

# Bee Culture

NOV 2000

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# Bee Culture

THE MAGAZINE OF AMERICAN BEEKEEPING

NOVEMBER 2001 VOLUME 129 NUMBER 11

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The Sting's the thing this month according to Jim Tew, Richard Taylor and A. Gary Shilling.

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## KEEP IN TOUCH

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### Swarm Saves Life

In April 1997 a neighbor (Ruth) fell off a ladder while pruning the hedges on the hillside of her backyard. The result was a bad break of leg bone at her right ankle.

She couldn't stand up to walk and was bleeding some. Figuring that no one could see or hear her where she had fallen, she crawled downhill on her stomach and elbows for about 150 feet and about halfway down her concrete driveway. She was calling for help at the same time, but her voice only sounded like a cat fussing. She must have been in severe pain.

I was outside working in my shop and watching my beehives close by in my backyard. It was a nice sunny day and the bees were flying good. Well, while hearing this (cat?) one of the bee colonies started to swarm. So, I called to Rob (next door 6 year old boy) who was in his backyard playing, to come over and watch the swarm with me. I've been teaching him and his brother about the bees, especially the swarms. Occasionally some of my bees swarm in my and their trees and bushes.

Meanwhile another neighbor's dog started barking. I couldn't see why but thought he heard the (cat?). At the same time something told me to go behind my beehives and remove the top cover off the hive that was swarming and had landed in my crabapple tree. I had been praying that they would go back into their hive, and they did.

At this time, the dog's bark was more insistent and I could see him facing Ruth's house while I was behind my hives. Well, I thought that I'd better check this out, so I moved where I could see Ruth's house better.

I was startled at what I saw. Ruth was laying on her stomach and elbows and her head raised up calling for help. Her voice was clearer now and I could distin-

# MAILBOX

guish the word "help." I yelled at Rob to come with me to see what we could do. Ruth told us she had broken her right leg at the ankle.

Well, I felt read bad, as for about the last 15 minutes or so, I thought what I was hearing was a cat. I sent Rob home to get a blanket to keep Ruth warm and prevent her going into shock, and to bring Rick (his oldest brother) back with him. Meanwhile I call 911 for help and ambulance. They came right away and I was really impressed with them. I sent Rick home to call Ruth's husband to meet her at the hospital.

These boys were very helpful and a credit to their family and community.

If these bees had not swarmed and this dog's bark had not changed, I would have not known of Ruth's situation. There were no other neighbors at home to see or hear her and no traffic along the road in front of her driveway at this particular time.

Ruth and I really believe her prayers for help were answered in this manner.

Voron Baughan  
Chattanooga, TN

### Way Off Base

In reference to the letter from Paul Doerr (*Bee Culture*, September 2001), it reads like a novice incursion into known conquerable bee territory. As all military leaders know, you must first weigh the facts, analyze the alternatives before coming to a conclusion and deciding on a course of action (C & GS College, Ft. Leavenworth, KS).

Much of your comments were minutia and show a lack of study and experience.

Larvae of parasites on a frame can get to the other side, cracks or no cracks. Bees will probably cover the holes/cracks with wax or propolis anyway. Don't sweat it. Bees in a strong hive will carry out wax moth larvae.

Your special military duty should have taught you that all is not win-win. Medicinal treatment of hives is less than 100% effective, which is livable. Beekeepers cannot totally destroy the enemy. We adapt.

Glidden is as good as any white hive paint; three coats are normal. Some paint the hive with aluminum paint. Never paint any portion of the inside of the hive - top, bottom, or boxes. The bare wood will absorb excessive hive moisture. There is no lack of information on this subject, contrary to your statement. Our bible *The Hive and The Honey Bee* first published in 1853 and revised many times, is for sale at any bee supply house. 1324 pages plus, \$35. It has everything you should know, and more than most can comprehend.

God programmed bees at creation with all the knowledge they need. Bees react by instinct. Hive cracks are filled with propolis, which is anti-bacterial. Bees will sting a mouse to death and coat it with propolis to prevent putrefaction and disease in the hive. God is Great!

I disagree with you, as to the lack of imagination by innovative beekeepers. I have had hundreds of my suggestions published in *Bee Culture*, *American Bee Journal* and *Speedy Bee*, some articles for pay. I have one now that answers a question raised in the last issue of *American Bee Journal*: How do you combine frames of bees from several hives into one nuc without them killing each other? Simple. Spray each frame with liquid smoke or vanilla extract/honey syrup as you combine them. This changes the smell of all the bees to one odor, one colony. Other beekeepers share their experiences when we get together.

I have not taken the time just to embarrass you with this letter, but to say you are way off base in your criticism and wee bee knowl-

Continued on Next Page



# MAILBOX

edge. Go to the nearest county extension office and obtain information about beekeepers/bee association and fellowship with them.

Fred Fulton  
Montgomery, AL

## Sioux Honey Responds

Over the years Sioux Honey has been generally loved and respected by it's members and some nonmembers that sell their crops to Sioux Honey.

The quality control that you mentioned as a result of our laboratory facilities has not only been an important part of our operation, but has been at the service of other segments of our industry because we believe that any negative publicity that we can help prevent, wherever it may originate, will help maintain a positive image for honey.

We in Sioux are gratified to be a part of the continuing effort to present a united front in our industry-government relationship and in our mutual need to market our product in the largest quantity commensurate with fair and equitable earnings for all domestic beekeepers.

We thank the Wise Guy for the column outlining our growth and service to the members. We will remain dedicated to the high standards set over the last almost 80 years. Our new members and their production will join us in that pledge.

L. John Milam  
Chairman of the Board  
Sioux Honey Association

## Failure To Requeen

Your answer to Loren Croone of Hudson, WI to his question of "too much pollen" may very well be true, but it missed the mark of his question. His hive that had the over abundance of pollen was caused by the loss of the queen and the failure of the hive to provide a replacement queen. In my long experience as a beekeeper, any time a hive loses its

queen the hive will fill up all of the brood chamber and in some cases the second super with pollen. I've always felt that its their compensation for wanting new babies and knowing that they would need pollen.

When I find this situation, I remove most of the frames filled with pollen from the hive and replace it with honey, brood and fresh laid eggs from another hive with or without a new queen added to reestablish the queenless hive. I will use the frames filled with pollen in starting nucs or to beef up weak hives that my be short of pollen.

Max Eggman  
Terra Bella, CA

## No Coffee In Smoker

Nice article on smokers (September 2001). Here's a P.S: Be careful what you put in them!

For years, we've started the smoker with the paper that separates sheets of foundation, followed by burlap (from old potato or grain sacks), then pine cones. Gentle bees. Rarely ever stung. This year, at harvest, the first hive went beautifully but the next made African bees seem gentle by comparison. They stung. They followed us under trees, into the shed yards away from the hive. They were furious and persistent, while heretofore as gentle as all the others. What was going on? Then the penny dropped: I'd put in the smoker as we began that hive, some burlap that was from a bag that had held coffee beans! The moment I took that out, replaced it with old burlap from potato sacks, and smoked us and the bees again, they calmed right down and were pleasant to work.

Several days later, I walked about 15 feet from that hive wearing a T-shirt from harvest day, and was stung again. After laundering everything, no problems.

Caffeine? Some essential oil or other? Bees with a grudge against Juan Valdez?

Anyway, don't use coffee bag burlap in your smoker!

Jim Lowe  
Elizabeth, NY

## Crop Failure In CA

There has been a generally universal crop failure in our area this Summer from yellow star thistle (*Centaurea solstitialis*). This follows a pattern first noticed in the year 2000. Although environmental conditions (timely rains during last Winter and favorable Spring temperatures) were somewhat less than ideal, this cannot explain the almost unheard of failure. It may be attributable to the biological controls, parasitic organisms, released in northern California that prevent the formation of viable seeds. Yellow star thistle is an annual, with a deep root system that allows it to persist in the hot, dry conditions in the upper Sacramento Valley of California. The thistle is a noxious weed that has spread rapidly to rangeland and cultivated acreages. There has long been a demand for a control more effective than chemicals and other means.

Perhaps what is not understood as yet is how the parasitic control may be linked to the lack of nectar secretion, if indeed this is the cause. The plants continue to produce bloom, at least for the time being. The lack of nectar is so evident that full strength colonies in the midst of several hundred acres of thistle showed no flight activity. We can only speculate about the cause. It may be that the normal activity of one or more of the plant function regulators is disrupted to the extent that nectaries are either non-existent or unyielding. Plants react physiologically to environmental conditions that affect their tolerances. These reactions are carried out in the plant by transitory chemical substances called plant hormones.

It may be that this trend will continue until thistle honey becomes a product of the past, a benefit to general agriculture but represents a loss to local beekeepers. Time will tell.

Larry Goltz  
Redding, CA

**Editor's Note:** Larry Goltz is the former Editor of this magazine, and now resides in Redding, CA. He is a regular contributor to these pages, and a keen observer of what goes on around him.





# INNER COVER

**E**lsewhere in this issue is the announcement for our annual Newsletter Contest.

This is the third year we've done this, and participation, and interest continues to grow.

Doing a newsletter is what got my foot in the door for this job so I've kept interest in the craft. Over the years we have published many articles on newsletter production, fea-

turing the fundamentals of printing and reproducing to the more subtle aspects of paper color and convincing Presidents to write something.

We've also supported newsletter editors, those who make us meet deadlines, do the typing, the folding and taping (the Post Office *will* retaliate if you continue to staple newsletters shut), and the labels and the stamps and the mailing and starting all over again. Getting, and keeping a good editor is one of the hardest things a group can do, because a newsletter is an association's lifeblood.

I'm not kidding. Good meetings, dynamic leaders, lots of money all are needed for a group to survive and thrive, but your Newsletter is what holds it all together.

There are two things about this contest that bother me. One is that more people don't enter their newsletters, mostly because, the feeling goes, "Mine isn't good enough." Which, by the way, is *never* true. If it gets mailed on time, most of the time, it's good enough. But the second thing that bothers me is that we don't have the resources to evaluate the entries. Many entrants ask, "What could I do to make mine better?" Or, "Why did that one win, and that one not win?" There just aren't enough of us here to do that in a timely manner. But! This year we'll try something that may help.

This year, entrants will get their score sheets back (sent to the Editor, providing that information is provided – as is called for in the rules and is, amazingly, often overlooked). This will show in more detail *what* the judges are evaluating, and *how well* each entrant did in each category. Much like a honey show score sheet.

Send in your newsletters this year. I want to be buried in entries, and you could win money for your group!

Earlier this Spring I made some comments on this page about lady bugs. They seemed more common than usual last Fall and some of my normally normal neighbors reacted a bit, well, hesitantly when it came to dealing with them in their houses.

Fast forward to this Fall. I receive about 35-50 news releases a *day* from all manner of sources. Most of these send out releases daily or at least two or three times a week, and most don't affect the beekeeping industry at all. But once in awhile one does, and I hope to capture the information, to put in the *Gleanings* section, or to send out on *Catch The Buzz* email.

In early October one of these releases came across my desk having to do with an explosion of those new lady bugs in Ohio. It had to do with another new pest in Ohio and the Midwest – the soybean Aphid – and how, because the aphid population exploded, the population of ladybugs that fed on them exploded at the same time.

The very day I got the news release, that very day, I went home, and, lo-and-behold there were thousands, maybe millions of those same lady beetles (as they are called) all over the side of my house. The west side, the warm side. And they were sneaking into my entry way through every nook and cranny and crevice that existed.

Inside of 15 minutes I vacuumed up over a quart jar full of them from the inside. By dusk they had quit trying to get in, settling down for the night somewhere else. Or maybe the word got out that this wasn't the best place to overwinter.

A quick check with my neighbors found them scrambling too, caulking around windows and siding, sucking them up and sweeping them out. For the most part they are coping with less stress this year than last year.

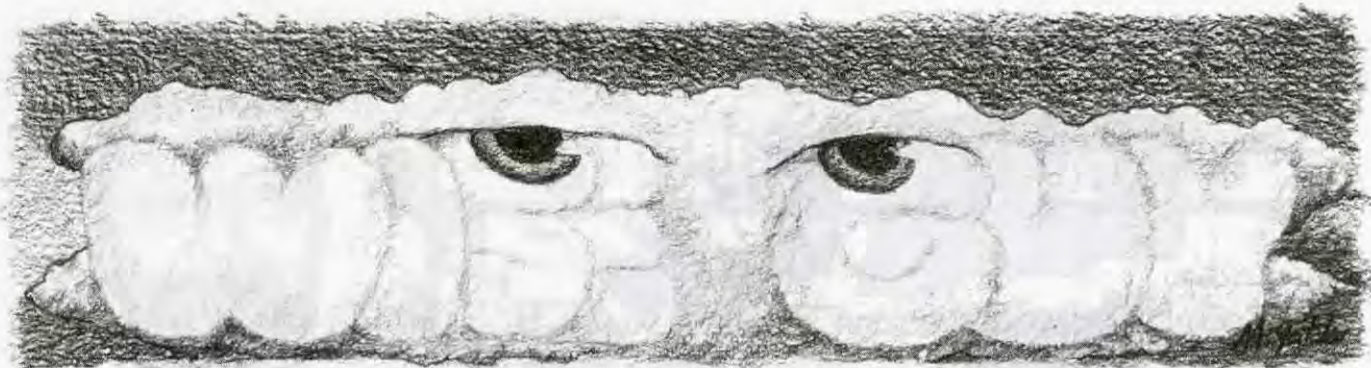
The point of all this is that the minute we take nature for granted she will rise up and bite us where we least expect it, when we least expect it. This certainly holds for beekeeping.

Last Winter was a surprise for many. Colder weather, tracheal mites big time, resistant *Varroa*, resistant foulbrood everyone of these was a surprise that shouldn't have been.

I should have seen this lady beetle thing coming. Corn prices were down, soybean acres were up, there are no good treatments for soybean aphids, and no natural controls on the imported lady beetle I'll probably be sweeping them up all Winter. And, although when you step on one it crunches and stinks, a sharp hive tool cleans them up slicker than anything.

Newsletter  
Contest and More  
On Lady Bugs





The United States is at war with terrorism. The acts in New York and Washington DC have made us as a nation say enough is enough. We want this stopped. We have been experiencing terrorism as a nation for years but this is the first time on our shores we have suffered a great loss of life and property. Terrorism by definition is systematic use of terror (which is the use of fear and anxiety to cause worry) as a means of coercion. I believe Americans today are affected by the fear of uncertainty due to terrorism and it will change our way of life. We will change our trusting nature and become a nation that no longer easily trusts other people. Suspicion will be an important part of our future.

Now what does that have to do with the price of honey? Plenty! In the honey industry we have been affected by economic terrorism for years. Example. In the middle 90s an action was taken against China who was dumping honey in the United States. A suspension agreement was done, limiting the amount of honey China could send into this country. Domestic honey prices increased, and Argentina started to send more honey to this country at a price close to the domestic price. Suddenly Argentina dramatically lowered their price. When they did that the clause in the anti-dumping action that said China could send honey in here at 92% of the price of Argentina, kicked in. Then the seesaw battle was on to see who could sell foreign honey at the lowest possible price.

Was there coercion to lower the price of honey? Why would Argentina lower their 70¢ per pound price to around 40¢? If Argentina had held their price China had a volume max they could send here at 92% of 70¢.

Who benefited from importing cheap foreign honey? Who points the

finger at each other and says they started their trouble? Who compromised the quality of our product on the shelf? Who promised to buy your honey crop and never picked it up? Who told you they could buy foreign honey for 48¢ and they offered you only 46¢?

Answer this. How could the price of honey paid to the producer by a business on the East Coast be *the same* as that offered by a business in the Midwest? Could both have the same costs? Did both pay the same cost of labor? Were both paying the same interest on loans? Were their transportation costs the same? Did both operate their equipment at the same costs?

Is there coercion here? Do some of these actions cause anxiety and fear? Would this fit as economic terrorism?

Does the before mentioned thinking carry over to the National Honey Board too? Let me give you an example. The NHB had a meeting in Minneapolis earlier this year and part of the meeting was slated to bring all segments of the industry together to save the NHB in some form or fashion. One of the speakers was an industrial user of honey who's central message was "if you get the price of honey too high we will quit using it." When asked how much honey was used in their breakfast food he didn't know, but I am sure he only wanted to protect their own formula. Then another question went something like this "The NHB has told us through their studies that customers will pay 20% more for like products if one contains honey and it appears that on a \$4.00 box of breakfast food you put 5¢ of honey into that product. If the cost of honey went to 10¢ per box your additional premium paid to you by the consumer would still be 75¢ per box! Would you still remove the

honey? His answer was "Yes!"

Another person in the audience asked him if he removed honey from the formula would he remove the name honey from the box! Now to the prudent person, if you have to add 5¢ in the expense side or lose 75¢ in the income side, how hard a decision would that be? It appears this gentleman came to this meeting with one idea, keep honey prices low or else.

There is a honey board member faxing portions of this message to his fellow importers and marketers, and as per his own writing he took these from the minutes of the National Honey Board meeting. He only uses the portion that fits his needs. They are importers or marketers - what a shock.

Trust and good business practices. Those two areas are what built most of our businesses. Now, the lack of these will be our downfall. Economic terrorism is being used in the honey industry. Suspicion will be an important part of our future.

