



Bee Culture

APRIL 1994



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In My Opinion

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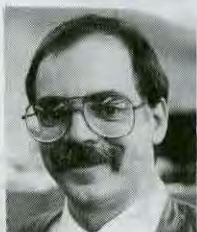
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April, 1994

FEATURES

Pollination Management

Beekeepers need to think more about how to make money when pollinating. Offering 'full service' certainly will help.

(by Mark Winston)
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Start Now & Control Tracheal Mites This Year

Starting right now, and using several techniques you can control tracheal mite problems in your colonies this year. But you need to start now.

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Your association can hold a honey plant sale to raise funds - and help bees. Here's how.

(by Larry Goltz)
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Cover

With Washington D.C.'s Jefferson Memorial in the background, this honey bee is dining in historic, and certainly powerful surroundings. Several articles inside this month touch on 'The Government' regulation, pesticide law enforcement, research, the loan program, AHB. Much of what we do, whether we like it or not is tied to Washington. One wonders if their cherry trees would do as well without the bees, and the beekeepers they govern, with, it sometimes seems, indifference.

photo by Stephen McDaniel



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1994 Who's Who in Beekeeping
The only Directory of It's Kind - Center Pull-Out Section

INNER COVER

Too often life rears its futuristic head, grabs you by the throat and won't let go. The world moves on, whether we want it to or not, and keeping up is, if not difficult, at least not easy.

Generally we just go along, using the stuff we already have, the familiar, the traditional, the regular, the comfortable. But then something or somebody throws that curve. It usually hits when you hear yourself actually saying out loud, "Whadaya mean, they don't make it anymore?" Which is quickly followed by, "Yeah, they quit makin' them, what, six, seven years ago? We ain't had em' for years."

So when you recover and ask, "Well, what can I use instead?" You find out it's plastic, costs eight times as much, lasts half as long and it's ugly, to boot.

Something similar, at least to some degree has happened here of late. The production of our magazine is slowly moving from the safe, easy, comfortable world of Macintosh, to the unknown (but, I'm told, well tested) world of IBM. Big Blue has descended on *Bee Culture*.

Now for those of you who have been dealing with what most of the world considers the standard in computer technology, the question that probably comes immediately to mind is, "So What?" But, if like us, you're in tune with the kind and gentle world of the Apple, this transition is, at best, traumatic.

We will be going, kicking and screaming all the way, from the perfect world of Macintosh to the harsh reality of >C:\WIN. It will take some time. Bear with us.

Last fall a local nursery held a pumpkin weight guessing contest. I happened to stop by when it was in progress and the clerk convinced me to give it a try. I did, on a whim. Now I'm something of an expert at pumpkins. I spent a few seasons growing, harvesting (read: lifting) and selling them a while back, and I haven't yet lost my keen eye (and sore back). This was a big one though. They brought it in from out of state on a pallet. But I sized it up, nudged it a little, then a little more and wrote down my guess.

A couple weeks later I was driving to work, and there, on one of the busiest roads into town was that sign. The manager had called the paper, they did a story and took my picture. What great publicity they got from that (almost) no cost contest.

A honey business could do the same. The trick is to get traffic, thus entrants. A farm market would work - lots of traffic (people = entrants), in the mood to try something different. What to guess? It has to be attractive and attention getting. Maybe how much honey in a large, ornate jar? Or how long will a large, beeswax candle burn? Maybe how much do all the bees in an observation hive weigh? Perhaps something simpler, like the weight of a large chunk of (beautiful lemon yellow) beeswax. Use your imagination, and certainly engage the help of the market owner. Put up a few signs, good looking signs. Make up some 'official' entry blanks and have a box nearby to put the entries in. And have a prize worth winning. A gift certificate at the stand always works. And have a cut-off date posted.

Before the contest is over, a week or so before, contact the local paper (maybe T.V., or a local radio station?) and tell them about the contest, the incredible interest all the customers displayed and how much *fun* everybody had because of the contest. Be sure to let them know when the winner will be announced (or maybe have an 'event' when you weigh the wax, or bees, or whatever).

Then put up that great big sign out front. Maybe run a joint ad with the farm market announcing the winner and sit back (after you stock the shelves) and watch the business.

By the way, after considerable expert analysis, I very carefully calculated the weight of the pumpkin to be 219.5 pounds. The weight was, yes, 219.5 pounds. Exactly. Really. Really!

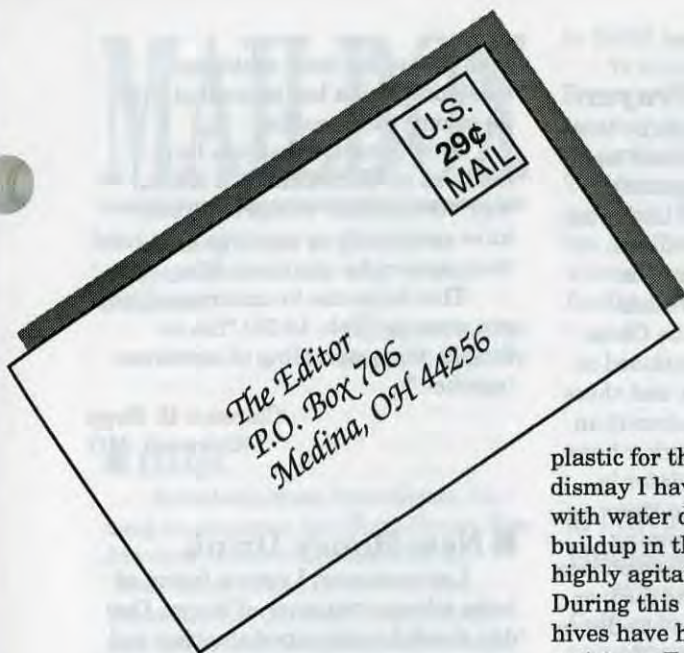
The reason they spelled my name the way they did is because of my penmanship, not their spelling. One detail you'll need to check when you do this. Those details. They'll get ya every time.

Kim Flottum



Big Changes; Big Pumpkins

MAILBOX



■ More For Kids

You printed a letter, December 93, regarding the possibility of a beekeeping column directed specifically to youngsters.

Should you consider this notion worthwhile, do not hesitate to give me a shout. I enjoy children, and I enjoy bees. But not necessarily in that order!

In his letter, Mr. Raymond labeled a potential column "The 4-H/ Boy Scout Beekeeper." The 4-H part is fine. But Boy Scouts? What happened to the feminine community? As a leader of both 4-H and Girl Guides, I can vouch for us girls. We are a versatile bunch! "Beekeeping for the Young" is a fine title.

Serious or silly, for any age group, I am comfortable presenting informative material regarding bees or any other beekeeping aspects.

Bair Lamont
Nanaimo, BC

Editor's Note; Bair Lamont is the Editor of a wonderful children's nature magazine entitled *Get Wild*. She can be reached at RR2 Site J-4, C-4, Nanaimo, BC V94 5K2

■ Wood Better

Concerning plastic versus wood inner covers (Jan. 94 issue), I have only got three seasons of beekeeping for experience. The first year was wood only for my two hives, with no problems with moisture. The second year I increased to 15 hives using

plastic for the inner covers. To my dismay I have had major problems with water drops and moisture buildup in the hives, keeping the bees highly agitated most of the time. During this time the original two hives have had no problems with moisture. To be fair, the first year was on already drawn out foundation and the second year it was on bare sheets of foundation.

Lewis Miller
Republic, MI

■ Plastic Response

I did not get the issue in which my letter appeared (Jan. 94 about plastic inner covers), but *did* get some really nice, helpful responses from beekeepers all over the country, by mail. What a great bunch *Bee Culture* readers are! Thanks to all.

L.J. Miller
Wagontown, PA

■ Veil Problems

Regarding your cover photograph Jan. 94. It has been proven I know little of bees but, I'll bet a nickle if the net was white he'd have a lot less "exhausting bombardment."

John Sebald, Jr.
Middletown, OH

Editor's Note: Veils with white mesh tend to be difficult to use because of the glare when working in sunlight. Veil material that is white on the outside, but black inside does work, and performs as you have suggested.

■ Still Need Tough Frames

I believe an error was made in the February 94 issue of *Bee Culture*

on page 98. The mechanical advantage is closer to 7.14 to one. The force on the tongue is perpendicular to "B" – not parallel as in the drawing in the magazine. The distance from the pivot point to the rise on the tongue is 1.4 inches (moment arm) and can be as high as 1.5 inches.

This means 100 lbs. applied to the opposite end results in lifting the frame with 714 lbs. (instead of 2,000) for 1.4 inches and 666 lbs. for a moment arm of 1.5 inches.

I enjoy your magazine immensely.

Joseph L. Strecker
Wichita, KS

■ ARS-Y-C-1 Queens

I and other people are concerned about misleading advertising in the trade publications concerning the ARS-Y-C-1 tracheal mite resistant stock that was recently released by the USDA-ARS through the Stock Release Panel.

The Stock Release Panel *selected* three firms as Breeder-Propagators to market breeder queens and/or production queens to the industry. These three firms were J.S. Klapac & Co., Frederick, MD; Tabor's Honey Bee Genetics, Vacaville, CA and Hybri-Bees, Inc., LaBelle, FL. These three firms purchased rights to propagate this stock and a royalty must be paid on all queens sold.

Queen Producers and other people in the industry must purchase breeder queens from one of these three firms if they want to rear and/or sell the ARS-Y-C-1 queens to other beekeepers.

As always buyer beware. Buy from a reputable firm, attend your local association meetings, and talk to other beekeepers in your area. Most beekeepers are honest, however unfortunately there may be a few bad apples in the industry.

Morris Weaver
Navasota, TX

Continued on Next Page

MAILBOX

Editor's Note: Some queen producers are selling the ARS-Y-C-1 stock as production queens. They pay a royalty to whichever of the three selected firms they work with. Ask your queen suppliers if you want to know.

■ Didn't Like Movie!

I was going to renew my subscription until I read the article about the movie (Fried Green Tomatoes) and Dr. Gary.

People who benefit from instilling fear and terror in other people do not do the industry any good.

And what are you or he doing about genetics? Nothing! So I'll do it myself.

Donald Eaton
No. Hollywood, CA

■ A Beekeeper's Prayer

As a pastor I was struck by how many ministers besides myself have kept bees - from L.L. Langstroth down to the founder of our Lutheran Missouri Synod C.F. W. Walther.

Perhaps this affinity can be explained by the many parallels between the beehive and the Christian religion. Honey is mentioned in over 50 verses of the Bible, and there are few things more marvelous than the instinct which leads worker bees which have never seen a winter in their five-week live span, to store honey all summer for the coming winter; or to know how to fashion wax combs to store up this liquid food; or how to do and interpret the bee-dance by which one forager informs the others of where she found the best nectar.

As a former parish pastor I also note the parallel that I have incorporated in this BEEKEEPING PASTOR'S PRAYER:

Lord, as a beekeeper I know that you made these wonderful creatures in such a way that they need to be

with others for their continued existence; and a bee separated from its colony will soon die.

Also, I realize that you have made us as Christians in a similar way: we need our brethren to stay alive spiritually as much as bees need their sisters for their own life.

This helps me to understand why you urge us (Heb. 10:25) "not to forsake the assembling of ourselves together."

Clarence H. Bopp
Kirkwood, MO

■ New Honey Drink

Last summer, I gave a friend of mine a large container of honey. One day she did some experimenting and concocted a new drink. The problem is that she never measured any of the ingredients.

The cold drink contained honey, orange juice and tofu. The orange juice gave the taste and vitamin C. The honey gave it a natural sweetener. The tofu thickened it and added protein. It was cold, thick, smooth and delicious.

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MAILBOX

I thought you might like to experiment with this idea. It was delicious!

Richard Stewart
North Creek, NY

■ Help!

Somebody from Providence, RI, used to advertise his "Real Honey Bee Jewelry" in the journals, offering "Real Honey Bees Preserved and Embedded in Crystal Clear Plastic and Set in 14K Gold Plated Settings." The product was very attractive; price was right; and variety was huge; from key chains to bracelets to bolo ties.

He disappeared out of the clear, not even filling his most recent prepaid orders (ask me). A bee dealer in Danvers, MA offered an identical product, setting up a dealer's table at EAS, although he did not appear at Maine in 1993. Nor does he respond

to SASE letters.

Is there anybody out there who knows where I can purchase more of this very attractive bee jewelry? I am interested primarily in the Bee Bolo Tie because (1) many persons – especially beekeepers – want to buy the one I'm wearing, (2) others ask where they can purchase one and, finally, (3) it makes a nice gift.

John Iannuzzi
Howard Honey Farms RR8
9772 Old Annapolis Rd.
Ellicott City, MD 21042

■ Nature Centers Need Beekeepers

What a surprise to open up *Bee Culture* to Inner Cover and see my name there! Well, you just never know what will happen. I would be remiss not to write and express my pleasure about this writing and indeed about what a superb job you do with pen and paper (or keyboard and printer!). Anyway, I enjoyed it (the article) and agree nature centers and beekeepers have a naturalistic partnership or could (should) have. It

will be interesting to see what might come of your suggestion to beekeepers. There is no question about how necessary they are to centers sporting observation hives.

Jeff Greenwood
Litchfield, CT

■ Mail Box Milk & Honey

Enclosed is a photo of the Christmas present my daughter made for me.

On the left is a "mail" bee. On the right is my neighbor's mail box, which would suggest that Gustine, CA is certainly a "land of milk and honey!"

Rollie Azevedo
Gustine, CA



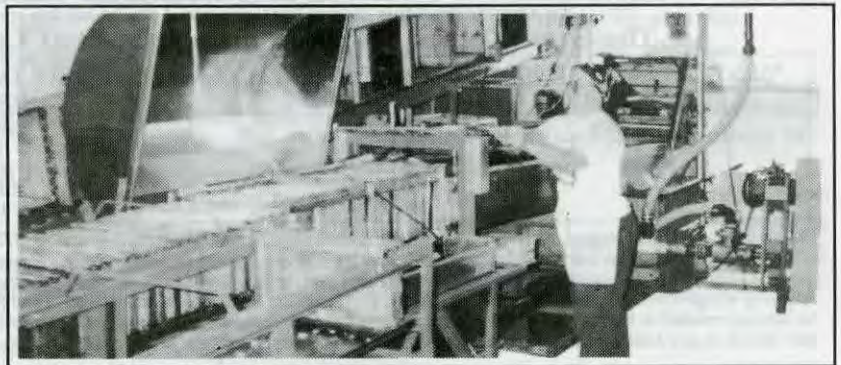
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COWEN MANUFACTURING Silver Anniversary

*Thanks
John & Louise
Dave Cowen*

John Clark
Wawanesa, Manitoba
Canada

Dave Cowen & Staff,



I would like to commend you and your staff for the fine job they did when manufacturing our new sixty frame automatic Cowen extractor. We removed a wall between the extracting room and the storage room of our honey house in order to accommodate the larger unit. The extractor was bolted to the floor and began operation without any problems. My wife Louise, says that after the radial extractor, it no longer seems that she is extracting when she is using the new extractor. Much of the monotonous work has been eliminated with this automated machine. We run a load about every eight and a half minutes and one and a half minutes reloading for a cycle time of ten minutes. A little longer when the honey is thick.

- ★ This unit was economical to purchase and efficient to operate.
- ★ I would highly recommend this extractor to any smaller commercial operation.
- ★ Thanks to all your staff for the workmanship that allowed me to operate this season without any breakdown time.

John Clark
John and Louise Clark

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MAILBOX

■ Likes Linden

I just finished reading your January 1994 issue of *Bee Culture* and, more specifically, the article in regard to the American Linden Tree by Franjo Goluja.

The only problem I had with the article was that he did not tell us where we could obtain American Linden trees.

I'm not familiar with this tree and would like to know whether or not it will grow in East Texas (which is heavily-wooded - much like Louisiana, Mississippi, etc.). I would also like to have some facts about the tree, i.e., how large it grows; how fast it grows, etc.

At one time a concern called "Pellet Gardens" offered for purchase various types of "honey plants," but I think they are now out of business.

Do you have any information on sources of honey plants such as were offered for sale by Pellet Gardens?

I appreciate your magazine, and look forward to hearing from you.

John C. Fisher
Longview, TX

Editor's Note: American Linden, often called Basswood or Lime Tree, has a growing range from Canada to Florida, west to Nebraska and Texas. It has been extended as far as California as an ornamental and shade tree. It tends to grow larger in the north than the south, ranging from 30' - 80', depending on climate, soil and variety. Several varieties are produced, and can be purchased from any of the larger Nursery (not seed) Catalogs. Look in gardening magazines for names and addresses, and find one close. They are also easily grown from seed.

■ An Open Letter To U.S. Honey Producers

Our industry is facing a number of challenges, not the least of which is

declining profits. Among the economic problems with which we are struggling is the influx of lower-priced imported honey. The National Honey Board has often been asked, "Why aren't you working to promote United States honey only?"

The answers to that question are both simple and complex. The most concise answer is that the Honey Board cannot sponsor a "Buy American Honey" promotion. The Honey Research, Promotion and Consumer Information Act which was enacted by Congress to establish the Honey Board will not allow the Board to discriminate between domestic and imported honey in its promotion programs since assessments are collected from importers. The Honey Research, Promotion and Consumer Information Order states:

"The assessment on imported honey and honey products shall be paid by the importer at the time of entry into the United States and shall be remitted to the Honey Board."

The Order further states:

"This Act treats foreign producers equitably, and nothing in the Act may be construed as a trade barrier to

QUEENS

YOUR CHOICE OF TWO STRAINS OF MITE RESISTANT BEES
The U.S. Government Strain of Mite Resistant Carniolans Designated *ARS-Y-C-1*

We have received this government sponsored stock and this race will be available for 1994

The Steve Taber Tracheal Mite Resistant Leather Colored Italians

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Quantity	Queens
1-9	\$12.00
10-49	\$11.50
50-99	\$11.00
100+	\$10.50

STEVE TABER STRAIN OF TESTED AND PROVED MITE RESISTANT LEATHER COLORED ITALIANS	
Quantity	Queens
1-9	\$10.00
10-49	\$ 9.50
50-99	\$ 9.25
100+	\$ 9.00

Queens are postpaid and shipped air mail. Please indicate desired shipping date. As many of you know, STEVE TABER is a retired (30 years experience) Bee Breeder Geneticist of the U.S. Government. He has great knowledge and understanding of the process of breeding mite-resistant bees. In addition to the Steve Taber Strain of Mite Resistant Bees, we will be breeding and shipping purely mated Queens derived from the U.S. Government Mite Resistant Stock imported from Yugoslavia and known as *ARS-Y-C-1* Carniolans. After very stringent testing by DR. THOMAS F. RINDERER, who leads The Honey Bee Breeding Genetics and Physiology Laboratory in Baton Rouge, La., these bees were found to be twice as resistant to Varroa Mites as native domestic bees and also resistant to Tracheal Mites that chemical control for that pest would not be needed. If Varroa Mites are in your area or in your bees, we would recommend, at least for the time being, treatment for Varroa Mites by using Apistan Strips.

A HEALTH CERTIFICATE IS INCLUDED WITH EACH SHIPMENT

MITES: If You Have Mites In Your Bees Or In Your Area, Our *ARS-Y-C-1* Pure Carniolan Bees Will Be A Tremendous Advantage In Keeping your bees Healthy And Mite Free. An APISTAN Mite Protective Plastic Strip Will Be Inserted In Every package And Every Queen Cage As A Preventive Measure And To Conform To Regulations In Some States. Please Indicate Your Choice Of Race. Orders Can Include One Or Both Races Of Bees At No Extra Charge.

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MAILBOX

honey produced in foreign countries."

There's more to the issue of an "American Only" promotion program, though. There are marketing issues for the honey industry to consider:

- For those of us who are based in rural, agricultural communities, we can see the value of promoting American products – it's an issue that is very important to us. The vast urban populous, however, does not feel the same way.

- Consumer research indicates that an "American Only" promotion may not be very effective. Consumers are not inclined to think about where a product comes from. Just ask yourself about the last time you purchased grapes. Did you buy Chilean grapes or California grapes?

- Loss of the importer assessment would reduce the advertising and promotion dollars available for domestic honey. If only U.S. honey is promoted, it would be equitable to eliminate the assessment of imported honey.

