Bee Culture

MARCH 1993

INSIDE

- spring feeding
- dead colonies
- swarm retriever
- beeswax polish
- honey plant record

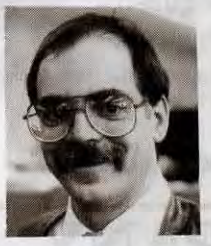
FEMALE TRACHEAL MITE LOOKING FOR HOST. DEAD COLONIES USUALLY RESULT. MITE RESEARCH CONTINUES, PAGE 137.
(Tom Webster photo)

Mar

COLUMNS

DEPARTMENTS

JOHN ROOT
Publisher



KIM FLOTTUM
Editor

John Root *Publisher*
Robert Stanners *Assoc. Publisher*
Kim Flottum *Editor*

Kathy Summers *Production Coordinator*
Susan Steppenbacker *Photo Supervisor*
Diana Sammataro *Consultant*
Buzz Phillips *Circulation Director*

Dawn Feagan *Circulation & Advertising*

Contributors: *Roger Morse, Richard Taylor, Michael Burgett, Dewey Caron, Jeff Ott, Dick Bonney, B.A. Stringer*

Subscription Rates:
United States, one year, $15.00; two years, $28.00. Newsstand Price: $1.95. All other countries, (U.S. Currency only), $7.50 per year additional for postage. Send remittance by money order, bank draft, express money order or check. Published monthly. Change of Address: Return completed form contained inside issue. Articles are solicited opinions expressed by the authors are not necessarily those of the publishers.

Advertising:
For information on placing display advertisements, contact our Advertising Dept. 216-725-6677 Ext. 220.

Postmaster:
Please send form 3579 to: The A.I. Root Co., 623 W. Liberty St., Medina, OH 44256. Tele. 216-725-6677.

Circulation Figures reviewed by Deloitte & Touche. CPAs.

The A.I. Root Co., Publishers 623 W. Liberty Street Medina, Ohio 44256

VOL 121 ◊ NO 3

ch '93

FEATURES

IBRA

INNER·COVER

I was recently interviewed for one of those profile pieces you sometimes see in the local paper. My background and occupation had been found of enough interest by some editor that the reporter who pitched the story got the green light.

I had worked with this inquisitive lady before and we were somewhat acquainted, already on friendly terms. This wasn't going to be difficult or take too long. I thought.

She arrived exactly on time and after a few pleasantries, started with one of those open ended rhetorical questions good reporters use to get you going.

"So", she said, kind of matter-of-factly, indicating small talk was over and now I should pay attention. "You're into beekeeping?" Definitely a question.

I heard her clearly enough, and I understood the question perfectly. But right then something strange happened. It was like a 'pause' button was pushed somewhere, and everybody and everything stopped. Except for me. Machinery outside the office fell silent and the clock stopped mid-tick. Even the reporter didn't move, her pen poised just above the skinny notebook she used, still wearing that quizzical smile people have when waiting for you to answer a question. She didn't move a muscle. There was no sound. I sat back, sort of startled I guess. Nothing moved but my chair. It was weird. It was the Twilight Zone.

But the part of my being that acknowledged this impossibility at the same time ignored it, and my mind moved on. I sat back further and thought about this simple question.

"Was I 'into' beekeeping?" I wondered.

"Well, yes, I guess I am", my thinking went, "but there's really a lot more."

For instance, would you say a beef producer was into cows? Of course. But that producer is probably 'into' tractors and corn, hay and meat prices, a breeding program and land values, too. Labeling this person a mere cowkeeper would be a slight (and probably dangerous, face to face).

"So it should be with beekeepers," I thought.

We keep bees, certainly. But we're botanists and nutritionists, too. Carpenters and mechanics. We're 'into' sales and marketing, teaching and the environment. Even though the label 'beekeeper' may encompass all of these for you, it too often doesn't for citizens who know us only marginally.

We are 'beekeepers', and from their perspective we are simply whiteclad individuals surrounded by smoke, bees and honey. The rest is mostly invisible and unknown. Sound familiar?

I turned, reached for my coffee cup and took a slow deep drink, then I replaced it very carefully, exactly in the same spot. It seemed a long time had passed since the reporter had leaned so slightly forward with that simple question. And she hadn't moved, hadn't written a word, hadn't, I realized, even taken a breath. It was very quiet, and very easy to let the thought process flow.

"If, then, "I considered, "beekeeper, or beekeeping isn't the whole story, what could I say that would tell more? What 'label', what name, what sound bite sums up all we are, all we have to be to be what ever it is we are."

I wondered for a while longer. But just a while.

The instant I was aware of the obvious, the sounds of the machinery outside started to revive, like somebody was ever so carefully turning up the volume. The clock began again. A slowly steady beat, but faster and louder with every tick. That somewhere-remote had gone from 'pause' to 'slow motion'

The reporter? She took a shallow breath, or maybe finished what had started earlier, and her pen moved just a hair closer to the notebook, ready to record.

"Yes", I started slowly, "but 'keeping bees' is as much a part of what I do as keeping cows is to a cattleman.

"What I'm 'into'" my voice and the world now back to near-normal speed, "is the honey bee industry, which not only includes keeping bees, but knowing honey plants, packing honey, selling your product and promoting your trade.

"I am", I said, "A Honey Bee Industrialist. That's what I'm into!"

The reporter was breathing normally again, and writing.

"A Honey Bee Industrialist", she mumbled into her notebook, "I like that, it's new"

I heard a car horn outside, blaring over the now normally loud machinery. The 'pause', or whatever it was, had lasted only a bee's single wing beat. All, it seemed, had returned to normal.

The piece was good though. Positive stuff, without stings or killer bees mentioned once. It headlined pollination and the epic journey each spring to California's almond acres. It covered urban restrictions and state quarantines and looked at how our product gets from bee to bottle. And "Honey Bee Industrialist" made the story.

So now, I want you to join with me and enter this brave new world. Transcend the mundane. Cast off the simple beesuit of beekeeper. Assume the mantle of Honey Bee Industrialist! Who knows, it might just catch on.

(But watch for that 'pause' button. It's definitely weird.)

Kim Flottum

Pause

Reader Assistance

To subscribe to *Bee Culture* remove or copy the form below, fill it in and return it and your remittance to the address at the bottom. Please allow 3 - 5 weeks for your first copy to arrive. And Thank You!

☐ Please Renew ☐ New Subscription ☐ Send Sample

☐ **2 Years - $28.00** ☐ **1 Year - $15.00**

Foreign Postage — $7.50/year additional for Foreign and Canada.
Find my enclosed check, or charge to my Credit Card.

Name _____

Address _____

City _____ State ____ Zip ____

Please check one.

☐ Visa
☐ MasterCard
☐ Discover

Signature _____ Expiration Date

Send remittance and form to:
Bee Culture, Subscription Department, P. O. Box 706, Medina, Ohio 44258

Subscription Problems. Questions?
Call 1-800-289-7668 – No problem too big or too small. We will help.

ADDRESS CHANGE

If you are moving, please fill in the form below so we can process the change without undue delay. Also, if you have 2 addresses during the year (i.e., winters in Florida and summers in Connecticut), let us know which months you spend where and we can pre-program your address change so you will find us waiting when you move — No Delays, No Fuss!