*Wise Guy*

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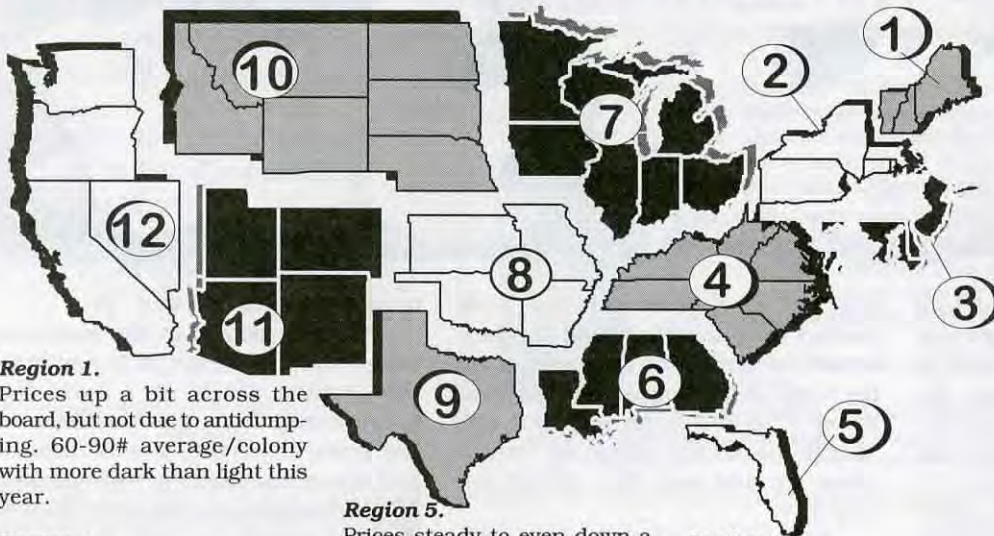
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# NOVEMBER - REGIONAL HONEY PRICE REPORT



**Region 1.**  
Prices up a bit across the board, but not due to antidumping. 60-90# average/colony with more dark than light this year.

**Region 2.**  
Mixed prices, but antidumping not an item here yet. About a 65#/colony average, down 25-30 on average. More dark produced than usual too, at about half and half.

**Region 3.**  
Prices increasing as a result of antidumping say reporters, 44#/colony average is below average by half and more white than dark produced.

**Region 4.**  
Prices steady to even down a bit, with no antidumping ripples yet. 54#/colony average is about average, but lots more white than dark produced.

**Region 5.**  
Prices steady to even down a bit since last month, with obvious antidumping effects felt. 100+#/colony average up a bit but more dark than usual produced.

**Region 6.**  
Prices up, mostly due to antidumping effects say reporters. 100+#/colony is actually down from the average, and less white produced than normal.

**Region 7.**  
Prices rock steady so far but won't be for long as increases are in place due to antidumping, according to all reporters. 70#/colony average is down about 25#/colony, with light by far predominant.

**Region 8.**  
Prices mostly steady but a few ups and downs attributed to antidumping by some. 100#/colony average is average, with lots and lots of white produced.

**Region 9.**  
Bulk prices down, the rest up, with some antidumping ripples being felt. 90#/colony average is down roughly 50#s with about an equal mix of light and dark.

**Region 10.**  
Prices up a tiny bit, with some antidumping effects at retail felt. 60#/colony average down about 45#/colony, and light honey production down.

**Region 11.**  
Prices steady to down just a tad for no good reason. 100#/colony average down about 15#s on average, with more dark than light, and even darker light than normal.

**Region 12.**  
Prices down here, too, for no good reason. Antidumping effects not large, yet. 50#/colony average half of normal and lots more dark than normal produced.

	Reporting Regions												Summary		History	
	1	2	3	4	5	6	7	8	9	10	11	12	Range	Avg.	Last Month	Last Yr.
<b>Extracted honey sold bulk to Packers or Processors</b>																
<b>Wholesale Bulk</b>																
60# Light (retail)	70.50	73.83	74.00	66.50	75.00	71.00	62.50	66.67	65.00	62.00	81.50	63.00	62.00-81.50	69.29	68.26	
60# Amber (retail)	75.00	66.13	68.00	64.75	64.00	69.00	58.80	62.50	60.00	62.00	78.00	57.00	57.00-78.00	65.43	64.32	
55 gal. Light	0.69	0.68	0.69	0.60	0.60	0.72	0.66	0.69	0.69	0.70	0.74	0.70	0.60-0.74	0.68	0.65	
55 gal. Amber	0.62	0.65	0.62	0.62	0.55	0.74	0.64	0.62	0.53	0.62	0.58	0.65	0.53-0.74	0.62	0.60	
<b>Wholesale - Case Lots</b>																
1/2# 24's	31.68	28.51	28.94	32.36	28.94	32.00	27.85	28.94	28.94	28.94	25.00	28.94	25.00-32.36	29.25	29.19	
1# 24's	43.20	40.82	48.00	44.36	39.70	47.00	39.72	43.20	42.00	42.00	52.00	49.20	39.70-52.00	44.27	43.34	
2# 12's	38.16	38.79	46.80	42.66	40.42	37.00	36.54	40.30	42.00	31.80	50.00	40.50	31.80-50.00	40.41	39.34	
12 oz. Plas. 24's	39.48	34.70	45.60	35.22	36.77	42.00	32.63	36.80	42.00	35.40	40.00	38.40	32.63-45.60	38.25	36.93	
5# 6's	44.31	42.51	57.00	45.88	47.43	43.20	39.80	39.00	47.43	37.50	52.00	47.43	37.50-57.00	45.29	42.37	
<b>Retail Honey Prices</b>																
1/2#	2.00	1.61	2.83	2.17	1.19	1.55	1.61	1.59	2.83	1.49	2.50	2.83	1.19-2.83	2.02	1.76	
12 oz. Plastic	2.00	2.37	2.90	2.30	2.25	2.32	1.95	2.24	2.50	1.90	2.50	2.27	1.90-2.90	2.29	2.23	
1 lb. Glass	2.25	2.56	3.00	2.92	2.55	2.61	2.34	2.71	3.00	2.52	3.25	2.90	2.25-3.25	2.72	2.68	
2 lb. Glass	5.00	4.33	4.80	4.11	3.69	3.76	4.03	4.85	4.93	3.91	3.97	4.75	3.69-5.00	4.34	4.41	
3 lb. Glass	6.13	6.90	6.80	7.06	6.13	6.50	5.21	6.36	7.00	5.19	5.99	5.89	5.19-7.06	6.26	6.26	
4 lb. Glass	8.69	7.60	8.69	9.41	8.69	7.03	7.74	8.13	8.69	8.69	8.69	8.69	7.03-9.41	8.40	7.90	
5 lb. Glass	10.75	9.94	11.00	10.77	10.00	9.00	8.84	10.99	10.85	9.90	11.45	10.85	8.84-11.45	10.36	8.66	
1# Cream	4.18	3.25	4.18	3.59	4.18	3.30	2.73	3.11	4.18	3.04	5.50	3.17	2.73-5.50	3.70	3.27	
1# Comb	4.00	3.93	3.60	4.51	5.11	4.17	4.48	4.12	5.11	5.11	6.00	4.50	3.60-6.00	4.55	4.22	
Round Plastic	4.00	2.89	3.60	4.25	3.57	3.75	3.62	3.73	3.57	3.57	4.00	3.50	2.89-4.25	3.67	3.79	
Wax (Light)	2.50	2.99	3.00	2.05	2.64	2.95	1.66	1.95	1.05	2.64	2.05	2.50	1.05-3.00	2.33	2.47	
Wax (Dark)	2.50	2.25	2.75	1.77	2.53	2.75	1.53	1.25	1.00	2.53	1.50	2.00	1.00-2.93	2.03	2.18	
Poll. Fee/Col.	50.00	41.17	40.00	33.00	25.00	38.50	39.71	40.00	39.95	39.95	50.00	39.95	25.00-50.00	39.77	36.87	

- NOT AVAILABLE -



Mark Winston



## Buying In or Selling Out?

“The buzzword in today's funding climate is “partnership,” meaning that government is much more likely to provide funds for a project that has financial support from industry or commodity groups.”

I oversee a large and diverse research program, hiring about 20 people each summer on various projects. My laboratory typically employs one or two postdoctoral fellows, six-seven graduate students, and a permanent research assistant year-round, in addition to high school students, undergraduates, and technicians who work summers. This research is fueled by \$200,000–\$300,000 (U.S.) in grants each year, sometimes with ten or more individual projects, each of which lasts for one to three years.

Most faculty members are on the same treadmill. We balance conducting current research while applying for funds to carry on future work. For those of us who run large laboratories, the grant game takes up a considerable part of our career time and a majority of our energy.

The buzzword in today's funding climate is “partnership,” meaning that government is much more likely to provide funds for a project that has financial support from industry or commodity groups. Currently, I have only one ongoing government grant that does not involve matching funding from industry, and that grant makes up only about 20% of my research budget. The remainder of our projects involve complex interactions between multiple stakeholders that require considerable strategizing to weave together into comprehensible grant packages accommodating the interests and perspectives of various funding sources.

Take our project to develop a novel trapping system to control *Varroa* mites. The objective of this research is to identify odors produced by larval or adult honey bees that attract or confuse *Varroa* mites, synthesize the appropriate chemicals, and then develop a management system that works in colonies. The governance of this project is complex, involving my long-term collaboration with Keith Slessor in Simon Fraser University's Chemistry Department, and a number of our students, technicians, and postdoctoral fellows.

The first step in funding this project was to convince a private company that the project had good potential to result in a product, and then develop an agreement whereby we could publish the information freely but the company could negotiate with us for an exclusive license should we be successful. Then, we submitted a proposal to the Canadian Bee Research Fund, an industry-driven foundation established in Canada a few years ago to provide grants to projects that had obtained some funding from other sources. Finally, with those grants in place we were able to apply to a University-Industry program run by our Canadian government that matches funding obtained from private sources.

After a year or two of lobbying, schmoozing, and writing we were able to put together a funding package of about \$60,000 per year for each of three years, and the re-

search proceeded. In the process, we have had to grapple with a number of issues that arise when there is industry involvement in research, issues that illustrate some of the compromises necessary in today's partnership-driven funding climate.

The first issue in university-industry funding is that of intellectual property. Simply put, who owns the results? Part of the issue is financial, since successful research that leads to a product can provide income for the inventor, the university, and/or the company, and everyone wants to participate. In our case this issue had been resolved partly by university policy, in which my colleagues and I are encouraged to include the university in any financial benefits that may develop. We retain ownership of results, although our agreements provide the right of first refusal to the cooperating company to negotiate rights to our inventions.

The financial part has not been as problematic as the second aspect of intellectual property, publishing. Industry prefers non-disclosure, at least until patents are obtained, while the mission of universities as public institutions is to freely disseminate information. Our ownership of the intellectual property in this case partly resolves that issue, as my students are free to publish their results whenever we choose. By convention we normally provide results to cooperating sponsors prior to publication, but that does not im-

*Continued on Next Page*



*“... the recent failed attempt to provide the National Honey Board with research dollars to dispense comes into focus as tragedy. If successful, the Honey Board would have had the discretion and clout to provide funding packages to scientists that would broadly benefit the U.S. beekeeping industry.”*

pede our submitting manuscripts to journals or my writing about our work in *Bee Culture* or elsewhere.

This arrangement allows our students to publish, which is critical to their future career advancement, but does not remove the issue of secrecy by our own volition. This project is a perfect example of this dilemma, because we do have some interesting findings that we are reluctant to expose to peer scrutiny until we have decided if and how to proceed with patent applications.

The work eventually will be submitted for peer review, and eventually I likely will write about it for *Bee Culture* since our findings might be of some interest to beekeepers struggling with *Varroa* mites. However, we have been cagey about the details because of patent possibilities, and while this is by our own choice I admit to some discomfort at our self-imposed inhibition in disclosing our research results. The practical impact: we have chosen to delay publication by six to twelve months while we decide whether a patent is justified.

A second of our research projects illustrates another problem with industry funding, its focus on product rather than impact. We currently are seeking funding for a broad study concerning the impact of various agricultural practices on wild pollinators, a study with considerable ecological value but of marginal direct benefit to industry.

Although the crucial relationship between agriculture and pollinators is well-known, interactions between agricultural methods and pollinators as well as the significance of uncultivated ecosystems adjacent to farms in maintaining pollinator populations have not been well-studied. We are proposing research to compare the diversity,

abundance, and pollination efficacy of wild bees in and around organic, “hard” conventional, IPM-conventional, and genetically modified cropping systems.

This research seems important for both farmers interested in maximizing production and environmentalists interested in saving bees. However, our experience in applying for funds suggests a significant project that may fall between the cracks, not applied enough for industry’s interests but outside the range of projects normally funded by environmental groups whose scant dollars are more frequently focussed on toxins rather than ecology.

Rather than despair we have elected to undertake a funding experiment with this project, trying to put together an alliance of stakeholders spanning the environmental-industry continuum. We have submitted funding applications to foundations that support environmental research, beekeeping groups, agrochemical companies, and crop-based commodity groups in an attempt to both obtain grants but also to construct an unusual coalition of funders who normally don’t cooperate. If successful, we then could approach our provincial or federal governments for matching funding.

A third project in my laboratory perhaps illustrates the best funding arrangement, collaborative grants between commodity groups and government. In this case the project involves greenhouse tomato pollination (see last month’s *Bee Culture*), and the principal funders are the British Columbia Hot House Growers Association and a joint grant from the Canadian Natural Sciences and Engineering Research Council and Agriculture Canada.

For us, and for the public good, this project is ideal. The growers have committed substantial funding

to investigate methods of greenhouse pollination with no publication or product strings attached. Government funding was forthcoming because the studies have potential applied value, but also include basic research that may have applications further down the research road. We can publish freely, discuss our results openly, and interact intensively with growers without concerns about patents or intellectual property.

With these three projects in mind, the recent failed attempt to provide the National Honey Board with research dollars to dispense comes into focus as tragedy. If successful, the Honey Board would have had the discretion and clout to provide funding packages to scientists that would broadly benefit the U.S. beekeeping industry. If successful, it would have removed some of the pressure on researchers to conclude deals with private companies that might restrict the benefits of our work to narrow parties rather than for the broadly public constituency that university and government scientists are supposed to serve.

Sadly for much-needed research, the referendum failed. While its failure can be attributed to many factors with no relationship to research, the outcome was unfortunate in preventing one good aspect of the proposed levy from proceeding.

If beekeepers want research that broadly benefits their industry, then you must develop ways to remove science from its current dependency on companies and provide more opportunities for broadly based funding. If not, I see the research road ahead as increasingly secretive and private, one on which research will not flourish and issues beyond product development will not be addressed.

That problem has sunk beneath the surface of the broiling sea of animosity and tension that has permeated the National Honey Board debates. Those of you who serve the industry might consider what we have lost in this sorry tale of dysfunctional beekeeping politics. **EC**

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



# ? DO YOU KNOW ?

*Honey Bee Society*  
Clarence Collison  
Mississippi State University

Honey bees are social insects living in an extremely complex society. Survival in the colony is highly dependent on the ability to regulate temperature, the collection and storage of food. Many of the colony activities are constantly being adjusted in relation to environmental conditions and colony requirements. In addition there are those activities that are required for normal colony functioning. Numerous mechanisms for colony defense and protection have also evolved. The

honey bee is well endowed with senses of vision, touch, taste, smell, hearing or vibration detection. Like other animals, the honey bee has to be in tune with its environment in order to survive. How well do you understand the honey bee society and the workers individual behaviors that are vital to survival?

Please take a few minutes and answer the following questions to determine how well you understand these important topics.

*The first ten questions are true and false. Place a T in front of the statement if entirely true and a F if any part of the statement is incorrect.*

1. \_\_\_ The presence of empty comb in the hive enhances the level of defensive behavior by a colony.
2. \_\_\_ Honey bees are warm blooded animals and because of this are able to remain active throughout the Winter.
3. \_\_\_ Some genetic lines of honey bees, *Apis mellifera*, are comparatively resistant to infestation by parasitic tracheal mites.
4. \_\_\_ Propolis inhibits the growth of fungi and bacteria in the hive.
5. \_\_\_ At low temperatures, small winter clusters are more vulnerable to death than large clusters.
6. \_\_\_ The integument or exoskeleton of adult honey bees protects the bee from desiccation.
7. \_\_\_ Honey bees respond to increasing carbon dioxide levels within the hive by fanning.
8. \_\_\_ Guard bees are usually not aggressive toward foreign workers that enter the hive with a load of food.
9. \_\_\_ Bees begin to form the Winter cluster when the temperature drops below freezing.
10. \_\_\_ The intensity of defensive behavior of honey bees is highly dependent on external environmental factors.