- Imported honey accounts for 37% of all assessments. If the Honey Board promotes U.S. honey only, this income would be lost. The elimination of imported honey from the honey promotion program would eliminate the import assessment and would give imported honey a cost advantage of a penny per pound. Imports could still have at least some of the benefits of the promotion program without "paying the fare."

- While generic advertising does benefit both domestic and imported honey, the domestic industry benefits from additional advertising and promotion dollars. Domestic producers have more advertising "buying power" in leading consumer magazines, we are able to provide significant public relations programs to reach more honey consumers and we are able to provide more honey merchandising materials for beekeepers. The result of advertising and promotion is a growing market for domestic honey both in the United States and worldwide.

The National Honey Board does not have the solutions for every

problem facing the honey industry. It focuses on part of the solution: increased demand. The Board works diligently to serve the industry by strengthening the position of honey in the marketplace and maintaining, developing and expanding the market for honey and honey products. That was our original mandate from you and it is the policy that guides our actions today. The Board is working to drive demand for honey as part of a cooperative industry effort to ensure a good livelihood and a bright future for all of us.

We invite your comments.

The National Honey Board
421 21st Avenue #203
Longmont, CO 80501-1421
1-800-553-7162

■ Chinese Honey Hurting E.C., Too.

Beekeepers in the European Community have gotten all upset at the price of Chinese honey which has lowered honey prices about 25% in the past three years. On the 24th of January they held a demonstration in Brussels, Belgium at the headquarters of the E C Commissioners. I went and observed and participated and took pictures. We were all instructed to bring bee veils and wear our work coveralls and have lighted smokers. Signs were painted in all the different languages.

The largest delegations were from France, Italy and Spain. They had about 800 people each. In fact every EC country was represented except Portugal and they may have been there and I didn't see them. Twelve were there from Switzerland to demonstrate solidarity even though the Swiss are not EC members.

Busses with all demonstrators arrived Monday morning – we demonstrated by beating on drums, blowing whistles, shouting, waving banners and handing out samples of honey to passersby and to policemen – and departed for home about 4:30 p.m. One working scientist was there and took part, Dieter Mautz from Erlangen, Germany who studies *Varroa* among other things, he remembered me and we chatted.

China's govt. is using the honey bought from their beekeepers at a pittance, pennies a pound, to trade for Western Countries hardware at,

(France) several pennies/pound then puts this honey on the market at about \$0.35/pound.

There were many news agencies there, with notebooks and or TV cameras. I was interviewed by Reuters TV, by The Times reporter from London and a reporter from German News Service.

In the interviews I mentioned that U.S. beekeepers were having the same problems. Actually I think the demonstration was a good thing and that the beekeepers brought attention to the public of their plight. Whether it will influence officialdom remains to be seen. If you want more information call or you can send a FAX to John Kefuss. My number: (33) 63 68 05 59. John's Fax No. (33) 62 72 01 95.

Steve Taber
Goudous
82370 Villebrumier
(France)

■ Visiting In May

Will you please help me? I would like to get in contact with some American beekeepers.

I am a Danish beekeeper planning to visit Boston, MA during the second week in May and perhaps Milwaukee, WI the week after. We would like to visit one or two American beekeepers for experience and exchanging ideas. We are also interested in finding places to purchase bee supplies.

If you are interested, please send your address and phone numbers to me. Thank you.

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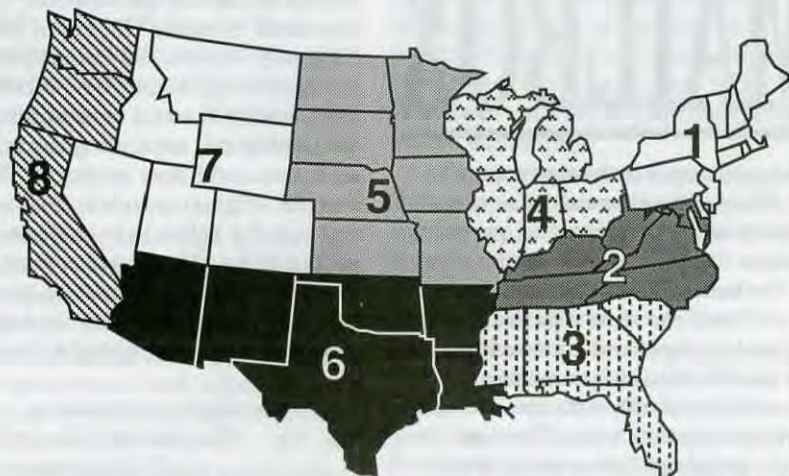
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New Britain, PA 18901
(215) 348-9285

APRIL Honey Report

April, 1994

REPORT FEATURES

Prices shown are averages from many reporters living in a region, and reflect that region's general price structure. The Range Column lists highest and lowest prices received across all regions, from all reporters.



	Reporting Regions								Summary		History	
	1	2	3	4	5	6	7	8	Range	Avg.	Last Month	Last Yr.
Extracted honey sold bulk to Packers or Processors												
Wholesale Bulk												
60 #Light	48.27	43.38	34.85	46.00	49.86	44.03	43.87	39.60	31.20-56.00	45.73	44.90	43.95
60 # Amber	45.80	42.39	38.79	40.70	47.39	41.62	41.39	34.90	25.80-55.00	42.78	42.00	40.84
55 gal. Light	.618	.577	.519	.570	.561	.565	.544	.520	.47-.75	.568	.595	.612
55 gal. Amber	.570	.515	.479	.515	.497	.540	.514	.475	.43-.75	.528	.543	.562
Wholesale - Case Lots												
1/2 # 24's	21.87	25.36	19.53	17.86	20.23	26.23	22.40	20.75	16.75-36.00	22.30	22.55	20.26
1 # 24's	31.75	30.30	28.96	29.99	33.33	29.43	30.23	31.46	24.00-37.90	30.71	30.43	30.96
2 # 12's	30.12	28.62	27.93	27.44	27.35	27.39	28.65	29.87	25.25-35.31	28.54	29.99	27.80
12 oz. Bears 24's	29.54	27.00	26.12	25.43	26.13	26.10	27.38	27.75	25.00-37.90	27.26	27.65	26.68
5 # 6's	32.25	28.34	29.56	30.54	30.00	27.11	28.88	27.60	25.50-38.00	30.01	30.32	29.42
Retail Honey Prices												
1/2 #	1.29	1.79	1.31	1.02	1.18	1.57	1.24	1.28	.94-1.89	1.37	1.27	1.10
12 oz. Plastic	1.65	1.72	1.82	1.46	1.46	1.46	1.57	1.58	1.24-2.00	1.63	1.60	1.57
1 #	1.77	1.81	1.71	1.59	1.47	1.77	1.76	1.83	1.29-2.00	1.67	1.80	1.79
2 #	3.42	3.27	3.08	3.09	2.75	3.14	3.06	2.91	2.65-3.79	3.16	3.12	4.41
3 #	4.72	4.56	4.41	4.14	3.91	3.96	4.34	4.31	3.63-5.50	4.32	4.44	4.25
4 #	5.93	5.40	5.48	5.18	5.22	5.05	5.21	5.55	4.90-7.40	5.46	5.51	5.43
5 #	7.58	6.33	6.00	6.27	5.34	6.04	6.27	6.49	5.49-8.95	6.58	6.61	6.51
1 # Cream	2.69	2.58	1.99	1.74	1.87	2.77	2.30	2.09	1.59-2.95	2.40	2.30	2.27
1 # Comb	3.33	3.06	3.03	3.50	3.13	3.67	3.38	2.92	2.45-3.75	3.25	3.46	3.07
Round Plastic	2.60	2.75	2.59	2.63	2.78	3.40	2.59	2.49	2.39-4.00	2.79	3.03	2.52
Wax (Light)	2.24	1.24	1.63	1.40	1.35	2.05	1.84	1.57	1.00-3.50	1.68	1.85	1.63
Wax (Dark)	2.00	1.13	1.25	1.20	1.21	1.08	1.20	1.30	1.00-2.75	1.40	1.45	1.28
Poll. Fee/Col.	38.00	23.00	32.50	33.50	34.50	23.50	30.00	32.90	15.00-55.00	32.04	32.63	30.39

Region 5

Demand fairly strong as cold weather hangs on. Prices steady, even increasing in the retail area. Wholesale not very strong though. Winter losses estimated at 10% - 40%, mostly from starvation, but mites certainly evident.

Region 6

Prices holding steady at best, but dropping slightly in some areas. Due, mostly, to seasonal drop in demand as warm weather moves in. Spring buildup weather good, early pollen and nectar sources producing well, only spotty bad weather for queen and package producers.

Region 7

Prices, and demand steady, not improving, but not getting worse. Retail showing a glimmer of hope. Colony conditions, and winter losses about average. Which is certainly an improvement.

Region 8

The pollination rush is tapering off but the jury's still out on results. Colonies were tight, and in some areas light. Prices lower even though demand remains high. Winter losses in the north running high, (estimates up to 30%), mostly due to mites, and especially in untreated colonies. *Varroa* still a demon.

MARKET SHARE

The pace at which big packers or producer/packers are spreading out looking for market share is increasing rapidly. Retail space is being eaten up by fewer and fewer major brands, leaving less space for 'local' producers.

Niche marketing is becoming more and more important. Focus on what you can do.

Region 1

Demand for honey steady to increasing a bit on both wholesale and retail level. Prices steady, up in some places, down in others. Early spring colony conditions indicate only slightly above average winter losses, with starvation more evident than in recent years.

Region 2

Prices only steady to decreasing slightly, especially at the wholesale level. Retail holding steady, but increasing some. Demand increasing though, reflecting lower prices. Colony conditions pretty good early. Some losses to mites, more to starvation. Feeding required in most areas.

Region 3

Prices steady, barely, but generally heading down slightly, responding to flat demand as warm weather moves in. Strong competition from national brands affecting store prices. Colonies in fairly good shape, building rapidly. Citrus flow spotty.

Region 4

Demand steady to strong late into spring as cold weather and snow held on. Prices not reflecting demand though, only steady, to decreasing significantly in some areas. Colonies had tough time. Losses to starvation higher than in several years due to cold, cold winter.

IN MY OPINION . . .

Avoiding Pesticides

— David Green —

— Hemingway, SC —

You've done everything right — kept the bees strong and well fed until the flow, kept young queens and productive stock, treated for mites, and still you find whole yards of bees weak, unproductive, even starving.

"No flow," some beekeepers may say. But it may well be a pesticide problem.

Pesticides like Sevin WP and Pencap M™ will let you know if they are misused, because bees pile up dead at the hive. But many of the modern materials are very strong and very degradable. They drop the workers in the application area and you can't see the losses, unless you walk through the field or orchard. Hives that lose their field force become salvage cases instead of producers.

I have walked fields and seen dead bees cover every square yard, indicating a massive kill, yet the only evidence at the hives was that they were weak.

It's time for beekeepers to get together and deal with the illegal acts that cause such losses to our operations. Sometimes I think the honey loan program was sort of a bribe to keep from dealing with the serious problem of losses from pesticide misuse. We need to monitor pesticide use at the source to see if it is applied in accordance with label directions. We need to make some serious Beekeepers' Neighborhood Watches.

The Rodney King event illustrates a powerful tool that we can use in documenting violations — the camcorder. If you don't have one and can't borrow one, they are available for rent in many stores.

At the season when insecticides are being applied in your area, be ready with that camcorder, a notebook and the telephone number of the pesticide enforcement agent for your territory. Tape the application in process, the bees that are foraging in that area, date, time and all other

pertinent information. (Remember, we need to do this for all bees, not just our own.) You'll probably find some violations that can be documented from the roadside; no need to complicate things by trespassing. Last year I got a good tape of bees being poisoned on a lush bloom of clover on the orchard floor — a clearcut violation.

If you are a brave soul who can keep cool in a potentially hostile situation, you might ask the applicator if the material he is using has bee protection directions on the label.

Otherwise, it's best to notify the proper enforcement official about a *suspected* violation, and let him/her determine if the material had bee protection directions.

I think we'd be way ahead to focus on the violation, not the impact on the hives, because that will not always be apparent. Insist that the investigator look for and sample dead bees in the application area. And remember that scavengers will remove them quickly, even though they are tainted, so speed is of the essence.

I have had investigators refuse to act because they claimed that there was not enough evidence that *all* the bees died as a result of that application, though there was plenty of evidence of a violation. If this problem is to be solved, we must be assertive. No one else will protect the bees.

Not all pesticides are injurious to bees; only those that have specific label directions for bees. In other words, don't worry (and don't get hostile yourself) if a grower is applying a fungicide or weed killer. If the material has bee protection directions on the label, report it as a *possible* violation. Some growers will lie. One grower swore to me that he *never* used Pencap M™; lab tests showed otherwise. And he was using it in violation of the label directions.

It's not a bad idea to get out an advance notice of the Neighborhood Watch for two reasons. One, the advance notice may make the Watch redundant by alerting growers and making them cautious (wonderful!). And two, willful disregard of label instructions upgrades the enforcement from a violation to a criminal

act. A press release also is a good chance to get a valuable tool into the hands of pesticide users. and it could read something like this...

A BEEKEEPERS' NEIGHBORHOOD WATCH

What is a watch? Simply put, it is a group of volunteer beekeepers monitoring the use of pesticides during the growing season to see if users are complying with the label directions that protect bees.

Pesticides that are hazardous to bees have specific directions that apply to the bees as *they forage* in the application area. These directions apply no matter whether the bees' home is on the applicator's property or visiting from some unknown source.

The label clearly makes the applicator responsible. No label requires the beekeeper to move or protect the bees. If label directions are followed the bees have sufficient protection; if they are not followed it would be impossible to protect them in any location.

The beekeepers involved are eager to help those pesticide users who are making sincere efforts to comply with the label directions. Those who refuse will be reported to the appropriate authorities.

Volunteers will watch for the following types of violations: Application of insecticides to fruit bloom before complete petal fall, applications to a crop that is blooming while bees are visiting, or applications that also contaminate blooming weeds that are attractive to bees — such as clover on an orchard floor, or mustard in wheat. (Or supply your own examples.)

If there is no weed or crop bloom in the application area, bees will not be present and this type of misuse cannot occur.

When we kill bees with pesticide misuse, we are biting the hand that feeds us.

Continued on Next Page

Drop All Regulations

— Roger Morse —

— Ithaca, NY —

At no time in my career have I seen so many changes in beekeeping as have come forth in the past five years. I have been forced to make more changes in my lecture course in elementary beekeeping in the past few years than in the prior 30. My research programs, as well as those of my colleagues, have been disrupted. Our work in extension has changed and now the emphasis is on disease control.

At the same time, the revolution that is taking place in American agriculture continues at a rapid rate. Food in our country is delicious, nutritious, abundant, diverse, safe and cheap. All of these things are true because of modern agricultural technology of which beekeeping is an important part. Over a million colonies of bees are rented for pollination each year, most for use on two crops and some on a third crop. This demand for bees for pollination has resulted in more migratory beekeeping than at any time in our history. Many beekeepers who once devoted themselves to honey production operate bees for pollination only. Keeping up with our changing agriculture is placing strong pressure on the beekeeping industry.

The University Scene

In the United States, research is conducted by people in the U.S. Department of Agriculture, the state colleges and a few researchers are employed by private colleges or are independent. Teaching and extension are in the hands of the state colleges, except for the one federal extensionist, Dr. James Tew. Regulatory work is done by state departments of agriculture.

My job at Cornell University, which is the New York State land grant agricultural college, is typical of that of many employed by state colleges. It involves teaching, research and extension in beekeeping in about equal proportions. In this position I am subjected to many of the same questions faced by people in the rest of the beekeeping industry.

From a practical point of view I see two overriding concerns today:

1. The first is to provide the bees needed for pollination. There will be no great surplus of bees this spring. Our present regulatory system is a hindrance for commercial operators and not strong enough to be a great help to hobbyists as it once was.

2. At the same time I believe we need to redirect a large portion of our research into the development of disease resistant bees. We have the data to indicate that this is possible.

Drop All Regulations

I believe the time has come for the state and federal governments to drop all rules and regulations concerning the movement of honey bee queens, packages and colonies in the United States.

With few exceptions we no longer have the financial support from state governments for the intense inspection systems that we had a few years ago. In bee disease control half a system is of little value. In the past, several states have proven that a thorough inspection of honey bee colonies can reduce and hold levels of American foulbrood to less than one percent. This has been acceptable insofar as the industry has been concerned but it is not possible today. American foulbrood is rampant in many areas.

The situation is further complicated by the recent introduction of chalkbrood, tracheal mites, *Varroa* mites and Africanized honey bees into the United States. Several states and the federal government have attempted to cope with these last three problems and always without success. The spread of these diseases and the Africanized honey bee has not been slowed or reduced; however, great sums of money have been spent on surveys and mapping that have only told us where these diseases and bees could be found.

I believe that practical bee questions concerning honey bee diseases and Africanized honey bees should be resolved by beekeepers with assistance from, but not control by, government.

Let us look at where we are today:

1. The least of these new disease problems is chalkbrood. It is much less of a problem than it was 25 years ago because the most susceptible bees are dead. Still, chalkbrood continues to kill and weaken some

colonies every year.

2. The introduction of Buckfast bees by the Weavers of Texas, the British bees by me, and the Yugoslavian bees by the USDA has demonstrated that bees resistant to tracheal mites exist. It is reasonable to believe we will soon reduce the tracheal mite problem to losses of two percent or less per year as is the case in Great Britain. I think most people would agree that the loss of the most susceptible tracheal mite colonies has already occurred in the United States and that this is aiding a breeding program.

3. Many beekeepers have the knowledge and materials to treat *Varroa* mites but this information is not in the hands of all beekeepers. Africanized honey bees in Brazil are resistant to *Varroa* mites and no beekeeper in that country treats for them. Researchers in five countries have shown that the occasional colony of European honey bees is *Varroa* mite resistant.

4. It was demonstrated decades ago that some colonies of honey bees in the United States are resistant to American foulbrood. However, there has never been a program to take advantage of that knowledge. Research in this area is long over due and should be started immediately.

5. I am pleased that the Texas State Department of Health has declared that the media-promoted view of the Africanized honey bee as "a killer of people is completely out of touch with reality." The Department states that while these bees have "presented management problems to beekeepers," they can be controlled. Further, "one thing is absolutely certain: properly managed honey bees of any race are not a public health problem in Texas or anywhere else." It is my belief that the key to our understanding and management of Africanized honey bees lies in Brazil, Uruguay and Argentina. Beekeepers in these countries have selected among these bees for gentler strains. Research has shown that these bees are not a new species, race or strain. They are merely African bee-like bees. There are variations among them and we can capitalize on these.

The Real Problem

We do not have perfect figures, but in the past five years at least half of the hobby beekeepers in the U.S.

have lost their bees because of one or more of the diseases above. The number of colonies owned by commercial beekeepers has been reduced. In New York State the figures are frightening. For example, we have dropped from 115,000 colonies five years ago to an estimated 50,000 today. The number of feral colonies, those living in hollow trees and buildings, is at an all time low for the past 150 years. Feral colonies have always played an important role in the pollination of home vegetable gardens. They are important pollinators of fruits, nuts and berries for wildlife. When they are found near commercial orchards and farms, also make a substantial contribution to pollination.

Economics have also played a strong role in reducing the numbers of colonies in the hands of commercial beekeepers and some hobbyists. The wholesale price of honey in terms of buying power is near a 40-year low. We cannot disregard economics in any conversations about these problems.

This spring I am concerned about there being a sufficient number of colonies of bees for apple pollination in the northeast. I am receiving more phone calls about pollination this

winter from growers and county agents. I am not sure if it is true or not but many of these people believe they saw fewer bees on flowers in orchards in the spring of 1993. At the same time, they wonder if the colonies are up to the same strength they saw only a few years ago. I am certainly aware that even the best beekeepers are suffering some losses as a result of disease.

What is needed?

We need a new sense of direction in American beekeeping insofar as research, teaching, extension and regulation are concerned. Those of us in these areas need to work more closely with beekeepers and their needs.

I would like to see the monies that have been used for regulation used for extension and teaching. There are still many beekeepers who can not recognize the common diseases. And, of course, without being able to diagnose a disease one is not in a position to treat it. Disregarding Africanized honey bees, what is most needed is hands-on workshops on the identification of all bee diseases. In many instances apiary inspectors have been assisting beekeepers in disease iden-

tification for years. That effort needs to be expanded. At one time most apiary inspectors worked only during the warm months of the year. Workshops that could be conducted all year are needed.