FOR PERMANENT CHANGE:

Name: _____

Old Address: Street _____

City: _____ State ____ Zip ____

New Address: Street _____

City: _____ State ____ Zip ____

FOR TEMPORARY CHANGE:

Name: _____

Address No. 1: Street _____

City: _____ State ____ Zip ____

Circle Appropriate Months: J F M A M J J A S O N D

Address No. 2: Street _____

City: _____ State ____ Zip ____

Circle Appropriate Months: J F M A M J J A S O N D

Send to: The A. I. Root Co., Subscription Dept., P. O. Box 706, Medina, OH 44258

- *Bee Culture* is available on microfilm from: University Microfilms, Inc., 300 N. Zeeb Rd., Ann Arbor, MI 48103. Second Class Postage Paid at Medina, OH and additional offices.
- Circulation figures are reviewed by Deloitte & Touche Accounting/Auditing.
- We encourage letters to the editor on any subject whether appearing in the magazine or not. Direct your letters to: Editor, P. O. Box 706, Medina, OH 44258. We reserve the right to edit letters for content and length, but will avoid this if possible.

POSTMASTER: Send Form 3579 to:
623 W. Liberty St., P.O. Box 706, Medina, OH 44258-0706, (216) 725-6677 • FAX No.: (216) 725-5624

NEXT MONTH

April. The word, some believe, is derived from Aphrodite, the Greek goddess of love and beauty. The meaning applies equally well to the fourth month, and the first deep breath in the beekeeping year. Some have already been hard at work, preparing for what's yet to come – raising queens, making splits, moving colonies and increasing the bounty of the land with their service of pollination.

Swarm season begins in earnest soon, and there are a thousand ways to capture those elusive, mobile creatures. Some work better than others, some don't work at all. Our Weekender examines several ways to cut short that freedom flight and bring home the bees, whether from one of your own, or an unknown source, and gives the low-down on how to get some of those way-up bees. Watch and see.

Several times this year we've mentioned the care, feeding and making of good records. Simply put, good records make good beekeepers. But there are more ways than we can count to keep good records. O.B. Wiser has yet another way to remember what you did and when. Make a note. Record Keeping, Again.

Prodigious? Gigantic? Incredible? What words describe Georgia in her beekeeping prime? May is the busiest of all the busy months in the Empire State of the South, and Keith Delaplane gives a detailed look at what goes on when it all happens, which most of it does in May, in Georgia. Don't miss this Inside Edition from Georgia's Extension.

Finally, the 1993 Who's Who in North American Beekeeping appears in April. The only Directory of its kind. The only Directory you'll need. In *Bee Culture*. In April.

MAILBOX

■ Do I Need Insurance?

How small is small and how large is large? This is often the most asked question in the insurance business. Hobby beekeepers say, "I only have two hives, how much damage can they do?" To me that is like saying, "I only have a 22 cal. rifle, how much damage can this little thing do?"

Hobby beekeepers have the same liability opportunity as a commercial operator, and sometimes it may be larger. Many backyard beekeepers may have the benefit of their homeowner's liability policy to fall back on in case of a problem, such as a bee sting or bee markings on other people's property. In any case, you should call your homeowners insurance carrier and ask if your liability policy covers your hives in the backyard. If you have them away from your home, see if your liability extends to the other location. If you do ask, be prepared to 1) have your policy cancelled, or 2) have a business pursuits premium charged to your policy, or 3) the agent to tell you "no problem"

If you are selling honey then you need products liability protection. You can get this two ways. The first is to have a business pursuits endorsement added to your homeowners policy to include products. The second is to purchase a products liability policy. No if's, and's or but's about it, you should protect yourself.

Insurance is a pain and another major expense for any beekeeper, but it is important to protect yourself. You can purchase $1,000,000 of liability coverage to include products for as little as $375 per year. Now it is important to ask yourself, how small is small and how large is large?

Roger Starks
South Dakota

Ed. Note: Mr. Starks is in both the insurance and beekeeping business.

■ Hybri-update

This letter is to inform all interested readers that the annual meeting of the Shareholders at Hybri-Bees, Inc. was held at the Sheraton Crown Hotel in Houston, TX on January 9, 1993. The meeting was called to order by President Morris Weaver. Represented at the meeting were Richard Adee, Bob Banker, Dewey Robson, William Robson, Dick Ruby and Harvey York.

Accomplishments of the past year were reviewed and goals for the coming year were established. The ongoing program for Tracheal mite and Varroa mite resistance was reviewed. Several lines have shown great promise and should be in the Starline grafting mothers next year. Hybri-Bees will also be certifying all breeder queens for European characteristics in 1993. Hybri-Bees, Inc. would like to inform the queen producing industry that they will be accepting applications for a limited number of breeder-cooperators for the 1993 season.

The Shareholders expressed their satisfaction at the progress during the past year. The philosophy of all involved at Hybri-Bees has been to reinvest any profits realized into an expanded stock selection and stock development program. The Shareholders were pleased with the efforts of all involved with the corporation. Everyone remains optimistic that 1993 will be a good year for all involved in the beekeeping industry.

Mel Greenleaf
Executive V.P.
Hybri-Bees, Inc.

■ Buckfast Explained

One of the most frequently asked questions about our BUCKFAST QUEENS is whether the ones we produce are just like the queens produced at Buckfast Abbey. The short answer is, "No, they are not. We have improved them to suit North American conditions and beekeeping practices."

Most beekeepers do not know that the only queens raised at Buckfast Abbey are those to be distributed to cooperators as basic breeding stock, and those raised for further breeding experiments at the Abbey. No production queens are raised there.

Br. Adam maintained several lines of queens. It has been our experience that a cross of two of the lines resulted in better production queens than those produced by breeding from only one line. However, breeding from two lines is not as simple as it might seem because some of the available lines cross better than others. Therefore it is necessary for us to do quite a lot of experimentation and breeding work to produce breeders that we use for raising production queens that are outstanding for North America, and other parts of the world with similar conditions and practices.

Here are two examples of our breeding work. Some of the lines from Buckfast Abbey were highly susceptible to Chalkbrood. We had to breed away from that bad characteristic. One of the lines was quite aggressive. We had to breed for gentleness. Breeding for one characteristic, such as gentleness, or for color, is quite easy. But breeding for all the charac-

Continued on Next Page

MAILBOX

teristics necessary for an outstanding breed is very complicated, and requires a great deal of experimentation. Many desirable characteristics must be maintained while the undesirable characteristics are eliminated. It is a continuous process that has fascinated me for many years.

Roy S. Weaver, Jr.
Weaver Apiaries, Inc.
Navasota, TX

■ (More) FIRE!

I forgot to send my check for resubscribing so I missed December. I'll survive, I hope.

In the meantime it has been snowing and sprinkling and snowing so that the ground is at last beginning to acquire moisture. This will maybe slow down the grass fires and forest fires in this area next year if the weather continues snowy and wet.

I lost one yard of bees with the honey still on them from a grass fire. I was using a bee blower and just got one super off when the fire started. I barely escaped with my truck and my life as the fire surrounded me and was about to cut off my only escape route. I managed to drive thru some thin fire areas in time. That fire cost me about $4,000. I thought you might like to hear about this.

John Bruce
Goldendale, WA

Editor's Note: Mr. Bruce has contributed in the past to *Bee Culture*, and has been a life-long beekeeper. His stories are always interesting.

■ New 'Rural' Editor

The quarterly magazine *Rural Heritage* has a new address and new editor. The new address is 281 Dean Ridge Lane, Gainesboro, TN 38562. The new editor is Gail Damerow, author of five books and numerous magazines articles, including "Honey Ice Cream" in the June 1992 issue of *Bee Culture*.

Rural Heritage was established in 1975 to provide readers with solid information about practical problem solving and down-to-earth country skills. We plan to carry on that tradition.

For information on *Rural Heritage*, write 281 Dean Ridge Lane, Gainesboro, TN or call (615) 268-0655.

Gail Damerow, Editor

■ More bees, same hives

How about an article on adding/hiving a swarm of bees to an existing hive? This is something I would like to try this coming swarm season as I only wish to add one hive to my apiary but there is always an abundance of swarm calls made to our local bee club.

Thanks. I really enjoy *Bee Culture*.