(Multiple Choice Questions, 1 point each)

11. \_\_\_ Honey bees are able to sense temperature differences as small as:  
A. 3°F  
B. 1.5°F  
C. 0.45°F  
D. 2°F  
E. 1°F
12. \_\_\_ The individual honey bee has its primary heat receptors located on the:  
A. Exoskeleton  
B. Antennae

- C. Front Legs
- D. Proboscis
- E. Neck

13. \_\_\_ Humidity in the hive and in a cluster of bees under normal conditions is maintained at \_\_\_ per cent.  
A. 80-90  
B. 50-60  
C. 20-30  
D. 40-50  
E. 60-70
14. \_\_\_ Chemoreceptors associated with taste and smell are located on the:  
A. Mandibles  
B. Tarsi  
C. Front Legs  
D. Proboscis  
E. Antennae
15. What two strategies do honey bees have in surviving an extended nectar dearth in temperate and tropical conditions? (2 points)
16. Define colony homeostasis. (1 point)
17. Define the term trophallaxis, which is important in the honey bee society. (1 point).
18. Name two stimuli used by guard bees to recognize intruders and robbers. (2 points)
19. Name two senses used by the honey bee to find its way through a changing environment while foraging away from the hive. (2 points)

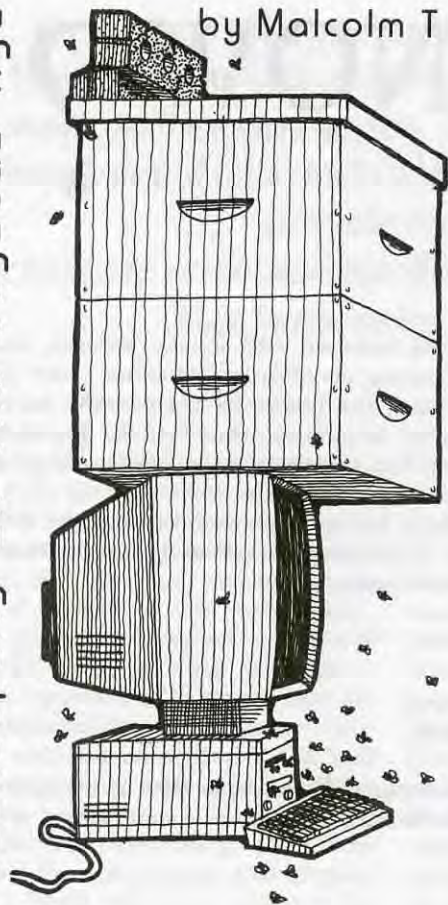
The formation of the Winter cluster is a unique winter survival behavior that permits the colony to remain active by regulating temperature and even allows brood rearing.

20. What is the function of the bees in the center of the Winter cluster? (1 point).
21. What is the function and orientation of bees found on the outer surface of the Winter cluster? (2 points)

ANSWERS ON PAGE 46



by Malcolm T Sanford



I have eluded in other columns to one of the downsides of the World Wide Web that, paradoxically, is also its strength. The ability for anyone to publish their **point of view**. Actually it turns out that what I have seen on specific topics is generally factual and good. Several colleagues have pointed out to me that they are surprised at how few beekeeping Web sites contain bad information. The corollary to self-publishing is that because information can be presented as factual, it must be filtered by the user for applicability and persons with little background in a subject may be coincidentally or purposefully confused. And good information can be contaminated by misleading material resulting in what we now call "political spin." As one example let's look at the site entitled Why Honey is not Vegan? at <http://www.vegetus.org/honey/honey.htm>.

Honey not vegan? Let's see. Honey bees are vegetarians. They only eat pollen and nectar. Honey is derived from the latter material, which comes from plants. Perhaps the term vegan is problematic. Upon first seeing this site, I thought vegetarian. Visiting the URL <http://www.veganoutreach.org/whyvegan/> suggests that vegan is indeed vegetarian because it discusses animal production. Visiting that site one is directed to another, which shows in sometimes horrific detail the **transformation of animals into food**. This site discusses the fate of hogs, cows, chickens, fish and so-called game animals within the context of factory farming and cruelty to animals. Honey bees are not mentioned. One of the things this author always admired about apiculture was that it seemed the kindest sort of animal husbandry.

## Why Honey Is Not Vegan: Political Spin On The Web

According to the site, "The simplest reason why honey isn't vegan is by definition. The term vegan was coined by Donald Watson in 1944 and was defined as follows: 'Veganism is a way of living which excludes all forms of exploitation of, and cruelty to, the animal kingdom, and includes a reverence for life. It applies to the practice of living on the products of the plant kingdom to the exclusion of flesh, fish, fowl, eggs, honey, animal milk and its derivatives, and encourages the use of alternatives for all commodities derived wholly or in part from animals (Stepniak).'" The reference is to Joan Stepniak who has developed another web site entitled **Grassroots Veganism**. Ms. Stepniak indeed quotes the above definition adopted in 1847 by the founders of the Vegetarian Society of Great Britain. However, she says a slightly different version was actually published in the articles of association: "Veganism denotes a philosophy and way of living which seeks to exclude as far as is possible and practical all forms of exploitation of, and cruelty to, animals for food, clothing, or any other purpose; and by extension, promotes the development and use of animal-free alternatives for the benefit of humans, animals, and the environment." Neither honey bees nor honey are mentioned here. Actually, it turns out Ms. Stepniak would rather that labels not be used to separate vegetarians or vegans, but that their "way of living" should be the important distinction.

The "not vegan" author (hereafter referred to as NV), does not mention the latter version, saying: "Calling yourself a vegan, yet eating honey, makes life difficult for other vegans - it's like having someone who eats fish and calls herself a vegetarian. When a vegetarian comes along, it is much harder for her to explain that fish is not acceptable for vegetarians. (I also have to point out that bees are, in fact, vegans - they don't even kill plants. So if nothing else, respect them out of vegan solidarity!)"

Generalizations can be problematic. Under stress, beekeepers know that honey bees in fact do eat "meat." They often cannibalize their own larvae (especially those of drones) when the going gets rough. Talk about vegan solidarity.

Now to the crux of the matter, according to NV the definition of veganism talks about reducing animal suffering; honey bees (*Apis mellifera*) are, without a doubt, animals. Little argument here. Are bees smart? No problem; most would agree to this. But what about pain? Not much information here, although NV declares: "If common sense isn't good enough, we can always resort to **scientific studies** that indicate that bees feel pain. Not being a beekeeper myself, it is hard to say why life would be more painful for kept bees vs. wild bees. The kept bees would seem to have more contact with humans and more bees would die from stinging them. But, again, unless you are a 'vegan' who lives on a farm and raises animals with lots of love so you can drink their milk and eat their eggs (??) pain really isn't the issue either."

The real issue, according to NV, is that honey bees are enslaved. Alice Walker is quoted: "The animals of the world exist for their own reasons. They were not



made for humans any more than black people were made for white, or women created for men." NV adds: "I would also add that plants and the earth were not made for humans either. What follows is a look at specifically how honeybees are exploited by man. Note that this follows precisely the same pattern of animal exploitation that you are probably already familiar with."

Included descriptions are quite accurate. Most honey is **produced** by commercial beekeepers. Successor queens are selected by humans, not the bees and they may be instrumentally inseminated (II). NV maintains II queens are "raped." Queens can live many years, but most are killed and replaced after one or two seasons by beekeepers, not the bees. Shipping queens is rough on queens and so is routinely splitting of colonies, which is according to the dictates of the keeper, not the queen. The use of smoke, equipping colonies with mouse guards and moving colonies is also considered by NV to be part of the enslavement process. Finally NV concludes: "You may have the impression that since the bees are not fenced in like cattle, they are free to leave if they wanted to. Read about **swarming** to understand why this common argument is false."

Clicking on the swarming link above we see: "Beekeepers and sometimes even their vegan defenders claim that if the bees didn't like the way they are treated, then they would just fly away. However, this intuitively attractive argument is wrong for numerous reasons. The idea that bees would leave if they were unhappy gives the bees too much credit. They would have to comprehend the entire situation—that the beekeeper was responsible for what seem like isolated events – the replacement of the queen, the disappearance of half of the hive, the disappearance of their honey. Bees do object on a case-by-case basis when they protect the hive by stinging the beekeeper. Also, the beekeeper abuses the bees by stimulating their natural instincts and working the bees to death – how are the bees to recognize what is normal and what is induced by the human? Perhaps the most important reason why the bees can't just fly away is because the beekeepers won't let them; beekeepers do their best to prevent swarming."

NV also declares: "There often a lack of regard for the bees' lives. In the U.S., 10 to 20 percent of colonies are lost over the Winter. It is partly by accident and partly on purpose. Some beekeepers kill off their hives before Winter. This practice can make **economic sense**." Clicking on the last link in bold, we see: "Malcolm Sanford, an Extension Apiculturist in the Department of Entomology and Nematology at the University of Florida and Roger Hoopingarner, a Professor in the Department of Entomology at Michigan State explain why some beekeepers choose to kill off their colonies in the fall rather than care for them over the Winter." Yes this author pleads guilty. Those interested can turn to page 748 in the 1992 edition of *The Hive and Honey Bee*, published by Dadant and Sons, Inc.

Another hot button issue by NV is stealing honey by the beekeeper. Here **Dr. Jim Tew**, who often appears in the pages of *Bee Culture*, is quoted: "Commercial beekeepers frequently extract [steal] all Fall-season honey and then feed colonies either sugar syrup or corn syrup in quantities great enough to provide all the Winter food the bees would need." The word "steal" above in brackets was not used by Dr. Tew. "Everyone steals most of the Spring-season honey. Theft of all of

the Fall-season honey is merely the most blatant form of exploitation. Bees are also often fed in the fall in preparation for Winter and in the Spring and early Summer to ensure the hive gets off to a good start. That is, to make the bees start working earlier than they would normally. The sugar that is fed in the fall is turned into honey by the bees, so even if a beekeeper tells you their bees survive on honey over the Winter, much of that honey may have simply come from Ziplock bags full of sugar water."

Like much of the political spin many are used to, it can get somewhat out of control: "Beekeepers will naturally deny that they are slave owners who steal the products of the bees' labor. They will tell you that they are working with the bees to help them reach their full potential, which just happens to be measured in honey output. (Hmm, remind anyone of recombinant bovine growth hormone?) In addition to being horribly paternalistic, the beekeeper's perspective makes little sense. Under natural conditions, if the hive were producing a surplus, they would divide into two colonies and there would be none wasted." But then the spin is somewhat curtailed, "Nonetheless, it is important to regard beekeepers as potential allies. They are often more aware of environmental concerns than other people and may truly care about their bees." NV concludes: "A few simple changes in their attitudes would likely make their behavior acceptable to vegans, although making those changes is not a simple thing. They would need to stop regarding themselves as beeKEEPERS. They would also need to recognize that their role is largely temporary, as a stop gap measure until farmers get their act together and facilitate the growth of native pollinator populations. They should immediately switch to top bar hives, discourage surplus honey production and stop stealing honey. Otherwise, there is too much incentive to exploit the bees and the environment."

Honey is not the only honey bee product, according to NV, watch out for: "Bee venom is obtained when the bee stings someone or something. The bee dies if she stings someone. Bee pollen is pollen collected by bees. It also contains some nectar and bee saliva. It is popular because humans cannot collect such a wide variety of pollen. Royal jelly is the nutritious food (for bees) fed only to the queen. It literally makes workers into queens. Beeswax is secreted by bees to build their hives. Propolis is plant resin collected by bees and mixed with enzymes. It is used around the hive as glue and as an antiseptic. Bee brood are bees that are not fully developed." One problematic area that this author could not find is the exploitation of other animals by honey bees before the beekeeper gets involved. Aphids and scale insects are the source of what is called honeydew.

Even if bee enslavement might be acceptable to vegans, they nevertheless shouldn't eat honey for **environmental reasons** according to NV. So what can vegans eat instead? NV recommends sugar. Finally, the following is suggested: "If you're looking to duplicate the sweetness and flavor of honey, Agave nectar is the way to go. It comes from the Blue Agave plant and tastes pretty much exactly like honey (well, I think it's better). You can find it in health food stores, or ask them to carry it." **EC**

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*Dr. Sanford is former Extension Specialist in Apiculture, University of Florida. He published the APIS Newsletter: <http://www.apis.ifas.ufl.edu/>*



# Barking Dogs, Communications, and Ugandan Beekeeping

Some thoughts on keeping bees away from home.

James E. Tew

I confess that I am writing this to you while in Kampala, Uganda where I have been for the past month. This has been my first trip to Africa and many old stereotypes that I brought with me will need to be exchanged for new ideas and impressions.

I don't mean for this to be a travelogue, but one major point has been pushed upon me time and again while working here - the availability of ready communications (or more commonly, the lack of it) has been difficult to the point of being impossible. It continues to be a surprise to me to be unable to easily reach the world's beekeeping literature from here the way so many of us are accustomed to in other parts of the world.

## A Comparison - Barking Dogs and Communicating People.

No doubt many of you will have your own stories, but I want to write one here and try to describe it as I was feeling it. After a 20 hour trip, Around 11:00 PM, I finally was established in a pleasant room at the Guest House at Makerere University. I was suffering from all common traveler symptoms - jet lag, home sickness, disorientation, and disorganization. Uganda is 7 hours ahead of the Eastern Time Zone. I was not sure of the day or of the time, but even so, since it was dark and was late by Ugandan time, I opted for bed where I would search for elusive sleep.

At 2:00 AM, I was awakened by what sounded to be every dog (about

20 - 25 of them) in Uganda barking at full volume during an otherwise quiet night. There were all kinds of dog voices - some were staccato barking, others were singing, still others were wailing; some dogs were

and on for 20 years what was with the dogs and he replied, "What dogs?" I tried to act nonchalant.

On about the third night, I realized that these guard dogs were just performing routine communications - checking in as it were. "All is well" was being reported from different quadrants. The "routine communications" barking had a completely different sound from the "intruders are near" bark. I learned to recognize the voice of different dogs and since I couldn't sleep most nights anyway, I grew to look forward to the cacophony each night to document my observations. The best time for this canine concert was at night when everything was quietest.

We do the same thing in some of our communications. "I was just calling to check in. How are you? Anything happening in your neck of the woods?" We use everything - from vocal communication, phones, written letters, internet, email, newsprint, TV and radio to accomplish our communications link. Dogs just bark.

## Why the Communication Comparison at All?

Why did I put you through the dog story? Because the communications and information dispersal in some parts of the world is sketchy and mostly unreliable. I have no intentions of philosophizing about good and bad communications systems in different countries, but I was not prepared to be so isolated and out of



A jar of Ugandan honey - a bit cloudy, but otherwise, a good product.

close while others were distant. I waited for something. For what, I don't know - the police, people to shout and throw shoes, gun shots. But nothing happened and after about 30 minutes, the dogs began to bark themselves out and all quieted. The next morning I asked an Englishman who had been here off

Continued on Next Page



communications with the world's bee literature. Essentially, if I didn't have some scrap of needed information in my mind, then I probably didn't have access to it at all. In a real sense, I became a "stand-alone" computer that was not connected to the internet. When I get back home, I will look at the world's bee information – and the systems I have to access it – in a completely different light – and a much more appreciative light.

### **Back to the Dogs.**

After about a week, I began to sleep through the dog-barking-experience without stirring. I was amused late in my trip when a Swedish physician who had only recently arrived asked, "Did those dogs keep you awake last night?" Without thinking, I replied, "What dogs?"

### **Some African Beekeeping Myths Dispelled (And Others Developed)**

*African people are accustomed to wildlife and show no concern for aggressive bees.* I can only speak for this one short trip to Uganda, but here non-beekeeping people have EXACTLY the same concerns as people in the US. Ugandans don't generally relish beekeepers as neighbors. Apiaries need to be isolated and protected. People here are just as fearful of stings as the average person in the US. One Ugandan told me that, "Honey bees are very dangerous" and admonished me to be careful around them.

*African beekeepers wear native protective gear made of straw or somesuch or simply take large numbers of stings.* Again, not in Uganda. Beekeepers dress head to toe with effective protective equipment, fire off large smokers, and show the same precautions that any sensible beekeeper would show.

*The African Bee, **Apis mellifera scutellata** is an aggressive bee that is comparable to the infamous Killer Bee in the US.* Well, maybe so, but I didn't see it. I did see small, skittish honey bees that could obviously be unfriendly. Of this country's 200,000 or so colonies, I only saw

about 200 up close. Rest assured that I was completely protected and expecting the worst, but the worst never came or at least it never came as it did when I was working Africanized bees in South America. With proper selection and breeding procedures, it would appear that a manageable strain of bees could be developed from this otherwise hot bee<sup>1</sup>.

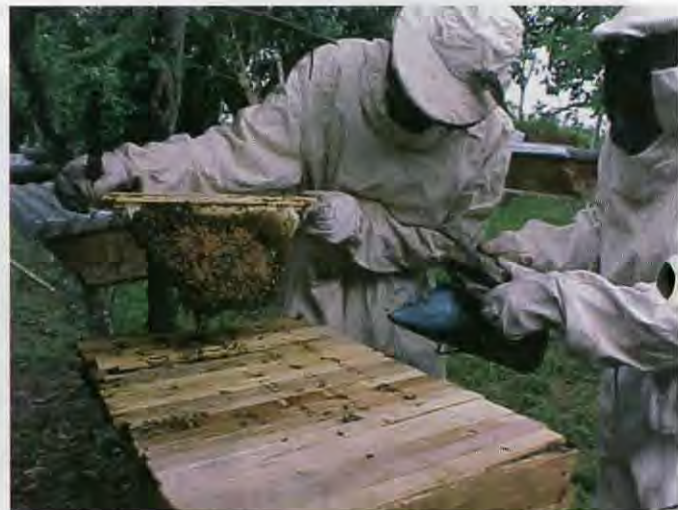
*African people commonly use honey within their daily diet or as a folk medicine.* Again, not here. Honey is actually expensive to the point of being unaffordable. If Ugandans need medicine, they go the local pharmacy where without a physician's prescription, they can buy a lot more than we can purchase at our pharmacies without prescriptions. If they need a sweetener, they use brown sugar from the sugar cane crops that are produced here.

