benefit to the colony. In artificial situations, hive bees will consume some pollen which foragers will not collect. In general, however, most pollen sources for honey bees can and do provide nutrition for the colony. Practical problems arise when colonies are placed in stressful situations, such as in vast fields of one crop where they are forced to pollinate the crop, and collect only that one pollen. This often results in nutritional compromise and rapid weakening of the colony. Some pollen sources are worse than others in this regard; however, experimental results in our lab have shown that a mixture of pollens in the diet is almost always better than any one pollen source.

COLONY AND INDIVIDUAL-LEVEL RESPONSES OF HONEY BEES TO CHANGES IN POLLEN QUALITY, Stephen F. Pernal, Canada Honey bee colonies are able to perceive and respond to changes in the quality of stored pollen in their colony. Colonies respond to a decrease in pollen quality in a manner similar to a decrease in pollen quantity: a greater proportion of foragers are recruited to the task of collecting pollen, without a change in the overall rate of foraging. However, individuals do not appear to respond to changes in pollen quality by specializing on higher quality pollen sources. Individual foragers also do not vary the types or numbers of species they collect, nor do they exert more effort to collect pollen. The net result for colonies suffering a decreased pollen quality is that greater quantities of pollen are collected through changes in the allocation of pollen foragers, but not through any change in the individual behaviour of foragers. Hence, individual foragers do not appear to modify their pollen collection behaviours in relation to colony need, nor do they appear to be capable of assessing pollen quality. Interestingly, substantial differences were detected in the amount and quality of pollen collected by naïve and experienced foragers. These differences were not associated with treatment effects. Our results further suggest that colonies respond to deficiencies in pollen quantity or quality by altering their ratio of naïve to experienced foragers.

SELECTION FOR FORAGING BEHAVIOR, Robert E. Page, Jr., California We found that when we added stored pollen to colonies, colonies reduced their pollen intake, thus stored pollen inhibited pollen foraging behavior. This result was first demonstrated by Professor Jennifer Fewell and Professor Mark Winston at Simon Fraser University. It has been confirmed repeatedly.

Recently, Dr. Tanya Pankiw has shown that brood pheromones release pollen foraging behavior. When young larvae are rinsed with a solvent like hexane, chemicals wash off their bodies that are stimulating to foragers. When these chemicals are placed into colonies, the numbers of pollen foragers increase dramatically, and instantaneously, demonstrating that brood pheromones are releasers of pollen foraging. In her study, Dr. Pankiw found that the addition of brood pheromones had no effect on the number of nectar foragers, demonstrating that there were bees in the colony that were competent to forage but were "unemployed."

Combined, these studies show that pollen foraging behavior is regulated by two factors: stored pollen which results in the inhibition of pollen foraging, and brood pheromone which stimulates pollen foraging. Our selection program in some way altered the way these stimuli within the hive affect high and low strain foragers. But, we know from other studies that we also affected the way foragers perceive stimuli encountered while foraging. We raised high and low pollen collection strains of bees together in the same hive then captured them when they returned from foraging trips. When we looked at those foragers that did not collect pollen, we found that high strain bees were more likely to return with loads of water and nectar that had a lower concentration of sugar. Low strain foragers were more likely to return with higher quality nectar, or empty. Previous studies had shown that worker honey bees extend their tongues (probosci) in response to sugar water touched to the antenna, but only if the concentration is high enough. The concentration must exceed the response threshold to sucrose and found that they differed in a predictable way. High strain bees responded more to plain water and lower concentrations of sucrose. Thus, another consequence of our selection program was to alter the perception of foragers to sugar rewards of nectar. BC

Ann Harman

Home Harmony

Honey Plus Recipes

October brings frosty nights to many parts of the United States. And those chilly nights seem to mean customers' thoughts turn to increased uses of honey. However, strangely enough, those increased uses sometimes do not amount to much.

Have you asked your honey customers what they do with honey? So frequently we get answers like "I put it in my tea" or "I need it to soothe a sore throat." Chilly Autumn weather may indeed mean an increased use of hot tea, but just how many sore throats does someone get between now and next Summer's hot weather? Not enough to make a dent in your honey sales.

I am sure you have some good responses to their statements. In fact, I would like to hear what you do say to your customers. Let me know and we can share your comments.

For the "I put it on my toast" honey lovers, you could suggest that they make a spread for toast, one that can be stirred up and kept in the refrigerator for multiple batches of toast. Sure, plain honey is wonderful, but let's introduce some variety for the toast spreaders. Frequently, just something quick and simple or a new idea will increase a customer's use of honey. That means more sales for you.