Bob Jochums
Sebastopol, CA

Ed. Note: Our Weekender has an ar-

MAILBOX

ticle on related aspects of swarms appearing next month. Stay tuned.

■ Appreciates Efforts

In the Jan. '93 *Bee Culture* Inner Cover we were asked if we had taken time to notice a few things in life that always seem to be there when you wanted them and needed them most. It went on to name quite a few of those things that we should always appreciate. I'd like to add one more to that list. "The staff of *Bee Culture* and the people who take time to study and write articles for us." For their dedicated service to the beekeeper, for research, for keeping us informed of advancements in our science and warnings of potential problems, for traveling and spending long hours away from home in pursuit of keeping us informed and happy – my deepest appreciation goes out to them.

Bill Holden
Topeka, KS

Editor's Note: From all of us, Mr. Holden, thank you very much.

■ *Gleanings* Gone

Concerning your name change, I have been a subscriber (and beekeeper) for five years but have never felt compelled to write you until now.

You say "less than 2% of your readers now have an agricultural background" but it seems to me that figure is closer to 100%. After all, as you, and many of your contributors often point out – beekeeping is an agricultural pursuit.

After 120 years with the word Gleanings an integral part of your name, to arbitrarily drop it without input from your readers seems (to me) to be quite capricious on your part.

I have always felt that your name was unique among magazines but now, there is not much distinction.

Please consider returning to your "Roots"

Brian Buchwach
Bothell, WA

•

What have you done to our magazine, *GLEANINGS in Bee Culture*? It has *always* been *GLEANINGS in Bee Culture*, or, for most of its devoted readers, just *GLEANINGS*. What are you trying to do, kill the magazine we love? The name, *Gleanings*, was, I believe, suggested by one of A.I. Root's secretaries. She seemed to have a gift for this sort of thing. It was she who suggested the headings that over the years became so well known, "Siftings" and "Stray Straws", and I believe a few others. Oh! Please don't do this. Next month let me find in my mailbox my copy of *GLEANINGS*. I don't want to find something so unimaginative as *Bee Culture*. Dear me. Why this drift to the drab?

Richard Taylor
Interlaken, NY

•

We (my wife and I) think that your photo looks good on the masthead of *Bee Culture*, however, we think that you made a mistake in dropping the word *Gleanings* from the title of your magazine. Sometimes there is merit to tradition and we think that this is one of those times.

J. Spencer Overholser
Wyomissing Hills, PA

•

The January issue of *Gleanings in Bee Culture* arrived recently, and as usual it is full of interesting information.

No, I did not immediately notice the elimination of the word *Gleanings*, but I have noticed that you have been phasing out the word gradually over the last year or more. Most of my recent issues of *Gleanings* have the address label applied over the word *Gleanings*, and I assumed that was just another interesting step in the phase-out process?

By eliminating *Gleanings* you leave the words *Bee Culture* standing alone. Culture is of course the study of a science, but the magazine is not the culture; it is what is IN the magazine that counts. Consequently, to be gramatically correct, you need a qualifying word or two: – MAGAZINE of B.C.; JOURNAL of B.C.; NEWS of B.C., or better still *Gleanings in Bee Culture*. Why make any change?

Many beekeepers have become proud of the magazine. The word *Gleanings* means much, and stamps it as an up-to-date magazine with a noble and proud past. Your reasons for the change seem flimsy, to say the least, and suggest that you are more proud of getting rid of the name *Gleanings*, than you are of its very creditable 120 years of service. You are throwing out a long term asset, and reducing the magazine to a periodical with no background. You might want to think this over again, before it is too late?

Ronald Wright
Hudson Heights, Quebec, Canada

■ Tough Bees

I have been a hobby bee "haver" (I used to consider myself a beekeeper) for about ten years, and seemed to enjoy some degree of success until last year.

Last Spring I checked my bees and found several colonies that were dead. Some of these colonies still had more than sufficient stores to get them through.

Many of the dead colonies were in an apiary which, I was told, had been sprayed the previous year. The county bee inspector made his rounds and we found more that were dead. I explained what had happened about the spray and he was under the impression the bees had been spray-killed. Some of the bees that were still living were making some honey, but just didn't seem to be doing as well as they should.

In August the bee inspector came to check my bees for mites. At this time we found more that were dead, and we removed surplus honey from some colonies. He took samples from all of the hives that were still alive and using the ether roll test, found a heavy infestation of varroa mites in all samples. The inspector sent the samples to the USDA laboratory in Beltsville, MD, and the results came back positive for both varroa and tracheal mites.

As of this date all of my bees are dead except for three hives which I bought from Blue Ridge Apiaries at Cayce-West Columbia, South Carolina. I intend to replace my bees from this same source this spring, because they are supposed to have a resistance to mites. My experience seems to support that point.

Wendell M. Moxley
Barnesville, OH

GUEST EDITORIAL

steve taber

PLASTIC AGAIN

What an honor! To have an editorial written with me as the primary object! I am always pleased when someone reads my articles but to actually write about what I have written is something else.

To begin with I am not flattered when people agree with me. On the contrary. I relish it when people (beekeepers, bee scientists) do not agree with me. In fact there can be no "science" when all people agree. From the earliest gatherings of scientists there have been disagreements, sometimes violent disagreements. Consider the debate that has raged since the time Charles Darwin expounded his theory of Evolution-Who came first, monkeys or people?

Now then, my article in *Bee Culture* in Sept, 1992 was primarily concerned with helping beekeepers be better beekeepers by showing them one way to watch their bees. If you have a nice comfortable place to sit while you watch your bees you can do a much better job watching. Simple.

Unfortunately most bee research today is done in the laboratory and not the bee yard, and most of the people doing this bee research don't know much about bees. They know chemistry, biochemistry, microbiology, physiology, genetics and so forth. On the other hand, hobby beekeepers who are good watchers can make major contributions to our knowledge of bee behavior.

A prime example of a beekeeper who decided to watch his bees (but did not use a rocking chair) is Alois Wallner, the Austrian commercial beekeeper who developed a test and selection procedure for varroa resistance in his bees. His book, entitled *Imkern heute*, (available from Radinger, 3270 Scheibbs, Austria) has a photograph of a comb which is obviously not plastic nor does it have plastic foundation.

The first time I worked with artificial comb was in 1941 when I was with Elton Lane of Trumansburg, NY. He and his son operated about 1,800 colonies. A few of the combs were made from aluminum sheets that had been folded and pushed together in the shape of a bee comb. If I remember correctly he bought several thousand but didn't like them. I could see why because the combs had not held their proper shape in use.

The second time I used artificial comb was when I was at the Tucson, AZ, USDA, Bee Lab where we received combs made from four different plastic materials to test.

These plastic combs were very unsatisfactory right at the beginning because they contained a plasticzer that was toxic to the brood, and prevented most eggs from hatching and developing. After a few years of use these combs were better, but by then they started to warp and bee space became such that brood could not be reared in them. By the time I left, in 1979, most of the plastic combs had been discarded.

Some scientists at the Tucson Lab had combs built on the new (at that time) plastic foundation. It would frequently warp out of shape and if the bees had a chance they would begin to eat the comb away from the plastic base and refuse to build it back. Infrequently, during extraction, the whole side of the comb toward the outside of the basket would be blown out. However, the honey in Tucson is not typical of most honey because it is about 14% moisture, which can make extraction very difficult.

I have purchased and used many types of plastic queen cell cups, as well as wax cups. Unfortunately most of these were dirty or the wrong size and I never used them again. However, the cups made by JZ BZ are perfect and I have used many thousands over the past 14 years and would not go back to beeswax queen cups. Further, I think the round plastic sections are vastly superior to the old rectangular wood sections because the bees fill them out much better. So what I have been saying is that I am ***not*** prejudiced against *plastic* in a bee hive, but it has been my experience that plastic *combs* were expensive and not very good.