*African honey is a low quality product that is high in moisture and is packed in eclectic jars.* To some degree yes, but to a greater degree, no. Ugandan beekeepers know that the purity of the product and the appearance of the jar and the affixed label are important. The average honey jar contains cloudy honey, due to low level filtering, but is otherwise the correct moisture content and appears to be a wholesome product. A good deal of energy has been allocated to procuring proper jars, lids and labels, but they are still in short supply.

*If Ugandans develop a honey producing industry, they will only export honey to the US.* I can't say that would never happen, but a much more appropriate marketing scheme would be to develop the domestic market and secondly develop the export market to surrounding honey-consuming African countries such as Kenya and Tanzania. If beekeep-

ers could develop the domestic market, the local selling price is considerably higher than the potential export price to the European Union or to neighboring counties. However, the US is not presently seen as an importing country of choice. For an export market to develop, production costs must decline and export prices need to increase a bit.

*Beekeepers in East Africa who use the Kenya Top Bar Hive are on the wrong path and should jump directly from traditional hives to Langstroth-styled hives.* Again, I only had a short experience, but it appeared to me that there were not enough wood-working shops that could competently build Langstroth-styled hives at affordable prices. It is not that the technology is not here to build



Mr. E. Nsubuga Nvule and an assistant inspecting a Ugandan beehive.

such hives, but rather that the costs would be so much more that it would not be worth the investment to make the change from traditional hives to improved hives. I would suggest that for the immediate future, there is good reason to use the transitional hive called the Kenya Top Bar Hive in East Africa.

*Diseases and pests continue to restrict African beekeeping.* I would suspect this to be true in parts of Africa, but in Uganda, there was an uncanny absence of bee diseases and pests – including *Varroa* mites – in Ugandan hives. Continually, I was told that the biggest problem was the wax moth and the hive beetle, but that the hive beetle did not really seem to do much. In fact, very few people even knew what *Varroa* was. The hives I inspected were mi-

<sup>1</sup> Again, due to information shortages, I have no taxonomic proof that these bees were *A. m. scutellata*. Since *scutellata* is the most common race in this area, I am only guessing that it is the bees with which I was working.



raculously disease-free. Since there are not any chemicals whatsoever in the country required to control bee diseases, the Ugandans are touting their honey in Europe as "Organically Produced."

I began my discussion of my observations lamenting the serious problems in acquiring current information and in freely communicating both inside and outside Uganda. Don't get me wrong. Cell phones are everywhere as are phone booths, but essential information to instruct beekeepers in such subjects as queen production, honey production, and honey packing is essentially non-existent and you can't get that information from a simple phone call.


*Except for the ones I brought, there are no bee books in the library. There are no teaching aids; indeed, the only beekeeping taught at Makerere University is in Forestry and is a classroom lecture series without the support of a university apiary or simple extracting equipment.*

As is so painfully common in much of the world, even though beekeeping has clear potential to be an income generator for many peasant Ugandans as well as higher income individuals, the small, undeveloped

industry is not supported by government or private programs on a dependable basis. Apparently administrators see it as a small traditional craft, not totally unlike drum-making or basket weaving.

East Africa (Uganda) was not anything like I had envisioned. It is a progressive developing country with high hopes for a productive future. Ironically, its undeveloped beekeeping industry is like that in much of the world - not supported very well, not respected very well, and not encouraged to do very much. As do beekeepers everywhere, Ugandan beekeepers accomplish a lot with very little.

#### A Final Disclaimer.

I was only in Uganda for about one month. I am no expert in Ugandan beekeeping and certainly not an expert in African beekeeping. But I did my best to see as much as I could, record as much as I could, and only make honest observations. I have reported some of these observations here. 

*Dr. James E. Tew, State Specialist, Beekeeping, The Ohio State University, Wooster, Oh 44691, 330.263.3684, Tew.1@osu.edu*

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# FEEDING FONDANT

Charles Hunt

Wintering. The very word brings shudders to any beekeeper. Whether the location is the Northern United States or Canada, the Northeast or Northwest, the thoughts of the beekeeper are often the same when the problem of Wintering bees comes to mind. No matter where bees are located, there are months and months of cold to face and a dearth of nectar for the hive.

The irony of these thoughts is that a great number of the hives lost in Winter are not lost during the depths of the cold. In fact, most of the losses due to Wintering do not occur in what we would think of as Winter. Most losses occur either very late in Winter or in the Early Spring, only a few weeks, in many cases, before the beginning of early nectar flows. Why is this?

The truth is that a cluster of bees Wintering, without brood and not raising new bees, takes very little honey in order to survive and stay warm. The cluster's honey consumption is at its lowest level dur-

ing the depths of snow and cold, during the deepest parts of Winter. Demands upon food stores are very light. It is with the renewal of brood rearing, with the renewal of longer days in the waning of Winter, that honey consumption begins to increase. The process of raising brood and feeding larvae and growing bees takes lots of honey. The temperature of the cluster must warm in order to incubate the brood. Consequently, as brood rearing increases in late Winter, honey consumption begins to increase dramatically. At first only a brood area the size of a fist on one or two frames, the brood nest rapidly expands until it covers five to eight frames in a brood box. Honey consumption increases correspondingly.

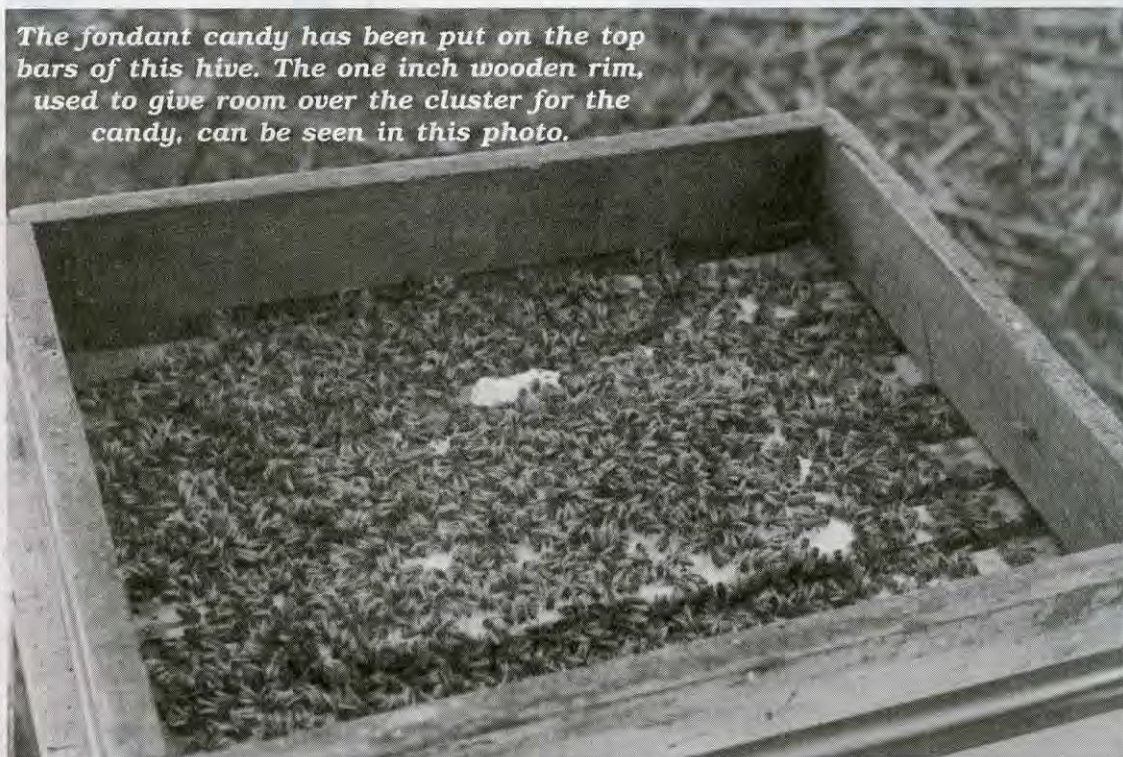
Although this process will vary depending on the particular race of bees kept and the nature of the late Winter and Spring weather, the general result is a geometric increase in honey consumption in the late days of Winter and early Spring. Just

before nectar begins to flow. Sadly enough, it is at this time, with massive increases in the demand for honey stores and a dearth of nectar or new honey, that the colony, which has successfully passed the worst days of Winter and is building rapidly for a Spring flow and a successful crop to follow, dies. This loss occurs just on the edge of success and is, consequently, most tragic. It is especially tragic because it is avoidable.

The first step in avoiding this late Winter loss is to heft the hives. Look for hives that are dramatically light, that clearly do not have much honey stores left. It is not necessary to even open the hives for this inspection by weight, simply lift the back of the hive and judge its weight. Hefting will alert the beekeeper to the colonies that need assistance. But once we know which hives are in dire need, how do we provide assistance?

Certainly, a super of honey, judiciously placed on selected hives

*The fondant candy has been put on the top bars of this hive. The one inch wooden rim, used to give room over the cluster for the candy, can be seen in this photo.*





needing stores at this time, is in order. If possible, this is the path to take for the solution of light hives in late Winter or early Spring. But what if there are no such honey supers available or saved for this purpose? One must feed the bees using some honey substitute. How?

It is difficult to decide how to get feed to bees in this situation. In late Winter or early Spring, it is very likely that the hives will not be able to utilize sugar syrup no matter how it is provided. First, it is still cold enough that the bees are in cluster and not very active. They are unlikely to effectively move into a feeder at this time. Bees are not likely to be breaking cluster unless the days are unusually warm, and the beekeeper who relies on unusually warm days to successfully feed bees is taking a terrible risk and likely to lose bees in any but the best of years.

Second, bees will not utilize sugar syrup provided because it is not possible to successfully process the syrup into a usable and storable honey. The weather is cold enough to prevent much movement by the bees but it is also chilly and damp enough to prevent evaporation of syrup and produce honey. I live in the Pacific Northwest and here it is simply impossible for bees to utilize sugar syrup fed to them late in the Winter because of excessive atmospheric moisture. The bees cannot evaporate the syrup.

In addition, sugar syrup fed at this time to bees will often stimulate brood rearing if the bees will take syrup. When bees accept the syrup, an imitation nectar flow is occurring and Spring has sprung! The resulting increased brood rearing dramatically increases the need for honey and pollen at precisely the wrong time. Sugar syrup can often make the situation worse rather than better. The beekeeper without a super of honey to put on the hungry hive in late Winter and early Spring is faced with a painful dilemma. How to save the bees from starvation without making the situation worse and losing the bees for sure? What should the beekeeper do?

There is a solution and it is in the form of a dry sugar candy which the bees can utilize, which does not require evaporation and which won't

## Fondant Recipes

Several recipes are available for fondant candy. Bring a quart of water to a boil in a medium to large pot. Turn off the heat and add five pounds granulated sugar, stirring constantly. When dissolved, bring water back to a boil and keep stirring. Use a candy thermometer and bring the mixture to 260° to 270° (hard ball candy state). Don't burn the sugar. Pour the mixture into molds (cookie sheets lined with wax paper work well). When cooled and set break into convenient-sized pieces and store in freezer, between wax paper sheets until needed. (Adapted from *Beekeeping, A Practical Guide*, by Dick Bonney.)

Another recipe is similar. Two cups white sugar, two tablespoons light corn syrup or 1/8 teaspoon cream of tartar (tartaric acid), 1-1/2 cups boiling water. Combine and heat until sugar dissolves, keep heating until syrup reaches 238°F., or medium ball stage. Pour onto a cold platter and beat until light, then into a mold or shallow dish to cool and harden. (Adapted from *The Beekeeper's Handbook* by Sammataro and Avitabile).

initiate or stimulate further increases in brood rearing. This dry sugar candy will save the hive, will provide enough food for the bees' survival and has a whole series of advantages for the hungry beehive during this time of year. Let me explain what this dry sugar candy is, how it is utilized and, finally, how it is made.

Often called fondant candy, dry sugar candy is a mixture of granu-

lated sugar, corn syrup, water and a very small amount of cream of tartar. This mixture, heated to a high temperature then cooled and formed into a sugar cake, is dry and relatively hard. The mixture actually forms a candy cake, which can be stored in the refrigerator or freezer and is easily transportable. Consisting of pure sucrose, glucose and fructose sugar, this candy cake can be consumed by bees in a relatively slow manner; the bees actually liquefy the cake using moisture either from inside the hive or transported from outside. (See recipes box.)

How do you, the beekeeper, use this candy cake? When the beekeeper hefts a hive and finds it light, the cluster will usually be found high in the hive; that is, no matter how many boxes were left on the hive in the Fall, the bees will usually have moved up into the top honey box. They will be consuming their last stores in this top box. When the hive is opened, the cluster can be seen just under the lid on the top bars. With judicious smoking to move the bees off the top bars temporarily, the candy sugar cake can then be placed upon the top bars of the frames and directly over the cluster. The cluster will be in immediate contact with the feed.

Bees don't have to even break cluster to access the sugar cake. In fact, moisture generated from respiration inside the hive will frequently, and, here in the Northwest U.S. inevitably, be used in the bee's liquefying process, thus utilizing a



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*"Feeding fondant is easy, convenient, simple, efficient, . . . and the bees actually like the stuff."*

moisture source which is usually a liability rather than an asset. A one-inch rim can be installed around the top box to allow the cake to sit freely on the top bars and permit the hive cover to seat fully down, especially if using migratory covers. If wind is feared, the entire one-inch lip can be taped down to secure it from being blown off. In this way, the bees have a space in which to access the sugar cake and feed themselves.

Strong hives will finish the cake in a short time; very strong hives may finish a five or six pound cake in as little as a week or 10 days. The disappearance of the cake does not mean that it has all been consumed, however; a considerable amount is simply liquefied and stored to be used later. Further, this form of feed does not stimulate brood rearing. Dry sugar cake does not imitate a nectar flow and is not seen as a nectar flow by the bees. It will maintain brood rearing that has commenced and will save the bees from starvation. When a week or 10 days has passed, it is easy to simply remove the lid, even in cool or poor weather, check the hive for any remaining sugar candy cake, and place another on the top bars if needed and feeding should continue. Hives can be kept alive indefinitely in this manner, or at least until a nectar flow begins, in the Spring. This method will save the hive that would have starved late in the season and become a total loss to the beekeeper and the bees.

This method of feeding is much neater and more convenient than simply feeding ordinary granulated sugar as an emergency feed. Granulated sugar is loose and often falls down onto the hive bottom. Bees sometimes are reluctant to accept such feed whereas they show no such reluctance to a sugar cake. The only disadvantage to such fondant candy feeding is the possible lack of moisture. Especially in the Northwest, but in most beekeeping areas in the U.S., such a moisture lack is not a problem.

How do you make this fondant

candy? The formula can be found in a variety of publications on bees and beekeeping but it is fundamentally the same in all. The formula is: 15 pounds of granulated sugar, three pounds of corn syrup, four cups of water and ½ teaspoon cream of tartar. All of these ingredients are easily obtained although the corn syrup can be either ordinary off-the-shelf from the grocery store or the high fructose syrup available to beekeepers.

The ingredients are mixed in a large pot. A canning pot is about the right size for the quantity given above. The formula can be reduced in size depending upon the quantity of candy desired and the size of the available container. The mixture is heated to 240° stirring only very occasionally. For temperature control, a candy thermometer is essential.

Great care is required with this mixture as it gets hot and it is capable of causing severe burns if it comes in contact with the skin or any part of your body, including your tongue! The molten candy sticks tenaciously to skin. Make sure that small children and any other living things (pets, etc.) are not going to be injured or have this mixture spilled upon them. It is a good idea to have cold water and ice nearby in order to treat any contact.


Once the liquid candy has reached 240° immerse the pot in cold water in a sink. Use a small electric hand mixer to stir the molten candy, measuring the temperature as it cools. At approximately 190° the liquid mixture can be poured into forms or molds, usually lined with wax paper. Handy sizes include 9" x 13" baking pans. These molds are allowed to cool completely. Cooling can be accelerated by placing candy pans in the refrigerator or freezer. The solidified sugar cake releases easily from forms once completely cool. The release process is aided by using metal pans and not glass, as the metal flexes and releases the fondant candy more effectively. Fondant candy can be stored almost indefi-

nitely.

Once cool, the candy cakes are ready for use. Fondant candy can be taken into the field with the first late Winter or early Spring hive inspection, along with some one-inch wooden rims or empty shallow honey supers in order to be ready when needed to keep bees alive.

This method of feeding has many advantages including ease and convenience, simplicity, complete lack of waste, and ready acceptance by bees with a minimum of disruption in initial as well as subsequent feeding. Feeding can be continued even in bad weather and, if weather or nectar flows are inadequate or delayed, additional feed can be added. With additional surveillance, those hives getting short on stores and light as Spring continues can be fed in a like manner.

Since starvation late in Winter is a very frequent cause of Wintering loss, this method will insure that Winter losses are kept to a minimum and the beekeeper will enter the honey season with the maximum number of hives.

Wintering honey bees may still make you shudder, but with this method of feeding in late Winter and early Spring, bees will survive. 

*Charles Hunt is a sideline beekeeper, and teaches beekeeping and sociology (an admirable mix) at Lane Community College in Eugene, Oregon.*



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# IN PERSPECTIVE

A. Gary Shilling

“Investment Advisors can have bad days, but beekeeping puts those days in a whole new perspective.”

“Dad, you’re now our head beekeeper,” my son Steve announced in 1993 when he left home for the euro dollar pits in Chicago.