In the long run, the bee disease research component is probably the most important and perhaps simplest. There already exists in Europe and South America the stock we need to make a super American bee that is disease resistant and efficient in honey production and pollination. The rules prohibiting the importation of new stock into the U.S. served beekeeping and agriculture very well so long as American foulbrood was our chief disease enemy in the country and tracheal mites the chief threat from outside of the country. While I don't think everyone should be allowed to import bees, or that it should not be done without some guidelines, there is need for change. Several countries and breeders in Europe and other countries have stock we could use.

The Africanized honey bee image created by the press and statements that these bees are not good honey producers and pollinators may be the most difficult problem to overcome in the next few years.

Honey Loan Program

— Glenn Gibson —

— Minco, OK —

President Clinton promised change. And it came to pass that indeed things have worsened for the beekeeper, thanks to Clinton and a number of misinformed members of Congress and baffle-gabbing journalists, like George Will. Their successful hatcheting netted a "no-cost" honey loan program which is worthless for the beekeeper. Their "saving" the loan program talk can be compared to the firemen's report: "We lost the house, but saved the lot."

As you well know, the above comment will net me the title of a self-serving whiner.

I am still puzzled about how we began 1993 with a fair honey loan program and wound up with zilch. We did a creditable job of defending our program, but it is obvious that none of our opponents paid the slightest attention to what we said. We

might have won if we had responded in a like manner with half truths and guff to prove our point.

One writer may have hit the nail on the head: "Our situation is like the frog-in-kettle. Clinton lights the fire and others chime in with extra heat."

When Hank Brown entered the fray it was too late for us to jump.

The campaign to kill the honey program started when presidential candidate Bill Clinton concluded that elimination of the honey subsidies would solve the budget deficits. Following this, syndicated columnist George Will waded in with a heavy dose of guff in an article, "Honey Subsidy, A Sticky Subject." You may recall that Will showed his ignorance by suggesting that we raise our pollination fees instead of asking the government to subsidize our business. He called our program silly. The next half-truth came from the Office of Management and Budget, OMB. After the budget hit the Washington Beltway, Congressman Dick Armev introduced his killer amendment, H.R. 814 (Seventy-three House members

cosponsored). Mr. Armev promoted the legislation with several smart-aleck and fictional "Dear Colleague" letters.

During the debates, program opponents laced their comment with generous doses of half-truth and guff. Their speeches and letters were no more than a collection of factoids.

I have a strong feeling that officials in the Administration may have aided our opponents with a heavy-hand. One congressional aide told me that some officials in the Department of Agriculture did not buy our pollination story which, as you know, was based on a Cornell University study and a mountain of research from the Agricultural Research Service (ARS), USDA. This skepticism is puzzling. Beekeepers have told the same story for a number of years. I can't recall any instance when our data was openly questioned. I have a strong suspicion that the USDA deliberately delayed the publication of an Economic Research Service (ERS) report that might have helped us save the loan program. After seven years of

Continued on Next Page

foot-dragging the report was finally released on December 1, 1993. In my opinion the report is incomplete since there isn't any reference to the external benefits that accrue to the consumer from free pollination.

For all practical purposes beekeepers need to realize that the Washington Beltway is populated with a number of journalists, bureaucrats and congressmen who are openly hostile to beekeeping. At this point one wonders what can be done that would make any difference. One thing for sure, business as usual will not cut it. There is a critical need for beekeepers to cooperate with the industry's beekeeping organizations when they ask members to write letters. In the past beemen have written a number of good letters to their congressmen, but letters should also include journalists, newseditors of local and national publications, bureaucrats, and anyone else that give us unfair treatment with their ridiculous croakings.

A number of beekeepers say they would like to write more letters if they knew what to say. Take the case of George Will. What would you say to him personally? At the recent meetings I heard producers sound off beautifully. If a number of these short statements were written and mailed to Will with copies to your two Senators and one Representative, and news editors, I am convinced it would do some good.

In my opinion, a volume of short personal letters would certainly help our cause. ☐



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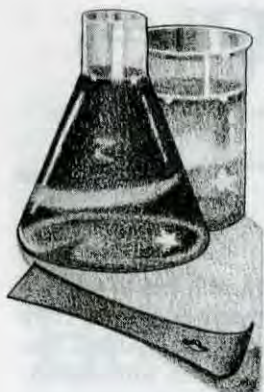
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RESEARCH REVIEW

roger morse cornell university ithaca ny

"In Brazil, African honey bees are showing resistance to Varroa, seem to be less aggressive & may have an effect on local fauna."

I've just returned from Brazil where I talked to researchers about several beekeeping projects.

Varroa resistance It has been suggested recently colonies of Africanized honey bees living in trees, buildings and caves in the southwestern U.S. might be controlled, or even killed, by *Varroa*. This will probably not occur. Cornell University conducted a research project on varroa biology in Brazil from 1980 to 1986. *Varroa* mites were accidentally introduced into Brazil about 1973 but were not discovered until 1978. When they were first found we could collect 50 to 55 mites per 100 adult worker bees. However, it was already apparent by 1986 the Africanized honey bees were gaining resistance. Today, we find fewer than five *Varroa* per 100 bees. Dr. David De Jong, who was in charge of the project in Brazil and still lives there, has more precise year-to-year figures and plans to publish these soon. In Brazil we find *Varroa* in every colony we search but no beekeeper there has treated colonies for mites.

I have reported earlier Africanized honey bees are resistant to *Varroa* through grooming. The worker bees in infested colonies groom mites off their bodies, bite them, make indentations in their bodies and remove their legs. Then they carry the mutilated mites outdoors where they are dumped onto the ground. What is most interesting is the rapidity with which the Africanized bees gained resistance to varroa in Brazil. It is not clear how they did so but I take the simple view probably the resistant colonies produced more drones that mated with more queens and spread their resistant genes. In any event, this information suggests *Varroa* will probably not be of much value controlling feral colonies of Africanized honey bees in the U.S.

Tests on aggressiveness I read an unpublished report by Univ. of Sao Paulo graduate student Henk Kuipers on aggressiveness in Africanized honey bees. Kuipers is working with Dr. De Jong. He found bees in colonies with smaller entrances less aggressive than in colonies with large entrances. Why is not clear but it may be colonies with smaller entrances have and need fewer guard bees.

Kuipers found colonies with tunnel entrances had a smaller number of guard bees. The tunnel was made by placing a piece of plywood on top of the bottom board rim and under the front three-quarters of the bottom super. Bees landed on the bottom board as normal but were forced to walk back through the tunnel which was the width of the bottom board but about 15" long, before they could enter the hive. The bees learned to exit the same way. Only four colonies were used in the tunnel tests and more observations need to be made. Both of Kuiper's ideas need further testing to determine if they might be practical as we proceed with testing methods of managing the more aggressive Africanized honey bees.

Selecting gentler bees Dr. De Jong told me a small number of Brazilian beekeepers had selected more gentle strains of Africanized honey bees. Dr. Nick Calderone, of the USDA Lab in Beltsville, MD has shown a sound selection program can bring about an increase in honey production. I suspect in the same manner selecting gentler colonies for breeders, and requeening more aggressive colonies, could do the same thing insofar as developing gentle bees is concerned.

In talking to beekeepers and researchers in Brazil I was told Africanized bees are less aggressive today than several years ago. I worry when people suggest such undocu-

mented ideas. One wonders if the bees are gentler or if beekeepers are more accustomed to handling the colonies. However, it might be worthwhile to examine some of the colonies in South America to determine if the beekeepers there have any stock with enough merit to be used in the U.S.

Impact on solitary bees Some people have been concerned that the Africanized honey bees might have an adverse effect on the solitary ground- and twig-nesting bees, as well as the social stingless bees found in Brazil. This is a controversial subject and is under discussion today. However, a paper from Brazil points out imported Africanized honey bees and native solitary bees often do not feed on the same plants. Native bee species are frequently limited to native plant species. In South America the most important honey plants for beekeepers are imported plants. In the area I visited in Brazil, citrus and eucalyptus, which are not native, provide over two-thirds of the honey supply. This is not a subject that concerns me too much but there is more and more discussion about saving native plants and areas and this could have an adverse effect on our agriculture.

American foulbrood has become well established in Argentina in the past few years and there is increasing concern it may spread to Brazil. Surveys for the disease are underway. Africanized honey bees are good housekeepers and it will be interesting to learn the impact the disease may have on these bees. ◻

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? DO YOU KNOW ?

Africanized Honey Bees

clarence collison

With the swarming season fast approaching, interest in the spread of the Africanized honey bee in the U.S. will once again become a primary concern for scientists, beekeepers, regulatory officials, the press and general public. Even though Africanized honey bees are currently established in only three states, it is important that beekeepers throughout North America become familiar with this potential problem and stay informed. African/

Africanized honey bees are extremely adapted to survive in harsh environments and against many enemies. They have been able to survive and thrive in not only Africa, but in all the other places where they have been introduced.

How familiar are you with the Africanized honey bee? Please take a few minutes and answer the following questions to determine how well you understand this important topic.

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

- ___ Individual Africanized honey bees can sting multiple times.
- ___ Africanized honey bees are now found throughout South America, Central America and Mexico.
- ___ The venom of Africanized honey bees is more toxic than the venom of European honey bees.
- ___ The Africanized honey bee produces honey comb cells that are circular in cross-section in comparison to the six-sided (hexagon) cells produced by European honey bees.
- ___ Africanized honey bees are known as *Apis mellifera mellifera*.
- ___ European honey bees cluster more tightly than Africanized honey bees.
- ___ European honey bees have a longer developmental rate than African honey bees.
- ___ Africanized queens and occasionally swarms are known to move in and take over European colonies.
- ___ Africanized honey bees select more diverse nesting sites than European honey bees.
- ___ European honey bees normally produce colonies that have larger worker bee populations and store larger quantities of honey than Africanized honey bees.

Multiple Choice Questions (1 point each)

- ___ The Africanized honey bee first entered the United States by natural migration from Mexico in:
A. 1990
B. 1993
C. 1991
D. 1988
E. 1992
- ___ The Africanized honey bee migrated through South and Central America at a rate of:
A. 50-100 miles per year
B. 400-500 miles per year

- C. 200-300 miles per year
- D. 600-700 miles per year
- E. 100-200 miles per year

13. Name the three states in the U.S. where the Africanized honey bee is currently established. (3 points)
14. What was the primary reason that African honey bees were introduced into Brazil from South Africa in 1956? (1 point)
15. It has been well documented that Africanized honey bees exhibit significantly stronger defensive behavior than European honey bees. Name three ways in which these differences are expressed and measured. (3 points)
16. African honey bees evolved in areas with a hot climate with a long dry season (absence of floral sources), what two behaviors have the African bees developed to survive these conditions? (2 points)
17. How many people have died in the U.S. from the stings of an Africanized honey bee colony? (1 point)
18. Based on experiences with Africanized honey bees in Mexico, South and Central America, name three changes in current North American beekeeping practices that will become necessary as the Africanized honey bee spreads in the United States. (3 points)

ANSWERS ON PAGE 240

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Book Reviews

The How-To-Do-It Book of Beekeeping, 4th Edition by Richard Taylor. Linden Books, Box 352, Interlaken, NY 14847 328 pages, softcover. \$15.95 pp.

Richard Taylor has enlarged and revised the previous edition of his How-To-Do-It book, including information on the two parasitic mites and some mention of the affects Africanized honey bees may have.

The first edition was published 20 years ago and Taylor's skills, experience and exposure have steadily increased. And, though many aspects of the beekeeping industry have changed in those 20 years, many haven't and Richard stays true to the basics. The isolated cases of outdated advice won't do a beginner any harm, and the volumes of information will give that beginner a solid base to grow on.

If you haven't browsed through the previous edition you will be amazed at the number of fundamental aspects of this craft that are addressed. More, I think than any book of its type. Most are covered briefly, but with enough detail for a good start. But some are covered in great detail, those subjects Taylor has focused on and excelled in over the years.

But the greatest strength of this book, or any of Taylor's works for that matter, is the intimacy he shares with the bees he writes about. Often criticized for this trait, especially by those who feel they have transcended the state of 'loving bees,' and rejoicing in the simplicity of an active apiary on a summer's day, Taylor persists, and persists and succeeds.

Too many, it seems, have lost that connection. Richard, in his gentle way, reminds us of the real reason why we keep bees.

Kim Flottum



Asian Apiculture: Proceeding Of The First International Conference On Asian Honey Bees and Bee Mites. L. Connor, T. Rinderer, H. Sylvester, S. Wongsiri Eds. 704 pgs. Hardcover. Wicwas Press, Cheshire, CT. \$79.95 + p&h.

This book is the proceedings (submitted research papers) of a conference held in Bangkok, Thailand in February, 1992. There are 79 papers published, plus an extensive historical bibliography. Subjects covered include Trends in Asian Apiculture; Biodiversity of Honey

Bees; Biotechnology and Genetic Manipulation; Bee Biology Research; Beekeeping; Natural Bee Products; Bee Botany; Bee Mites; Bee Pathology and Pesticides and Bees.

Each of these sections covers those bee species endemic to the parts of the world generally considered 'Asia,' but also the European honey bee and its influence, adaptability and problems experienced and recorded in that area.

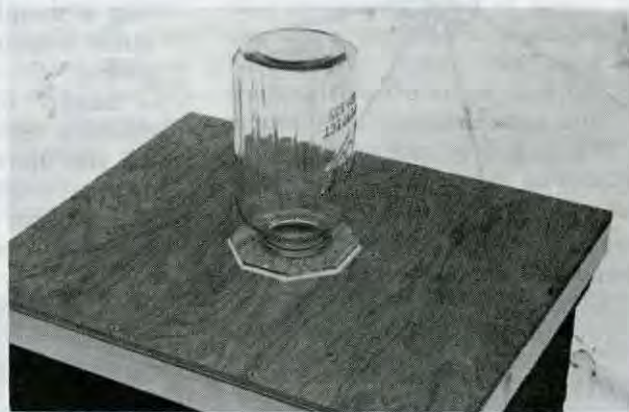
For the casual reader this is a heavy book, both literally and scientifically. It is definitely a resource text, but one that provides many insights into problems experienced by U.S. beekeepers. Several U.S. researchers participated, offering information on both *mellifera* and other species of bees.

The strength of this book, however, is certainly the information that is available on *Varroa* mite biology, treatment and control. Several myths are exploded, and several are proven as positive controls. Much of the information comes from Europe, where intense research has been ongoing for many years.

What should come from this text is what is known, and not known about *Varroa* in the U.S. And, from a typical beekeeper's point of view, what more needs to be done, and the areas they should be demanding U.S. researchers must take to solve this problem.

Kim Flottum

New Product



Dave Tousain, at Prairie Song Apiary in Coon Rapids, IA got tired of feeding the old fashioned way and tried something different.

Made like a regular telescoping cover, the intentional hole (reinforced with a screwed-in-built-up collar), holds

Continued on Next Page

jars of several sizes on a boardman lid, and 2.5 - 5 gallon pails. It combines the single good aspect of boardman feeders - visibility - with regular over-the-brood feeders that keeps food close to the cluster.

Painted or stained, this is a feeder, not a cover, but can be used like one with a cover over the hole. Probably not made for commercial outfits, it fills a need in many small scale operations.

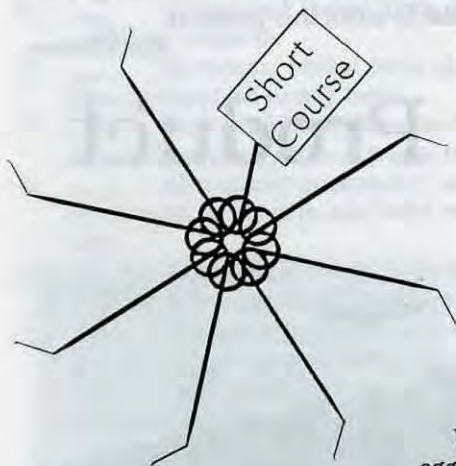
Video Reviews

USDA Video Series. Five separate programs on a single tape: 1. Learning To Live With Africanized Bees, 20:23; Destroying Africanized Bee Hives, 15:20; Removing Bees From a Building, 17:23; Ground Nesting Yellow Jackets, 5:55; The Hornet's Highrise, 8:11.

Dr. Jim Tew's Video Machine at Ohio State's OARDC has churned out a collection of short shows on one tape that cover a whole spectrum of commonly asked, and commonly encountered problems.

Each program can be used individually at a meeting, to help when talking to civic groups, or just to watch at home. Technical quality is excellent, and a wide variety of situations and people are encountered. The low cost only helps. To purchase, send \$13.00 check or money order (credit cards not accepted) made out to The Ohio State University, 1328 Dover Road, Wooster, OH 44691.

Successful Queen Rearing. Dr. Marla Spivak, Univ. of MN Extension, 405B Coffey Hall, 1420 Eckles Ave., St. Paul, MN 35108-6068. 13:18. \$45 (Includes manual.)



Dr. Spivak has put together a VHS tape and an accompanying 80-page manual that do a great job of showing, and explaining a simple queen rearing system.

Based on Doolittle's technique, she starts by grafting, using eggs and larvae from a breeder colony, moving grafted cells to a finisher, then to the mating yard.

The skills and techniques are explained well, and between the film and the manual (complete with moveable wheel calendar and plans for building the equipment you can't buy), you, too, can raise your own queens.

Spivak's accomplishments since (and certainly before) coming to MN have been extraordinary from the perspective of the beekeepers she serves. Her recent contributions to this magazine, grants and awards she's received, classes presented and now this program have provided beekeepers of MN and the midwest with a rare and valuable source.

Queen Rearing. David Padgett, 7751 Fairfield Rd., Columbia, SC 29203. 1 hour 50 minutes (\$35.00 + \$5.00 ship.).

This seems to be the year for producing good tapes on producing queens. David Padgett has put together this how-to tape that shows, using what is basically the Doolittle system, how you can raise 25-30 queens using only two colonies and a mating nuc.

Strengths - Padgett is methodical, detailed and spends an extraordinary amount of time explaining what, and why he does what he does. Each step in the process is shown in repetitious detail, maybe even more than you'd like. But enough if you're not familiar with the subject.

What I like best about this tape is that Padgett shows his mistakes, the ones that can be commonly encountered, and explains why it happened, and how to avoid them.

If there are any weaknesses it is the repetition of the techniques he shows. The same amount of information could have been conveyed in a film three-quarters the length, but the cost is low enough to not have this a problem. Though not a high-tech production, the information will enable you to raise your own queens this year. And that, and that alone is the goal of this video.

Bee Culture's Staff will gladly review your new book, video or new product at no charge to you or your company. Contact the editor on submitting materials for this VERY popular reader's section.

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POLLINATION MANAGEMENT

More Income For Everyone

mark winston

I had a dream last night about a new type of beekeeper, the yuppie beekeeper. In my dream, a thirtyish guy in a three-piece suit and spit-shined Gucci shoes showed up at an apple orchard, carrying a fancy leather briefcase in one hand and a hive tool in the other. It was spring and the trees were in full bloom, the air fragrant with blossoms and the promise of a bumper crop. The yuppie beekeeper approached the owner of the orchard, also dressed like a Wall Street banker who was driving his tractor through the trees. He hopped off at the beekeeper's approach with a great big grin on his face, shook hands and said "You were right. Pollination is a win-win situation for both of us. Let's do lunch."

Fortunately, I woke up before I had to endure a yuppie lunch, but I was puzzled by my dream. After all, with all the problems, hard times and grouching we often hear in agriculture, how could a beekeeper and a grower have struck it rich? Well, in real life our beekeeper and his pollination client would not have turned into prosperous yuppies but good pollination management can earn higher incomes for both parties. Beekeeping research and management practices point to a diversified pollination management system as one of the best ways to both increase your income as a beekeeper, and to improve crop yields and income for the grower as well.

The single most significant trend in our beekeeping community affecting pollination today is a shortage of bee colonies. Tracheal and *Varroa* mites have taken their toll and growers from the almond orchards of California to the blueberry fields of Maine are reporting considerable difficulty in obtaining sufficient bees to pollinate their crops. Couple that with impending limitations that may result from the spread of Africanized bees and we have a real problem here. The solutions involve more efficient management of both honey bees and other pollinators, using methods that

may provide more profit to beekeepers who provide pollination services to growers.