Why have I not used the plastic *combs* on the market today? Two reasons. First, they are expensive; and second, there has been no evidence presented that they will produce as much brood as I can produce on my naturally made wax combs, or combs built on beeswax foundation. How much brood is acceptable? Combs made from wax produce a minimum average 700 square inches of sealed brood during spring build-up with maximum 25 per square inch making average brood production of 17,500 cells of sealed brood.

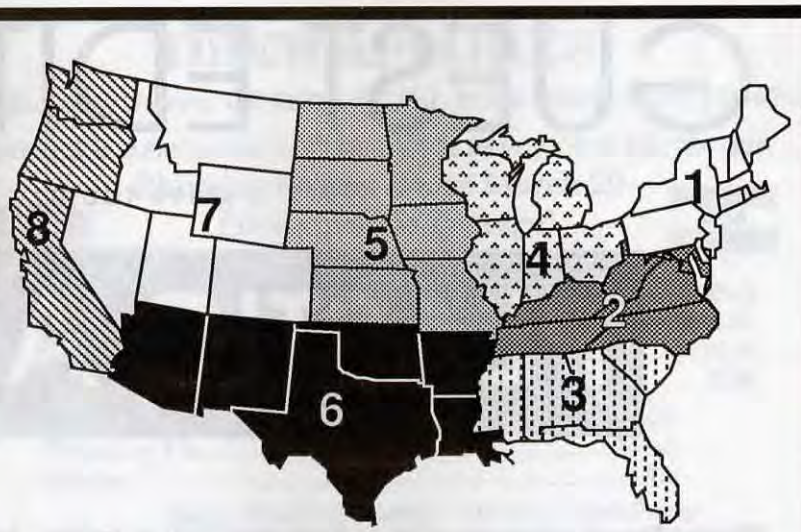
Dr. Drapkin, who manufactures and sells Perma Comb, an all plastic comb, says he is a scientist. As a scientist he should realize I can not accept his assertion that plastic combs are superior without supporting evidence. The data requested by me will have to be obtained by a disinterested party. And, if that can't be done, who is doing a disservice to the apiculture field?

MARCH Honey Report

March 1, 1993

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 #Wh.	46.43	41.38	46.06	42.62	44.10	40.50	43.09	47.67	36.00-58.00	44.19	42.37	43.57
60 # Am.	42.97	40.13	43.00	39.33	41.40	38.77	40.72	44.43	34.80-58.00	41.43	40.18	40.49
55 gal. Wh.	.654	.549	.642	.570	.574	.553	.569	.650	.48-.85	.597	.561	.602
55 gal. Am.	.623	.510	.585	.545	.555	.503	.528	.595	.47-.73	.556	.530	.540
Wholesale – Case Lots												
1/2 # 24's	20.95	25.49	24.54	20.36	16.41	20.80	22.35	25.00	16.32-38.40	22.20	20.85	21.39
1 # 24's	30.55	30.97	33.25	30.33	28.15	31.02	30.23	31.00	24.50-42.00	30.70	30.61	28.19
2 # 12's	27.75	28.84	25.56	28.27	25.70	25.18	28.54	30.16	22.80-40.80	28.32	28.48	27.01
12 oz. Bears 24's	27.84	26.78	27.96	25.28	25.77	25.17	26.95	22.50	21.00-35.00	26.40	26.52	25.38
5 # 6's	31.91	28.00	39.33	31.03	28.54	27.92	29.21	28.05	26.40-48.00	30.66	29.31	28.33
Retail Honey Prices												
1/2 #	1.20	1.17	1.32	1.12	.98	1.13	1.13	1.19	.87-1.49	1.15	1.22	1.21
12 oz. Plas.	1.60	1.66	1.66	1.51	1.31	1.36	1.52	1.41	1.19-2.00	1.53	1.52	1.51
1 #	1.72	1.94	1.92	1.96	1.89	1.66	1.84	1.76	1.44-2.55	1.83	1.79	1.72
2 #	3.22	3.22	3.70	3.14	2.73	2.78	3.03	3.09	2.39-4.29	3.11	2.98	3.00
3 #	4.74	4.34	5.29	5.04	3.93	3.70	4.37	4.26	3.50-6.19	4.39	4.41	4.04
4 #	6.04	5.24	5.86	5.77	6.00	4.98	5.20	5.55	4.75-7.40	5.44	5.28	5.10
5 #	7.60	6.41	6.69	6.88	5.19	6.00	6.25	6.02	4.59-8.95	6.54	6.35	6.28
1 # Cream	2.24	2.51	2.22	2.05	2.11	3.85	2.16	1.84	1.49-2.95	2.21	2.20	2.16
1 # Comb	3.00	2.58	3.47	3.44	3.03	3.85	3.31	2.71	2.29-5.00	3.12	3.18	2.64
Round Plas.	2.57	2.68	2.53	2.16	2.25	2.60	2.30	2.49	1.99-3.00	2.61	2.63	2.54
Wax (Light)	1.75	1.31	2.13	1.28	1.45	1.97	1.35	1.32	1.10-3.80	1.50	1.45	1.55
Wax (Dark)	1.55	1.18	1.52	1.05	1.35	1.47	1.18	1.20	1.00-2.25	1.30	1.28	1.26
Poll./Col.	35.42	26.67	30.92	33.17	30.00	25.00	30.00	31.00	20.00-40.00	31.33	28.88	31.13

MARKET SHARE

Conventional wisdom says the future of the Honey Loan program is at best questionable, and probably won't make the 1995 farm bill. It may even go away before that. It is a small concession to make (say some legislators) to get bigger concessions from opponents.

An upcoming Market Report analysis looks at "Life Without Loans" Stay tuned to *Bee Culture.*

Region 1

Sales steady to strong. With local supplies dwindling prices are going up due to increased prices from other suppliers. Colony conditions seem good, but feeding going on already, with more on the way. Mite treatments gearing up.

Region 2

Warm winter and mild spring have slowed sales a bit, but prices are steady to strong. The weather has helped colonies winter well so early feeding going on.

Region 3

Demand steady to decreasing due to early warm weather and rain. Mild winter has helped bees, colonies in good shape. Mites not prevalent yet, but it's still early.

Region 4

Sales steady but prices mixed as store shelves continue to sort themselves out with local and giant supplies vying for space. Feeding nearly everywhere.

Region 5

Sales seem steady as demand continues to increase at or above seasonal levels. Mite problems evident in untreated colonies in most of region. Feeding (and treating) underway. Mixed winter weather means predictions difficult.

Region 6

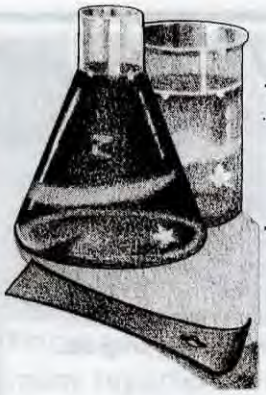
Prices and sales strong, especially for the season in this region. Wet winter bodes well for early and strong flows, and mild weather has helped pre-flow management procedures.

Region 7

Sales only steady across region, but there are some hot spots. Moist winter, with snow no less, has helped wintering and should help long and short term moisture conditions, hence honey plants this season.

Region 8

Most everything takes a back seat to almond blossom, and the weather right now. Dry weather means happy bees, keepers and growers. Colony conditions should be strong and spring flows promise to be strong. The only cloud mites seem to be doing just fine, too.



RESEARCH REVIEW

roger morse cornell university ithaca ny

"Saw Palmetto is a staple in the honey industry. But that may be changing."