We got into beekeeping in 1990. My dwarf fruit trees weren’t getting properly pollinated, so for years I’d wanted bees. My wife, however, was less than enthusiastic. “Come on, this isn’t a farm. It’s suburban Short Hills, NJ.” But then Steve did his senior thesis at Bucknell on bees, and that’s all it took to push me over the edge. One afternoon when my wife was out we smuggled in two hives. She says she knew what was going on all along.

Steve boned up on beekeeping and even took a short course at Rutgers. He ordered and assembled the equipment, inspected the hives and extracted the honey. I blissfully served as his assistant, oblivious to the reality I would face upon promotion.

Initially I did a couple of things right. I immediately got as close as a bee to nectar to George Schaefer, an excellent professional beekeeper in the area and my mentor ever since. I also called in the State Apiarist, Grant Stiles, who gladly taught me hive inspection. Nevertheless, I soon faced a myriad of problems I’d only known vicariously. It was one thing when Steve told me that one

of our hives was queenless. (We had expanded to over a dozen when he left.) It was quite another when I had to figure out how to replace her.

The queen is the hive’s heart and soul. Only she can lay eggs, a thousand or more a day in her two or three year life, although some make it longer. Why is the queen missing? Did she just die. Get too old to lay? Did I inadvertently kill her while inspecting the hive? Regardless, I have to get a new laying queen in place fast. Otherwise, the hive will probably die since the worker bees live only about a month in the honey-producing season – they literally work themselves to death.

Worker bees, females that can’t produce fertile eggs, can make a new queen by feeding royal jelly to female eggs. If I can’t find eggs in the hive, I usually introduce some from another hive, but either way it will be almost a month before the queen goes through the larva and pupa stages, emerges as an adult, takes her maiden flight when she mates for the first and last time with a dozen or so drones, and returns to the hive for a lifetime of serious egg laying. But in a month, the Spring honey flow – the time in our area when nectar is abundant – may be over. An alternative is to buy and introduce a mated queen. Speeds up the process, but the workers may not accept – read, kill – her.

The drones, by the way, die after mating, but they’re dead meat anyway. Other than breeding they have no other use. Don’t gather nectar, don’t work around the hive, don’t sting, just eat. So in the Fall the workers drag them outside to perish.

I’ve learned a lot about the bee diseases and pests that have caused many hobbyists to throw down their bee veils in recent years. Much to my wife’s dismay, I soon got into melting vegetable shortening on her kitchen stove to mix with sugar and Terramycin to combat two serious bacterial diseases, American foulbrood and European foulbrood, as well as other scourges. Then there are lesser threats like chalkbrood, sacbrood, and nosema.

I’ve learned fast that if there are no bees in a hive in the Summer, there soon will be wax moths. Their larva chew up the comb and the wood, making an unbelievable mess in record time. Fortunately I haven’t yet been faced with Africanized bees, the “killer bees” that were accidentally released in Brazil and moved north and south from there. Their breeding with other honey bees and their distaste for cold weather appear to have saved me from that menace, at least for now.

Then there are the mites. I’ve been able to control the tracheal mites, little buggers that live in the bee’s trachea and ultimately suffo-

*This is the original version from which Gary Shilling’s 1997 Forbes article was edited.*



cate them, but like almost every other beekeeper in the country, I got my share of hell from the *Varroa* mites in the 1995-6 Winter. They attack the pupas and the adult bee exteriors, and wiped out virtually all of the nation's feral or wild colonies that Winter.

Beekeeping is agriculture, and so depends on weather. A wet Spring can dramatically cut the supply of nectar and anyway, bees hate to fly in the rain. They will fly miles for nectar and pollen if necessary but concentrate on a one to two mile radius from the hive. In our area there is almost no farming, so forget clover and other nectar-producing field crops. And all of the garden flowers in our town – plus my dwarf fruit trees – wouldn't produce more than a pound or two of honey. It's the trees that count, tulip, basswood and black locust. Some years the white cascading black locust blooms are so showy and abundant that I stop the car to admire their beauty. Other years there are almost none. Even without the honey production volatility caused by diseases and pests, my harvest from the same hive has ranged from 20 to 150 pounds over the years.

The cold 1995-96 Winter, combined with *Varroa* mites, killed half my hives. All honey bees come from the Old World, and unlike native bees, wasps and hornets, they don't overwinter as a single queen. Rather, they have to store honey for Winter feeding, but they are working fools. As long as there is a source of nectar and a place to put the honey, they keep producing. That means we can leave them enough for the Winter and take the rest.

In Winter, the bees form a cluster inside the hive so their body heat maintains a 93°F temperature. They gradually move among the frames of honey, eating their way as they go. But in the long stretches of cold weather, like in the 1995-96 Winter, they don't like to leave their warm but empty frames and move on to honey-laden but frigid frames. They starve. I was not only frustrated but faced with big colony rebuilding the following Spring.

For any farmer, including a beekeeper, it's feast or famine. With the mild 1996-97 Winter my colonies were in fabulous shape that Spring. So fabulous that a number of them

felt crowded in their quarters and swarmed. Now I confess, I was on the road with clients and therefore late in reversing the hive's boxes, an impediment to swarming. I've learned that successful beekeeping is like successful gardening. It's: Doing what has to be done, when it should be done, the way it ought to be done, whether you feel like doing it or not.

Before swarming, the bees make a second queen, and then her mother and about half the bees – some 60,000 per hive at the height of the Spring honey flow – take off. Bad news. Even when I captured a swarm and put it in a new hive, neither the new nor the old colony have enough bees to produce much honey this year. Worker bees only forage for about seven days of their month-long lives in the season. Sure they're working the rest of their days – feeding the queen, cleaning the hive, guarding the entrance, etc. – but for three quarters of their lives they are over-head. By the time the colony is rebuilt it will probably store only enough honey to get itself through the next Winter with none left over for me.

With Steve's departure, I also learned how labor intensive beekeeping is. That's why, until Washington got an import quota agreement with China in '96 (and another pending this Fall) the low paid Chinese had virtually run American professional beekeepers out of business, except for those paid by farmers to pollinate crops. Which, by the way, is very important. Almonds in California require bee pollination. So do blueberries in Maine where production is about 50% higher with bees.

Back to the labor intensity of the hobby. You buy the box and frame parts pre-cut, but it still takes me about four and half hours to assemble and paint a complete hive, even with time-saving air nailers and staplers. Over 200 hours of sunk time for my 50 hives. Each one consists of two 9-5/8" deep hive bodies in which the bees rear their brood and store their Winter honey and pollen, and three or more honey supers in which they will put, I hope,

*“Successful  
beekeeping is: Doing  
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... or not.”*

my share of the honey. The supers are shallower for lifting ease since a fully loaded hive body weighs 90 pounds. Beekeepers tend to have bad backs. Used equipment is an alternative to assembling your own, but it is usually well used.

Good equipment lasts for years, but I can't avoid about eight annual trips to each hive to inspect and service them, take off the honey and prepare them for Winter. My hives are in four locations or beeyards, and I figure about a half hour per visit per hive including traveling time. Another 200 hours spent each year. And I'm not counting the time to extract the honey which George Schaefer does for me. I've never sold any honey and if I did I'd have to add up all the costs and would cringe when I found my time was worth a nickel an hour.

At this point, you've got to wonder, why is this guy pursuing a hobby with so much grief? In part it's an ego trip, I suppose. It attracts more interest at cocktail parties than discussing your golf or tennis game. This is especially true now that the plight of the honey bee has attracted a lot of attention. General Mills donated money for bee research on behalf of those who sent in bee clippings from Honey Nut Cheerio® boxes. "Ulee's Gold," a movie with Peter Fonda as a beekeeper, was well received. Karen Kirby, the wife of a friend I'm helping get started in beekeeping is decorating her dining room with bee wallpaper (Napoleon's logo) and has a hand-painted mural of a skep (traditional beehive) and

*Continued on Next Page*



*"I was soaked with rain and sweat, in considerable pain, and seriously questioning my own sanity."*

flying honey bees in her butler's pantry.

I also keep keeping bees because our clients and friends have gotten used to receiving honey from us each Christmas, complete with timely labels. *The Wall Street Journal* picked up our 1992 label on its front page, "The economy is sour, but our honey is sweet," and our 1994 offering, "While the Fed stings, our bees make honey."

Beekeeping involves physical activity with tangible results and the opportunity to be outdoors on glorious days, a big contrast with my professional work indoors behind a desk or a lectern. It also has its moments of unexpected recovery and ecstasy. When the feral colonies were wiped out by the *Varroa* mites, my hives that survived had so little competition that production was huge.

Beekeeping is also an intellectual challenge, an ever changing mystery to be solved by careful observation and analytical thinking – and lots of luck. Why did that colony suddenly collapse? Why does this one produce twice as much honey as the one right next to it? It also offers the opportunity to learn fast since you realize mistakes instantly – you get stung. Several pros laughed when my son Steve moved our hives in my full sized van instead of the beekeeper's traditional flatbed truck. "I don't want to risk losing any of my livestock in transit," he quipped, but we have since learned to keep veils on or handy while driving.

The fascination of the bee society alone is enough to keep me interested. They navigate by a sun compass and scouts do a dance, which researchers have deciphered, to tell the foragers where the nectar is. On one foraging run a bee will visit only apple trees, on another, pears. Neat since apples can't pollinate pears.

If a plane is flying to Los Angeles from New York and jet fuel is cheaper in New York than at its intermediate stop in Chicago, the air-

line uses a sophisticated computer program to decide how much fuel to take on in each city. It's cheaper in New York but it takes fuel to haul fuel. The bee does the same. She somehow calculates the humidity, temperature, wind speed, barometric pressure and distance to determine how much nectar and pollen she can load on each trip to maximize the total she hauls back to the hive that day.

I'm also a beekeeper because the business isn't so professionalized that a hobbyist can't make contributions. Beekeeping is probably as old as civilization and until relatively recently, honey was one of the few sources of sugar. Yet before 1851, it was so primitive that beekeepers had to kill their colonies to remove the honey from their beehive-shaped skeps, boxes or knot holes in trees. The Rev. L.L. Langstroth, a New England preacher, not an entomologist, noticed that bees always leave a 3/8" space between their combs, a bee width, for them to crawl through. He revolutionized the industry by inventing moveable frames between which the bees would leave a bee space. So, they can be removed, the honey extracted, and then returned to the hive without killing the inhabitants.

In this tradition, today's beekeeping journals are full of experiments and ideas of hobbyists and professional beekeepers as well as agricultural school scientists. I introduced a small one myself, a system to use four gallon plastic pails of sugar water to help new colonies get started rather than the traditional gallon size. I fill them one fourth as often.

The open opportunities for advancements are very clear in bee diseases. I'm convinced that many of them could be easily cured if they had the sex appeal of AIDS or cancer and research money to match. They obviously don't so it's a free-for-all with few established best practices but a wealth of suggestions. For example, Sandoz has had a virtual monopoly on *Varroa* mite

control in the U.S. with its fluvalinate-impregnated plastic strips, that carry a price to match – \$6 per semi-annual treatment per hive. But university researchers teamed up with beekeepers to get excellent results with wintergreen, spearmint and other essential oils at pennies per treatment. And now, Bayer, the pharmaceutical giant, has a product that competes with these that beekeepers can try.

Of course, the lack of hard scientific knowledge can lead to more hope than reality. Some folks promote bee royal jelly to cure human ailments ranging from acne to cancer. Others note that beekeepers don't tend to get arthritis, and there is some evidence that bee venom causes a reaction that counteracts arthritic inflammation. Stings, anyone?

So despite problems, I keep bees for many reasons, but the best is the perspective on life it provides. Behind my office desk, mounted in a glass case, is a pair of long canvas bee gloves that reach over the elbows. Each has hundreds of small black dots on the arms, bee stings, administered on a late afternoon when that hive's field force was back from foraging and the bees were, as usual, getting ornery as night approached. Even more so because it was raining.

I said to the bees, "Girls, I'm your friend. Without me you wouldn't even exist." No luck. Worker bees aren't malicious, but when they think you're menacing their hive, they defend with kamikaze determination – their stings detach after they strike and they promptly die. About a hundred stings got through the canvas and into my arms. I was soaked with rain and sweat, in considerable pain and seriously questioning my own sanity for engaging in this hobby.

Now, on days when our economic forecasts go wrong or our portfolios stink, I look at those gloves in the glass case behind my desk. Life has been worse, much worse. ☐

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A. Gary Shilling is a sideline beekeeper, columnist for *Forbes* magazine, publisher of *INSIGHT*, *Financial Guild* Newsletter, and the first participant in the *A.I. Root Lectures Series*. He lives in Short Hills, New Jersey.



# Bob's

# Buzzy

# Bees

## *Good Records. Efficient Layout. Exceptional Production.*

Pat Henderson

Robert A. (Bob) Hughes' ratty, old-looking \$100 initial colony of bees has grown into a very successful operation. He is considered a sideline beekeeper with about 200 colonies; all less than 30 minutes from home. Bob, who has kept bees for 20 years, is a relatively new beekeeper especially compared to his mentor, Jake Matthenius, who started in 1946.

Bob and his wife, Joan, live in a home he built in 1959. Their home is the hub of many beekeeping activities - both branch and state-level. For instance, they have hosted the state beekeeper's annual Summer picnic for the past seven years, which is truly a family outing. The children are entertained with an in-ground pool while the adults enjoy the auction, food, and company of good friends and fellow beekeepers.

Bob is an early-to-bed, early-to-rise individual. Don't call him after 9:00 p.m. or you will find him sleeping. On the other hand, Bob is frequently in his honey house bottling honey at 4:00 a.m. He likes to get the bottling done early so he has time to work the bees or do other things. If you happen to call and no one is home, you get his answering machine. The message says, "This is Bob and Joan's dumb answering machine. Leave a message and we will get back to you." If you want to catch Bob at home, stop by or call him at lunch time. Bob says he never misses a meal. And you can pretty much count on that.

Bob was circuit design engineer with New Jersey Bell Telephone Company and took an early retirement in 1983. He is an individual that likes things to be organized. As an example when you walk into Bob's home, one of the first things that is apparent is the large number of electrical switches inside the door. There must be 15 switches which

control everything. There are a number of things around his home and honey house that are quite ingenious and took some thought. Bob is always saying, "I may not be the smartest person in the world, but old Bob is always thinking." This becomes obvious as you look at the way he has set up his honey house.

Bob has attempted to make his beekeeping operation as easy as possible. One of the interesting things he has achieved over the years is how he manages his beeyards. Bob's objective, which he has achieved for the most part, is to be able to drive into a beeyard and pull in behind his hives. He prides himself in his ability to actually reach out of his truck and touch most of his hives. Since Bob lives in central New Jersey, he is able to do this because he does not have to deal with an electric fence to keep the bear out. But just wait. The bear are beginning to migrate South out of the plagued Northern areas of New Jersey.

When you enter one of his yards, it is apparent how well organized he

is. All hives are painted gray and sit on concrete blocks. No weeds or grass grow around his hives. He thoroughly works his hives in the Spring to ensure they are ready for the honey flow. Once he puts on his honey supers, he does not go into the brood area unless he suspects a problem. After the honey supers are on, he will visit each yard periodically to put on extra supers, if required. And with his colonies, they are frequently needed. Bob averages about 90 pounds of honey per colony year after year in a state where the overall average is only 35 pounds per colony. After the honey supers have been removed, he works the bees to ensure they are well. He has had great success in his management style and doesn't see any reason to change it.

Bob is probably one of the best beekeepers when it comes to keeping records. He is very disciplined. If you ask him about his production in 1989, he could tell you in detail what happened that year. Every one of his hives are marked with an al-

*Bob Hughes unloads his truck.*







*Bob Hughes at his Silver Queen uncapper. Note the hot water tank (white) to the left. This provides hot water for the knives.*

pha/numeric system. Since Bob does not move his colonies for pollinating services, this makes keeping a colony history a lot easier. As such, Bob is able to record and recall the history of each of his colonies.

Bob is a firm believer that the use of queen excluders will ensure the reduction of your honey production. He refers to them as "Honey Excluders." When he first started keeping bees, the state Apiarist, Jake Matthenius, told him to throw the darn things away; they did nothing but cause the bees to swarm and keep the bees from adding honey in the honey supers. So, to this day, Bob does not use queen excluders. Bob is proud of the fact that Jake was his mentor. In fact, he still considers Jake his mentor. He said Jake gave him a lot of good advice in addition to the queen excluders. However, Bob recently commented he plans to use his old queen excluders this year when he pulls his honey. He admits occasionally he

will find some brood in the honey supers. Bob painted the edges of the excluders orange for easy identification. He plans to combine all the brood he finds in a yard and put it above a queen excluder on a weak colony (if he can find one). This way, he keeps the brood alive and will help to strengthen a weak colony. But, he plans to pull the excluder as soon as the brood emerges.

Bob's bee truck is an old one-ton 1979 Ford with an eight-foot flatbed and a lift gate on the back. He uses this to get around to his 23 yards. When it comes time to pull the honey, he loads the honey supers on drip boards (mini-pallets) in the fields. When he comes home, he uses a hand truck and the lift gate to off load the supers into his hot room. He stores the supers in the hot room during the week and extracts on the weekends. His hot room is dark except for a small opening which allows the bees to escape. He keeps a nuc outside this open-

ing and collects the bees which came in with the honey.

Over the years, Bob has remodeled his honey house several times. He is always trying to make the operation easier. His honey house is a model operation, especially for the sideliner. At the heart of his extracting operation is a new Silver Queen Uncapper. He has mounted a three-gallon electric water heater on the side of the uncapper to provide heat for the uncapping knives. A friend, Pat Ricci, helped him design a honey super lift. Bob rolls a stack of honey supers in from his hot room and positions the pallet of supers on the lift.