What I propose is simple. The research community needs to document how certain improvements in pollination management can increase bee visits to flowers, thereby improving fruit set, crop yields and, ultimately, profits to growers. Beekeepers need to be willing to implement new techniques that both intensify and diversify their management systems. The bottom line will be higher pollination fees paid to beekeepers and greater profits to growers due to yield increases. Let's look at some examples of how pollination research can be transformed into more dollars for both parties.

An excellent way to increase pollination income is for beekeepers to provide better colonies to growers, with an accompanying increase in the pollination fee paid per colony. By "better" I don't necessarily mean bigger, but rather colonies that will be more focussed on pollen collection. One of the few things that we do know about pollination is that bees collecting pollen will be better pollinators than those collecting nectar, because pollen-collecting bees do a better job of moving pollen between flowers, resulting in better fertilization of the plant's seeds. Ultimately, this improved pollination will produce higher yields of larger and more uniformly shaped fruit.

There are a number of methods that beekeepers can use to induce workers to forage for pollen rather than nectar. One very effective method is to manipulate colonies so that units used for pollination are full of young brood but have little stored pollen. The simple procedure of removing frames of stored pollen prior to moving colonies to crops can increase pollen foraging by 10 to 30%, which should result in better crop pollination and higher yields. Another highly effective method used in New Zealand kiwifruit pollination is to feed sugar syrup while the bees are in the kiwifruit orchards. This technique can double pollen collection, presumably because colonies perceive that their need for pollen is relatively greater than their need for nectar. The result: win-win. Beekeepers can charge more for these improved colonies and growers can afford it because of their higher yields.

Another useful method of improving pollination is to use attractants sprayed on the crop during bloom. There are several on the market, but only two or three have shown much promise. We have been working extensively with one such attractant, called "Fruit Boost," that is composed of a synthetic blend of honey bee queen pheromone. These compounds have proven highly effective at attracting bees to crops and can increase yield characteristics such as fruit set and size by five to 30% or more due to improved pollination. Also, fruit shape may be more uniform, increasing the number of fruit

Continued on Next Page

The grower hopped off his tractor with a big grin on his face, shook hands with the beekeeper and said "You were right, pollination is a win-win situation for both of us."

in the higher grade categories that produce the best profit for the grower. The cost of the spray is only about \$30 per acre, but net profits show average increases of \$400 to \$500 per acre on crops such as blueberry and pear, obviously cost-effective. Beekeepers providing colonies to growers might wish to provide a fuller pollination "service" that would include spraying attractants to increase the numbers of bees foraging directly on the target crop. Again, beekeepers can charge more money for this service, and growers should be willing to pay because they make more profit.

A third way that beekeepers can diversify their pollination management is to provide other pollinating species such as leaf cutter bees or bumble bees to supplement honey bee colonies. Leaf cutter bees have been used for some time to pollinate alfalfa for seed production, since they work the alfalfa flower more effectively than honey bees. Bumble bees are possibly the best general pollinator of all the bees, since they move rapidly between flowers, carry large pollen loads and buzz flowers when they visit, thereby dislodging copious amounts of pollen. Until recently, however, bumble bees were not an option for pollination management because they were too difficult and expensive to rear.

New methods of bumble bee culture developed in the last five years have now made it commercially viable to use these bees for pollination management. Today, thousands of bumble bee colonies are produced weekly in huge warehouses, prima-

rily for the greenhouse market. Although the cost of a single colony can run to many hundreds of dollars, their use in greenhouses is highly cost-effective when compared to the expense of the previous hand pollination methods used for such high-value greenhouse crops as tomatoes and peppers. Honey bees, in contrast, do not orient and pollinate well under glass, and so have not been used extensively for greenhouse pollination of these crops.

Bumble bee management has good potential for field crops as well. The commercial availability of large numbers of bumble bee colonies has stimulated research into their use on berries and fruit crops, with some early success. Bumble bees do a better job per bee in pollinating many crops, particularly in areas with cool, wet weather or with shortages of honey bees. The negative side of bumble bee pollination is the high cost per colony, although larger-scale rearing methods and techniques to utilize colonies for three or more pollination sets will bring down the cost.

Thus, today's beekeepers can offer a diversified pollination service to growers, providing more intensively managed honey bee colonies, use of attractant sprays and even two or more species of bees to tailor-fit pollination services to the needs and wishes of the grower. In return our beekeepers should be charging a considerably higher fee for these improved management techniques.

The key "missing link" in selling diversified pollination management to growers is proving that higher pollination fees will be cost-effective. Indeed, economic analyses of innova-

tive bee management techniques is an aspect that generally has been neglected by the research community. Applied research often does not go the final step; we do a good job of determining the *potential* of a new idea, but don't often follow through to show costs and benefits of new techniques. For pollination, yield increases are the bottom line for growers, and this is the area researchers need to examine if we are to justify cost increases to growers for improved pollination services.

Are yield increases due to more intensive pollination management realistic? I think so. Only small increases in yield are needed to justify higher fees. Approximately \$10 billion in crops are pollinated by bees in the United States and Canada; if only a 1% average yield increase resulted from better pollination, crop value would improve by \$100 million. Surely, beekeepers would be justified in asking for \$10 million of that in increased fees. Further, this 1.0% increase is highly conservative; attractant pheromone sprays alone can increase crop value up to 30% in some cases, with average increases of 5 to 10%. I'm confident that research into other management techniques such as feeding colonies and using other bee species to supplement honey bee pollination also will demonstrate yield and profit increases in bee-pollinated crops.

It's time to stop moaning about low pollination fees and the shortage of colonies for pollination. Rather, we need to prove the significance of good pollination management to growers, and then be aggressive about charging appropriate fees for our services. The approaching pollination crisis due to colony shortages can be a real opportunity for beekeepers to demonstrate the value of pollination management to the agricultural community, and to insist that we get paid properly for this necessary and economically significant service.

Let's do lunch. ☺

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

Economic analysis of innovative bee management techniques has generally been neglected by researchers.

Start Now & Control . . .

Tracheal Mites

. . . This Year

kim flottum

During the decade that tracheal mites have been in this country we have added only a modicum of knowledge on biology and control to what was already known before they arrived. The reasons for this are fundamental – funding limitations and difficulty of the subject. There are a plethora of questions yet to be answered with certainty

- Basic biology; including life cycle, fecundity, genetics, identification
- Affect on host bee; including damage, vectoring pathogens, load limits, host invasion
- Control: since most of the basics are still not well understood control remains elusive
- Resistance; because the other questions haven't been completely answered, why some bees appear to be resistant or tolerant to mite infestation is still not understood.

There are programs investigating each of these areas in government labs and universities however, and with enough money and time most will probably be answered.

But bees keep dying, and to stay in business beekeepers need to control mites. And it is in the area of control some of the most recent research has been conducted.

Some management techniques have already been shown to reduce the severity of mite infestations in a colony, and, to keep bees from dying, should certainly be considered by beekeepers.

Basically, these techniques involve separating older, infested bees from younger, uninfested or only lightly infested bees, reducing the opportunity for uninfested bees to come into contact with mites.

To accomplish this, colonies are divided in late summer such that

brood and nurse bees go in one divide, and older bees, such as guards, foragers and drones go to the other. The brood divide is requeened and treated and the older bees are dispatched. The principle involved is that gravid female mites move from their host bee to a new host – a young bee – and dividing stops or slows that process. Requeening is absolutely necessary since queens, too, become infested and, supposedly, are negatively affected.

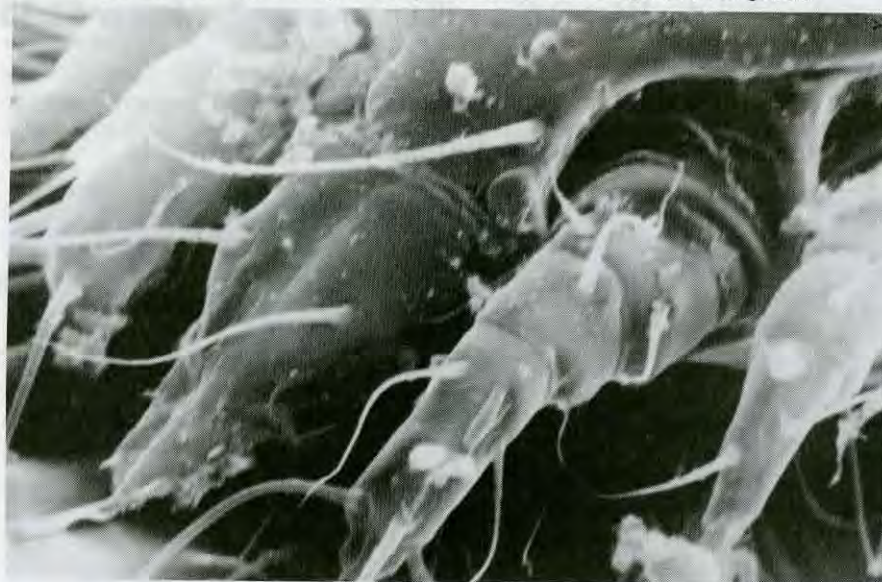
When divided this way, mite populations can be kept low in a colony. One question that remains unanswered is at what level of infestation does a colony, or a bee for that matter, begin to suffer? Division and requeening reduce infestations but probably don't eliminate mites. More is needed. Another management technique is to raise bees 'resistant' or 'tolerant' to mites.

Although considerable work has been done on finding strains of bees resistant to tracheal mites, only some progress has been made. Buckfast bees, imported from England have some reputation for resistance, as have other stocks of bees imported from England and Europe. Tracheal mites seem to cause fewer losses there, though the mechanisms are unclear.

The newest introduction, the ARS-Y-C-1, released this year by the USDA, has shown resistance to tracheal mites in studies conducted in the south and north. It, like the Buckfast, will be available on a commercial basis, but it's productivity is still to be tested.

The problem, however, is maintaining stocks for general use in the industry. Other than the Americanized Buckfast and the USDA bee this has not yet occurred. And, since those mechanisms of resistance are un-

The front legs and mouth parts of a tracheal mite. The piercing mouth parts are used to puncture the trachea of a honey bee so the mite can feed. (Stier photo)



known, the traits breeders are selecting for remains unclear.

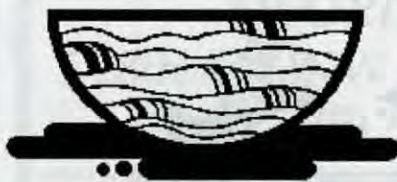
One other consideration that should be mentioned concerns the mites themselves. At last year's Entomological Society of America (ESA) meeting, one mite specialist suggested that perhaps the mites themselves were changing. If it's true that these mites are relatively new, on an evolutionary scale, initially they hadn't fine-tuned their behavior to the point of not killing their host - at least those on this continent. But several reports have been heard, at the ESA meeting, in the literature and elsewhere, that in some areas of the U.S. mites are becoming difficult to find. Too, colonies are found with heavy infestations that seem little affected. Unknown is whether the bees are resistant, the mites less destructive or, probably, some combination of the two. Nevertheless, colonies do keep dying. Especially in the north.

By default, the only remaining method of reducing mite populations in a colony is the application of some type of chemical. Many have been tried in the counties mites have invaded, but for various reasons aren't in use here. Miticur, a form of Amitraz didn't last, and formic acid is not yet approved (and may not be). Menthol is approved however, and under the right environmental condition is successful. Unfortunately, much of the northern U.S. isn't favorable menthol country. Which leaves, for the moment, vegetable shortening/sugar patties.

Much has been written about vegetable shortening/sugar patties - most good, some not so good. Only officially suggested for a couple of years, little is known on why these help control mites in bees, or in a colony. It has been suggested that, when feeding on a vegetable shortening/sugar pattie, a minute amount of the shortening becomes attached to the bee. This shortening, it has been suggested, interferes with the female mite's ability to find a new host. This obviously stops or slows the transfer of mites, thus the rate of infestation increase in a colony.

As noted earlier, there have been mixed results with this treatment, too. But refinements in even this control are being made, and two recent studies show improvements in control.

The first was discussed at the



MAKING PATTIES

To mix vegetable shortening/sugar patties, combine three pounds of solid vegetable shortening with six pounds of granular sugar and mix thoroughly. Various methods work well... warming the oil to just about liquid and mixing in sugar (not recommended if adding TM) is the easiest way to mix; or, use a large bowl to combine the ingredients. Either way make certain the vegetable shortening and sugar are well mixed. Make patties about four ounces each, flattened on wax paper. Make as many as you'll need for several applications and freeze those you don't use immediately. Apply throughout the season as needed, placing a single pattie near the highest concentration of bees in the colony - top or middle of brood nest. Remove *only* during honey flow. Vegetable shortening can be purchased economically in 50 lb. containers from any local bakery supply company.

Apiary Inspector's Association meeting in January. In this study infested colonies were treated with vegetable shortening/sugar (1:2) patties; vegetable shortening/sugar/terramycin patties; or no treatment at all. The treatment exposure lasted 12 months, and bee samples were routinely collected to monitor infestation levels at the bee, and colony level.

Research projects of this sort often begin with maximum treatments, then, later, fine tune the techniques. Such was this. The impetus behind the test was that previous treatments with these patties had had spotty results in mite control. But research from several sectors has focused on mite populations in a colony and found that although the highest concentrations of mites/colony, and mites/bee occurred in late summer, fall and winter they were there all season. Moreover, uninfested colonies can become infested anytime of the year

from drifters.

Previous work, where vegetable shortening patties were applied only in late spring and summer had shown essentially no mite control. The now-known mite population curve in a colony which increases in late season strongly suggests more efficient treatment times are in order.

When vegetable shortening/sugar patties, with or without TM were applied on a continuous basis the infestation rates were significantly different than non-treated colonies. Coupled with the knowledge that infestation levels begin to climb in the fall (as bee populations decline), applying vegetable shortening/sugar patties in late summer, as soon as honey supers are removed, and maintaining that exposure until late spring (when bee populations increase) appears appropriate and effective.

This is supported by the results of a recent USDA study conducted in Beltsville, MD over two seasons.

Here, patties were applied starting in September and continued until late December. The results were similar in many ways, but there were differences - primarily in initial infestation rates in the colonies.

What was found was that infestation levels in treated colonies remained low the following year, yet remained higher in the control colonies. No surprise, considering the colonies began with low rates. The controls, however, did not increase mite levels to the degree of the previous study, suggesting drifting of oil treated bees, or infestation rates just too low to increase dramatically the second year.

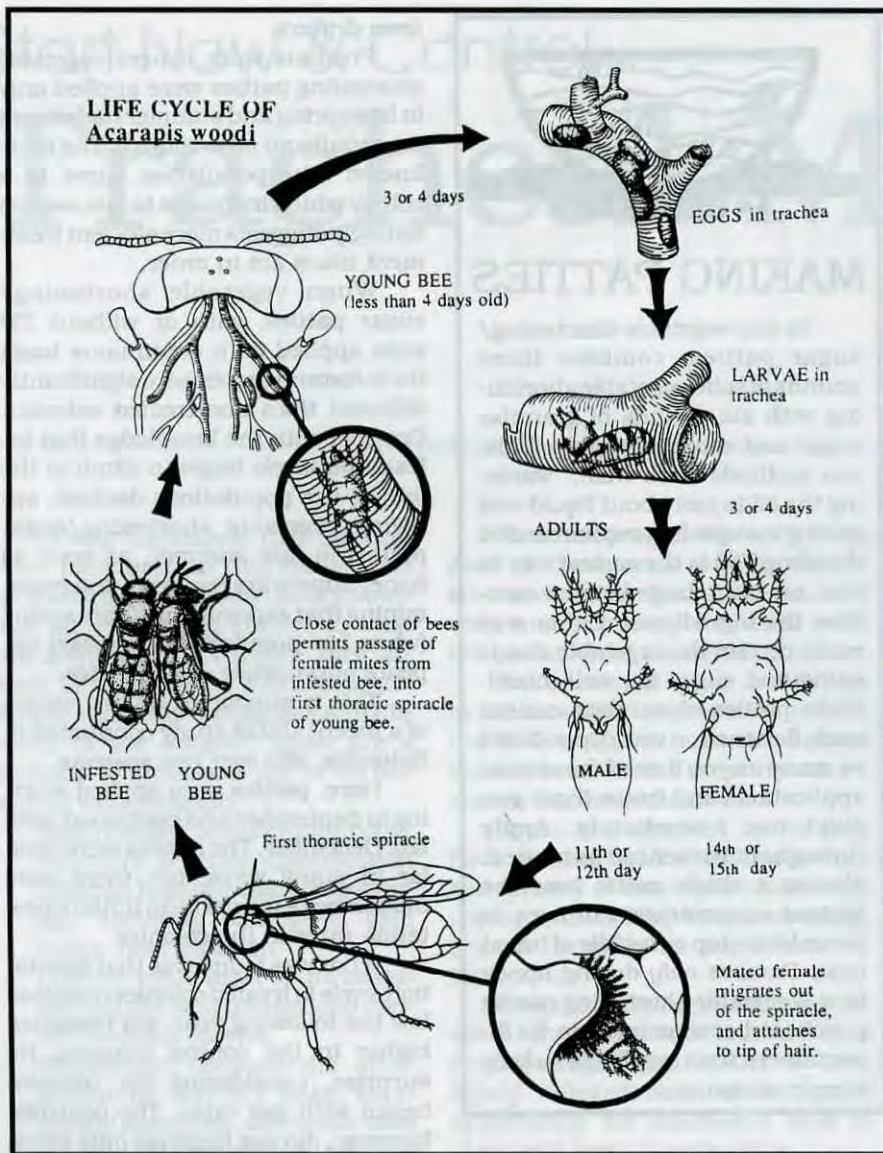
Similar tests in Canada have been less conclusive, but tend to show similar infestation patterns and results when treated with patties during late summer, fall and winter.

Observations in California suggest otherwise, however. There, it seems, patties tend to control mites until a particularly difficult winter, or some other unknown stress factor occurs. Then colonies die, presumably of mite infestations. But to date these are not hard numbers.

What all this research indicates, however, is that vegetable shortening/sugar patties do offer some protection to those colonies that decrease brood production and display some clustering behavior during a derth or winter period.

This information is reinforced

Continued on Next page
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Prepared by C. Henderson & B. Alexander

when coupled with many observations that bees kept in the far south year-round tend to have fewer problems. It is speculated that because they continue brood production, have nectar and pollen collection nearly continuously, and do not exhibit clustering behavior for long periods of time, mite populations do not have an opportunity to build up on a finite or decreasing number of bees. This, too, reinforces the theory that controlling mites in the north needs to start as early as possible, and continue as long as possible into (and even through) the winter.

What this means for a management plan this year is fairly straight forward. Though some may argue about the effectiveness of putting patties on a colony now, treating with TM is fairly routine so vegetable shortening and bees will get together anyway. If not, consider applying a quarter pound pattie (between brood boxes if you use two) from now to the honey flow (replaced as needed). Then, when you put on supers, take off the vegetable shortening/sugar patties and when you take off the supers, replace it and keep it there until next spring.

This program will, in all likelihood, reduce mite populations now, keep them low all summer, and prevent that lethal buildup this fall and winter. And that should save some bees. ☺

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SUMMER POLLINATION ACCOUNTS

mary & bill weaver

Pollinating orchards in the spring can be followed by cucurbit (a broad term covering melons, squash, and cucumbers) pollination in the summer. The opportunities for the beekeeper in pollinating cucurbits have expanded considerably in recent years. In the past many growers have relied on "free" wild bees for their pollination, but as mites kill off wild bee populations, more growers have come to understand the wisdom of renting hives to ensure good pollination.

Also, more farmers are growing cucurbits. Because traditional agricultural crops like corn and wheat are bringing in a low monetary return, farmers are planting fields of winter squash or cantaloupes to supplement their incomes.

In our area, many sizeable fields of winter squash and cantaloupes for the fresh market dot the countryside. To set fruit, these crops need cross-pollination by honey bees. A beekeeper willing to do the legwork to locate these farms can frequently come up with pollination accounts.

Once you're established, new accounts will frequently come searching you out. We were contacted last summer by a corn and hog farmer who wanted us to pollinate several acres of cantaloupes. He had gotten our name from a neighboring customer of ours. When you do a good job, word of mouth can expand your business to a surprising degree.