Saw palmetto (*Serenoa repens*) is a major source of honey in Florida and other parts of the southeast. It is one of the approximately 40 major honey plants in the United States and is North America's most abundant native palm. As much as two million pounds of saw palmetto honey may be produced in some years, with yields of 50 and even 100 pounds per colony having been reported. Saw palmetto grows as far north as North Carolina and is found west to Texas. A second palm (*Sabal etonia*) is mixed with saw palmetto but only in "the white or yellow sands of upland areas of Florida's central and Atlantic coast ridges." Both flower at much the same time and their honeys are much the same. However, *Sabal* palm is much less common and must be considered a minor source of nectar.

Recent research indicates that the future for both palmettos is bleak in certain areas. Once fields of palmettos are chopped to make way for other uses there is almost no regrowth.

Several palmetto areas have been set aside and will be protected in central and south Florida. However, the vast acerages that were once available for bee forage are being slowly reduced as land use patterns changes. Housing developments and making new agricultural land are taking their toll. There are many areas in Florida where palmetto plants in fire lanes cut years ago have never recovered. It is likely that in north Florida, where large pulpwood forests are owned by paper companies that disturb the undergrowth and the saw palmettos only slightly, that the picture may not change and good honey flows may continue.

The saw palmetto plants may grow less than an inch a year. The stems often lie on top of the ground and may be traced back from the growing crown as much as 12 to 15 feet. Some of this above ground stem may be dead and in an advanced state of decay but it is still possible to trace it back to its point of origin. Some plants on the Florida ridge are estimated to be 400 to 700 years old. Saw palmetto plants do not have growth rings so estimates of their ages must be obtained by observing growth patterns. At the same time, the death rate among mature plants is very low. Of 240 flatwoods and scrubby flatwoods palmettos marked in 1980 not one has died during the 13 annual censuses taken up to the present time.

The mortality of seedling palmettos (both species) is likewise small. One group of 100 seedlings showed only a four percent mortality over four years while a second group of 78 seedlings showed only a nine percent mortality.

Saw palmetto is best described as a low growing little palm though in its southern range the plants may reach a height of seven feet or more. It gets its name from the sharp, saw-like thorns that line the edges of the leaf stalk. The *Sabal* palms lack the thorns and have hairy fibers flowing from the stalk; these are often used by birds for nest building. The *Sabal* palm frond has a visible midrib totally lacking in *Serenoa*. The growth form of both *Serenoa repens* and *Sabal etonia* is much the same but the mass of *Serenoa* is twice that of *Sabal* in mature plants. In the southern half of Florida the plants flower soon after the orange honey flow has finished, which is usually early April. In the more northern part of its range, saw palmetto may not flower until May. In part of this area the saw palmetto honey flow may coincide with the honey flow from gallberry. Both honeys are of excellent quality and are often used for blending with other honeys, especially orange and clover.

Studies of pollen deposits on lake bottoms in central Florida indicate there has been little change in the abundance of these two palmettos until recently when men began to clear the area. Fire, both accidental and planned, has been an important component affecting Florida landscape for at least the last 5000 years. During the past hundred years residents have started fires to clear away the undergrowth and "to cause the grass to grow" However, many fires have been started by lightning.

Both palms suffer little from fire. In fact, fire stimulates flowering in both species. However, *Serenoa* flowers profusely the first and second year after a fire while *Sabal* flowers more the second and third year. Size has much to do with flowering with larger (and older) plants producing the greatest percentage of bloom. However, a heavy canopy such as that formed by fire-resistant slash pine may also inhibit flowering. After a fire, leaf growth takes place almost immediately at the tip of the plant and within a month flowering stems are well developed though flowering itself will not occur for another two months. Most lightning caused fires occur in the summer and are normal in the life of the plants. Winter fires, which are usually caused in agricultural scenes may cause the *Serenoa* plants to flower at abnormal times and when this occurs the plants set only a small amount of fruit.

Observing flowering in these

palms from a road can be misleading. This is the "edge effect", that is, plants growing along a road edge are exposed to more sunlight and therefore may flower more profusely.

Generally speaking, plants are resilient and recover when agricultural practices revert to older ways. However, in the case of saw palmetto we face the possibility of losing an important honey plant permanently as a result of the opening of new land for housing and agriculture. One does not replace 600 year old plants easily.

Many of the older honey plant books call saw palmetto *Serenoa serrulata*, which is an old name. Florida's tall growing cabbage palm is yet another species.

References:

Abrahamson, W. G. *Habitat distribution, neighborhood structure, potential for interference and demography of two Florida palmettos,* Serenoa repens *and* Sabel etonia. Manuscript submitted for publication.

Abrahamson, W. G. *Post-fire recovery of Florida Lake Wales ridge vegetation.* American Journal of Botany 71: 9-21. 1984.

?DO YOU KNOW?

Insect Pests

clarence collison

Management of honey bee colonies requires an individual to be knowledgeable in many different areas other than just understanding honey bee biology. We have often stated that an individual needs to be a good naturalist or to be "in tune with nature" to fully understand the many situations and conditions that affect colony development. In addition to bees, a beekeeper often encounters other insects when they are opening hives, working colonies, emptying pollen traps, and taking beekeeping equipment out of storage.

Some of these insects are considered pests while others are harmless visitors, causing bees and equipment absolutely no damage. How well do you know the insects that are often associated with beekeeping operations that may impact your colonies? Please take a few minutes and answer the following questions to see how well you understand this important topic.

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

1. ___ Wax moths are often responsible for killing honey bee colonies.
2. ___ PDB (paradichlorobenzene) is effective against all stages of wax moth.
3. ___ Populous colonies are the beekeeper's best defense against most insects found in the bee hive.
4. ___ PDB is used to protect combs in storage and section comb honey from wax moth damage.
5. ___ The bee louse, *Braula coeca*, is commonly found in honey bee colonies throughout North America.
6. ___ Yellowjackets eat bee brood, rob honey and sometimes kill the queen.
7. ___ PDB crystals are placed in the bottom of the stack of stored combs to protect them from wax moth, since PDB vapors are lighter than air.
8. ___ Wax moth larvae are unable to live on and digest beeswax.
9. ___ Both common moth fumigants, PDB and naphthalene are recommended for the control of wax moth.
10. ___ Wax moth development is dependent on the temperature.
11. Many different types of insects are often found in the pollen trap when collecting pollen. What action should be taken to protect the collected pollen from further insect damage? (1 point).
12. Please describe the action you would take if you found a large number of ants under the inner cover. (2 points).
13. Please identify the insect responsible for the following damage found in the hive. (3 points).
    A. _____Brood combs show a series of tunnels lined with silken webs going through the cell walls.
    B. _____Upon examining an area of capped honey on a brood comb, you see a series of tiny white tunnels going from cell to cell, just below the capping surface.
    C. _____Tunnels of mud are found in the corner of the hive body with areas where the wood has been destroyed.
14. Even though wax moths are considered to be a serious beekeeping pest, they are considered to be beneficial in other ways. Please indicate two ways in which they are beneficial to man or the environment. (2 points).

Shown below are illustrations of various insects that are occasionally encountered in the beehive or capture honey bees as they fly and forage. Please identify each one from the list of insects provided. (7 points).

A. Robber Fly **B.** Cockroach **C.** Earwig **D.** Dragonfly **E.** Termite
F. Bee Louse **G.** Ant **H.** Wax Moth **I.** Praying Mantis **J.** Yellowjacket

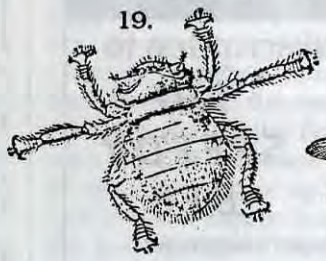
15.

16.