He never has to bend over to lift a super. Once the frame has been uncapped and pushed along the rails of the uncapper, they are placed into one of his two 20-frame Maxant electric radial extractors. The honey then flows into a custom designed sump. From there the honey is pumped into a settling tank.

The extracting process is the one part of his operation he likes the least. His family lives in the local area and support him with extracting the honey, but they are only available on the weekends. Another limiting factor in his extracting process, as with many extracting operations, is handling the wax. Bob uncaps directly into a wax spinner. After extracting about 100 supers, he has to shut down the operation to remove the capping wax. Therefore, it normally takes about six weekends to extract all his honey. Bob says he and Joan are getting older and they would like to enjoy their family in other ways than to spend this many Summer weekends in the honey house. Bob feels it is a burden on his family and he regrets this. He would just as soon be off to the shore, or out with his son, Andrew, in his new 30-foot motor home.

Bob's hot room serves two major functions. This room serves to store the honey supers when transported from the field. After extracting the honey, this room is used to store and warm buckets and barrels of honey. As honey is needed, he pumps it out of a barrel into a pair of new Kelly water jacketed 40-gallon tanks. These tanks can operate independently, or function as an 80-gallon unit. In the center of the

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**"Bob's outside activities in education won him the prestigious EAS Divelbiss Award in 1996."**



tanks, and the heart of his bottling operation, is a new Nassenheider honey metering system. While sitting on a swivel chair, he is able to put honey in the jar, put a lid and label on the jar, and put the jar in the case. He can package a case of honey in three to five minutes, depending upon the size of the jar. This is one of Bob's most rewarding segments of his honey operation – it is neat, clean and fast. And, he says when you put the honey in the jar, you have a customer and that means "Money."

Bob always has time to help other beekeepers, and he spends a lot of time informing the non-beekeeping community about bees. He maintains bees at the Howe Farm in Lambertville, an operating farm set up for the public to view a farm as it operated in the past. He is a regular at the Rutgers Beekeeping Short Course. He gives talks to various schools and groups around the state. He is one of three people identified by the Department of Transportation to be called in the event there is a major bee spill in NJ. Bob is an active participant with the New Jersey Museum of Agriculture at Cook College in New Brunswick. They have what is touted as the largest observation hive, 12 frames, in the Northeast. You can find Bob talking to people at this observation hive on numerous occasions throughout the year. Honey bees are frequently featured as part of the museum's activities thanks to Bob. You can even find a jar of Bob's Buzzy Bee Honey in their gift shop. This giving, sharing attitude won Bob the Divilbiss Award in 1996.

In 1996, the Secretary of Agriculture, Arthur Brown, established a Beekeepers Advisory Council. The charter of the council was to deal with the mites and other honey bee



Bob filling five pound jars using his new Nassenheider bottling system.

related problems. At the time the council was established, there was great concern with the loss of the feral honey bees as well as the loss of the managed honey bees. Blueberry and cranberry crops are a major industry in New Jersey, and there was concern about these and other pollinated crops without the honey bees. Today, New Jersey has to bring in several thousand colonies for pollination. Bob is presently the chairman of this council which is made up of members from the Department of Agriculture, growers, and beekeepers.

Bob has also been a very active member of the New Jersey Beekeepers Association including being the past president. Typical of Bob, when it came time to plan for the Association's 100<sup>th</sup> birthday, he volunteered to chair the 100<sup>th</sup> Anniversary Committee. His committee has set up a tentative agenda. Bob extends an invitation to beekeepers everywhere to join us in celebrat-

ing our 100<sup>th</sup> birthday. More details will be made available as they are finalized.

As of the writing of this article, Bob just finished extracting his honey. Once again, he has greatly exceeded the New Jersey average with his overall average of 100+ pounds per colony. If the Fall flow is good, he will get even more. His success is his knowledge of the bees and the discipline he maintains in his management style. He is not interested in the genetics of the honey bee, but he is extremely interested in the hands-on day to day management of the bees. One of the true tests of a good beekeeper is their ability to "Think like a bee." He seems to have achieved that level of beekeeping as Bob really is a successful beekeeper, family man, and friend. ☐

*Pat Henderson is a member of the New Jersey Beekeepers Association, and lives in Morris Plains.*

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# Something Different For The Holidays

Ann Harman

The holiday season of November, December and into January, is a time when even the most reluctant cooks take to the kitchen to produce wonders to be enjoyed by family and friends. With the use of freezers we can make some goodies in advance, thus saving some time just before the event. Children and grandchildren, no matter the age, should be involved in the preparations - but don't forget, they have to participate in the cleanup.

Yes, I know that grandma won't be happy if you serve something other than sweet potatoes with marshmallows, but try switching to this vegetable and fruit casserole and see how she likes it with Thanksgiving dinner. You can easily increase the amounts to accommodate a large crowd.

## HONEY GLAZED VEGETABLE AND FRUIT CASSEROLE

1 cup celery, chopped  
1 cup carrots, sliced  
1 cup apples, chopped  
1/2 cup canned apricots, drained  
1/4 cup water  
1/2 teaspoon salt  
1 teaspoon grated orange rind  
3 tablespoons honey  
1/4 cup orange juice  
1-1/2 tablespoons butter  
1/4 teaspoon ground ginger

Cook celery and carrots in 1 cup salted water until just tender, about 10 minutes. Drain. Arrange in casserole with the onions, apples, apricots and water. Sprinkle with salt and orange rind. Drizzle honey and orange juice over all. Dot with butter and sprinkle with ginger. Bake at 375° for 25 to 30 minutes. Serve 4-6.

*GOLDEN BLOSSOM HONEY BEELINE*

Fresh cranberries are available such a short time during the year.

Therefore we should take advantage of them. They are a very versatile fruit that can be used in many recipes for many meals. Yes, I know that Uncle Ned wants just plain cranberry sauce, but perhaps he would be willing to try this version of cranberries. Since this sauce freezes well, if the family likes it, it can be made in advance for Christmas-time celebrations.

## CRANBERRY HERB SAUCE

2 small onions, diced  
4 cloves garlic, chopped  
1 tablespoon vegetable oil  
1 package (12 ounces) cranberries  
2-1/2 cups water  
2 cups dry red wine  
2/3 cup honey  
2 beef bouillon cubes  
1/2 teaspoon dried thyme, crushed  
4 whole bay leaves  
5 drops Worcestershire sauce  
dash rosemary  
dash ground red pepper

Cook and stir onions and garlic in oil in large saucepan over medium heat until onions are softened. Add the rest of the ingredients and bring to a boil. Reduce heat to low and simmer about 1 hour or until mixture reduces by half, stirring frequently. Remove and discard bay leaves. Puree sauce in blender or food processor. The sauce will be the consistency of a thick gravy. Serve with poultry, lamb or pork. Also wonderful over dressing or sweet potatoes. Makes 2-1/2 to 3 cups.

*SWEETENED WITH HONEY*  
The National Honey Board

Pumpkin pie is so traditional with Thanksgiving dinner that it may be impossible to substitute anything else, especially with Cousin Mary saying she doesn't like it but

it has to be served. But, how about another kind of pie, a second pie, for those who want something a bit different but find pecan pie a bit much after turkey and all the trimmings. Autumn is the perfect time of year for pears and they do combine well with cranberries. Even if you served some plain cranberry sauce with the main courses, this pie will really not seem like too much cranberry.

## CRANBERRY PEAR PIE

1 graham cracker pie crust  
2 cups cranberries, chopped in blender  
2 cups apple juice  
1/2 teaspoon ground cardamom  
1 cup honey  
1/4 cup cornstarch  
1-1/2 cups pears, peeled, cored and sliced  
1/2 pint whipping cream

In a saucepan, combine the cranberries, honey and apple juice and cook for about 10 minutes. Add just enough cold water to the cornstarch to dissolve it and add this mixture along with the pears to the cooking berries. Continue cooking, stirring, until the mixture thickens and turns clear.

Then pour the fruit mixture into the pie shell and chill for several hours. Top with whipped cream before serving.

*HONEY AND SPICE*  
Lorena Laforest Bass

Quick! A gift is needed! Dilemma - it's for your neighbor and your neighbor is the world's best cookie baker so there's no need to take a plate of cookies there. That's OK - you've got honey and a gift of nuts toasted with honey are nothing similar to cookies. Don't reserve this gift just for that neighbor. Take





some to your friends, to those who have helped you during the year, and just serve some at your holiday gatherings. You can make up batches in advance and have them ready for the unexpected. Yes, you do need a nice jar for these. Yes, you do need a label that tells what's inside the jar and that these nuts are made with your honey. You can design a quick computer-made label or you can take a Christmas card and use it as a hang tag on the jar.

### HONEY SPICED NUTS

- 1 package, 10 ounces, pecan or walnut halves
- 2 tablespoons butter
- 1-1/2 teaspoons ground cumin
- 1/4 teaspoon cayenne pepper
- 2 tablespoons honey
- 1 teaspoon salt

Place nuts in medium bowl. Melt butter in small saucepan. Add cumin and cayenne. Stir until combined. Pour over nuts. Add honey and salt. Stir to coat. Transfer to baking pan. Bake at 300° in a single layer until nuts are toasted, stirring occasionally, about 20 minutes. Serve warm, or at room temperature. Store in airtight container. Yield 2-1/2 cups.

*GOLDEN BLOSSOM HONEY BEE LINE*



What's the standard supply of nibbles during holiday season? Well,

ham, turkey - plain or smoked, cheeses, crackers, biscuits, slices of fruitcake. Ufff. Some fresh fruit would really be nice as a counter to all the heavy stuff. Fortunately fresh fruits can be found in supermarkets at this time of year. You will just have to see what is available when you're either giving your party or are pot-lucking at someone else's.

### VANILLA-RUM PARTY PINEAPPLE

- 1/4 cup honey
- 1 ounce pure vanilla extract
- 1 tablespoon rum extract
- 8 cups assorted fruit: pineapple, strawberries, melons of all kinds, grapes, kiwi, star fruit, whatever you find
- 1 whole fresh pineapple.

In a small bowl combine honey, vanilla and rum extracts. Place fruit in a large bowl. Pour honey mixture over fruit. Toss to thoroughly coat fruit. Cover and refrigerate 2 hours. Toss fruit again.

Slice off 1/2 inch from bottom of pineapple so it stands solidly. Spear fruit pieces with frilled toothpicks and stick onto sides of pineapple. Place pineapple on serving dish and spoon remaining fruit around bottom. Serve with additional toothpicks.

*McCORMICK Spices and Extracts*

The holiday season is not complete without certain traditional foods and drinks. Eggnog, in particular, is part of the holiday festivities. This next recipe can be made with either the traditional cream but this lighter version is just as delicious. Use a mild honey for this recipe.

### HONEY EGG NOG

- 4 eggs, separated
- 1-1/2 tablespoons honey
- 2-1/4 cups skim, low-fat or whole milk
- 3 tablespoons brandy
- 1/4 teaspoon ground nutmeg
- 1/4 teaspoon ground cinnamon

Whip the egg yolks and honey until frothy and turning pale yellow. Heat the milk until bubbles are just forming around the edges. Beat the egg whites until frothy and just forming soft peaks. Set aside. Pour the warmed milk and the brandy into the bowl containing the egg mixture, beating constantly until blended. Next fold in the egg whites using a large metal spoon. Serve immediately in mugs. Sprinkle

with the nutmeg and cinnamon. Makes 4 cups.

*A TASTE OF HONEY*

Jane Charlton and Jane Newdick

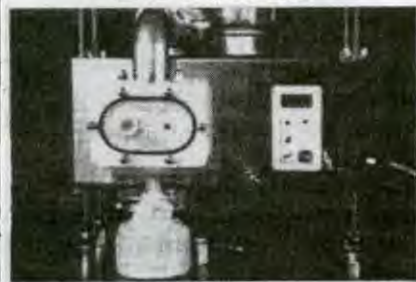


One last holiday touch. If you are giving honey as gifts, and are handy with a computer, you can make a holiday label for the jars. For

Thanksgiving you can use dark brown and orange. For Christmas, red and green, of course. You can use these colors as a border. Keep the label simple but if you have some seasonal artwork, that would make a nice touch. Be sure to give recipes with your honey gift.

Put off joining the Procrastinator's Club until next year and make your honey treats ahead of time. You'll enjoy the festivities much more.

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### HONEY DOGGIE CUPCAKES

A special treat for your favorite canine! Note: Although dogs love chocolate it is not good for them. Therefore carob powder gives the smell and taste but does not cause a problem.

- 1/2 cup honey
- 2 cups flour
- 1/2 cup mayonnaise
- 3 tablespoons carob powder (found in health food stores)
- 2 teaspoons baking soda
- 1 cup warm water
- 1 teaspoon vanilla

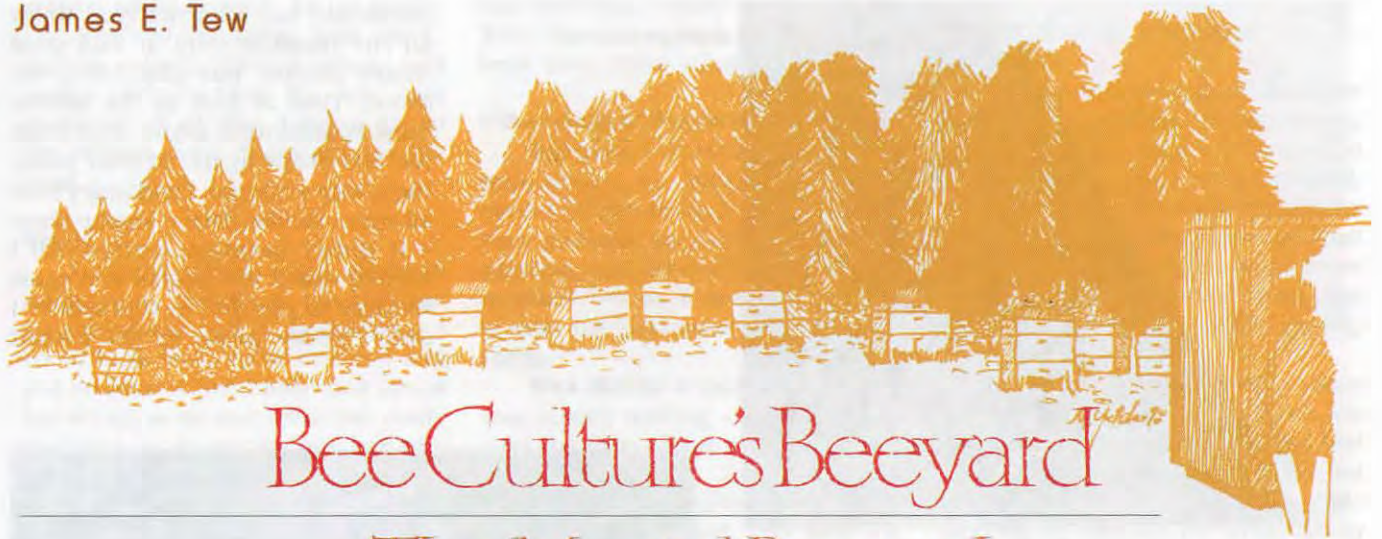


Beat all ingredients together thoroughly. Grease muffin tins and fill each cup halfway with mixture. Bake at 350° for 25 minutes. Allow to cool. Makes 12 cupcakes.

*GOLDEN BLOSSOM BEE LINE*







# Bee Culture's Beeyard

## The Mental Beeyard

### Help me out. I'm struggling here

**September 24, 2001. Monday**

I have tried three or four different titles and have selected the one above (and I don't particularly like it). Why my consternation? Because I am on a plane trying to get home from a month in Uganda. Though I have done a lot of bee work on the trip during September, I fear it may not be of great interest to you in this article series. Ugandan beekeeping is not typical U.S. beekeeping and secondly, it will take me some time to sort out all my experiences enough to put some comments, thoughts, and photos into an article. Maybe some other time.

My month-long Uganda jaunt was not a particularly long trip, but on the other hand, sometimes a month can seem like a year if you're the one doing the jaunting. During these past six weeks, due to the trip, I have done absolutely nothing in my bee yard or in the small yard at my home. While away, I would find that I would abruptly be thinking about what was not getting done at home. I would have these "home" thoughts while working colonies in Ugandan bee yards, while riding in the car, or while trying to sleep at night. I found peculiar security and comfort in thinking about my home apiary and mentally working it. (Plus when you work colonies mentally, you don't get sweaty and you don't smell like smoke.)

The grass in the yard hasn't been cut since sometime in early August. The Spring supers are still

on and only a few Fall supers got put on the colonies. I don't even know if there was a Fall honey crop. Diseases, queens, brood - I don't know the status of anything in any of the hives. Importantly, entrance reducers have not been put in place on anything. *Everything I have ever suggested for you to do to your bees has not been done to mine.* I will look at my hives tomorrow.

### Looking at some hives

"Tomorrow" came, but it was not what I wanted. I had to adjust.

**September 25, 2001. Tuesday**

It was cool and rained all day. I can't

do anything. More mental beekeeping.

**September 26, 2001. Wednesday** It was cool and rained all day. Even more mental beekeeping added to a bit of beeyard anxiety. How much longer will the rain go on?

**September 27, 2001. Thursday**

It was cool and threatening rain today, but it will get no better than this. Besides, Editor Kim has been on my case about getting this piece in to him, so knowing better, I pushed the weather and went to the yard anyway.