To sell your pollination services effectively, it helps to be knowledgeable

on the subject of cucurbit pollination. In cucumbers enough bees are needed to make 15 to 20 visits per flower per day to make a profitable crop. Current cucumber varieties, planted at high populations for once-over mechanical harvest produce a high ratio of female flowers. This requires at least one hive per acre, with many experts recommending as many as three.

Cucumber flowers are less attractive to bees than many other flowers. In fact, some reports indicate that bees will only collect the sticky cucumber pollen when no other pol-

You don't want to give the impression that with adequate bees he will always get 100% pollination. Rainy weather, high winds and unseasonably cool mornings (when the flowers are open) can keep the bees from working the flowers. It takes eight days from the flower to the cucumber ready for picking. So eight days after a rainy day when the bees were unable to forage, the farmer will probably be picking misshapen cucumbers, no matter how many hives per acre he rented.

Also, when temperatures are extremely high, so many of the bees may be occupied in bringing water to cool the hives that little flower visitation may be taking place. Irrigation during the time the blossoms are open can also wreck pollination. Bees don't work the flowers until they've dried. And flowers pollinated less than two hours before

Summer pollination accounts
can be *very* profitable,
especially if your main honey
flow is over.

irrigation can fail to produce fruit. Each cucumber flower is open for less than a day, and must be properly pollinated in that period to produce straight, nicely formed fruit.

len is available. So it's important to saturate the area with bees to make sure the cucumber flowers are properly pollinated.

The more bee visits to the cucumber flower, the larger the cucumber. The number of seeds and weight of the cucumber increase up to a maximum of about 40 to 50 bee visits. Signs of poor pollination include crooked cucumbers, nubbins, and "balls," all of which are unsalable on the commercial market and must be discarded. If the farmer loses 20% of his crop to unsalable shapes due to poor pollination, you can point out that he is also losing 20% of his investment in seed, fertilizer and sprays.

Disclaimer aside, it can be said that with enough bees to provide adequate pollination, the number of misshapen cucumbers will be low.

Squash and cantaloupes also need multiple bee visits per flower. With zucchini, as with cucumbers, inadequate pollination will produce misshapen, unsalable fruit. Winter squash and cantaloupes have many seeds in the seed cavity. Each seed requires one pollen grain to form. So for the 400 to 600 seeds in the average cantaloupe, you need 400 to 600

pollen grains, which require multiple bee visits, to say the least.

In addition, the number of seeds pollinated influences the size and weight of the resulting fruit. A cantaloupe with only 400 seeds will likely be so small that it will have to be culled. With larger bee populations producing more bee visits, that same cantaloupe would have been larger, and therefore marketable. Better pollinated cantaloupes are also sweeter.

Watermelons, too, produce larger, better-shaped, sweeter fruit when pollinated by many bee visits. A watermelon with one end misshapen has probably not been adequately pollinated. You can tell a lot about pollination by cutting open a ripe watermelon. Pollinated seeds are black. If half the seeds are white, pollination was inadequate, and you can expect the flavor of the melon to be starchy, rather than sweet.

Proper timing of moving bees into the crop is important with cucurbits, and varies from crop to crop. For optimal cantaloupe pollination you want the bees moved in immediately when flowering starts. The flowers that develop on the first three spurs produce the most desirable fruit, which is called a "crown set." These crown set fruits are sweeter and more oval in shape than fruits produced by flowers blooming later in the life of the vine. If the bees are moved in a bit late, this crown set will be lost. However, total yield may not be affected if moving is delayed two or three days due to bad weather or sprays.

With gynoecious cukes for machine harvest, bees are generally moved into the field when the crop has 15 to 20% bloom. For machine harvest, the grower needs a very uniform, all-at-once fruit set, and moving bees into the field when flowering is well under way helps to give higher yields of more uniform pickles.

With zucchini and winter squash, the bees should be put in place immediately as flowering starts.

What can happen to the grower who tries to rely on "free" wild bees? During our first year in vegetable farming 17 years ago, we grew a field of cucumbers. When flowering started, the wild bees arrived right on time in such numbers that, standing in the

field, we could hear a quiet humming sound from all the bees at work. The "free" wild bees did an excellent pollination job. The next year, too, all went well.

The third year, we had an early 1-1/2 acre zucchini field put out. The earliest local zucchini commands a good price from grocery stores, and we went to considerable trouble to pamper it along, planting it on black plastic and covering it when frost threatened.

When flowering started, it took us several days to realize that our friendly wild honey bees weren't around that year. The hives had apparently died out over the winter. The female squash flowers bloomed in all their showy beauty, then closed and withered without setting a single fruit.

It took several days more for us to locate a beekeeper, and then for him to get his hives moved to the zucchini field. During that time, we had lost far more than we would have spent on renting colonies. Rented bees are mighty cheap crop insurance.

Before you move in your hives for cucurbit pollination, visit the farm and look over potential sites with the farmer. Some shade in the middle of the day is valuable to bees pollinating in hot weather. If irrigation is used, be sure solid ground can be found for truck access to the location. Find one as near as possible to the field you'll be pollinating.

Discuss pesticide use with the farmer before bringing in your bees. Because cucurbit flowers are open for less than a day, some sprays, if they are needed, can be safely applied in the evening, when all the flowers have closed. The cucurbit farmers for whom we pollinate are quite good about remembering this, and our bees have fared well.

Farmers who rent the bees are paying good money for them because they know the bees are important to their crop and generally are careful in their spraying. A problem can sometimes arise, though, if the weather has been too wet to get a sprayer into the field. At such times, the farmer may call in an aerial spray outfit. Emphasize the importance of informing the pilot that evening, rather than morning or afternoon, spraying is necessary, and keep a close eye on the situation. We've talked to a number of beekeepers who have had serious bee kills as a result of careless aerial sprayers.

When moving bees, take care that the hives do not overheat while the bees are confined. A New Jersey beekeeper told us about an experience in which the temperatures rose so high in the hives he was moving that the wax in the combs actually melted and dripped out of the entrance. Of course

Continued on Next Page

Cucurbits need bees to move pollen from male flowers to female flowers, and they have to do it in the A.M.



the bees were dead.

If your hives contain a lot of bees and the location to which you are moving them is more than a short distance away, replace inner covers and telescoping covers with screened tops or the double screens used when making splits in cool spring weather. Simply loop your strap over the double screen to hold it tightly in place. Securely strapped, the screens don't slip out of position, in our experience.

For longer moves, some beekeepers sprinkle water on the screens for the bees to use in cooling the hives. Ice which slowly melts on top of the screen accomplishes the same thing.

While your bees are on location, keep a close eye on their stores. Unless other flowers are available as a nectar source hives pollinating cucurbits can actually lose weight. There

just aren't enough flowers per acre in cucurbits to give much of a honey flow. Only 1% as much nectar is secreted by an acre of cantaloupes as by an acre of alfalfa!

When you set a price per hive for pollinating cucurbits, keep in mind that you will not get a honey crop from the vines you're pollinating. This is important particularly if, during the same period, you could collect a honey crop with the same hives at another location (remember opportunity cost!).

In southeastern Pennsylvania, the honey crop has been made by the beginning of July so moving to pollinate cucurbits provides cash from hives that would not be producing any honey. Having summer pollination accounts can definitely pay. ☺

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• **Honey Bee Research.** Dr. Anita Collins, Research Leader, 2413 East Hwy. 83, Weslaco, TX 78596. (210) 969-4870.

• **Bee Biology & Systematics Laboratory.** Utah State University, Logan, Utah 84322-5310.

• **Carl Hayden Bee Research Center.** Dr. Eric H. Erickson, Center Director, 2000 E. Allen Road, Tucson, AZ 85719. (602) 670-6709.

• **Honey Market News.** Linda Verstrate, USDA-AMS, Fruit & Vegetable Div., 2015 So. 1st St., Rm. 4, Yakima, WA 98903. (509) 575-2492.

• **Extension Service (Federal).** Dr. Ricardo Gomez, ES USDA PPMS, S.W. 3347S, South Bldg., Independence Ave., Washington, DC 20250. (202) 720-2471

• **Biosystematics Research Centre.** Dr. R. J. T. Trottier, Dir., Rm. B149, K. W. Neatby Bldg, Ottawa, Ontario, Can. K1A 0C6. (613) 996-1665.

• **Agriculture Canada.** Dr. D. L. Nelson, Dr. T. P. Liu and Dr. T. I. Szabo, Research Sta., Research Branch, Agr. Canada, Box 29, Beaverlodge, Alta., Can. T0H 0C0. (403) 354-2212.

• **Economic Research Service.** Dr. Fred L. Hoff, Chief, Specialty Agriculture Branch, Commodity Economics Division, 1301 New York Avenue, NW, Room 1240, Washington, DC 20005-4788 (202) 219-0883.

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• **International Bee Research Association.** Andrew Matheson, Director, 18 North Road, Cardiff, CF1 3DY, UK. Telephone: (0222) 372409, Fax (0222) 665522, Telex: 262433 G (quote B8390).

• **Apimondia.** International Federation of Beekeepers' Associations—President, Raymond Borneck, Rue Du Creux, Montbarrey, France, 3y; General Secretary, 101 Corso Vittorio Emanuele Rome, Italy 00186, (6) 65-12286. Periodical: *Apiacta* (quarterly).

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- **MORGANTOWN AREA BEEKEEPERS** — Charlie Metz, P.O. Box 58, Wadestown, 26589
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- **ASSOC DES APIC PROF PQ** — Roger Doyon, 57 Perras, Napierville CO, St Remi, Que
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- **GRAND RIVER BK ASSN** — Ivan Keupfer, RRT, Millbank, Ont N0K 1L0
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- **WELLINGTON CO ASSN** — Art Sutton, 24 Marilyn Drive, Guelph, Ont N1H 8E9

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Bee Culture
 P.O. Box 706
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USING THIS DIRECTORY

Starting with the first page we have listed at the State Level . . .

A *Contact Person* for the State Association
 The State *Inspector*
 The State *Extension Agent*
 The *State Trade Office* for Export Marketing
 The Office of the State *Department of Agriculture*

Next, there is a page with Federal contacts (both U.S. & Canadian) for a variety of groups, a listing of the major Industry Organizations and their respective contacts, the USDA Research Labs and the International groups.

Finally, there are the contacts for *Local Associations*, those at the Regional, County or even City level.

Sooo

What's Happening?

richard bonney

Carefully look at the outside to know what's going on inside.

Routine hive inspections can get to be just that sometimes — routine. We think to ourselves, it's been a while since the last inspection so it must be time again. And off we go to inspect, with no real plan in mind. At some times of the year, of course, the plan or objective is obvious. In the early season, spring cleaning, reversing, perhaps requeening are your reasons to be out there. In the fall you are preparing for winter. In between times, you may be checking to see if the colony is progressing normally, if they need more supers, if there is any sign of disease or mites, and so on. But there should be some order to all of this. You won't check everything every time you go to the hive. That's overkill. Sometimes you may not even open the hive. You can make some observations and draw some conclusions from the outside. If all has been going well, don't bother them. But you should always have your mind open to possibilities, and be prepared to check more if something is awry.

To put this in perspective, let's say you do have a goal in mind. You plan to open your hive and check a couple of things. What is your routine for inspecting? Do you just walk up to the hive, puff a little smoke, lift the covers and start pulling frames? Or do you take your time, stand there for a while before you lift the lid, watch, and ponder what you see? I hope it's the latter. There is much to be learned from observing both the outside and inside of the hive.

On the outside, the two most obvious things to notice are flight activity and the goings on at the entrance. Both of these can be revealing in themselves and can suggest other things to look at, once you open the hive. Hive weight is something else to check before you get inside. These three things (flight, entrance, weight) could be the extent of your inspection on some days, but on most inspections you will probably decide to go inside as well.

Once you have decided to work your bees on a particular day, we assume you have already made an observation of the weather. Presumably it is a nice day, flying weather, and the bees are active. Further, we assume you have some sense of the nectar flows both for your neighborhood and for the particular time of year, so you have some background information to work with as you make your observations.

Knowing the weather patterns and the nectar flows allows you to develop a set of expectations. Spring will break during a certain period, specific plants will come into bloom — dandelions, for instance, followed by fruit bloom, followed by clover, and so on — and a certain level of development will happen within the hive. Watching your hive with a knowing eye tells you when this level of development *isn't* happening, and your observations give you a basis for understanding whatever problem may be before you. You can then take steps

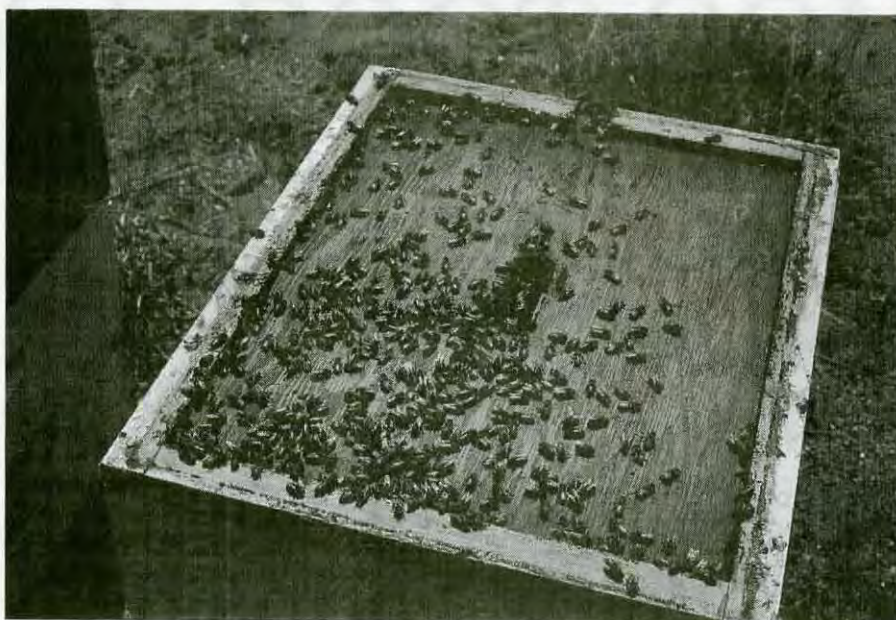
to correct it.

So watching the exterior is a good first step. As you approach the hive, what is the flight pattern? Are bees coming and going at a rate that you would expect for the particular conditions? Are the bees landing and hustling in without delay, while others are leaving with a sense of purpose? Do you get a feeling of lots of nectar and pollen out there, with your bees getting at least their fair share? Or is traffic slow and uncertain, with not much enthusiasm showing? If it is this latter condition, then how do things compare with your other colonies? Are they all acting the same? If they are, this sets you on a different track of investigation. Maybe the nectar flow that day isn't what you thought, or maybe the bees have encountered some pesticide and the

Continued on Next Page

*Too hot!
This may
be startling,
but the
bees aren't
preparing to
swarm.
Knowing
colony
patterns
would
prepare you
for this.*





This is a comfortable number of bees to see on an inner cover on a busy foraging day.

WHAT'S HAPPENIN' ... Cont. From Pg. 225

work force is becoming depleted. If this is the only hive acting this way, you have one route to investigate. If all your hives are acting this way, you have a different route.

As you stand there, are the bees aggressive towards you? Most colonies tolerate people standing around quietly in the bee yard. Assuming that yours are tolerant normally, but not today, what is different. Perhaps skunks or vandals have been active. If so, the evidence should be there somewhere. Perhaps your colony swarmed earlier, or otherwise requeneed itself, and the offspring of the new queen are turning out to be a little nasty. Think back over the past few weeks. Consult your journal. What has happened, and when? All of these are conditions that can be corrected, once you have pinned down the exact problem.

Let's assume, though, that things are looking good as you stand there. Plenty of activity, the bees are mellow, no apparent reason to be concerned. Make one more check before you actually open the hive. What is the comparative weight? A few beekeepers keep their hives on a permanent scale arrangement. They can take a reading of the actual weight of the hive any time they go to the bee yard. An ongoing record of these weights gives a basis for some very interesting analyses of hive activities, but that is a different subject. Most of us don't have permanent scales. We can do only a comparative check.

This weight check is easy enough. Grab the hive under the back of the bottom board with one hand and lift it a couple of inches. Does it feel light, heavy, or somewhere in between? How should it feel at this particular time? You may not be able to answer that question the first time or two that you lift a hive, but if you lift every time that you go to the bee yard, soon you will have a good sense of what it means. If it is very light, is it a time when you could normally expect it to be light — the early season, for instance, when few supers are on and food reserves are low. If it is mid-season, though, and a good nectar flow is in progress, then maybe lightness is a cause for concern. Perhaps the population has not built up the way it should, and the colony doesn't have the field force to exploit the available nectar, in spite of an apparent high level of flight activity at the entrance. Then again, maybe there isn't such a good level of flight activity. Take another look.

At this point, if you do sense that something may not be right, take a look at apparent numbers. As you open the hive, do you see lots of bees on the inner cover? As you remove that cover, are there masses of bees on and between the frames? Is the hive teeming with activity, or are only a few bees apparent on

top, with no exceptional number of bees or activity down below? Perhaps something is wrong. Again, everything must be weighed against the time of year, but generally speaking you want to see bees, lots of bees.

As you get down into the hive, check the brood. Without necessarily removing every frame, note the extent of the brood area, and get an idea of the distribution of eggs, larvae and pupae. Is there a balance, the right number of each for the time of year? For instance, if the brood runs heavily to capped cells, with few eggs or larvae, this is an area to investigate. Is the queen present? Does she appear to be normal? Was there a recent swarm or supersedure? How many frames with brood do you find — six, eight, ten, twelve? In the very early season the number of brood frames will be low, but will increase rapidly as late spring comes on, and tail off a bit as the season wanes.

A good sense of what conditions should be comes only with experience but, by observing thoughtfully, that experience is going to come faster. If you get into the hive and are not sure what you are seeing, it is never wrong to seek help. Get a more experienced beekeeper to look over your shoulder and help you interpret, or go to his hives and do a comparison. Ask questions. But be sure this beekeeper truly has more experience. Keep in mind that every year of keeping bees should be a learning year. If someone has kept bees for, say, five years, does he or she have five years of experience or one year of experience five times over. There's a lot of the latter around.

Assuming that you find what seems to be the right amount of brood and activity for the time of year, what next? Probably not much. The hive appears healthy, population is at a comfortable level, nectar and pollen are coming in — there is no need to

This activity is simply 'playtime' Young bees learning where home is.



disturb the colony further. Add a super or two, perhaps, and then go away and mull over what you have seen.

As a final activity, make some notes in your journal. You are keeping one, aren't you? If not, you might want to try it, starting right now, today. It doesn't have to be elaborate, nor does it require daily entries, but the entries should be frequent enough to be meaningful. Record specific hive information such as dates of requeening, sources of queens, dates of supering, dates of swarming (yes, I know, your bees never swarm, but some do), and anything else that strikes you as the season moves along. Aside from that, keep more general information — dates and duration of bloom for specific plants, comparative numbers of other insects such as yellow jackets, the weather patterns for the season, your impressions of the overall season, other beekeepers' comments, and so on. At least two benefits accrue here. First, thinking about what to write, and then writing it, makes you more aware of the bees and their environment. Second, your memory is fallible. With a journal, you have a written record to review before you go out to work your bees on a given day. Understanding what is going on in a hive today can be much more

meaningful if you have a better recollection of what you saw and did last time, or last year. You may be reminded of specific things to watch for as you approach and open the hive. For instance, this colony was a little aggressive before. Have they settled down? This hive was weak last time but you added a frame of brood. Are they responding?

Then, at the end of the season, you will have something to review that will help you understand why the season was so good or bad. Of course, your seasons will be mostly good, now that you're keeping a journal. ☺

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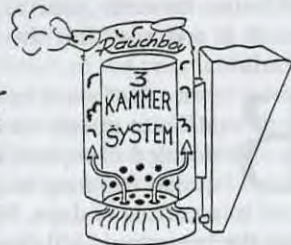


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First Summer

bruce filbeck

When I decided to quit trying to get my new bees to do what I thought they should do and instead let them do things their own way, it was about the end of April. The rest of the Michigan spring and the fine summer that followed were filled with all sorts of "bee experiences." Some were delightful, some were disappointing, some were puzzling, most were surprising, and *all* were interesting! Since I had gotten into beekeeping to learn about bees, I certainly would have to rate my first summer as a success – I learned a *LOT* about bees!