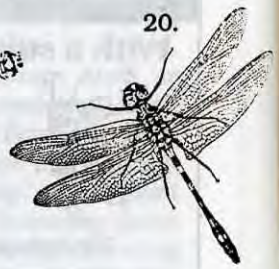
17.

18.

19.



20.



21.

ANSWERS ON PAGE 168

A DAY IN THE LIFE

kim flottum

The world of Apicultural research can be as complex as figuring out DNA patterns for tracheal mites, and as routine as pushing a truck out of the mud.

One of life's certainties is that somebody, somewhere is doing some kind of research on almost anything you can imagine. Within the science of apiculture there are a multitude of capable people studying every aspect of honey bee behavior, learning, anatomy, physiology, phylogeny, psychology and foot size. The results of these studies are published in prestigious journals of every ilk, and if you are determined, learned and studious you can find out what it all means.

Admittedly, most of these studies are not easily applied to the practice of beekeeping, at least in an immediate sense. Results of some, however, can be used by beekeepers to solve problems, improve production, reduce losses or even make more honey.

It was one of these more practical studies, and the researcher involved that caught our attention one day last summer, and who led us through a (nearly) typical day 'doing honey bee research'

Now, as an aside I must admit some bias toward the researcher whose day we shared. But at the same time this bias gave an inside track on what really goes on between grant proposal and published paper.

The Project: Assessing the effectives of grease patties in controlling tracheal mites in honey bees.

The Objective: To measure the effectiveness of grease patties with Terramycin® added; to find the most effective oil base to use; to measure stress proteins present in the hemolymph of infected and uninfected bees; and to identify and catalog the DNA of an individual female tracheal mite to measure relatedness of mites within a colony and the role an individual plays in whole-colony dynamics.

Collecting bees for later examination is simple, when the modified collector is working. Bees are collected in the vial beneath the hand held vacuum. An extended tube collects the bees.

The Researcher: Diana Sammataro, PhD graduate research assistant at the Ohio State University in Columbus, working for Dr. Glenn Needham and Dr. Brian Smith at the Rothenbuhler Bee Lab.

The Bias: The familiarity gained from having spent the last ten plus years together observing 'a day in the life', a day at a time.

•

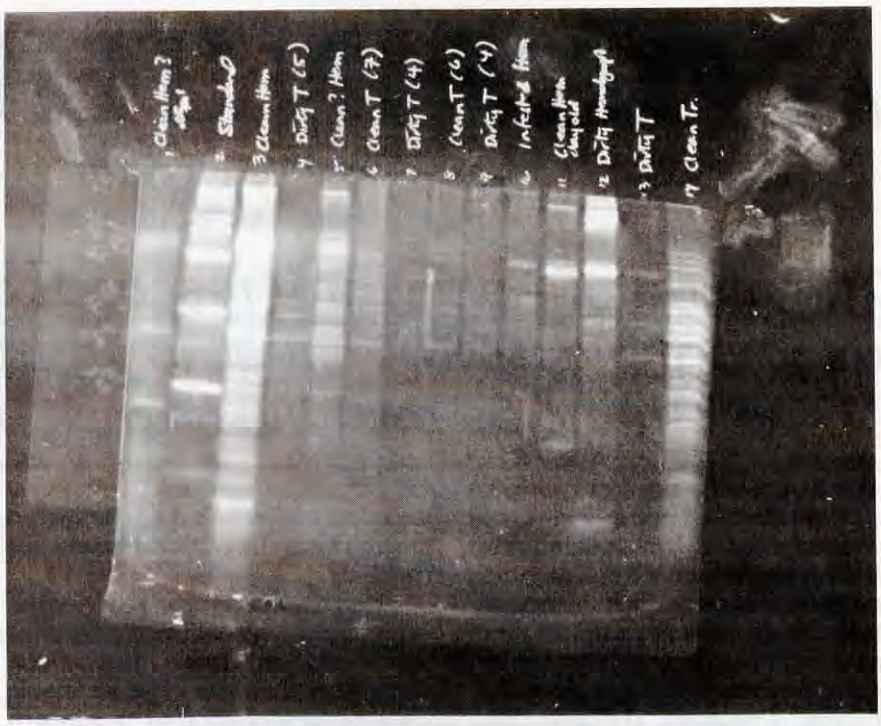
Work starts early, before six, so we can get a parking place on campus close to the B&Z (Botany and Zoology) building. There are two scheduled appointments this morning so extra time will be needed to prepare.

The first session, to run about an hour starting at nine, is on a TEM microscope. (TEM – Transmission Electron Microscopy.) Diana had spent some time earlier in the week preparing for this but needed additional time now to finish. Essentially, the object to be viewed is treated with a series of chemicals and rinses to 'fix' it (that's a fancy word for extreme preservation). The process also more or less solidifies tender material so it has some rigidity.

Thus prepared, the tissue – in this case a honey bee trachea complete with adult, juvenile and egg stage tracheal mites – has been fixed and mounted in a resin-like material. It was then sliced in cross section in very, very thin slices using a special glass-knife machine. The slices are further treated this morning and it's time to view them in the TEM. This form of microscopy isn't a typical lens enlargement system. Rather the specimen is placed on a grid device, then in a small chamber which is vacated of all air (one good reason to

Continued on Next Page

Weighing colonies is an important part of the research.



The result of the protein stress test that didn't work. Each sample is placed in a 'well' at the top and the charged proteins move toward the attractive charge at the bottom. Dark bands in each column indicate individual proteins. Similar bands in different rows indicate similar proteins. It's the differences that count.

A DAY ... Cont. From Pg. 137

previously 'fix' specimens). Next, a beam of electrons is directed toward the specimen from a lamp-like object from above. The beam strikes the object and electrons are 1) absorbed completely; 2) partially; or 3) not at all.

There is a receptive device that 'catches' electrons that pass through the slice and shows the result as a 'picture'. Areas of the object with high absorption are seen as dark (few electrons passed through) while areas of low absorption are lighter colored (many electrons passed through). The result is a detailed picture of the 'slice', showing the cross section of the trachea and what appears to be part of a mite.

To my untrained eye it doesn't look like much, but later study reveals there was a piece of mite caught in the slice, and details of its internal anatomy are fairly clear. Several black and white polaroid photos are taken of the object at several magnifications (the largest blowing up the tracheal cross section to the size of a dinner plate) and the session is over.

Next is a trip upstairs to check on the progress of another experiment.

•

The results of a stress protein test that has been running on infested and uninfested bees is next. This seemingly simple test is fairly complicated, at least to me. Hemolymph is removed from a bee, combined with several compounds and placed in small 'wells' at one end of a shallow pan filled with a gel. Because proteins normally have an electrical charge, though very slight, they will be attracted to a source of an opposite charge. Since each protein is different in size, and hence charge, relative attractions are different. Each protein through the gel toward the charge, in a track from the 'well' they were placed in originally. When running samples from different bees side by side similar proteins migrate the same distances. It's the differences that matter here, though. Which bee has something the rest don't? And why?

The sample is still being run, so no answers yet, but we did pick up the results from the last sample. The results are less than anticipated and the run essentially unproductive. Back to the drawing board. Some time is spent reviewing the process and looking at the second run, but by now it's lunch and off to the field.

Field work consists of visiting two apiary sites this particular afternoon and taking samples and weights from each of the many research colonies.

Getting to those colonies, however, is the first obstacle. Days and days of rain have made the access roads impassable and mud is hubcap deep. Walking in would make sense, but there's a hitch. The hand-held vacuum used to collect bees gets its power from the truck's lighter. No truck, no sample. Go around the mud seems the only alternative. It almost worked.

Examining bees for mite infestations is tedious and time consuming.

Two hours later we finish the half hour job and move to the next site. The road is better here because the yard is located on the grounds of a state prison. In fact, this is probably the most well protected apiary in Ohio.