Often customers will look at creamed honey and ask if it is honey butter - meaning "Does this have butter in it?" I always respond by saying "No, it is 100 percent honey...." You can explain that a delicious mixture of honey and butter can be made at home, but it needs to be refrigerated because of the butter. Suggest that the customer try this recipe, which combines both creamed honey and butter, giving a spread with the additional flavor of cinnamon. It is perfect for toast. Explain also that honey, whether liquid or creamed, mixes quickly and smoothly with many ingredients.

There are so many "butter-like" spreads on the supermarket shelves today that it is difficult to recommend one over the other. Perhaps you can experiment with some of those spreads to see which combines with your creamed honey the best. You can then suggest an appropriate butter substitute that mixes well to give the spread a satisfactory texture.

HONEY BUTTER

Since this recipe is short, it would fit on a hangtag. Customers will choose a jar of honey with a hangtag over one without.

3/4 cup creamed honey
1/2 cup butter (you can experiment with other spreads)
1 teaspoon cinnamon

The butter should be at room temperature. Blend the ingredients well. Store in a cool place.

Ontario Honey Recipe Book
Ontario Beekeepers Association

HONEY ORANGE BUTTER

You can give the customer a choice of recipes if you include this one with the cinnamon spread. In addition, to stir up some interest in your honey and recipe offer, mix a batch of each recipe to offer taste samples served on small plain crackers.

3/4 cup creamed honey
3/4 cup soft butter or other spread
4 tablespoons orange juice
3 teaspoons orange rind, grated
1/2 teaspoon lemon rind, grated (optional)

Mix all ingredients together, beating until light and fluffy. Store in a cool place.

Ontario Honey Recipe Book
Ontario Beekeepers Association

If you have a computer, you can obtain some attractive computer papers that divide into postcard-sized sections. With a short, simple recipe or two printed on the cards, you can cheerfully announce "Well, here's something new for you to try!"

October brings many Autumn festivals. I hope you have a honey table at these craft fairs. Forward-looking people are there buying Christmas presents! I am always surprised at their organization – in the middle of October I am still thinking apples and pumpkins. However, I am always happy to see them buy jars of honey to put aside.

Here's a tip to keep those customers happy. I always recommend to those buying liquid honey they intend to keep for several months, that they immediately put the honey in a freezer to prevent crystallization. This gives me a wonderful opportunity to explain that crystallized honey is not spoiled even if it does not look very nice. Furthermore, it is characteristic of natural honey. A few minutes of such attention to a customer means repeat sales.

Although some people are thinking Christmas, others, particularly children, are thinking about Halloween. Here is a holiday that lends itself to using honey. Treats for the "goblins" who come to your door can be made with honey. Some children may be taking treats to school for a Halloween party. Although you have put some time into making various treats, you can easily publicize the fact that these treats were made with honey – your honey.

CHOCOLATE CLUSTERS

The following recipes are so quick and easy to make that children and grandchildren can make them. True, your kitchen may get a bit sticky, but that is a small price to pay for the publicity the candy-makers will give

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HOME ... Cont. From Pg. 41

when they tell their friends about the sweets made with your honey.

1 package (6 ounces) semi-sweet chocolate pieces
3 tablespoons honey
1 teaspoon water
1-1/3 cups unsalted peanuts (or coarsely broken pecans or coconut)

Over very low heat or in a double boiler, melt chocolate, honey and water. Stir in peanuts. Cool 10 minutes then drop by teaspoonfuls onto cookie sheet covered with waxed paper. Chill to harden. Makes about 2 dozen.

Mississippi Homegrown
Mississippi Beekeepers Association

CHOCOLATE BURRS

2 squares unsweetened chocolate
3 tablespoons honey
1/2 teaspoon vanilla
few grains salt
3 cups corn flakes

Combine all ingredients except corn flakes in a saucepan, heat until melted, and blend thoroughly. Then stir in corn flakes. Drop from a teaspoon onto waxed paper and let cool.

A Honey Cook Book
A. I. Root Company

CREAM DOODLES

The next two recipes call for peanut butter. I have found that the consistency of peanut butter is different between brands. You may need to experiment to find which brand gives you the best consistency. One nice thing about experimenting is that you can eat the ones that did not quite work out.

1 7-ounce jar marshmallow creme
1 cup peanut butter
1/2 cup honey
two 1.5-ounce chocolate bars, crumbled
1-1/2 cups raisins
1 cup pecans, chopped
2 cups shredded coconut

Combine marshmallow creme, peanut butter and honey until well blended. Add chocolate, raisins and nuts. Mix well. Shape rounded teaspoonfuls of mixture into 1-inch balls. Roll in coconut. Chill. Yield 25 balls.