Though I was glad to be home and back in my own beeyard, I can

*Last Spring, this was a weak colony. Now it looks good.*



Continued on Next Page





A stinger – in me.

requeened but was not (you know all the reasons why). It had good honey stores, but absolutely no brood. Time to look in the bottom deep. I puffed some smoke, and broke the two deeps apart. At that point, the colony exploded. I had angry bees all over. Smoke here – smoke there – it didn't seem to matter. All I wanted was a few photos and some verbiage to give you in this article. I didn't really mean to get kicked

tell you for a fact that the bees were not particularly glad to see me nor had they missed me one whit.

It was one of those days when, as a beekeeper, you know that you may be in harm's way. The bees were not flying and it was cloudy and cool, but this was my only window to have a look. Again, I need to say that I knew better.

The only dry smoker fuel I had was that which was in the smoker from the last time I used it five weeks ago. I used it gingerly and started a nice flame to which I added damp leaves – everything everywhere was wet. I wanted to have a look at the colony with the “warm-way” entrance. I smoked the hive, opened it up and saw the expected lethargic bees with stingers protruding. I puffed smoke and they scurried all about. The hive looked good. You may recall that I discussed this hive with you in previous accounts<sup>1</sup>. Last spring, it was weak and needed help so I fed and medicated it<sup>2</sup>. The colony had made a remarkable recovery and had the strength to make my intrusion unwelcome.

The colony was packed with honey and had a good sized population. I gave them some more smoke and tried to pull the first frame out. It was not a good comb and it jammed so I tried another. This one came out but the bees were becoming more agitated. More smoke. I was pleased at how good this colony looked. It had dysentery problems last Winter. It should have been



The Fall drone massacre – a beehive rite of Autumn.



<sup>1</sup> See *Bee Culture*, July, 2001  
<sup>2</sup> See *Bee Culture*, April, 2001



around while doing it. To my credit, I maintained discipline, kept smoking the colony, fighting stings, and made certain that no one was watching all of this. I never got to the bottom deep. Score one for the bees.

### Stings

I haven't talked about stings in a long time. They hurt, but they are an occasional part of beekeeping. I could have worn more clothing and put on gloves, but I only took about ten stings or so and I was not really planning to do any serious bee manipulations so it was not out of reason. My point? It was a bad day. I was expecting some problems but I was surprised at how well the colony had rebounded from its spring dwindle. It was a much more powerful colony than I expected. I paid a small price for that – but I got a few photos.

### Dead Drones

It is now late September. After regaining control of the defensive colony, I decided to have a look at other colonies without being so invasive. A strong colony near the one that attacked me had numerous drone pupae tossed out front. You may already know that colonies routinely destroy drones in the Fall – colorfully called the “Fall drone massacre” in some of the old bee books. It's a clear harbinger of winter. Several colonies had motley groups of drones that were dead and dying near the hive entrance. There

was nothing I could or should do. This was a bee hive issue and the bees have their schemes.

### Other pests in the yard

**Spiders** I noticed that there were spiders in nearly all the inner covers of the hives I opened. They have probably been there most of the summer and no doubt take the occasional bee as a snack, but there is little the beekeeper can do about them.

**Wax Moths** A mature wax moth was quietly waiting – for something – on the edge of one of the colonies. Ironically, here in Ohio, this moth only has a few more weeks before she, too, is finished. Her fate will be to be frozen out. Wax moths do not overwinter in most of the northern US; however, beekeepers in warm climates must deal with them year-round.

### My first day back in the yard

Well, I must admit that I had not envisioned my first day back, when working in my mental bee yard, to be a cloudy, rainy day during which I took numerous stings and was wet from my knees down from all the damp, uncut grass. But all in all it was good to get back home. I will do the cosmetic things the yard needs and I will prepare the colonies for winter. Not much honey this year, but the bees look like they have a good chance of getting through an average winter. The final word on that will be next March and April – not really that far away.

### From My Brother, Dwight, in Tennessee

*My largest and most populous hive died under mysterious circumstances. The hive left four supers of honey and absconded. Tracheal mites I suspect, but I don't know. Then the wax moths moved in and caused damage. That was annoying. I boiled a few frames to see if I could salvage something, but a boiled plastic frame is not a pretty sight. It didn't work.*

*My colonies produced forty-seven gallons of honey from eleven hives. Not particularly pretty honey, but not bad either. I am okay taking bee stings, but I must prevent mosquito bites while working my colonies. The whole honey super removal process was stingless relative to honey bees but I took an almost unbearable number of mosquito bites in the process. I will be putting on Apistan strips this weekend with grease patties. Then on to winter. Right now, I'm scratching.*

### And Your Unanswered Mail

As many of you know, I have not answered mail in many weeks. I was distracted before I left on my trip so I am particularly behind. If you feel that I have ignored some of your messages during the past six weeks or so, please take time to send the messages again and give me a second chance. I don't normally get so far from home or so far behind. ☹

*Dr. James E. Tew, State Specialist, Beekeeping, The Ohio State University, Wooster, OH 44691, 330.263.3684, Tew.1@osu.edu*

Spiders – a common hive resident.



A Greater Wax moth waiting for an opportunity.







Richard Taylor

# Stings

“Bees hold their own against the virtually omnipotent human species. I'm glad it is so.”

Reprinted From *The Joys Of Beekeeping*

A beekeeper worth the name develops a healthy contempt for stings. Indeed, he really should start out with that attitude before he has received his first one, so that this aspect of his craft can always be kept in proper perspective. Over the course of years I have woven a veritable philosophy around my attitude of sublime indifference to stings. I have needed the fortification of this philosophy, for a sting does still hurt, just as much, I think, as when I was a novice beekeeper. And it still brings from my lips the same sputtered oaths. In spite of this, I have to maintain a genuine and stoical lack of concern for them. I have to really believe, when I am working with the bees, that I am *not* going to be stung. This is the central requirement for the demeanor necessary in the presence of bees. I have to believe this even though I know, if I pause to think about it, that it is the exception rather than the rule if I conclude my work in a yard with no stings.

Bee work requires intense concentration. One has to keep one's mind on the task at hand, without distraction. Otherwise, blunders are made and the bees might, in fact, become antagonized, so that instead of facing the possibility of a sting or two one is suddenly met with the threat of hundreds of them. You can avoid such a sudden turn of events by keeping your mind on what you are doing. Success in dealing with bees demands a certain demeanor. What is called for is efficient and deliberate movement. It is not so much *slow* motion that is wanted but

a controlled approach. Such control is a difficult thing to describe, or even to demonstrate, but nothing destroys it more quickly than anxiety and fretfulness. The moment you jump in alarm you abandon the temperament essential to beekeeping. Some people possess that temperament by birth, as a part of their nature. They somehow sense exactly what is called for and the bees do, in fact, tend to keep their peace with them. Others, although they may have kept bees for years, never develop a deliberate approach, and their hours in the beeyards are hectic and disorganized. Stings are their appropriate reward. These persons should never have taken up the craft, and few of this kind ever do. They belong in the wrestling ring rather than in the apiary.

The best description of the demeanor needed for beekeeping was conveyed to me years ago quite by accident. A sweet and saintly woman came upon me as I was working with some hives, and she was impressed by my bare hands and shirtsleeves. After watching from a safe distance for a while she remarked: “You just send love out to them, don't you?” That is it exactly. It is not just a matter of loving bees; I suppose every beekeeper loves bees in some sense or other. It is more a thing of spirit or attitude. However absurd it may sound to those of scientific orientation, a good beekeeper sends love out to the bees, without giving it any particular thought. In that frame of mind, the work goes well, smoothly, efficiently, without upsets and, in fact, usually without many stings.

Despite what most people believe, bees are not prone to sting.

Cross bees are the exception, gentle bees the rule. Most wild things are gentle, and bees are too. They are among the gentlest things on earth, far superior to men in this respect. They have their own purpose, as all things do, and it is not to sting. They must be provoked into it. A beekeeper who stands in the midst of his apiary, perhaps clad in nothing but shorts and sandals as thousands of bees fill the air around him, is not being courageous. His mere presence is no signal to the bees to attack. For years I kept a dozen hives on my garage roof in the heart of a city, with neighbors and children on every side, and there was never a single complaint of a sting. I was finally obliged to move them, not because anyone was stung, but because a new neighbor moved in down the street, and, noticing beehives, became alarmed at the thought of stings and complained. At that point, upon moving the bees, I moved myself as well; for although I loved my house, I loved my bees more.

The bee was given her sting for the defense of the colony and nothing else. Hence, bees attack almost entirely in proximity to the hive; elsewhere they can be goaded to sting only by extreme measures, such as being stepped on with a bare foot.

The same is true of hornets and wasps. The sting is a defense mechanism. Nature is indifferent to the loss of this or that individual insect and makes no provision for its survival, but the destruction of the colony threatens the species itself. It is there that the life of the species is carried forward. Of course,

*Continued on Next Page*



virtually every sting received by a member of the general populace, whether in proximity to a beehive or not, is called a *bee* sting, so bees, innocent of any involvement in 90 percent of such incidents, nevertheless suffer condemnation for them all. There is hardly a large lawn or meadow that does not harbor yellow jackets, which go peacefully along unnoticed, their nest concealed in the ground, until someone disturbs it. Then the report is spread of a vicious stinging by "bees," and the incident is likely to be so reported in the local newspaper if it is serious. Proper identification is rarely made. I have even seen large paper hornet nests referred to as "beehives," and more than once I have been summoned, in my capacity as beekeeper, to come deal with them.

It is in this manner, too, that bees have acquired the reputation of being more dangerous than rattlesnakes, a comparison I have seen solemnly reported in newspapers. More persons, it has been discovered, die from insect stings than from snakebites. This is, in fact, true, because a miniscule part of the general population is hypersensitive to insect stings. For these few, a sting is a real threat to life. Despite precautions, these people are likely to receive a sting sooner or later. The likelihood of a given individual ever suffering a snakebite, on the other hand, is relatively small. Rather few people ever see a poisonous snake, much less receive a bite from one. These basic facts are then modified into the falsehood that more people die each year from bee stings than from snakebites. This, in turn, becomes the outrageous general statement that bees are more dangerous than rattlesnakes, which makes splendid newspaper copy.

**T**he misconception might be harmless enough if it did not also separate vast numbers of people from an appreciation of the most beautiful aspects of nature, not to mention the strange reputation it imparts to beekeepers. It does sometimes make life difficult. I have already mentioned my having to move the apiary from my garage roof,

not as a result of mischief done, but simply mischief ignorantly feared. The same kind of fear nearly cost me my best apiary site. I found what seemed to me a very promising place to set up a yard and approached the farmhouse a quarter of a mile away to seek permission. The farmer assented at once, but his wife was alarmed at the thought of bees visiting her garden. My reassurance that bees, after all, fly for miles only alarmed her more. She evidently thought they would fly such distances only to seek her out and attack her in her garden. It is pathetic that such wedges of fear and ignorance should be driven between people and nature, for we shall always be part of that nature, whether we understand her or not.

**A** beekeeper soon learns that bees are subject to swings of mood and temperament just as people are, and generally from the same basic causes. This is no projection of human feelings into other animals. It is one of the most obvious facts of apiculture. The general formula is very simple. When all is going well and the bees are able to satisfy their ends, they are agreeable, but when their efforts are frustrated, they become cross. A beekeeper can work with his bees in his shirtsleeves on a warm Spring day when the life of the colony is expanding and acres upon acres of flowers are quite suddenly opening, offering pollen and nectar in greater abundance than the bees can take advantage of. Hives can be taken apart, combs removed for inspection and the bottomboards cleaned with only the slightest notice from the happy and industrious bees. Sometimes on such a day even the veil can be discarded with little risk.

When, on the other hand, the sources of nectar have dried up, as is likely in August, and the bees sense a threat to their well-being, they respond angrily to the slightest disturbance to their hives. Again, when the beekeeper has harvested honey, leaving little on the hives, the bees are sometimes reduced to a very ugly mood until more nectar is gathered and the threat of starvation is banished. Their mood swings from one extreme to another even in a single day. Many beekeepers have wondered, for example, why

the hives are so cross when buckwheat is in bloom. In fact, they are not then cross in the morning; only in the afternoon. The explanation lies in a peculiarity of buckwheat itself. It secretes nectar only in the morning.

A beekeeper, knowing the signs of these swings of temperament, is often credited with great courage when no credit is due. Swarming bees, for example, are notoriously gentle, at least for the first day or so. They have abandoned their hive, therefore have no hive to protect and no inducement to sting. So some beekeepers do not even bother with a veil when they deal with a swarm. This always makes a stunning impression upon onlookers, and I have awed many audiences this way.

And of course I always have beehives near my house. I would not want to live where I could not. It is one of my pleasures to present visitors with a comb just taken from a hive and covered with hundreds of bees, among which they are invited to pick out the queen. The bees have no reason to fly from the comb and sting, and virtually all of them are young nurse bees anyway, but this performance is invariably met with stiffened expressions on the faces of my guests. If people will not open their eyes to the wonders and loveliness of nature, if they insist upon closing them in fear and distrust, then I feel that I must, when I can, force their eyes open. I feel like Plato's philosopher, entering the dark caves of ignorance in which people immure themselves and dragging them into the sunlight.

**I**t was discovered in antiquity that smoke instantly mollifies the mounting anger of bees, transforming them from a bold and threatening army into a passive and retreating throng. This is a very useful fact of their psychology. A beekeeper would usually be helpless without his bee smoker. A gentle puff or two gives him complete control of the situation under almost any circumstances. No one seems to know why this is so, and I am often asked what the smoke "does" to the bees. I am convinced it does nothing to them, in any ordinary sense. Certainly, it does not harm them in any way. My view is that they react to smoke in exactly the



way we do - they turn away from it. Their defense is, in any case, an appropriate one, for they do what would be the best thing to do if threatened by a forest fire. They turn their attention to their stored honey and make ready to salvage that, at least, in case all else should go up in flames.

It is a widespread belief among beekeepers, even among those who have studied bees for years, that upon sensing smoke the bees all gorge themselves with honey. Sometimes this is even offered as the explanation for their gentleness in the presence of smoke - that they are so filled with honey they can no longer bend their bodies in the manner necessary for implanting a sting! Which only shows that there is probably nothing too absurd to be believed by someone, even sometimes by experts. When a puff of smoke wafts over an open hive one can, indeed, see bees soon drawing honey from open cells, but only a minute fraction of the total population is so engaged. The rest go about their ac-

tivity much as before. Certainly the hive as a whole does not "gorge" itself, and authorities who have suggested this have substituted imagination for vision. A bee filled with honey, is, moreover, still perfectly capable of stinging. She has simply lost the inclination.

There are varieties of stingless bees, but they are not of much interest because they gather no significant quantities of honey. And I am, on the whole, glad that our honey bees do sting. I find something to admire in the way they can bear down on an intruder, even when I am the intruder. Beehives

in gardens would probably be as common as tomato vines if their occupants did not sting, and while this would be nice, in a way, it would also rob the beekeeper of that specialness that I, at least, prize. And it would, it seems to me, be an imbalance in nature if anything as delicious as honey were obtainable with little effort. As things are, the bees hold their own against the virtually omnipotent human species, and I am glad it is so. **BC**

*Richard Taylor is a philosopher and lifelong beekeeper who lives in the Finger Lakes region of New York. He is the author of several beekeeping books.*



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# ?Do You Know?

## Answers

1. **True** The presence of empty comb within the hive enhances the level of defensive behavior. Unidentified pheromones in empty comb apparently lower the threshold of response to intruders. Colonies housed in hives with large areas of empty comb respond to disturbances twice as fast and sting twice as much as colonies with little empty comb.
2. **False** Even though insects and honey bees are cold-blooded organisms, through social, colony-level homeostatic adjustments they are able to regulate temperature. This behavior allows them to remain active throughout the winter unlike other insects.
3. **True** Tracheal mite resistance levels currently vary widely among colonies in North American queen breeder populations and their resistance has been shown to be under genetic control. Buckfast and Yugo (ARS-Y-C-1) bees are examples of two stocks showing some resistance.
4. **True** Propolis has anti-microbial properties and, thus, is an important part of the chemical arsenal within the hive for combating contamination and pathogen invasion. The bees spread it as a thin coating over most surfaces, including brood cells. Studies have shown that propolis is definitely anti-bacterial and anti-fungal.
5. **True** The contraction and expansion of the winter cluster is the principal mechanism used by bees to sustain a favorable environment, as long as they have contact with their food reserves. At any given low temperature, small clusters are more vulnerable than large clusters as they must maintain higher inner cluster temperatures than do larger clusters. They have less bees to produce heat and form the insulating shell.
6. **True** The integument or exoskeleton of adult honey bees is not permeable to water and is covered with a waxy layer, thus protects the bee from desiccation.
7. **True** As the carbon dioxide level increases in the hive, honey bees respond proportionally with fanning behavior.
8. **True** Guard bees generally will not be aggressive toward foreign worker bees that accidentally enter the hive with a load of food. Upon returning from a successful foraging trip, the stranger walks into the hive without hesitation and when intercepted by guards, it rarely stops and submits to examination.
9. **False** When the temperature of the air immediately surrounding the bee reaches 57°F (14°C) the cluster becomes well defined. The colder the temperature, the more compact the cluster becomes.
10. **True** The intensity of honey bee defensive behavior is highly dependent on external environmental factors. The more defensively inclined bees are usually located near the hive entrance. When flight activity at the entrance is reduced because of poor or changing foraging circumstances and/or inclement weather the intensity of stinging behavior is increased.
11. C) 0.45° F
12. B) Antennae
13. D) 40-50 per cent
14. E) Antennae
15. Hoarding, Absconding  
Under temperate conditions, hoarding is the only possible strategy since absconding swarms cannot collect sufficient nectar to survive the next winter. As a consequence, temperate bees rarely abscond. Under tropical conditions, however, either hoarding or absconding could be an effective strategy.
16. Colony homeostasis is the maintenance of nest temperature and other environmental factors in the hive at relatively constant levels regardless of external conditions.
17. Trophallaxis is a characteristic activity in insect societies and is the interchange of materials (food, chemical secretions etc.)