Samples are taken from the same place from every colony, every time using the vacuum – when the vacuum works, which it decides not to half way through this yard.

Since bees are collected at the entrance and on top of the inner cover collecting by hand (a small vial, actually) isn't difficult, but it is time consuming. Another hour for a 15 minute job. After this the logic of driving the truck through the mud at the last site begins to escape me, but then, I'm not a scientist. There is a reason, I think.

When all the samples are gathered each colony is weighed. A tare weight had been previously established (the weight of the equipment, without bees, brood or stores), so any differences can be attributed to the health (or lack thereof) of the population inside. With two people this is a fairly easy task. One person attaches the hand held scale to the bottom board and lifts. The other simply reads the weight.

The technique, I remember, was published in this magazine a year or so ago, and it works wonderfully well. The weights are accurate, easy to take and the process quick. This kind of research is fun.

Back at the bee lab it's time to dissect some bees from previous samples to record infestation levels. There are several treatments that must be checked, and each treatment has been replicated several times. I lost count somewhere.

The treatments are: control, nothing added; oil patties (sugar and crisco); oil patties with sugar and Terramycin® added. Each treatment will have two dozen or so bee samples taken, each bee inspected for mites. Each colony is also weighed when samples are taken, and twice during the year the amount of brood and bees is estimated.

From all of this can be determined the effectiveness of grease patties or grease patties with Terramycin®. Further, the presence of the mites has an affect, which can be measured on a colony basis by looking at weight gain/loss and brood and bee production. But the effect of mites might also be observed by looking at the effect on individual bees – the stress protein tests.

Initial studies are still inconclusive, but the trends seem very promising. Colonies treated with any oil at all showed some decrease in mite infestations, at least until the oil was used up. Control hives, for the most part, responded in typical fashion.

The preliminary data from the second year's study is already more promising in terms of control, but the key factor this time is the extended amount of time patties must be present to maintain control. The jury is still out.

One aspect being looked at with the SEM is the question of spiroplasmas being present in the hemolymph. It's known that these tiny cell-wall-less bacteria are lethal to honey bees, and they are commonly found in the nectar of some honey plants. It's also known that if spiroplasmas stay in the gut of the bee they pass through with no harm.

One question being asked is very simple. Is there a connection between spiroplasmas, tracheal mites, stress proteins and the death of an infected bee. The answer, as you can see, is much more difficult to find.

Another question concerns grease patties containing Terra®. Do they really offer more protection than grease alone? Some real-world beekeepers seem to think so, but details (and data) are sketchy.

So, are spiroplasmas increasing in the environment? Can a spiroplasmas-resistant bee be produced? What role is grease playing in all of this, and where does it go? And finally, does Terra® work?

And, as if this weren't enough, new information from other labs indicates grease patties may be having some effect on varroa mite populations in a colony, too.

This day in the life closes about supper time. Diana is off to study for an upcoming exam, and I head back to Medina. Like I said, much of apicultural research is not readily applicable to the practice of beekeeping. Fortunately, some of it is. ○

DO I FEED NOW?

richard bonney

You need to know your colonies to know if they need food. Let's take a look.

Every year about this time I start to hear the question – "should I be feeding my bees yet?". And every year I give the same response – "I don't know" – and then I get up on my soapbox.

Beekeeping should not be done by rote. It should not be done by the calendar. Sure, you pay attention to the calendar, but it is only a guide, a reminder – now it is time to think about feeding (or supering, or swarm control, or taking off honey, or whatever is normally done in the particular season at hand). The calendar does not signal you to actually do something. It signals that now is the time to check on things, to think about doing something, in the context of your hive, your goals, and the nature of the season you are experiencing. Maybe nothing needs to be done. If your hive has abundant stores of honey and pollen, then you don't need to feed. But do you know what is going on in your hive?

How do you know if your bees need to be fed? You should have a sense of that by just knowing your colony. Think back to last season. Did they go into winter in good condition, plenty of healthy bees and ample stores? How has the winter been so far? How did the hive look, feel, sound like when you last checked it? How long before the first significant nectar flow or pollen shed starts in your area? For the most part, these are questions that only you can answer. Let's take them in order.

How was last season? Keep in mind that no season stands alone. The condition of your colony in any given season – spring, summer, fall, winter – is at least partly dependent on its condition in the previous season. If the colony had a poor year in 1992, as did so many colonies in my area, then both winter stores and population may have been low in the fall. If the colony was not fed then to compensate, there is a good chance that stores are very low now. Of course, if the population was down, they would not eat as much over the winter, so conditions might not be desperate. If the population was average or better, that's a different story. All of those bees have been eating.

A friendly knock should let you know if anybody is home.

How has your winter been? Exceptionally cold and harsh, keeping the bees immobilized and using relatively fewer stores, exceptionally easy with lots of flight days causing them to use stores rapidly, or somewhere in between? Has the winter been so easy that it encouraged a higher rate of early brood rearing than might be normal, with the resulting drain on stores?

What were the apparent conditions when you last checked the hive? You just did that, didn't you? There are three quick and easy checks that can be done at any time. First, are the bees alive? That can be determined by putting your ear against the outside of the hive, on the hive body you assume the bees are in – usually the top one in late winter. Rap a couple of times. You should hear a response, a rising then falling hum that lasts at least two or three seconds. If they answer you, all is well. If they don't, if all you hear is silence, well, that's dead silence personified.

If all is well, then lift the back of the hive slightly from the bottom – just a couple of inches. If it's light, if it comes up easily, there is some cause for concern. If it has some heft, you can relax a little. Just a little, though. Your goal here is not to determine the actual weight of the hive, only the relative weight, and this check will not be completely effective unless you make it a practice to do this gentle lifting whenever you go to your hive, through all of the seasons. In the

summer the apparent weight can be quite variable but still meaningful. As you go into winter, it should be so heavy you will have difficulty lifting it at all, but it lightens up during the winter. Over time and if you do this regularly, you should be able to interpret what you feel in terms of hive condition.

Finally, how about checking inside the hive. You have determined that the bees are alive and that there is a little weight there. Now, find out where the bees are. As winter progresses, they are slowly working their way up, eating stores as they go. Are they at the top, indicating that they are near the end of those stores, or are they still centered down inside somewhere. Lift the outer cover so the hole in the inner cover is exposed. Are the bees right there? No? Can you see capped honey? If yes, things are probably all right for now. If the bees are evident at the hole, and if the hive lifted very easily, you must think seriously about feeding. In late winter and early spring, it's time for serious brood rearing. Food will be consumed at a prodigious rate. Of course, if food stores are low, the bees recognize this and the rate of brood rearing will be correspondingly low.

"Feeding can speed things up. Be ready for big populations. Really ready."

Many beekeepers are reluctant to take the cover off a hive during the winter, fearing that bees will die as a result. I agree that a hive should not be opened indiscriminately during cold weather. There should be good reason. However, a brief opening should not bother the bees, especially on one of those warmer days in late winter. True, they will have to work a little harder to regenerate some of that lost heat after you close the cover, but it should not harm them any more than it harms you or me to step outside for a few minutes without a coat.

With this in mind, don't hesitate to remove the inner cover long enough to remove a frame or two if there is any question about the amount of stores in the hive. If you decide they don't have enough, or if you are not sure, then feed. There will be nothing lost. If they need it, they will use it. If they don't, they won't. It will be there as insurance if the weather takes an unseasonable bad turn.

Now let's briefly consider how and what to feed. Frames of honey are an excellent choice if you happen to

Continued on Next Page

There's Another Reason To Check For Feed

As you start to think of whether the bees should be fed, here is another consideration. Perhaps they need syrup for a different reason altogether. Syrup is a vehicle for administering medication, particularly Fumidil-B™ or fumagillin, a defense against nosema disease.