Honey Recipes
NC State Beekeepers Association

ENERGY BALLS

3/4 cup wheat germ
1/2 cup honey
3/4 cup powdered milk
1/2 cup peanut butter

Mix all together and shape into small balls. Decorate with raisins or roll in grated coconut. Refrigerate until firm.

Honey Recipes
NC State Beekeepers Association

You can buy plastic wrap in different colors. Use this wrap for the honey candies. Black and orange ribbon – the paper crinkly kind – will keep the wrap from coming off. Share the honey recipes with neighbors and friends but be ready to supply the necessary honey. Leftover wrap and ribbon? Decorate some of your jars of honey with Halloween theme colors.

Actually all these candy recipes can be used to give your honey customers a taste of what can be done with honey, even when it is not Halloween. Who knows – you might even save the recipes to make some candies for Christmas!

Richard Taylor

Bee Talk

"I think honey is about the most wonderful food on the face of the earth, and I am reluctant to do anything that might tend to spoil it."

I think more mistakes are made in processing honey after it has been harvested, especially with respect to heating it, than in any other aspect of beekeeping, so let's talk about that.

First, though, something about straining. The first step is to put the honey through an ordinary kitchen strainer, or something similar, but this still leaves the smaller particles of wax, propolis or whatever. These will appear on the underside of the cap after the honey is bottled, giving a very bad impression indeed to the purchaser. To get these strained out, nothing works better than a nylon stocking. A package of these, knee-length, can be purchased at your supermarket. Several layers of cheesecloth is another frequently found recommendation, but the nylon stocking works better. You have to moisten it first, squeezing out as much moisture as you can; otherwise, the honey will not flow through it. And the honey should be warm, not hot, for this straining.

One other precaution: Do not let any granulated honey collect in a strainer, of whatever kind. Honey that passes over granulated honey picks up tiny crystals, thereby "seeding" the whole batch, and it will all granulate fairly fast, sometimes within 10 days.

Another consideration concerning granulation which is not widely known is that honey from many of the common tree sources is usually very slow to granulate. The commonest examples are basswood and tupelo.

Should honey be heated, beyond the warming necessary for proper straining? Opinions differ. My own view is that it should not. There are only two reasons for heating honey: to prevent fermentation, and to prevent granulation.

Honey that is nice and thick is in no danger of fermenting once it is properly packed in tightly sealed jars or other containers, but it is a real danger with honey that is thin. A rough test is sufficient for determining this. For example, note how fast a bubble rises in a jar at room temperature, or simply see whether a crop of honey runs or drips when you tilt it, or when you hold a comb horizontally and shake it gently. The difference between honey that is thick, as by nature it usually is, and thin honey, is fairly obvious. Thin honey is, of course, simply honey that contains too much moisture, either because it was harvested before the bees had reduced its moisture content (so-called "green" honey), or because it was exposed to moisture in the air. Even honey in sealed containers, such as plastic buckets, should never be stored where there is moisture, as in a damp basement. Honey that is still in the supers must not be stored under humid conditions, such as in an outbuilding when it is raining, because it will absorb moisture right through the cappings.

All right, let us suppose your honey crop is nice and thick, and not exposed to moisture. Should you heat it to prevent or at least retard granulation? There are several methods, and I'll review them.

One is to simply put the containers – five-gallon buckets or cans – in a water bath, and heat the water to about 160°F, preferably with thermostatic control. If the honey has already started to granulate, it will take about six hours to re-liquefy it by this method. The main problem here is that the heat is very slow to reach the honey in the middle or bottom of the containers, and sometimes, even after several hours, there will be a lump of solidly granulated honey there, even though the surrounding honey is quite hot. So the honey does not get evenly heated by this method. You need a method whereby the honey has become heated throughout rather than having that which is in closest proximity to the water bath overheated and the rest still cold or even granulated.

A mixing tank with an enclosed conical bottom can be purchased for heating honey. This is the so-called "double boiler" method. The cone at the bottom holds water, which is

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BEE TALK ... Cont. From Pg. 45

heated from underneath with a gas burner, and the honey above the cone is then slowly stirred with motor-driven blades.

I used that method for years, and it works fine, but the big drawback is that it requires this special expensive equipment. You really do not need that. You can get the same result with something much simpler, namely, a warming box, which I'll describe shortly.

The third method is the flash warmer. This is a long pan, the bottom of which is enclosed to hold water, which is heated with a thermostatically controlled immersion heater. The honey thus flows across a hot surface, from one end of the pan to the other, preferably going around a series of baffles to lengthen the time of the flow. The advantage of this method is that the honey is heated quickly, rather than being exposed to a long heating process, minimizing damage to its delicate flavor. The disadvantage, of course, is that it is one more expensive piece of equipment.