As you may recall from a previous article, my bee yard consisted of three hives of package bees that I had received during the last two weeks of April – one colony each of Midnites, Buckfasts, and Starlines, with the Starlines having arrived about two weeks later than the other two. My motivation for getting bees in the first place was to learn more about them and I figured that if I had several different races, I'd be able to compare their progress and their characteristics.

In May, the flowers in the area started to bloom (many more flowers than I'd ever noticed before) and all the bees were active and bringing in loads of pollen. I added a second full depth hive body (with ten frames of Duragilt foundation) to each of the hives. During my biweekly inspections, I found sealed brood in all of them. The Midnites, however, didn't have nearly as many bees or as much brood as either the Buckfasts or the late-starting Starlines.

By the first week in June I was convinced that the Midnite queen was not doing "a proper job" and decided to replace her. I ordered another Midnite queen from my supplier and anticipated her arrival in a couple of days. Not wanting to take the chance that the bees would kill the new queen, I thought I'd better find and remove the old queen. After carefully searching each frame of both hive bodies and not finding her, I resorted to a procedure that I had read about – "straining the bees through a queen excluder." I put a queen excluder between the bottom board and the lower hive body and then carefully brushed all of the bees onto a cloth in front of the hive. After an hour or so, most of the bees had returned to the combs and, sure enough, there was the queen, right on the bottom board! The next day, June 9th, the new queen arrived and I put her and her retinue in the hive (and learned while doing so that a veil is an important piece of equipment and should be worn even when the job is "only going to take a minute" – this project resulted in my very first sting from my bees). Since there were so few bees in the hive, I "stole" two frames of sealed brood from the Buckfasts and added them to the Midnite hive. Within two weeks, there was much new brood and they all seemed to be doing well.

The early June requeening and depleted condition of the hive established the Midnites in my mind as a "crippled colony" that needed to be given special treatment, such as not being given comb honey supers, etc. I learned later that this was probably not such a great idea.

Around the middle of June I added a shallow super with nine frames of "thin surplus" foundation to both the Buckfasts and the Starlines. Near the end of June, I put a second shallow super below the first. I have no idea what sort of forage the bees were working to gather the nectar for this "wildflower" honey, but they drew out the foundation and by mid-July they had filled all four supers with a very light-colored honey and nearly all of it was capped. I decided to harvest this honey and replace the two shallow supers on each hive with a full depth hive body with nine frames of foundation that I could extract in the fall.

I tried the "escape board" method of getting the bees out of the supers. On one hive it worked – on the other it didn't. On that one, I used the "brush the bees off the combs with a brush" method. It worked. From these four shallow supers I harvested 48 boxes of cut comb honey (each weighing between 12 and 16 oz.) and about 25 pounds of honey that I drained from the combs that were not completely capped or from combs that I messed up while cutting the frames. I was delighted with my very first honey harvest.

In the meantime, the Midnites were doing well and continuing to make more bees.

The honey flow tapered off some during midsummer, but the weather was nice most of the time and bees were flying nearly every day. At this time the Buckfasts and the Starlines each had three full depth hive bodies and the Midnites had two. I had placed a queen excluder below the top super on each of the three story hives.

Oh yes, just in case you were wondering – during all this time, the Midnites were continuing to raise more brood.

My plan for the end-of-summer honey harvest was to take the third super from both the Starlines and the Buckfasts about the first of September and then not take any more honey from any of the hives until next year. On the last weekend in August I gathered these two full depth supers and learned how heavy honey can be! I extracted about 55 pounds of honey from each of the supers. When all the calculations were done, it amounted to 85+ pounds from each of the two producing hives. I was quite pleased.

On September seventh I was treated to an awe-inspiring event – I got to watch the Midnites swarm! I had the day off from work and as I was walking through the bee yard on my way to the mailbox I was astonished by the number of bees that were flying! I had no idea, at that time, that they were "swarming," only that there certainly were

a lot of them in the air. After watching for 15 minutes or so, I went about my business. I returned in about an hour and found that the frenzy of flying bees had subsided. Then I noticed a swarm clinging in the fork of a nearby tree. Since they were only about four feet off the ground, I decided that I could easily put them in a box and from there into a hive. I managed to get them into it without too much difficulty although getting them off the trunk of the tree was not as simple as the books had led me to believe.

Nobody told me that bees could swarm in SEPTEMBER! After hiving the swarm, which I guessed weighed about five or six pounds, I started reviewing everything I could find about swarms and nowhere could I find any mention of swarms in the fall. Ah well, live and learn. The original hive still had lots of bees and I thought I'd see how the new swarm handled the winter. I gave them a couple of frames of honey and seven frames of drawn comb and left them on their own.

On September 13th, I noticed a pretty good sized swarm of bees on one of the small pine trees next to the bee yard. I prepared a hive and set about capturing this swarm. I learned that trying to get a swarm of bees from the crotch of a pine tree is even more difficult than gathering them from a maple! I got most of them and put them in the hive. Since it was growing dark I figured the rest would find their way into the hive on their own. The next morning there was still a cluster of bees on the tree and I figured that I'd finish hiving them when I got home from work. Well by the time I got home, there were no more bees on the tree and there were no more bees in the new hive either! I looked around the neighborhood and since I didn't see them anywhere I figured they had found a new home somewhere else. I was somewhat distressed at losing them since I figured there were eight to ten pounds in bees in that particular swarm.

A few days later, on Saturday morning, my neighbor called to tell me that there was a swarm of bees on one of his trees. He wondered if I wanted them. I assured him that I did and took my ladder and gathered them off the trunk of an ash tree about 10 feet from the ground. This time I got them all and they decided to stay in the hive. I'm guessing that this swarm also came from the Midnites, but I'm not sure. Actually, when it comes to these swarms, I have lots of guesses, but very little real information.

In preparation for winter, I put Apistan strips in the



A nice frame of sealed brood from the Midnights after requeening. (Photo by Ken Babich)

hives during the first part of October. I also took this time to put up a snow fence to block the westerly winter winds from blowing through the bee yard. The two new swarms seemed awfully small and weak even though they were working like crazy gathering late season pollen and nectar, so I decided to combine them. I did this by putting the hives on top of each other with a sheet of newspaper between them. This apparently worked since they had chewed through the paper and seemed to be all one big happy family a week later. I also took this time to "redistribute the wealth" and gave the newly joined hive some of the Starline's honey, but even after providing them with this bit of "welfare" the combined hive was still the lightest in the bee yard!

The only other winter preparation I made was to reduce the entrances to the hives and put hardware cloth in the remaining opening to keep out the mice. I also put a piece of board under the rear of each hive to allow them to drain better and drilled an upper entrance in each.

It was a year of much learning. The late arriving Starlines finished the year heavy with honey. The Midnites with their new queen in June finished the year with more than an abundance of bees. It seems that over the long haul, Nature takes care of her creatures and helps them with the day to day problems. I'm sure this year will bring more surprises and learning. I'm looking forward to it. Q

Bruce Filbeck is a freelance writer and sophomore beekeeper from Lexington, Michigan.



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Perfect Spots

— stan kain —

Finding a *perfect* place to put your bees isn't easy – but possible.

How do you start beekeeping? I suppose having the desire to do so and the ability to ignore an occasional sting is a good start. Any supply catalog is ready to sell you woodenware and a variety of tools, most of which you'll never use – ask any beekeeper with a selection of Boardman feeders and bee escapes. Likewise, package bee dealers advertise in all the bee magazines. Of course you can always catch a swarm, according to the "How To" books. If you're not into do-it-yourself projects you can find a number of beekeepers willing to sell you an existing hive.

So where are you going to put your newly acquired property? Maybe your spouse isn't too excited about dodging bees while tending the backyard garden. How do you find a suitable apiary? The first step is to check state and local laws which apply to keeping bees. I suggest you first contact the county agricultural office or local or state bee inspector. Along with supplying a copy of beekeeping regulations, the local inspector or extension agent can be a valuable source of information about possible apiary sites, bee clubs and floral sources in the area.

Several cities have ordinances limiting or prohibiting beekeeping within their limits. I lived in a place like that once. I kept bees, too. I hid my hives in the backyard. A little fence blocked the view from the street. I gave my neighbors honey and tours, showing them how gentle the bees were. I also made sure the bees had plenty of water so they didn't bother anyone. But I don't recommend this sort of beekeeping unless you like stress, and I won't do it again.

Recently I moved back to California, which requires a water source at the apiary site. This is a consideration when I am looking for a bee yard. Do I want to keep tanks on the site and carry water on a regular basis? I have to think about the time and effort involved before I set up an apiary here.

Local bee clubs can be a good source for locating bee yards. Commercial beekeeping members need sites capable of supporting 20 or more colonies. They can't help a small gardener who would like two or three colonies on their suburban farm, but this could be an ideal situation for a hobbyist.

I make up little fliers on my computer. You can print them by hand, too. My fliers say something like "FREE HONEY" or "IMPROVE YOUR GARDEN" at the top. I explain that I'm a beekeeper in need of places to put my bees. My fliers are posted around feed stores, shopping centers, grocery stores and the like. I get a lot of calls from people who are anxious to have bees for neighbors. Not every place is suitable, but I meet a lot of interesting people and potential new customers, too!

Bees are livestock. I like to think of them just as I do cattle or any other animals. Why? The requirements are the same. My bees need pasture, water, protection from predators and the elements and a disease prevention program. I carefully consider the needs of my miniature livestock when I look for new "grazing land." After all, I'm responsible for a few hundred

thousand "head" of stock.

I want to know what pollen and nectar sources are available *around* the potential apiary site. If my bees travel two miles from the hive as they forage, they're exploring 8,658 acres. I also want to know what floral sources are available during each season. This can have a significant impact on my honey crop and may call for supplemental feeding. Uncultivated pasture and fields of alfalfa certainly attract my attention.

I prefer that my bees have human neighbors. Not so close as to be a nuisance, but close enough to discourage vandalism. I saw a remote apiary once, where four-wheel drive enthusiasts ran over the hives for sport. A team of bears could not have done more damage.

Sometimes we overdo it, though. In Washington I kept my bees about 10 feet off a rural gravel road so I could reach them even when the snow was deep in the early spring. Often I would find the covers moved back an inch or so. I could picture a nature lover or curious children sneaking a peek into a beehive. I don't think the guard bees gave them time to return the covers. And once Africanized honey bees arrive a situation like this would be nasty. We will have to alter our management practices so the curious can't be.

A good water source near the apiary is a real advantage. Remember that the nice little stream you see in spring may be a dry gravel bed by summer when the bees really need water. Likewise, that dry river bed

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could be a raging river this winter. Selecting an apiary location is a little bit like buying land on speculation. See it during each season before you fall in love – it may be under water for three or four months of the year!

I try to place my colonies on the upper side of slopes. Cold air and moisture settle at the bottom; forming a frost pocket. The same holds true for dense canopies of evergreentrees. The winter sun can't get through; the moisture can't get out and the hive becomes a frozen tomb. If the entrance faces east-south-east, the bees get the early morning sun and are protected from prevailing winds.

Since uncultivated pasture is good bee forage, I sometimes have to deal with cattle. A small fence of steel posts and barbed wire will keep horses and cattle from scratching on my beehives. When a cow scratches the bees sting. When the bees sting, the cow kicks the hive... well, you get the picture. Not good for friendly relations with the farmer, either.

Increasingly, pesticide use has become a problem. If you have your bees in an area near cultivated crops there's a good chance those crops are sprayed at one time or another. Most states and counties have a system where beekeepers are notified prior to spraying. The system doesn't always work. I post signs in my bee yards so farmers and inspectors have my telephone number and can contact me if there is a problem with the bees or they are about to spray a crop. A good relationship and communication with local farmers and neighbors provides the most effective protection.

Okay. Let's say you've found a potential apiary site about five miles out of town. It's just what you hoped for. How do you approach the owners about placing your bees on their property? With planning and preparation.

You can't expect them to know everything about bees and bee yards. It's your job to explain. They need to know that family and livestock won't be bothered by your bees and they can't interfere with farming management, either. Diplomacy is very im-

portant when approaching a property owner.

Generally, I'll meet with the landowner explaining that I am a local beekeeper. If they grow melons or alfalfa I'll offer a brochure from the University of California explaining the benefits of pollination. If the owner is a gardener, I present a brochure about bees and gardens. I always supply a small honey recipe booklet from the local bee club, too.

After looking around I'll point out an unused but suitable area for my bees and ask if I may place them on the land. I always offer an alternative spot which may be suitable. I explain I am willing to offer honey as rent in exchange for placement of my bees.

I offer my plan, anticipating questions before they are asked and explaining what I will do to keep the bees and any livestock apart. Justified or not, most people are concerned about sharing their home with bees and it's our place to answer all questions satisfactorily. I always have a small jar of honey to "seal the deal," should the landowner be agreeable to my offer.

Above all else, remember the public relations part of what you are doing. Make sure you and your new landlord understand each other. Don't set up a bee yard until you feel good about the person with whom you are negotiating. The farmer's dog gets

stung and you're told to move your bees off the property within the hour in the rain, no less. Misunderstandings like this can destroy a friendship before it begins.

Public relations are becoming more important as the media spreads fear about the Africanized honey bee. People are becoming apprehensive about allowing bees on their property. City officials are passing ordinances against keeping bees in towns. Farmers express concern about injury to their livestock and everyone is concerned about their liability.

I know a beekeeper who hides his bees in camouflage-colored hives. He sneaks around to work with them and doesn't want anyone to know he has bees. I don't think this is a long-term solution, nor can it add pleasure to the hobby.

Some of the most enjoyable experiences in beekeeping come from trips to my bee yards with an extra set of coveralls and veil, should I meet someone who would like to explore this magical world of honey bees. I've gained a lot of support for bees and beekeepers in this way and met lots of interesting people along the way.

Perfect apiary locations exist only in textbooks and someone's memories. With careful planning and a positive attitude, you can find a near perfect yard you'll enjoy for years to come. ☺

Stan Kain is a freelance writer and beekeeper looking for the 'Perfect Spot' in Atascadero, California.



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THIS YEAR, PLAN A PLANT SALE

larry goltz

Looking for a worthy project for your beekeeper's association? How about a honey plant sale? Increasing the stands of nectar- and pollen-bearing plants in your neighborhood can be beneficial not only to beekeepers but to the environment. Many garden clubs and plant societies have found plant sales to be an effective way to accomplish several objectives; renew denuded land with desirable vegetation, landscape beautification and provide a food source for birds, animals and, of course, bees. Successful plant sales tend to bring together members of an organization who share a common interest. But first a few words of caution.

The propagation of plants must be a judicious endeavor. Some of our naturally occurring plants, while good nectar and pollen producers, are undesirable in the view of homeowners and agriculturists. In other words, they are noxious weeds. Other native plants lend themselves to the beautification of gardens, roadsides and idle land while providing nectar and pollen for honey bees. These may provide other benefits as well; food for wildlife and humans, soil improvement, ground cover and shade. No plant can be rightly called useless although some such as the thistles, knapweeds, dandelions, wild mustards and brambles are on most people's "hit list." A responsible beekeeper would not purposely propagate noxious weeds. Nearly every published list of plants beneficial to bees contains at least a few such undesirables. Authors of such lists usually fail to indicate the plants that have the potential to become nuisances.

Manzanita - An evergreen shrub three to 18 feet tall, common to California foothills. It is an early spring nectar source. May be propagated from seed.



As an alternative to propagating undesirable "native" plants for bee forage consider utilizing cultivars, plants derived from the selective breeding of native and introduced plants. Many such herbs and woody plants bear unfamiliar names and are obtainable only from nurseries trading in horticultural specialties. A visit to a local nursery can be enlightening and may turn up a number of appropriate plants that can be propagated or obtained for your plant sale. Someone from your association can be designated to visit local commercial plant growers and botanic gardens to observe and make notes on plants attracting bees.

PLANT SALES IN CALIFORNIA

In 1984, the Shasta Chapter of the California Native Plant Society held its first plant sale and netted barely \$200. Two years later sales had grown to \$500 as plant society members began to contribute additional plants. In 1990 sales of member-donated plants, supplemented by contributions from nursery stock, netted \$1,350. We were fortunate to have in the Redding, California area a nurseryman who offered his facilities at a minimum fee for propagation and the continual care of many of the plants until they were saleable. The responsibility of collecting seed (always with permission on private land), taking cuttings, planting and transplanting rested with the organization membership. Persons with a practical knowledge of plant propagation and care can usually be recruited from your organization membership. Keep your

Continued on Next Page

Vitex shrubs are extremely attractive and grow in most parts of the U.S.



efforts on a modest scale until the principles of a plant sale can be mastered. Later, as experience is gained, it may be possible to add commercially grown plants to your inventory. Similar sales, some on a much larger scale are held by society chapters in the San Francisco Bay Area and elsewhere in the state and part or even most of the plants are from commercially operated nurseries. Many began in a manner similar to our local plant society chapter, from contributions made by members. Our Shasta chapter's 1992 plant sale, held in October, had a gross sale in excess of \$5,000. Over 2,000 plants were on sale. Of this total 1,368 were propagated by chapter members. Two commercial horticulturists and two philanthropic organizations contributed to the sale. Growth has been steady but the system has had to solve problems which at times caused members a bit of concern. One such dilemma was a joint plant sale with another environmentally oriented organization. The problem evolved because of the lack of a prior, firm agreement about the responsibilities and the distribution of profits. In the beginning, depend primarily on your own association's resources. Although profits may at first be minimal the experience gained will be of great value.



Willows come in hundreds of varieties, both wild and cultivated. They are excellent nectar and pollen sources.

GOALS OF A PLANT SALE

While the aims of organizations promoting plant sales may differ there are guidelines that are universally applicable:

- You must have within your organization a cadre that should have some knowledge and skill in plant culture plus an enduring interest until the conclusion of the plant sale.
- The membership as a whole must actively support the plant sale in all of

its phases. This will include growing or contracting for the plants (or purchasing), either at the member's homes or at cooperating commercial growers. This means getting your hands dirty. Our plant society lays it on the line, telling what must be done, when and where. With member backing, each task seems easier and less onerous. A newsletter and telephones are essential to keep members informed of dates, times and places when services or materials are needed. Presale publicity should begin long before the sales date. Leaflets should be distributed, public announcements made and the sales plans finalized.

- A sales site must be selected, one that provides parking facilities, space for arranging plant displays and whatever other attractions or educational exhibits are planned. The cooperation of a local government agency can be of help. We have a fenced area near the Civic Center Auditorium, adjacent to where an arboreta and botanic garden will eventually be located.
- Provide information about the plants on display and their care.

Ideally each group (species) offered for sale should include a short information statement on the plant's blooming habits and its growth requirements, a photo of the plant in bloom (we are requesting members to photograph plants in bloom), an identity tag, both common and scientific names, and a price tag. Our chapter prefers to simplify pricing by using to three price categories; yellow tagged, \$4.00, orange tagged, \$6.00, and blue tagged up to \$12.00. Each of three checkout tables has a price tag checker, a receipt writer and a cashier. Our annual plant sale is held on a Saturday from 9:00 a.m. to 1:00 p.m. Springtime sales may be advisable in most places in the U.S. and Canada but here in northern California fall planting is better because of the sudden onset of hot, dry weather early in the year. October, November and December are moderately warm and (usually) rainy, providing excellent conditions for newly established plants. Sales are restricted to the perennial herbs, shrubs and trees. Most are species acclimatized to our local growing conditions.

PLANT STOCK

These four guidelines, formulated from experience, need not be binding

upon your beekeeping association. Whereas many of the plants sold by our plant society are intended to fill a need for drought and heat tolerance, fire resistance (high mineral content, low fuel volume and high moisture content), your aim may be primarily to establish nectar and pollen sources with the additional appeal of beautification, soil benefits and wildlife food and sanctuary. Our aims are similar. Your plants may need to be cold tolerant, adapt to high rainfall and ground moisture conditions and be able to flourish with a minimum of care.

Rules to follow in selecting plants to propagate or purchase for resale:

- Is this plant now growing, or related to plants formerly growing, in your area? In other words, is it adaptable?
- Does it produce nectar and/or pollen?
- Can its spread be controlled should it threaten to become a nuisance?
- Can it be propagated easily either by seeds or cuttings?
- Are these plants suitable for a variety of locations: large/small places, sun/shade, wet/dry, fertile/infertile soils?