- between individuals within the society. Trophallaxis is common between workers and also from worker to queen and drones.
18. In order to defend their colony, guard bees must be able to distinguish workers from their own and other colonies. Odor is the primary stimulus used by guard bees to recognize intruders. All adult bees in a colony share the same odor which is different from that of any other colony. In addition, the behavior of the bees they are examining is also used by guard bees to determine if they are friend or foe. Some intruders fight back or attempt to escape while others exhibit a submissive behavior during examination.
  19. *Visual (location of the sun, polarization of light waves, and landmarks)*  
*Olfactory (odors associated with food sources)*  
*Magnetic (orientation to the earth's magnetic field)*
  20. The bees at the center of the winter cluster generate heat. The amount of heat generated is equal to the heat radiated from the cluster surface.
  21. Bees on the surface of the cluster serve as insulators forming a shell. This shell can be from 1 to 3 inches thick and workers are oriented with their heads inward.

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

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

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



# GLT ANINGS

NOVEMBER, 2001 • ALL THE NEWS THAT FITS

## Final Step Before Year's End

### COMMERCE DEPT. DUMPS ON ARGENTINA & CHINA

A Department of Commerce ruling issued September 27, assessed significant antidumping duties on honey imports from Argentina and China. In a final determination, Commerce assessed duties ranging between 33% and 61% on imports from Argentina, while duties ranging between 26% and 184% were slapped on imports from China.

Commerce's action was the next step in an unfair trade case filed September 29, 2000 by the American Honey Producers (AHPA) and the Sioux Honey Assn (SHA).

According to AHPA President Richard Adee, whose organization represents about 800 domestic beekeepers, "Since May, when the preliminary duties were imposed, there have been virtually no honey imports from Argentina and China. In 2000, combined honey imports from the two countries were 158 million pounds. Clearly, at least since 1998 when the unfair trade investigation started, these exporters have been taking advantage of the U.S. honey industry by dumping product here at less than fair value and virtually stealing market share."

Commerce also found that Chinese exporters flooded the U.S. market with honey just prior to the imposition of the preliminary antidumping duties. As a result, Customs will impose antidumping duties on Chinese honey imports from the exporters who engaged in the import surges that entered the U.S. up to 90 days before the announcement of the preliminary determination.

In a related action, Commerce ruled that the government of Argentina unfairly subsidizes its honey industry and assessed an additional countervailing duty of 6% of imports from that country.

Said SHA President Jerry Probst, "The hundreds of domestic honey producers who belong to the Sioux Honey Association can't compete on

a playing field weighed down by foreign producers who dominate our market with below cost pricing tactics. This is against U.S. trade law and the rules of world trade as set forth by the World Trade Organization."

The next phase of the investigation bounces to the International Trade Commission (ITC) for final determination on whether the U.S. honey industry has been injured as a result of these dumped and subsidized imports. They will announce their decision by the middle of November.

The AHPA and the SHA are represented by the Washington, DC law firm of Collier Shannon Scott, PLLC, and Georgetown Economic Services, the firm's economic consulting subsidiary. International trade attorney Michael J. Coursey, a partner at Collier Shannon, heads the legal and economic team.

## Oversees The Honey Board

### AMS HAS NEW CHIEF

Agriculture Secretary Ann M. Veneman announced in mid-September, the selection of A.J. Yates as the Administrator of USDA's Agricultural Marketing Service.

For nine years, Yates worked for the California Department of Food and Agriculture, serving as Deputy Secretary from August 1991 to December 1996 and Under Secretary until January 1999. In these positions, Yates managed the following divisions: Animal Health, Food Safety Services, Inspection Services, Marketing Services, Plant Health, and Pest Prevention Services.

"A.J. Yates has exceptional qualifications," Veneman said. "I am confident that his expertise, leadership, and professionalism will strengthen AMS' ability to help American consumers and producers."

After leaving CDFA in 2000, Yates was a senior marketing consultant with Panagraph Marketing Solutions.

Yates also has been actively involved in organizations supporting agriculture and education, serving as President of the Fresno County Farm Bureau, State Director of the California Sugar Beet Growers Association, and Director of the Mid-Valley Irrigation District.

The role of USDA's Agricultural Marketing Service is to maintain a stable marketing environment for the benefit of America's farmers, ranchers, and consumers. The agency accomplishes this mission using tools such as federal marketing orders, research and promotion programs, the federal-state marketing improvement program, and the wholesale market development program. Agricultural transportation issues, market regulatory laws, market news, and federal grading and certification are other tools that help assure a steady supply of high-quality food on American tables.

## Bee Unit Escapes

### BELTSVILLE BELTED BY TORNADO

Agriculture Secretary Ann M. Veneman surveyed the damages at the U.S. Department of Agriculture's Henry A. Wallace Beltsville Agricultural Research Center (BARC) in the wake of the tornado that battered Northern Prince George's County at approximately 5:30 p.m. September 24. No one was hurt, but the Center's headquarters buildings along Route 1 sustained major structural damage.

The Beltsville center is operated by USDA's Agricultural Research Service.

"The tornado caused extensive damage to the roof of approximately 15 buildings on the Center's west side along Route 1 in Beltsville," said Veneman. "In addition, high winds structurally damaged and blew out the glass in most of the research

greenhouses."

Windows were blown out of some of the buildings, and in some rooms, air conditioning units were blown from their wooden frames and into the rooms. In addition to the damage incurred at the greenhouses, a great deal of time-consuming research was lost. Approximately 50 government vehicles on the station had damage ranging from minor to irreparable.

BARC facilities are located on both sides of Route 1 in Beltsville, with the bulk of the research activities on the eastern side of the 7,000 acre research farm. Although no structural damage occurred on BARC's east side, the facility had no electrical power the next day because of damage to the Capital Cherry Hill electrical substation that provides

electricity to the area.

"All of our animal facilities on the east side were running on emergency generators for awhile," said Phyllis Johnson, the director for ARS' Beltsville area. "None of the animals were harmed in the storm."

No estimates were available on the likely cost of repairing the Beltsville research center.

In addition to the damages at BARC, the National Agricultural Library, also located off Route 1 in Beltsville, had several broken windows but no interior damage, according to a library spokesman.

The headquarters buildings at the Beltsville Agricultural Research Center are a combination of administrative and laboratory space, Johnson said.



## BC Eve Savory Award

### DR. MARK WINSTON SELECTED

Dr. Mark Winston has been selected for the Eve Savory Award for Science Communication for his exceptional achievement in explaining science to the public and for increasing their awareness of it. In his biweekly columns in the *Vancouver Sun*, articles in international-circulated magazines, and many television and radio appearances, Dr. Winston presents engaging discussions – in lay terms for the general public – on issues such as overuse of chemical pesticides; dangers of global warming; benefits of biological pest control; and the role of science in human affairs.

Dr. Winston has had a distinguished career writing and commenting on environmental issues and science policy, and he explains why it is important for the public to understand science.

"Science and technology have an increasingly huge impact on all our

lives. For the public to make intelligent decisions about how to use science and what limits to place on it, we must explain what we do clearly and objectively. Almost all scientists are supported by taxpayer funds, and I believe we owe them a return on their investment. We owe them an opportunity to become engaged in the debate," states Dr. Winston.

In researching his new book *Travels in the Genetically Modified Zone* (Harvard University Press 2002) he found the public's appetite for scientific information increasing. "This book has presented me with an incredible opportunity to meet interesting people, not only scientists but also people with a diverse range of opinions who care passionately about the world we live in. And I have learned to respect that wide array of public opinions."

## W. RALPH GAMBER

W. Ralph Gamber, 89, died September 15 after a brief illness.

A leader in the honey industry and the area of food safety and quality, Gamber founded Dutch Gold Honey, Inc. in 1946 with a \$27 investment in three hives of bees at a farm sale. He built the company with his wife and three children into one of the largest honey companies in the world. He remained active in the company as its chairman emeritus.

In 1957, Dutch Gold Honey was the first to be packaged in plastic honey bear containers.

He was also founder of Gamber Container Co., Inc., a distributor of glass and plastic containers.

In 1992, he was named Pennsylvania Entrepreneur of the Year by *Entrepreneur Magazine*.

Gamber and his wife were founders of The Gamber Foundation, which supports local charities and nonprofit organizations, honey bee research and scholarships for children of Dutch Gold Honey employees.

In 1995, he received an honorary diploma from Manheim Township High School, where he had been a three-letter man in sports. He also at-

tended Lancaster Business College.

Early in his life, Gamber owned Gamber's Grocery Store and worked for Armour & Co. and Miller & Hartman, Inc.

A U.S. Navy veteran of World War II, he was a member of American Legion Post 664, Lancaster.

His professional memberships included National Honey Packers & Dealers, where he was past president, American Beekeeping Federation, Lancaster County Beekeepers, Pennsylvania Beekeepers Association, Honey Industry Council.

Gamber was a member of Apostles United Church of Christ, where he was past chairman of the stewardship committee and served on the church council.

He served on the Salvation Army Building Committee, was active in the Republican Party and was a member of the Republican Senatorial Inner Circle.

He is survived by his wife, Luella, son, William R., II (Kitty Lou) of Lancaster; two daughters, Marianne (Felix) Cobian and Nancy (Matthew) Olcott, both of Lancaster; eight grandchildren; nine great-grandchildren and a brother Clyde R. of Lancaster.



## JONATHAN WHITE

Jonathan Winborn White Jr., Ph.D., 84, of State College, PA died September 2, at Brookline Village, State College. He was born in State College, September 29, 1916, son of the late Jonathan and Helen White. He received a B.S. in agricultural chemistry from the Penn State University in 1937 and his M.S. and Ph.D. degrees from Purdue University in 1942. In 1943, he married Rosalind Christman, who died in 1998.

He worked for the U.S. Bureau of Censorship during WWII. After that he joined the U.S. Department of Agriculture, Eastern Regional Research Center in Wyndmoor, and worked there until his retirement in 1978. Dr. White spent most of his research career working on the chemistry of honey. He developed numerous unique methodologies for honey research. In 1986, Dr. White was honored with the Harvey W. Wiley Award, which is awarded annually by the Association of Official Analytical Chemists to recognize outstanding contributions to the development and validation of methods of analysis for foods and other related areas.

Dr. White is widely recognized as the world's foremost authority on the analysis and composition of honey. His huge body of work on honey includes the discovery of four new sugars, new methods of separation and identification, finding gluconic acid to be the principal honey acid, the development and improvement of methods for examining honey adulteration, the characterization of honey's antibiotic principle, the demonstration of the nature of various honey enzymes and technical work on new processes and products.

Dr. White received many honors from the U.S. Dept. of Agr., including three consecutive Outstanding Performance Awards, the Superior Accomplishment Award and the Su-



perior Service Award. He has been honored by the International Bee Research Association, the American Beekeeping Federation, the Honey Industry Council, and in 1980 received the James I. Hambleton Award for Outstanding Research from the Eastern Apicultural Society.

Following retirement in 1978, Dr. White moved to Navasota, Texas, where he continued to conduct and publish research and collaborate with colleagues worldwide. He has published well over 120 refereed journal articles including 19 in the *Journal of the Association of Official Analytical Chemists* that describe analytical methods for honey and beeswax. He has contributed chapters to more than 10 books and was active in his profession until his death. He was a member of the American Chemical Society, the American Association for Advancement of Science and the Institute of Food Technologists.

Dr. White is survived by his daughter and son-in-law, Barbara and Stanley Pennypacker of Spring Mills; his son and daughter-in-law, Jonathan III and Elsbeth White of Edmonds, WA and two grandchildren. He is also survived by his sister, Helen Smith of Beach Haven, NJ and two brothers, Donald White, Ph.D., of Oneonta, NY, and Philip White, Ph.D., of Wheaton, IL.

## POSTAGE COSTS CLIMB

The Board of Governors of the U.S. Postal Service authorized the immediate filling in September of a request for an overall rate increase of 8.7%.

For First-Class mail, it will seek a 3-cent increase on the price of a First-Class stamp, which equates to an average 8.8% increase and is part of an overall 8.2% increase for the mail class. The increase would be 7.3 for Standard Mail, 9% for packages, 10% for periodicals, 13.5% for Priority Mail and 9.7% for Express Mail.

"Periodicals, in particular, will see 10% increases," said Neal Denton, director of the Alliance of Nonprofit Mailers. "I believe, as a result of this

increase, periodicals will go out of business at an ungodly rate."

The Magazine Publishers Association also expressed disappointment over the announcement.

The USPS is projecting a deficit of \$1.65 billion for the fiscal year that ended September 7. It blamed the economic slowdown and high labor, fuel and healthcare costs for the shortfall. Pressure also continues as the USPS begins arbitration with three of its four largest unions. Meanwhile, costs continue to grow as 1.7 million new addresses are added annually, which represent significant infrastructure cost.





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## SUGAR-WATER SURPASSES HONEY IN SALES

*In another devastating blow to honey producers, latest figures show that sales of Sports Drinks (aka Power Drinks) such as Gatorade now surpass sales of honey, and by quite a margin.*

*A gallon of one of the more popular drinks sells for \$3.99 and contains a total of ½ lb of sugar, about the same amount as you'd get in ½ pint (0.7 lbs) of honey. Sodium and potassium are added to sports drinks in tiny amounts – about 2-1/4 grams (0.07 oz.) per gallon – to maintain the body's mineral and electrolyte balance, but sports drinks are essentially sugar-water (well over 90% water).*

*In a candid phone conversation with a sports drink vice president, Rex Bombast (not his real name) we tried to get more information on his product:*

**Q: Is it true that your power drink is essentially sugar-water?**

A: Our R & D boys have spent long hours tinkering with the formula to get the best possible sports drink, one exactly suited to the needs of today's athlete. Our product is unique and we feel our combination of sugars is superior to that in any other sports supplement, including honey.

**Q: Honey is mostly glucose and fructose. What are the sugars in your product?**

A: Mostly sucrose, some glucose, some fructose.

**Q: In what combinations?**

A: Ah, that's a company secret.

**Q: Coca Cola recently introduced PowerAde to capitalize on the growing sports drink market. PowerAde is mostly high-fructose corn syrup + glucose polymers. Obviously, their R & D people feel their combination of sugars is the best. Who's to say what's best?**

A: I'm sure the PowerAde people feel they have a better product. Off the record, let's face it, we're both selling sugar-water. We try to lend an aura of authenticity to our product with pictures of white-coated scientists fooling around in a lab. There's really not much science to it. Marketing is the name of the game, my friend. Those pictures are part of marketing.

**Q: So you put a lot of emphasis on marketing?**

A: You bet we do. We were very skeptical when we first introduced our product 20 years ago – a lot of us didn't think it would fly. Our R & D boys told us there was no way that our product, essentially sugar-water, could compete with honey; they said we'd be blown out of stores 3 ways: on a cost basis, on a nutritional basis and on a taste basis. Fortunately, one of our marketing people, Jeb Goforth (he's now my boss) argued that marketing and marketing alone would do the job, and, well, you've seen the results.

**Q: But didn't honey's obvious superiority concern you?**

A: It did me, and a lot of others around here, but fortunately, Jeb was persistent. As he put it, "Honey marketers have had their heads in the sand for so long they don't know which way is up. They have no concept of the power of educating the public through advertising. When I got out of business school, I would have died for the opportunity to market a product like honey, but the honey boys are so disorganized, it's laughable – they're absolutely clueless when it come to marketing." In fact, we had a lot of laughs when Jeb played a recording from a national beekeepers

meeting where honey producers raised hell about paying 1¢/lb – a paltry amount compared to our ad budget – to the Honey Board to promote honey. Some even wanted to disband the Honey Board. Unbelievable!

**Q: What about the Honey Board?**

A: It does a great job – I've seen their information and their website – but how much can you do on a shoestring budget? One third of our Power Drink income goes to advertising and promotion. If the honey people got serious about educating the public, they'd blow us out of the water. If honey marketers gave 10¢/lb for promotion, they'd kill us; 5¢/lb (a "Mormon tax") would put a knife in our gut. Imagine Lance Armstrong holding up a ½ pint jar of honey in one hand and a gallon of Power Drink in the other – fortunately, this will never happen.

**Q: Why?**

A: Because honey marketers don't have the stomach or cohesiveness to make it happen – never have, never will. Did you know that our shelf space in grocery stores now exceeds honey's, and not by just a little bit? Actually, I feel sorry for the honey people every time I go into a grocery store and see their pathetic little displays.

**Q: Anything else before we go?**

A: Yeah, we recently added 2 new flavors to our product – you should check them out.

*When asked about the news that sugar-water outsells honey, a beekeeping spokesperson replied, "We're concerned, and we're going to do something about it. In fact, we have a delegation on its way to Washington right now to lobby for government assistance."*

## Sugar Water Vs. Honey Sales

*A fictional News Release sent to us by Joe Traynor. We're not sure where Joe got it.*

# BOTTOM BOARD