And this brings us to the fourth method, the warming box, pictured here with the youngest of my sweet children to convey an idea of size. This is, to my mind, about the greatest invention since sliced bread. You can make it yourself for a few dollars, maybe even with scrap lumber, as I did, and it works to perfection. I got the idea for it from Mr. Duane Waid, one of this state's premier beekeepers, who may, for all I know, be its inventor. Alternatively, you could use the carcass of a discarded refrigerator for the same purpose.

The bottom is 33"x 17"and about 11" deep. I used regular 2" x 12" stock, so the walls of this box are thick. Actually, you will do well to make that box about an inch or so longer. It has neither top nor bottom.

The upper box, which you set on top of the bottom one, is of the same size, except it is 18" deep. This upper box is really two boxes, one inside the other, with Styrofoam insulation between. In other words, it is a well-insulated box. It has no bottom, and the removable top consists simply of a slab of Styrofoam and a slab of plywood to go over that. Use Styrofoam for insulation. Do not use fiberglass, as bits of this could get into the honey.

Slats atop the bottom box support two five-gallon plastic buckets in the top box. The three slats in mine are visible in the photograph, but I should have used four.

The bottom box is equipped with two 100-watt light bulbs, one at each end. And the way this device works is the essence of simplicity. You put two buckets of honey in the top box, resting on the slats, turn on the two light bulbs, and leave it overnight. By morning the honey is warmed throughout, but not overheated, and ready to strain. If the honey was granulated solid you may need another hour or two. Then it is ready for straining and bottling.

The honey that is warmed by this method is still "raw" honey, for the temperature does not rise to 130°F, but it is warm enough for easy straining and bottling. Granulation is retarded somewhat, but not indefinitely.

Which brings us back to the basic question: Should honey be heated to prevent granulation? I don't think so. It takes a temperature of 150°F or perhaps 160°F to accomplish that, and I do not think it is worth it. Darker honeys, especially, should not be heated that way, as they are significantly degraded. And I think that even the mild honeys, such as clover, are damaged by such heat. Honey, though very stable, is still a delicate food, and is best when preserved in just the condition that it comes from the hive, at least to the extent that this is possible. What you can do, then, is advise the consumer, perhaps by means of a special label, that unprocessed honey eventually granulates, that this is perfectly natural, but that it can be re-liquefied by placing the container in warm water. That is what I do.

I think honey is about the most wonderful food on the face of the earth, and I am reluctant to do anything that might tend to spoil it. BC

Richard Taylor is a philosopher and lifelong beekeeper who lives in the Finger Lakes region of New York.

INNER ... Cont. From Pg. 6

Four years later, in 1975, the first personal computer showed up and print media and radio and television all watched. By 1984 eight percent of U.S. households had a computer, and that doubled in two years. By 1995 about 30 percent of U.S. households had one somewhere at home and today it's just over 50% . . . and over 80%, according to those whose business it is to count these things, have access to the internet.

Today, by best guesstimate, nearly 90 million people in the U.S. can, and do, use the internet for email, for gathering or publishing information, for entertainment and for buying and selling merchandise.

If you consider these statistics somewhat chilling, don't relax yet . . . there's more. This Christmas season, 75 million shoppers will spend 150 Billion dollars through net purchases rather than the traditional brick and mortar shops, according to a congressional study.

MIT, Vanderbilt, Carnegie Mellon and the University of Maryland, among others, are offering this year a Masters degree in E-Commerce Management.

This year email exceeded regular mail by a factor of ten to one.

Moore's now-three-year-old-law . . . that is, the capacity of the microchip doubles, while the cost halves every 18 months has already been cut by a third.

It took the last 12 years to double the amount of voice traffic over phone lines, but only 100 days to double the amount of data traffic over the internet.

Jupiter communications reports that 80% of U.S. online consumers trust online news as much as they trust newspaper, TV and magazines. And 7% trust it more.

From a purely ink and paper publication's perspective, five more points need to be explored . . .

1) Online audiences will continue to grow, alarmingly fast.
2) Online news sites will disproportionately benefit from high profile events. Real time, multimedia news is becoming the standard.
3) Online sites will siphon off the best of our reading audiences.
4) Online sites will siphon off revenue, and
5) Online sites will siphon off potential employees, writers and other contributors.

The genie is out of the bottle, so to speak, and if magazines and newsletters are to survive we must adapt some aspect of our business and exposure, while at the same time diligently protecting that 'Credibility Factor' that we have held dear for so long. While we can't be all things to all people, we, to continue, will need to be more things to the same people.

And what will it take? Well, that's the $64,000 question, isn't it? The goal, simply stated, is to keep the best of what we have, and add to that using the technology and techniques of this new age magic . . . and in the final analysis . . . save our paper. Recall the battle cry of the print media when television came to be. They cited that the depth, breadth, accuracy and analysis they were capable of . . . and television was not . . . . was exactly correct.