Several other suggestions may be helpful that apply mainly to beekeepers' associations:

- Consider either seed packets or bulk quantities of legumes or other nectar yielding crops in your plant sale. Certainly a beekeeper can appreciate having additional plantings of clover, alfalfa, sunflowers or buckwheat.
- Selling fruit and nut trees and small fruits is a rather specialized business but your organization may wish to discuss such a possibility (purchasing these in bulk may help).
- Your association may find it advantageous to enter into an agreement with a local garden club or similar organization to cooperate in a plant sale.
- You can build good will by contributing unsold plants to community projects. Our plant society donated several hundred unsold plants to three different local groups that will plant them on roadsides for wildlife food and shelter and in school "nature gardens."
- Consider "give-aways." Seedlings or rooted cuttings (grown by your

members) of easily propagated plants would be an ideal subject.

A SUGGESTED PLANT LIST

Purposely excluded are a number of honey and pollen plants that have the potential of becoming nuisances if propagated. Even so, some of the plants listed may be undesirable under some conditions. Please use discretion.

TREES

Maples (*Acer spp.*) Early season nectar and pollen source.

American basswood (*Tilia americana*) Adapted to most of eastern and midwestern U.S. except Southeast. Propagated from seed.

Black locust (*Robinia pseudoacacia*) The creamy white blossoms are an excellent nectar source.

Cascara (*Rhamnus purshiana*) A northwest U.S. buckthorn that is a good nectar source. Reproduces from seed in ripe fruit. Seeds are eaten by birds.

Tupelo (*Nyssa sylvatica*) A medium sized tree that grows in a broad section of the eastern and southeastern U.S. An important honey plant in the Southeast.

Tulip tree, yellow poplar (*Liriodendron tulipifera*) Found in most of eastern U.S. An excellent source of amber honey.

Willows (*Salix spp.*) Variable in size from shrubs to trees with different characteristics. Catkins are a source of early spring nectar and pollen.

Bee bee tree (*Evodia daniellii*) An introduced tree well worth propagating for bee forage.

Eucalyptus (*Eucalyptus spp.*) Grown mainly in California.

SHRUBS

Coffeeberry (*Rhamnus californica*) Very attractive to bees. Grows in the foothills of the Cascades and Sierra Nevada mountains and Coast Range of California.

Button bush (*Cephalanthus occidentalis*) Prefers wet conditions,

You can start collecting & propagating plants now for a fall sale, or for a big bash next spring. It takes awhile to make contacts, find sale space & produce plants.

common along streams, lakeshores and in swamps. Honey bees are usually found on flowers.

Cat claw (*Acacia greggii*) Common in semi-desert areas of Texas. Honey is light in color and of good quality.

Clethra (*Clethra alnifolia*) A source of honey from Nova Scotia to Florida in wetlands along the coast.

Gallberry (*Ilex glabra*) An evergreen shrub two to six feet tall. Blooms in May or June.

Guajillo (*Acacia Berlandieri*) A southern Texas shrub two to ten feet tall. An excellent honey source.

Redbud (*Cercis Occidentalis*) A good producer of nectar.

Sumac (*Rhus spp.*) The non-poisonous sumacs (*R. typhina* and *R. glabra*) are eastern and midwestern U.S. shrubs which yield nectar and pollen.

Vine maple (*Acer circinatum*) Bears samaras containing seeds as do the other maples.

HERBS - (Excepting cultivated plants)

Aster (*Aster spp.*) Fall-blooming nectar and pollen plants of importance mainly east of the Mississippi River. Clumps may be dug and divided.

Viper's bugloss (*Echium vulgare*) An introduced plant widely scattered in the East and Midwest. Blue flowers bloom in late summer.

Boneset (*Eupatorium perfoliatum*) A midwestern plant with flat topped clusters of white flowers. Prefers damp, shady locations.

Borage (*Borago officinalis*) Easily grown from seed, this excellent honey

plant is often grown as bee forage.

Catnip (*Nepeta cataria*) Highly attractive to bees. Clumps can be divided.

Chicory (*Cichorium intybus*) Common in fields and roadsides across the U.S. Can become a nuisance.

Dogbane (*Apocynum cannabinum*) Pinkish bell-shaped flowers on plant two to three feet tall, mostly eastern U.S.

Figwort (*Scrophularia marilandica*) Three to four feet tall with very small greenish-purple flowers which attract many bees. Occurs mostly east of the Mississippi River. A good plant to propagate for bee forage.

Joe-Pye-Weed (*Eupatorium purpureum*) A tall plant with a flat-topped cluster of purple flowers. Common along streams of midwestern and eastern U.S.

Milkweed (*Asclepias spp.*) Particularly attractive both as an ornamental garden flower and also as a nectar plant. May be propagated by seed or by dividing clumps.

Motherwort (*Leonurus cardiaca*) A member of the mint family worked by bees for nectar.

Phacelia (*Phacelia tanacetifolia*) Also known as fiddleneck, this is a common plant in California.

Rocky Mountain bee plant (*Cleome serrulata*) A rose colored, attractive plant of the Great Basin area of the U.S. A yellow-flowered species (*C. lutea*) also is found in the same area.

Sneezeweed (*Helenium autumnale*) Sunflower-like plant common

?Do You Know? Answers

1. **False** Morphologically the sting apparatus of the Africanized honey bee is similar to the European honey bee, both being barbed. Therefore neither of them can sting more than once since the sting is lost during the stinging process. The sting cannot be removed once it has penetrated the skin, so the bee dies soon after it tears itself loose leaving the sting and other tissues behind.
2. **False** Africanized honey bees have spread north and south from Brazil; their current range extends from the middle of Argentina, throughout Central America and Mexico.
3. **False** No significant chemical differences between venoms of Africanized and European honey bees are known. The basic difference is that Africanized honey bees are up to ten times more active in stinging than European bees.
4. **False** Both the Africanized and European honey bees produce honey comb cells that are six-sided in cross-section. The Africanized honey bees, however, produce cells that are slightly smaller in diameter than the European honey bees.
5. **False** Africanized honey bees are known as *Apis mellifera scutellata* not *Apis mellifera mellifera* which is the scientific name for the German Black Bee.
6. **True** Limited studies with Africanized honey bees in the winter have shown that European honey bees form tighter clusters than Africanized honey bees.
7. **True** Africanized honey bees have a shorter developmental period than European honey bees: 18-20 days in comparison to 20-21, respectively.
8. **True** Usurpation or colony take-overs of European honey bee colonies by Africanized queens and occasionally swarms appears to be one of the strategies employed by Africanized honey bees to colonize new areas.
9. **True** Africanized honey bees accept a wider range of nesting sites than European honey bees. Africanized honey bees often nest or below the soil level unlike European bees.
10. **True** Both colony size and the quantity of honey stored are closely associated with the reproductive strategy of the bees. Colonies like the Africanized honey bees that migrate with the honey flows and occupy small, temporary nest sites will not usually grow to more than a moderate size and since most of the nectar and pollen they forage is turned into bees rather than stores, neither do they accumulate large honey stores.
11. A) 1990
12. C) 200-300 miles per year
13. Texas, Arizona, New Mexico
14. African honey bees were brought to Brazil by a Brazilian scientist in 1956. He planned to cross them with the European-descended honey bees already present in South America to create a new strain of bees better suited to the tropics.
15. React to a disturbance faster than European honey bees
Attack the intruder in larger numbers
Pursue their aggressors over much longer distances
Remain on the defensive longer
16. In order to escape unfavorable conditions, Africanized honey bees produce many *migratory swarms* that travel long distances to areas with adequate food resources. Under extremely bad conditions, the whole colony deserts the nest and migrates over long distances (*absconding*).
17. One person has died in the United States from Africanized honey bee stings.
18. Some of the changes that will be required include:
Colonies will be placed on single stands
Additional clothing will be necessary
Increased use of smoke
Apiary locations will be more rural, away from people and domestic animals
Queens will need to be marked
Regular requeening programs will be necessary
Beekeepers will no longer collect swarms or feral colonies to add to

their apiaries.
While working colonies, more than one individual will (probably) be needed

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

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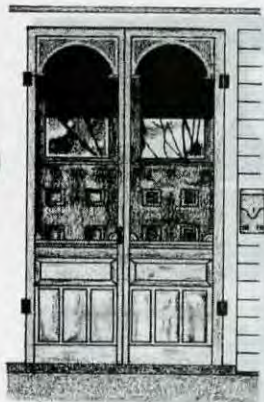
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HOME HARMONY

ann harman

A perfect pair – Raisins & Honey!

Raisins — what a versatile food. You can use raisins in breakfast, lunch, dinner, and snacks. That takes care of just about any hour of the day or night. They can be used in sweet or tart recipes, with fruits or with meats, in baked goods or left raw. Raisins add color and texture; leave them chewy or plump them in juices or brandy.

You may have noticed several types of raisins on the grocery shelves: natural seedless raisins, golden raisins, muscat raisins and zante currants. The natural seedless and golden raisins both start as the green Thompson seedless table grapes. Muscat raisins are made from Muscat grapes. Sun-dried, they are large and pleasantly sweet. Zante currants are actually dried Black Corinth grapes. Since they are tiny they are used mostly in baked goods.

Producing raisins is a hand operation that has changed little over the years. In winter the dormant grape vines are pruned, a usual procedure in grape culture. Irrigation is important at the time grape clusters form on the new growth. In late August or early September the grapes have reached maximum sweetness and are ready for harvest. The hand-picked bunches are laid on brown-paper-covered trays next to the vines. Here the sun dries the grapes. After about two to three weeks the moisture content drops to 15% and the grapes are now called raisins. Four pounds of grapes will yield one pound of raisins. Their "processing" consists of washing and cleaning.

The world's largest raisin plant is Sun-Maid in Kingsburg, CA. The trademark on their boxes of raisins is universally recognized — a lovely lady holding a tray of grapes. She was marching in Fresno, California's Raisin Day Parade in 1915 when she was chosen to be "The Sun Maid."

Raisins are a nutritious carbohydrate food. They are naturally high in fiber and provide iron, potassium, phosphorus, calcium, magnesium and some B vitamins. In addition, raisins have no cholesterol or fat.

To keep raisins soft and moist after opening the package, store them in an airtight container in the refrigerator. Or you can store raisins in the freezer. They will thaw quickly and be ready to use. With good storage, raisins will keep two years in the refrigerator or longer in the freezer without loss of nutrients. If you did forget to seal up your raisins and they become dry or "sugary", put them in a bowl and cover with very hot or boiling water for about 5 minutes. Drain and pat them dry. If you wish to use the microwave, put raisins in a microwaveable dish, add 1 tablespoon water for each cup of raisins. Then cover with plastic wrap, leaving one side loose for a vent. Microwave on HIGH for 30 to 60 seconds. Stir, cover and let stand for 2 to 3 minutes.

Some recipes call for chopped raisins. Wipe a sharp knife with cooking oil from time to time while you chop. Or toss the raisins with a little oil, just to coat the surface.

In general you can interchange or mix the types of raisins in a recipe. In fact, mixing the natural seedless and golden seedless gives a nice combination of color and flavor.

Raisins and honey are a fantastic pair! Let's use them in some recipes. We'll start the day with a breakfast recipe.

Crunchy Raisin Granola

Although this makes an excellent breakfast granola, you can use it as a snack.

4 cups rolled oats
3/4 cup honey
1/2 cup butter or margarine
1 teaspoon cinnamon

1 teaspoon vanilla
1 cup flaked coconut
2 cups raisins
1 cup slivered almonds, toasted

Spread oats on two 15x10-inch baking pans. Bake at 350° for 10 minutes, stirring occasionally, until toasted. Set aside. In large saucepan combine honey and butter; bring to a boil. Stir in cinnamon and vanilla, then oats and coconut; mix well. Return mixture to baking pans. Bake at 350° for 15 to 20 minutes, stirring occasionally, until golden. Remove from oven; toss with raisins and almonds. Cool. Store in airtight container. Makes about 2 quarts.

Microwave Directions: Spread oats in a 9-inch glass square pan. Microwave on HIGH for 6 minutes, stirring every 2 minutes. Fold in coconut and set aside. Place honey and butter in 2-cup glass measure. Microwave on HIGH for 3 minutes. Stir in cinnamon and vanilla. Pour over oat mixture; mix well. Microwave on HIGH for 8 minutes, stirring every 2 minutes. Toss with raisins and almonds. Cool and store.

Touch Of The Sun 80th Anniversary Cookbook
Sun-Maid Raisins

Trio Medley

For lunch, there's soup or a sandwich and a salad. This is a delightful variation on carrot salad.

1 cup shredded carrots
1 cup shredded zucchini
1 cup shredded jicama
1/2 cup raisins

Dressing:

3 tablespoons sour cream (you can use the "light" style)
2 tablespoons apple juice
1 tablespoon cider vinegar
2 teaspoons honey
1/2 teaspoon grated fresh ginger root

Combine all salad ingredients. Combine all dressing ingredients; blend well. Pour dressing over salad, add salt and pepper to taste. Toss and serve. Makes 4 servings.

5-A-Day The Sun-Maid Way
Sun-Maid Raisins

Continued on Next Page

Raisin-Cot Figlets

How about a little mid-afternoon snack. You might also appreciate this as a midnight snack, too.

- 1 cup raisins
- 1 cup dried apricots, pressed in cup to measure
- 1 cup dried figs, pressed in cup to measure
- 1 cup blanched, slivered almonds
- 1-1/2 cups honey
- 1 cup milk
- 1/4 cup wheat germ
- 2 cups crushed wheat-flake cereal

Grind raisins, apricots, figs and almonds in food processor, blender or food grinder. In large saucepan, stir together honey and milk. Add ground fruit and nuts and cook over medium high heat, stirring frequently, until thick. Remove from heat and stir in wheat germ. Turn into an 8-inch square pan which has been lined with waxed paper or lightly greased foil or kitchen parchment. Refrigerate until chilled. Cut into 1-inch squares, and coat each in crushed cereal. Store in covered container.

Raisins Satisfy Healthy Appetites
California Raisin Advisory Board

Sun-Glow Chicken Curry

Dinnertime. Raisins and honey make a grand combination with chicken in this curry. The rice is an excellent accompaniment.

Coconut Rice

- 3/4 cup chopped onion
- 1/4 cup butter or margarine
- 1 cup long grain white rice
- 14-1/2 oz can chicken broth
- 1 cup coconut, toasted

Chicken Curry

- 1 onion, chopped
- 1 clove garlic, minced
- 1 tablespoon vegetable oil
- 1 tablespoon curry powder
- 1 tablespoon grated fresh ginger root
- 1-1/2 lbs boneless, skinless chicken, cut into chunks
- 2 tablespoons flour
- 1/2 teaspoon salt
- 14-1/2 oz can chicken broth
- 1 cup chopped tart apple
- 1 cup raisins
- 2 tablespoons honey

Prepare Coconut Rice: In medium saucepan, sauté onion in butter. Stir in rice and coconut. Blend in chicken broth. Bring to a boil, cover and reduce heat; simmer 20 minutes.

Prepare Chicken Curry: In large skillet, sauté onion and garlic in oil. Stir in curry powder and ginger. Add chicken; cook until chicken is no longer pink. Stir in flour, salt and chicken broth; cook until mixture comes to a boil and thickens. Stir in apple, raisins and honey. Simmer 5

minutes or until heated through. Serve over Coconut Rice. Makes 4 to 6 servings.
Touch Of The Sun 80th Annu. Cookbook
Sun-Maid Raisins

Whole Wheat Raisin Apple Bread

Raisin recipes would not be complete without something baked. Here's a bread recipe with a difference.

- 2 cups unbleached flour
- 2 cups whole wheat flour
- 2 packages active dry yeast
- 1/2 cup warm water
- 1 cup milk
- 3 tablespoons honey
- 1 tablespoon salt
- 1 egg, beaten
- 1/2 cup cracked wheat
- 1 cup raisins
- 1 cup peeled, chopped tart apple
- 1 egg yolk
- 1 teaspoon milk

Combine flours; set aside. Dissolve yeast in warm water. Scald milk. Add honey and salt to warm milk and gradually pour milk mixture into beaten egg. Add dissolved yeast. Stir in cracked wheat, raisins, apple and 3 cups flour mixture. Knead in the remaining flour. Place in greased bowl, turning to grease top. Cover; let rise in warm place for about 1 hour or until doubled. Punch down and form loaf. Put in greased 9x5-inch loaf pan; cover, let rise in a warm place until double, about 45 minutes. Beat egg yolk with milk and brush top of loaf. Sprinkle with additional cracked wheat. Bake at 375° for 45 to 50 minutes, or until loaf sounds hollow when lightly tapped. Remove from pan and cool on wire rack. Makes one loaf.

Raisins Everything Under The Sun
California Raisin Advisory Board

Sunny Honey Candy

And finally some quickly-made "candy" for the kids to make and for everyone to enjoy.

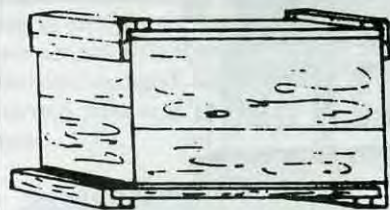
- 1/2 cup honey
- 1/2 cup peanut butter
- 1 cup non-fat dry milk
- 2 cups raisins (use one cup dark and 1 cup golden raisins for color variation)
- 1/2 cup chopped nuts

Blend honey and peanut butter together in bowl. Gradually add dry milk, mixing well. Mix in raisins and nuts. Shape into log. Wrap tightly and store in refrigerator. To serve, cut into 1/2-inch slices. Makes 3 dozen slices.

Raisins Everything Under The Sun
California Raisin Advisory Board

Yes, there are many more ways to enjoy raisins. Try your favorite recipes, but be sure to use honey — the perfect partner. ☺

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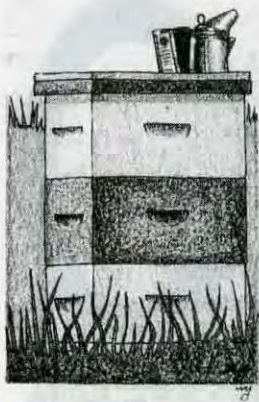
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BEE TALK

richard taylor

"Twenty plus years of writing this column have gained me many friends. And friends are good to have."

I realized today that I've been doing these bee talks for 24 years. That's a long time. I've never missed a deadline. And thinking about this got me to reminiscing. So I'm going to indulge myself on this winter day, with deep snow all around, and then next month (April - actually, this month), when the bees will again be coming and going, I can get back to the practical business of managing them.

It was my fascination with ants that got me into beekeeping. When I was a boy I would lie out in the yard by the hour watching ants, totally engrossed and, in school, when I was supposed to be doing algebra or whatever, I instead had my nose in an encyclopedia, reading about ants and fearing I would be caught. It would only have seemed frivolous to the teacher. Now you can imagine the effect upon me when, one summer day, I came upon two hives of bees. I was mesmerized, instantly smitten with the bee fever that was going to persist through my lifetime. I started learning all I could about bees, dreamed of them day and night and, before long, had a hive of bees of my own, purchased for four dollars and a half. Soon there was another, the product of my own crude carpentry. Meanwhile I had visited a well-known beekeeper and gotten my first sting - right on the top of my head. Within 30 minutes my entire body was covered with red welts. But I was undaunted, and it never happened again. I'm glad my mother did not learn of that. She would have rushed me to a doctor, and he would have told her never to let me go near a beehive again!

Those few years as a kid, keeping bees, changed my life and directed me towards its most precious blessings, not merely in providing an engrossing lifelong pursuit but treasures of the spirit as well. I discovered the meaning of serenity, even at that age when a boy's soul is so filled with tumult and insecurity. I helped an elderly beekeeper from time to time and we would go out to his apiary in a Model-T Ford to putter with his bees. It was a hillside setting, in a grove of locust trees, and the beauty and peacefulness of it still flow back on me after these several decades. This was the essence of mother earth, the vast and powerful nature that had brought me into being, to nourish me forever, and I shall never lose my reverence for her.


Sweet clover grew everywhere in the midwest in those days, and the honey flows were prodigious. I got comb honey from my two hives, and went up and down the street peddling it. The square sections were fifteen cents apiece, two for a quarter - Oh! how things have changed. But a loaf of bread was a dime, as was a quart of whole milk.