They were capable of all those things. But it took several, many actually, years to figure out how to successfully compete. The result? Less than admirable in my opinion.

From a recent American Journalism Review survey of U.S. newspapers during the last 35 years a few gems. . .

* Business coverage has doubled, but so has weather coverage.
* Front page story size has tripled . . . there are fewer, but longer stories.
* Sports coverage has increased about 20%.
* Feature articles have doubled, and actual news has decreased 12%.
* and, International coverage has dropped by over 70%.

The good news is . . . .

* Coverage of the arts has increased about 20%.
* Nonwhite and female issues have more than doubled in coverage.
* Letters to the Editor have more than doubled.
* Attributed sources listed as anonymous, or none given at all have DECREASED by a third, and .. .
* Non-expert, but knowledgeable laypeople are being cited a third more often.

A study of news magazines during nearly the same time frame conducted by Folio: magazine provided remarkably similar results.

Everything you do for your magazine or newsletter has to have one, clear, simple goal. To borrow one of the current buzz words from the honey marketing people . . . Value Added. You already have a product you, and your readers are comfortable with and is meeting everybody's needs. So, everything you do to that product must only add value to it from your reader's viewpoint. Conversely, anything you do to your product that reduces its value should be avoided.

So what can you do for ink and paper in the digital age? Well, there are several ways to proceed. You can stay absolutely unchanged, providing readers with what they've come to expect, month after month, issue after issue. Just keep putting ink on paper.

Another choice, a bit more involved than the first, is to use this new technology to reduce your costs, which you can view two ways. First, you are probably already using email, looking up information at a web site, or just exploring . . . this should tell you something. Others are already adding value by offering something you are interested in. Nevertheless, if providing portal capability, lots of content, and more of that fancy web page stuff isn't for you just yet, a slower paced entrance is to actually speed up, and update your reader service department.

What about handling membership updates, missing issues, change of address and the like? You can inexpensively and easily create a web page that frees up some of your time and offers your readers an easy way to get and give help.

If web page content is in your plans, merely putting your regular issue up defeats your purpose. If you are interested in upgrading use material that does two things . . .

First, do not compromise the credibility, the image or the reputation your ink and paper edition has. Second, let the digital material you produce enhance what your ink and paper issues do. Make it provide greater depth, more breadth and insightful analysis. In short, when a regular reader takes a stroll through your digital domain they will feel at home. And when a new reader discovers your efforts the end result should be a reflection of your ink and paper work. Your ink and paper and digital productions should work together as a well orchestrated source of information. Each should stand alone . . . but together be even stronger.

Do these things and your ink and paper tradition will continue. But it won't be the same, it will be even better.

?Do You Know? Answers

1. **False** Female bees (workers and queens) have stingers and are capable of stinging. Male bees (drones) lack a stinger. Workers lose their barbed stingers when they sting, and die shortly thereafter. The queen does not lose her stinger, which is normally used to destroy other queens.
2. **False** Bumble bees have annual colonies and honey bees, perennial colonies. Bumble bees start each Spring with a new nest. A mated female that overwintered in solitary hibernation finds a suitable nest site, forages for nectar and pollen, and begins laying eggs. Honey bee colonies remain active throughout Winter and survive by forming the Winter cluster.
3. **False** In late Summer/early Fall a bumble bee colony produces males and sexually mature females that mate. The mated females abandon the nest and go into solitary hibernation, and the males die off.
4. **False** The color of honey is highly variable depending on the floral source. Natural honeys may be nearly colorless (water-white) to various shades from very light yellow-beige to as black as molasses (dark amber).
5. **True** Honey is a high-energy carbohydrate food in which sugars make up, on average, 98 percent of the solids found in honey.
6. **False** Since honey contains 17-18 percent water, when it is substituted for sugar in recipes, reduce the total amount of other liquids by one-quarter cup per cup of honey used.
7. **True** Honey sugars have approximately 25 percent greater sweetening power than cane sugar. One pound of honey containing approximately 17 percent water is equivalent to about 0.95 lb(15.25 oz) granulated sugar. A tablespoon of honey contains approximately 62 calories and a tablespoon of sugar, 50 calories.
8. **False** The faster honey granulates, the smaller the crystals will be. Slow granulation produces large, coarse crystals.
9. **False** Honey is primarily a source of carbohydrates with 95 to 99.9 percent of the solids being sugars. Even though honey contains some minerals and vitamins, it cannot be considered vitamin- and mineral-rich.
10. **False** The storage of honey in a refrigerator is not recommended since the optimum temperature for granulation is 57°F. Granulation is accelerated between 55° and 60° and initiated by fluctuation at 50° to 55°. Refrigerator temperatures cause honey to granulate very quickly.
11. **False** Crystallization of honey is a natural process that does not indicate spoilage. Honey is a super-saturated solution containing more dissolved material than can normally remain in solution. Such solutions are more or less unstable and in time will return to the stable saturated condition with the excess material coming out of solution.
12. **False** Honey bee workers have barbed stingers and lose them when they sting; thus they are able to sting only once. The barbs on a yellow jacket stinger are much smaller than those of the honey bee. Consequently, the sting does not normally become fixed in a person's flesh, and the wasp may quickly withdraw with an upward pull of its abdomen and sting again.
13. **False** Commercially bottled honey is heated only for processing purposes. Cool honey that resists flow is more difficult to process than warm honey. The honey is heated so it can be pumped, strained and filtered. It is also heated to kill the yeast present in honey to keep it from fermenting. Since bacteria cannot survive in honey, there is no need to pasteurize it.
14. **False** Drone honey bees do not visit flowers for nectar and pollen. Energy for flight is obtained by consuming honey before they leave the hive. Male bumble bees, however, visit flowers for food for themselves but do not collect it for the colony.
15. B) 18.6% moisture
16. E) 3.9
17. C) 25° F
18. C) Pollination of agricultural crops
19. Liquid extracted honey
    Cut comb honey
    Section comb honey
    Creamed or finely crystallized honey
    Chunk honey
20. A) Overheating
    B) Fermentation
    C) Undesirable plant sources
    D) Using smoke to drive bees from honey supers
    E) Improper use of chemical repellents to drive bees from honey supers.

There were 25 points in the test this month. Check below to determine how you did. If you scored less than 12, do not be discouraged. Keep studying.

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 MS State University, Mississippi State, MS.

Gleanings

OCTOBER, 1999 • ALL THE NEWS THAT FITS

Beekeeping Educator Of The Year
CARON RECOGNIZED

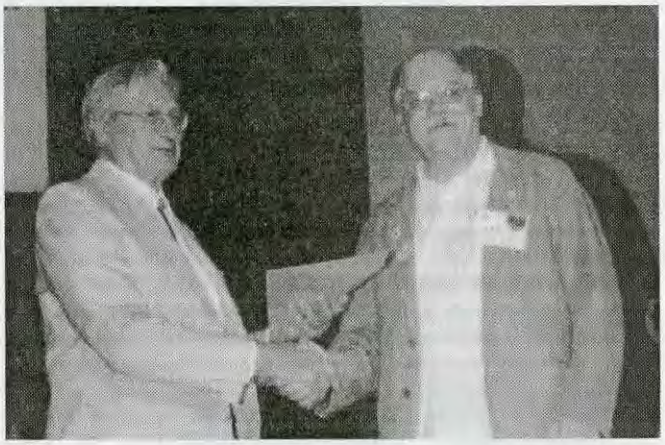
Dr. Dewey Caron, University of Delaware entomology and applied ecology professor and Cooperative Extension entomologist, has been named Beekeeping Educator of the Year by the Eastern Apicultural Society.

This award, also known as the Charles and Evelyn Divelbiss Award, is given to a person who has spread word to the non-beekeeping public about the value of honey bees. Sponsored by the Wicwas Press, the award keeps alive the Divelbiss' passion for bees and teaching others.

Caron teaches beekeeping to farmers around the world as well as his students at the university. In his spare time, he researches and tracks the path of the Africanized bee, also known as the killer bee. He has written an apiculture textbook and numerous articles on beekeeping. Recognized for his excellence in teaching, Caron received awards last June from the Entomological Society of America and the university. He was chosen as the 1998 recipient of the student-nominated UD Excellence in Teaching award.

Caron received his bachelor's degree from the University of Vermont, his master's degree from the University of Tennessee and his doctorate in entomology at Cornell University. He has been at the University of Delaware since 1981.

Apimondia Awards
Pests, Predators Wins Gold



The A.I. Root Company captures two medals at the 1999 Apimondia Congress in Vancouver, B.C.

A Gold Medal Award was given to *Honey Bee Pests, Predators and Diseases*, published by the A.I. Root Company. Thirty-two authors contributed to the effort, edited by Roger Morse and Kim Flottum.

Pollination, A Grower's Guide, a video produced by Dr. Nick Calderone, now at Cornell University in NY and exclusively promoted by the A.I. Root Company won a Bronze Award.

Kim Flottum, Publications Manager for the A.I. Root Co. accepted the awards from President Borneck at the closing ceremony of the Congress, attended by over 3,000 people.