College and then military service interrupted all that, and in time I embarked upon a professor's life, but I never forgot the bees. In whatever part of the world I found myself my thoughts would go back to the bees, to that quiet locust grove and to my own two hives. Then one day, in the college library, I came across von Frisch's book about the dancing bees, which rekindled my bee fever to an

unbearable pitch. I had to get some bees, at once, and did so, ordering the beginner's setup from Sears and Roebuck. A lot has happened since that day - the good, the bad, sometimes the seemingly unbearable, but the bees have remained, like a steady keel, the one thing I can count on, always changing but still ever the same, a never failing fountainhead of serenity.

I think I have made many friends in these 24 years of bee talks. A few I have come to know, through correspondence, but most of them are, alas! unknown to me. I have no idea how long I have been doing the questions and answers. Quite a long time, and I'm sure I have made friends there, too. Now I find myself alone in the world, with two small boys to raise, and I am awfully in need of friends. Perhaps some of you will write to me, and I will find it deeply satisfying to respond. ☺

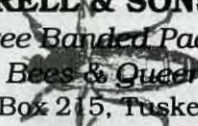
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QUESTIONS?

Over Kill

Q. Last fall I treated my bees with terramycin, Apistan and menthol, even though I did not know whether they had mites. The weather turned cool and I do not know whether the menthol worked. Should I repeat these treatments in the spring? And should I also treat for nosema?

George Piper
Torrington, CT

A. You are going overboard on medication. I think you should wait for signs of mites before you go treating for them. Menthol works only in warm weather, and you must not use it when there are supers on the hive, which sort of rules out spring use. Apistan should be used only when brood rearing is declining, that is in the fall, not when it is expanding, because the *Varroa* mites attack the brood. I never have problems with nosema and have never treated my bees for it. Instead, I try to have my hives well ventilated and up off the ground and free from stress.

Killing AFB

Q. What temperatures and durations are required to kill American foulbrood spores in beeswax and on woodenware. Can it be done at a home oven temperature of 300°F?

Mark Anderson
Bergen, NY

A. I have always considered that the only way to make contaminated beeswax safe is to melt it, and the only way to decontaminate hives is to scorch them on the inside. Frames can be treated by dipping in a solution of hot lye, but it is hardly worth it, considering the extreme danger of messing around with such a solution.

Reversing

Q. Is it necessary to switch hive bodies in the spring, and if so, why?

Web Hunt
Benson, VT

A. It is a good idea, but certainly not necessary, and I never bother to do it. It breaks up the brood nest, relieving congestion of brood and giving the queen more space to lay, thereby tending to postpone swarming. But it is not effective for preventing swarming.

Buying Mites?

Q. My bees do not have mites, and there is no beekeeper within miles. If I purchase queens by mail are they likely to introduce mites into my hives?

Robert Scott
Rock, WV

A. The fact that you know of no beekeepers for miles around does not at all insure that your bees will not get mites. It is probably only a matter of time before *Varroa* is in virtually every colony on this continent. But no, there is little chance of introducing *Varroa* mites through purchased queens, because queen breeders are able to take effective precautions against this.

Poor Taste

Q. I used extender patties, made up of Crisco, powdered sugar and soy flour, on all my hives. They all got eaten up by the bees, except one, which just dried up. How come?

Russell Willsey
Sebring, FL

A. My guess is that this particular hive was queenless, hence broodless, and the bees therefore had little use for the patty.

How Many Hives?

Q. How many hives can you put in one apiary? At what point do they become competitive with each other for nectar sources?

Tim Grove
Searsburg, NY

A. There is no way of answering this. Obviously it depends one how abundant the nectar flows are in a given area. My rule of thumb has always been about two dozen hives in any one spot, but I have had over 30 and it didn't seem to matter. In the midwest 60 in one spot isn't uncommon.

Too Much Room

Q. I tried raising comb honey this year on a colony in two deep hive bodies, but the bees never drew out the combs. Instead, they swarmed. I reunited the swarm over a double screen, and added a shallow super with plastic foundation. This they occupied and drew out, but not the comb honey super. How come?

Jean-Claude Bourrut
Jamaica Plain, MA

A. If there are empty combs in a hive the bees will always fill these before going to work in a comb honey super. So the solution is to use a smaller hive—single story or one-and-a-half story—and take steps to control swarming.

Questions are welcomed. Address Dr. Richard Taylor, Box 352, Interlaken, NY 14847, enclosing stamped envelope.

— ANSWERS!

Richard Taylor

Gleanings



APRIL, 1994 • ALL THE NEWS THAT FITS

Dutch Gold Tour A Highlight

EAS TO MEET IN PA IN JULY



In 1957, Ralph Gamber (pictured here) and Woodrow Miller designed the first plastic squeezable honeybear.

Lancaster, PA is not just the sight of the 1994 Eastern Apiculture Society's Annual Meeting, it is also home to Dutch Gold Honey, Inc. Dutch Gold is hosting two afternoons of tours (Thursday and Friday) and a special seminar during the EAS Short Course. Welcome to Pennsylvania Dutch Country!

Dutch Gold Honey owes its humble beginnings to an unexpected heart attack and the advice of the Gamber's family physician. At the age of 30, Ralph

Gamber suffered a heart attack. As he recuperated, it was suggested by his doctor that he find a hobby or two, something that would take his mind off the hassles of day-to-day business. With this suggestion, Ralph rekindled his childhood fascination with the honey bee. He and his wife, Luella, bought three hives in 1946 at a farm sale for \$27.00. That same year, the Gammers bottled their first jars of honey in their kitchen.

Dutch Gold's honey sold well in the Lancaster area. So well that Ralph soon had over 200 colonies and was buying honey from other local beekeepers to keep up with the ever increasing demand. Luella was primarily running the honey packing at this point, as Ralph still had a full time job as a salesman for a local food distributor, plus working the bees. So much for a relaxing hobby!

The honey operation first outgrew the Gammers kitchen, then the basement and finally the garage. The first honey house was built in 1953, across the street from the Gamber home. The building was designed to match the exterior style of the other houses on the street. Just in case the honey business went sour, there was always the possibility of a rental property.

Fortunately, the honey business prospered and several addi-

tions were added to the original honey house until there was no more room for growth. By this time, Ralph and Luella's children, Bill, Marianne and Nancy, were beginning to become involved in the business as full-time employees.

A 20-acre farm was bought on the west side of Lancaster and a processing and packaging plant was built in 1974. The past 20 years have seen several expansions to this site. The current plant boasts 100,000 square feet of space, four high speed filling lines, bulk handling facilities, three large heated rooms for honey reliquification, filtration equipment and a honey quality lab. Dutch Gold sells honey for the retail market, for food service and to food manufacturers.

Dutch Gold is processing over 30 million pounds of honey annually in this one facility. Ralph, now 82 years old and Chairman of the company, can still be seen at the plant 10 hours a day, managing the important task of blending the honey. Luella is finally enjoying a very overdue retirement as of 1992. Bill and Nancy are involved in the day-to-day operation of Dutch Gold Honey, while their sister, Marianne, primarily focuses on the business of Gamber Container, Inc. a separate company that shares office and warehouse space with Dutch Gold.

The Gammers and the Dutch Gold Family look forward to their friends at EAS visiting while in Lancaster.

NON-APIS BEE BUSINESS TAKING OFF

Bees that call Arizona home may be more efficient plant pollinators than honey bees, boosting fruit and vegetable production in fields and commercial greenhouses, says Stephen L. Buchmann, an entomologist with USDA's Agricultural Research Service at the Carl Hayden Bee Research Center in Tucson.

In the February issue of *Agricultural Research* magazine, he reports finding a native bumblebee, *Bombus sonorus*, that is 500 times faster than the normally reliable honey bee in pollinating tomato flowers.

Buchmann hopes similar studies will locate the best bees for commercial crops. Alternative bees – other than the traditional standby, the European honey bee, *Apis mellifera* – are big business in some places, he notes.

In Europe, about a half-dozen commercial bee producers rear 80,000 to 100,000 colonies of bumblebees to pollinate greenhouse-grown tomatoes. And in Bonita, AZ, a Dutch-owned company recently opened a 10-acre tomato greenhouse, using about 20 bumblebee colonies for pollination. This native bee is known as *Bombus occidentalis*.

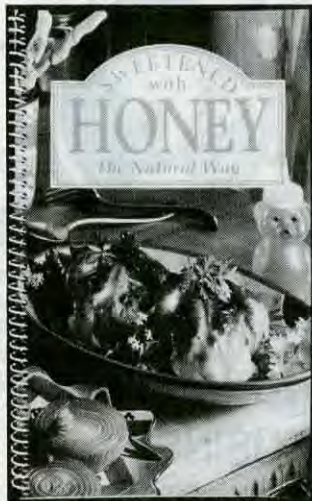
European honey bees efficiently pollinate crops worth more than \$10 billion every year. These bees "accidentally" pollinate plants as they move from flower to flower collecting nectar and pollen for the colony.

But non-*Apis* bees are required to pollinate other crops effectively – such as tomatoes, chili peppers, egg plant, and even cranberries

Continued on Page 246

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HONEY BOARD COOKBOOK



The National Honey Board Cookbook *Sweetened with Honey - The Natural Way* is now available for purchase.

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For orders of 10-99 cookbooks, the cost is \$1.75 each. For 100 or more the cost is \$1.25 each. If you wish to purchase *Sweetened with Honey, the Natural Way* in large quantities, please send a check or money order to: Cookbook, National Honey Board, 421 21st Avenue, Suite 203, Longmont, CO 80501.

(Note: Colorado residents, please include 3% sales tax.) Please allow four to six weeks for delivery.

NON-APIS ... Cont. From Pg. 245

and blueberries, says Buchmann. Often called "buzz pollinators," some non-*Apis* bees pollinate blossoms while they collect high-protein pollen to feed their young.

"One native that looks promising for pollinating tomato plants," says Buchmann, "is a giant carpenter bee or *Xylocopa*. It performs buzz pollination when it curls its body around the pollen-containing anthers.

"This bee flexes its powerful flight muscles so fast that they create sonic energy that causes pollen to shoot out of the hollow-pored anthers on the tomato flower. So much pollen is released, that it looks like a cloud, enough to pollinate the flower

and to stick to tiny hairs on bees," adds Buchmann.

"We want to develop artificial nests to make mass rearing of the buzz pollinators possible. The most promising material seems to be several different kinds of woods and bamboo," says Buchmann.

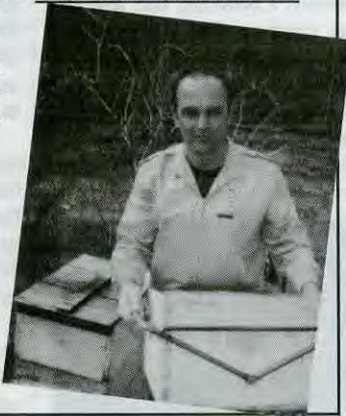
He is recording how various species of buzz pollinators thrive under different temperatures and humidities. Three carpenter bee species native to Arizona seem very hardy, he says. They survive at daytime temperatures above 115°F, low relative humidity and little moisture. These bee populations could be kept over winter for use year after year.

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Who'll Pay The Taxes?

MAIL ORDER BEE AND SUPPLY BUSINESSES THREATENED

Sen. Dale Bumpers (D-AR) has introduced a bill authorizing states to require out-of-state firms to collect both state and local use taxes on their mail order sales.

The bill, officially dubbed the Tax Fairness for Main Street Business Act of 1994 and co-sponsored by Sen. Thad Cochran (R-MS), is seen as a direct response to the Supreme Court's May 1992 decision. That decision reaffirmed its National Bellas Hess ruling prohibiting the collection of taxes on mail order sales in states where the seller has no connection.

Direct Marketing Association president/CEO Jonah Gitlitz immediately issued statements condemning the Bumpers bill.

"This legislation would have a negative impact on consumers," he said in a prepared statement. "The hardest hit would be the elderly, the disabled, families living in rural areas and single parents who rely heavily on mail order services. The complexities of state tax laws would intrude into the lives of 101.6-mil-

lion American consumers who shop at home particularly the 33% who pay by check and would have to figure the tax on every order. These complicated and aggravating tax calculations would eliminate the convenience of mail order."

Gitlitz added the tax would hurt direct marketers—the majority of which are small businesses—and could threaten some jobs in the roughly five-million-employee industry.

The bill will likely be referred to the Senate Finance Committee and the House Ways and Means Committee for a joint review.

According to an outline of the bill companies with total national sales of less than \$3-million would be exempt from collecting the tax. Nevertheless, the tax would apply when a company's annual sales in a specific state exceed \$100,000.

The proposal also calls for states to collect "local taxes on behalf of local jurisdictions."

From DM News

Bees Are On The Hit List

ANIMAL RIGHTS NEWS

The world at large should be getting tired of naked PETA (People for the Ethical Treatment of Animals) protestors who don't like fur, but the bare-skinned shock troops keep showing up across the globe. In Paris and London, the "I'd Rather Go Naked than Wear Fur" protests resulted in arrests for the demonstrators, including PETA honcho Ingrid Newkirk, arrested in London. The *Guardian* newspaper reported that Lord Sutch, who was supposed to join the PETA parade, didn't show, and that the weather was so cold Newkirk's "tattooed flesh (was) covered in goose pimples."

In Washington, DC due to a vague indecent exposure law, protestors who snarled rush hour traffic on one of the Potomac Rive bridges went free. According to the *Washington Times*, a policeman told the protestors it was okay to show "boobs or butts," but they would be fined if they exposed any more.

The Feb. 4 *San Diego Union-Tribune* reports the Federal Bureau of Investigation has joined local San Diego authorities investigating two cases of arson against local meat companies, allegedly performed by an animal rights group calling itself the "Farm Animal Revenge Militia."

The San Diego Meat Co. was hit in the early morning of Jan. 31, the paper reports, with an estimated \$75,000 in damage done to a building and its contents. The company was also attacked late on Jan. 27, when two of its refrigerator delivery trucks were set afire with a flammable liquid.

Investigators found the slogan "Meat is Murder," and the acronym "f.a.r.m." spraypainted on the company's building. Later a man claiming to represent the Farm Animal Revenge Militia contacted a

local TV station and claimed to have started the fire.

The "Meat is Murder" slogan was also found following an Oct. 7, 1993, arson at the City Meat Co., Claremont, CA, when a van was torched.

Animal Industry Foundation President Steve Kopperud said the group name is a new one, but that doesn't necessarily mean anything. "These groups will change their names frequently," he said. "The key is that the pattern is similar, as are the slogans and other means of operation."

From the *Wisconsin Veal Journal*; World famous chef Julia Child, perhaps the first to identify the "fear-of-food" syndrome in this country, is interviewed in the December/January issue of *Modern Maturity* magazine, and after commenting on "culinary missteps" in this country, Child offers the following:

"Another problem is young people who don't have any idea about livestock. They've never been on farm, yet they make this to-do about veal. Animal rights people are difficult to deal with. They never knew that, in the old days, you raised a calf up next to its mother. Or if you had a lot of male calves, you just threw them in the ditch."

Cajun Chef Paul Prudhomme, featured in the same article comments, "It's sad we treat animals better than we do other human beings, and Child responds, "It certainly is."

In what could have been the triple crown of animal rights protesting, activists missed the bet when the National Turkey Federation (NTF), the American Sheep Industry (ASI) and the National Cattlemen's Assn. (NCA) held back-to-back-to-back conventions in Reno, NV, during January.

All three organizations reported about four protesters showed up, chanting the predictable slogans. NTF reported the initial protests at its meeting generated favorable coverage for NTF on two of three local TV stations and in the Reno newspaper. One tongue-in-cheek TV spot ended with the reporter sitting in a deli, asking the viewer if sympathizing with the animal rights movement was worth giving up turkey sandwiches.

A press release was sent to local media just prior to the NTF meeting in early January, indicating PETA was sponsoring the demonstrators.

The above information was gleaned from the newsletter of the Animal Industry Foundation, the voice for poultry and livestock producers. For more information, contact them at A.I.F., 1501 Wilson Blvd., Suite 1100, Arlington, VA 22209.

KS QUEEN



The KS Honey Producers began their honey queen program in 1964. On October 22, 1993, they crowned a Tonganoxie, Kansas woman to serve as the 30th Kansas Honey Queen.

Tiffany Keithley, daughter of

Bill and Patricia Keithley, was crowned at the Kansas Honey Producers fall convention held in McPherson, Kansas. Miss Keithley is a senior at Tonganoxie High School where she is a member of the National Honor Society and is involved in choir, debate and forensics.

The Kansas Honey Queen program is sponsored by the Kansas Honey producers Ladies Auxiliary. For information regarding appearances by the queen or queen candidate information please contact Melissa Ostermeyer, 24091 Haigwood Road, Tonganoxie, Kansas 66086.

Honey Co-ops Part of the Program

CO-OPS CELEBRATE 150 YEARS

In 1844, a small group of people opened a little store at 31 Toad Lane, Rochdale, just 12 miles north of Manchester in northern England. From that humble beginning the principles and practices of cooperation have now spread across the world. Although there were many cooperatives that preceded the one founded in Rochdale, the principles and practices of these Rochdale Pioneers defined a cooperative business and assured the success of the cooperative model.

The Cooperative dated its establishment as August 15, 1844; was incorporated on October 24, 1844; and opened its doors on December 21, 1844.

Twenty-eight people founded the Cooperative. Many were weavers, but other occupations – shoemaker, cabinet maker, tailor, printer, hatter, engineer – were also represented. Their aim was to make their meager wages go farther by cutting expenses.

Samuel Ashworth is credited with taking the shutters down and declaring the Co-op open on that Saturday evening in December, the longest night of the year.

The Co-op moved to a larger location in 1868. The original store was purchased by the Cooperative Union of Great Britain in the 1920s. In the 1970s, it underwent major structural changes to assure its safety and was reopened as a museum.

The first employees, Samuel Ashworth and Thomas Cooper, agreed to open the store and serve as shopmen. If the store did not show a profit in the first three months, they agreed to take nothing for their services. However, if it did, they were to receive three pennies per hour for a total night shift payment to them of nine pennies per night.

The three-year lease called for the rent to be paid three months in advance. Mr. Dunlop, the owner of the building, would not accept the Co-op as the tenant. Charles Howarth, one of the original Pioneers, stepped forward and offered to be the lessee and guaranteed the annual rent of 10 pounds.

The board authorized the sale of four items – butter, flour, oatmeal and sugar. When the gas company refused to light the store, the staff purchased candles for

opening night buying them in bulk and selling the remainder.

The opening inventory was 16 pounds, 11 shillings and 11 pennies, about \$26 in today's money.

Initially, the shop opened only two nights per week from 8-10 p.m. By March of 1845, they were open every night except Sunday and Tuesday.

After a full year in operation, the store had 74 member households, had raised \$181 in capital, had registered \$1,100 in sales, and had netted \$22 in savings/profits. (The average weekly wage at the time was \$1.50.)

Today, the original shop once rented by the Pioneers is dedicated to preserving and displaying the history of the cooperative movement. The building which houses the Co-op Shop was built about 1790 and is the center of a small historical district.

The front room of the first floor of the museum depicts the simplicity of the original store with its meagre supply of the first few products of sugar, butter, flour, oatmeal and tallow candles. Nearby are the benches where members waited to be served, the scale where their purchases were weighed and the desk where their purchases were entered into the books of the cooperative.

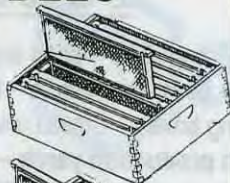
Upstairs was originally a school and a chapel which the Co-op took over in 1848. Initially, the Co-op operated a library and class room on the second floor and a drapery and shoe repair service on the third floor. When the building was extensively remodelled in the 1970s it was decided that the Museum would be structurally safer if the third floor was removed. As a result, the second floor of the museum is a lofty and well lit meeting and exhibition hall with a souvenir counter.

Each year the museum hosts thousands of visitors.

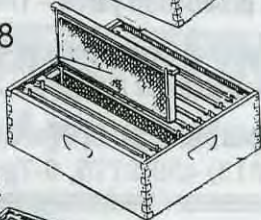
Today 700 million people around the world share the cooperative legacy of the 28 founders of the Rochdale Equitable Pioneers Society. In the United States, 120 million people are members of a network of 47,000 cooperatives. The Rochdale pioneers would be proud of the progress of the cooperative idea since 1844.

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