WELLMARK APPOINTS VICE PRESIDENT

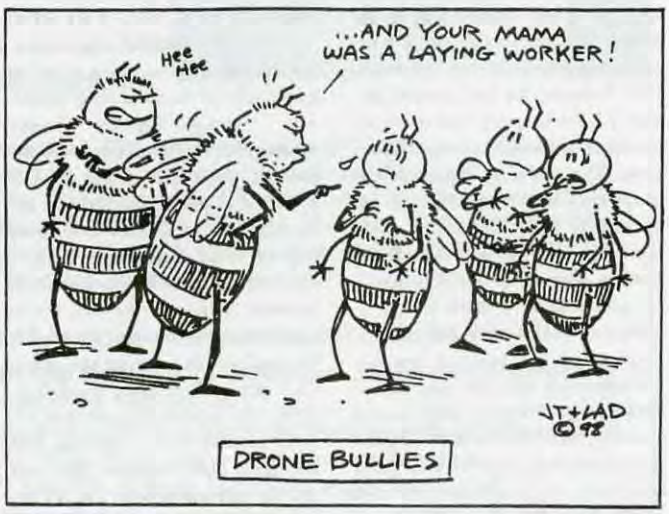
Wellmark International has named Brad Chalk vice president of sales and marketing. He will direct strategic planning, sales and marketing efforts for Wellmark's pest control, specialty and large animal divisions.

Prior to joining Wellmark, Chalk managed sales and marketing for FMC Corp., where he helped position Dragnet® termiticide as a market leader. He also introduced Talstar® insecticide and other FMC products.

Chalk also has an extensive advertising background in account service, having worked for well-known agencies such as Saatchi and Saatchi Advertising and HBM/Creamer Advertising in New York.

A former board member of the National pest Control Association and member of the United Producers and Formulators Association, Chalk will serve on Wellmark's Executive Committee.

Located in Bensenville, IL, Wellmark is a leading producer of chemical and biological products for controlling unwanted pests in a variety of markets.



CHINA, PEOPLES REPUBLIC OF . . .

Yields There are about 200,000 beekeepers in China. On average, each beekeeper owns 30-40 hives. Yields vary greatly among different beekeepers. A skilled beekeeper with an above-average hive can produce 50-60 kg of honey and 1.5-2.2 kg of royal jelly. However, many hives yield less. In recent years the average yield per hive has been 25-30 kg of honey.

Some experts and beekeepers have reported considerable growth in bee product yields over the last decade, especially for royal jelly. The causes for growth include genetic improvement in breeding bees, development of more efficient equipment and newly built highway networks that reduce traveling time for beekeepers.

The average net income earned by a beekeeper in a normal year is estimated to be 5000-6000 RMB (approximately $600-700). The annual per capita income for a beekeeper household is 20-25 percent higher than the average income for rural households. However, the majority of beekeepers must travel thousands of kilometers each year. Their nomadic life is difficult and risky. Reports in recent years state that beekeepers have been asked to pay undue fees and have been charged with criminal offenses.

Production Policy Chinese government policy encourages honey production because it is considered an effective way to raise rural incomes and bee farming benefits crop production. Beekeepers are allowed to sell their bee products, such as honey and royal jelly, at production sites without having to pay taxes and fees.

The China Bee Products Association and the National Supply and Marketing Cooperatives jointly organized a conference in November, 1997 focusing on the positive impact of beekeeping activities on poverty alleviation in mountainous areas. The summary report of the conference was later officially endorsed by State Councilor Chen Junsbeng, who was in charge of the poverty alleviation. Many beekeepers are anxious to have access to technical information and materials regarding bee breeding, bee disease treatment and new practices of beekeeping. However, only limited chances exist for them to acquire the information, due to their poor education and inadequate services provided by the government. There have been some press reports requesting that the Ministry of Agr. Provide more training for beekeepers.

Trade --- Exports China exported 78,678 MT of honey in 1998, 63 percent greater than exports in 1997, but still significantly lower than those during 1995-1996. There have been large inconsistencies between Chinese honey exports reported by China Customs and those reported by countries importing Chinese honey. China customs has reported a much lower volume of trade than importing countries have reported, indicating large gray channel trading. Much of the reported export growth in 1998 may be due to the massive anti-smuggling campaign launched by the Chinese Government in 1998, which exposed previously smuggled honey exports. Exports in the first half of 1999 were 34,004 MT, almost 20 percent higher than those during the same period in 1998. Post forecasts that China's total honey exports in 1999 will reach 80,000 MT.

China's honey exports to the U.S. recovered to 13,994 MT in 1998, an increase of 79 percent over 1997 exports. However, exports still failed to reach levels attained in 1996. Honey exports to the U.S. in the first half of 1999 were 9,581 MT, more than double exports for the same period in 1998. Exports to the U.S. in recent years have been influenced by implementation of the Honey Suspension Agreement between China and the U.S. in 1995. According to the agreement, the price of Chinese honey exported to the U.S. was determined by a reference price set six months prior to actual trading. When the world prices declined, the pre-set reference price prevented Chinese export prices from adjusting down to prices offered by competing exporters, leaving Chinese honey uncompetitive. In recent years the price of honey exported to the U.S. has been 15 percent higher than the average price of China's total honey exports to all destinations. Following consultation and negotiation between China and the U.S., a new agreement was reached to modify the method for setting the reference price. Beginning on July 1, 1998, the reference price was set three months prior to trading. The set export price has since fallen and quickly converged with China's average world export price. During the first half of 1999, the price of honey exported to the U.S. fell to a level only 5 percent above China's average world export price.

Japan traditionally has been a major export market for China's bee products. However, China's honey exports to Japan fell significantly in 1997 due to the Asia financial crisis and depreciation of the Japanese yen. Honey exports to Japan in 1997, as reported by China Customs, were 16,533 MT, compared with 28,601 MT in 1996. In 1998 exports recovered to 23,015MT. However, Japanese custom statistics paint a different picture of trade. China's honey exports to Japan declined to 30,787 MT in 1997 from 38,410 MT in 1996, and fell further to 27,279 MT in 1998. The Chinese data indicate a drastic drop in exports in 1997 and a recovery in 1998, whereas the Japanese data show a steady decline over the entire period. Second, the Japanese statistics show substantially larger trade volumes than those recorded by China customers; 34 percent, 86 percent and 18 percent larger during 1996, 1997 and 1998, respectively. Industry sources suggest smuggling was the main reason for the data discrepancy. However, China's anti-smuggling campaign launched in late 1998 has caused previously smuggled exports to be traded legitimately, and therefore appear in China's statistics. As a result, the volume gap between China Customs' and Japan Customs' honey export statistics narrowed in 1998. Germany was the second largest market for China's honey exports in 1997 and 1998. However, China's honey exports to Germany fell drastically in the first half of 1999 to 2,287 MT from 8,942 MT during the same period in 1998. Germany imported 6.7 percent of China's total honey exports during the first half of 1999, compared with 31.5 percent during the same period in 1998. Germany consumes honey domestically and also processes and repacks it for export to other European Community and Middle East countries.

Reprinted from National Honey Market News

Display Advertisers

Charles Mraz 1905-1999

Charles Mraz, age 94, died September 13, 1999 at his home, surrounded by his family, following a brief illness.

Charles was born on July 26, 1905 in Woodside New York City, son of Karl and Maris Mraz. Charles started with bees in 1914, while living in Queens, NY. He then worked for other beekeepers in upstate New York before moving to Middlebury in 1928, where he established Champlain Valley Apiaries. He became a world renowned beekeeper and maintained New England's largest apiary for over 60 years. At one point he operated over 1,000 colonies. He traveled to South and Central America, Europe, Asia, and the Middle East as a consultant on beekeeping methods and technology. In 1992, the American Beekeeping Federation recognized Charles among the five most distinguished beekeepers in this country for his advances in commercial beekeeping. He was instrumental in the development of the fume board, at first using carbolic acid. He also developed a line of queens that were remarkably well adapted to his part of New England. He produced and sold thousands over the years. To spread his good ideas, he wrote a column for *Gleanings In Bee Culture* for many years entitled 'Siftings.'

Charles was also an avid gardener and dedicated to the practice of organic farming. He was a president and board member of the Natural Food and Farming Association, the precursor to the Northern Organic Farming Association.

Charles was recognized in this country as the pioneer of bee venom therapy, the use of bee stings to treat autoimmune diseases. He initiated clinical research with scientists at Sloan-Kettering Institute and Walter Reed Army Institute. He established the standard for purity for dried whole venom for the FDA and was the supplier of venom to pharmaceutical companies throughout the world. He was a founding member and Executive Director of the American Apitherapy Society. Charles earned the gratitude of thousands of people who traveled to his home for bee venom treatments or met him at apitherapy conferences around the country. In 1994 he authored "Health and the Honey Bee", a recounting of his experience with bee venom therapy.

Charles is survived by his wife, Pamela. His first wife, Letitia died in 1948, and his second wife, Margaret died in 1992. Also surviving are daughters Michelle Mraz of Burlington, VT; Marna Ehreck of Shelburne, VT; and Laurie Zwaan of Exeter, NH and sons William of Middlebury and Charles of Destin, FL; 13 grandchildren and seven great-grandchildren.

"People were still coming to see him for treatment" said Mitchell Kurker, Michelle's husband. "Somebody came to the house for stings, even on the morning he died."