Compared to honey bee brood, and ignoring mites, adult bees are surprisingly healthy. About the only disease of consequence is an infection of the bee's mid-gut caused by the protozoan *Nosema apis*, and commonly called nosema. This disease is serious. However, its effects are not always apparent and are often overlooked or ignored by beekeepers. Consider the following:

- A nationwide survey taken a number of years ago showed that about 66% of the apiaries inspected had nosema present.
- Nosema infected bees may have their life span decreased by as much as 40%.
- Infected bees are not capable of doing "a full day's work"
- Queens are susceptible to nosema. Infected queens stop laying and die in a matter of weeks.
- As many as 15% of the eggs in an infected colony do not mature.
- It is not possible to diagnose nosema by a visual inspection of the hive. Diagnosis requires a microscopic examination of dissected bees.
- The presence or absence of spotting on the front of a hive in the late winter or spring is not solid evidence for or against nosema. It may be suggestive, but spotting is also caused by other problems.

Tracheal mites have some similar effects on a colony of bees: a shortened life span, less capacity to work during that life, and some brood does not mature. Taken together, nosema and tracheal mites are a deadly combination.

Now think again about the history of your colony. Have you had tracheal mites, or are they present in your area? Have the bees seemed vigorous? Any queen problems? How about spotting? Again, spotting is not diagnostic but it suggests a problem of some sort.

Perhaps you will want to treat against nosema. The label recommends a twice yearly treatment, in the spring and in the fall. Fumidil-B™ is properly administered in sugar syrup. Maybe you will feed after all.

FEED ... Cont. From Pg. 141

have some stored away. They can go in the hive proper, right next to the cluster. If you don't have frames of honey available, then sugar syrup in the comb is a good second choice. Take a couple of frames with empty comb and fill them with syrup. Use a squirt bottle or a kitchen baster to force the syrup into the cells. Put these frames in next to the cluster. If the syrup is still a little warm from mixing, that's a plus. If you don't have empty frames, get them from the hive. There are plenty of them in there or you wouldn't be feeding.

As the weather begins to warm up, you can begin to feed syrup from a conventional feeder, on top of the hive. Keep it up there close to the cluster so the bees can get to it during cool weather. A Boardman feeder is not effective at this time of year, being out in the cold and removed from the cluster. I favor a gallon jug or something of similar capacity, placed over the hole in the inner cover if you use one, or right on top of the frames if you don't. Protect the feeder with an additional super, with the cover replaced.

Other methods of feeding do exist. Tom Sanford discussed the candy board in a recent article (Making Candy Boards, *Bee Culture*, October 1992, page 556). This is a fast and easy way to feed, once you have prepared the board, although the sugar in this form is more difficult for the bees to use compared to syrup. I look at this method as a form of insurance. If you are not sure the bees need to be fed, put on a candy board. If they don't need it, they will ignore it. Later, if unused, you can store it away for future use.

Dry sugar gets a certain amount of attention as a method of feeding, and the reports of its effectiveness are mixed. It should probably only be used as a last resort, an emergency measure. Some beekeepers say they have successfully fed this way. No doubt they have. Others say the bees won't use it, but will carry it out and dispose of it. This is no doubt true, also. The difference is in the conditions and level of need in the hive. If the bees are near starvation, if the sugar is accessible, and if they have moisture available to help them work it, they will use it. They do not store it away, though. It is used for subsistence only. If they don't need the sugar, they will ignore it. When the weather allows, they will treat it as hive debris, hauling it out and throwing it away.

So far, we have been thinking in terms of syrup or honey, but haven't mentioned pollen. In order to survive the winter, bees must have the carbohydrates provided by syrup or honey. In order for the colony to raise brood and expand, they must have the protein provided by pollen. Mature adult bees can survive without pollen. Emerging brood are a different story. They must have protein to complete their muscular and glandular development. The workers sense the presence and abundance of pollen in the hive. If none is present, and none is coming in, the colony will not attempt brood rearing.

Lifting from the rear will give you a 'feel' for how much food is inside. But you need to know what 'heavy' feels like, along with 'lean'.

For beekeepers, and for purposes of this discussion, pollen comes in various forms – pure bee-collected pollen taken from the hive; pollen substitute, a manufactured product; or pollen supplement, a mixture of pure pollen and pollen substitute.

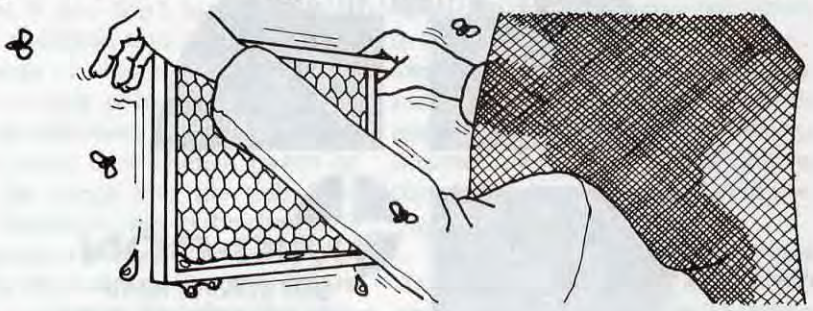
Depending on the particular formulation, pollen can be fed either inside or outside the hive, and may be fed dry or in patty form. I have done both successfully. For instance, I have placed dry pollen substitute in a tray out in the open. The bees find it quickly, collect it as pollen, and carry it back to the hive. The problem with this method is that, first, it is subject to the weather, and second, bees from different hives may fight. At the end of the day there are usually dead bees in the tray.

I have also used patties, placed in the hive. These have been both of my own manufacture and purchased. I make them from pollen substitute and syrup, forming the mix into a flat patty which is placed right over the brood area. I have also used the commercially available materials such as the Beltsville Bee Diet but in recent years these have become quite expensive.

If you are feeding any form of pollen in the hive, put it as close to the brood area as possible. It is important that the emerging bees find it quickly and easily. In cool weather they are not going to leave the cluster to go searching for it. As a further thought, perhaps there is plenty of pollen in the hive. As you inspect, note the location of that pollen. Is it close enough to the cluster? You may want to do some judicious moving of frames. Whatever you do, though, don't disturb the integrity of the brood nest.

One last thought here. Feeding, whether it be syrup, pollen, or both, can be stimulative. If your colony is in relatively good condition, feeding may bring about an unexpected burst in population that can contribute to swarming later. There is nothing wrong with extra population, but be aware of what is happening and be ready to take appropriate swarm control measures as the season moves along.

N·E·C·T·A·R



THE INSPECTOR

tom sanford

Mr. Elton Groves, writing for *The Ohio Farmer*, is intimately acquainted with milk inspectors. His brother is one. When queried by Mr. Groves about his brother's performance, a milk producer said, ". about as good as they ever had Good common sense, and he takes an interest in your problems."

My experience with bee inspectors in several states mirrors that description. Bee inspecting is not a high-paying profession. It's often part-time work, and the funds for this occupation are not always provided as first priority. In view of this, inspectors are concerned about bees and the beekeeping industry or they wouldn't be in the business. Most bee inspectors are beekeepers themselves. Given this situation, a conflict of interest is always possible. Abuses may occur in a system, but the benefits of inspection for the majority have traditionally outweighed the risk.

Although the inspector is in the dominant role, the beekeeper must take some responsibility to develop a working relationship. The regulator does not have time to contact a beekeeper for every inspecting session, nor is it always possible to schedule spur-of-the-moment appointments. However, that doesn't preclude both parties trying to work out a mutually acceptable time to meet at the apiary.

Physically aiding the inspector by removing supers and/or putting colonies back together during an inspecting session will provide the best possible circumstances to develop a working relationship. By making such an effort the beekeeper will communicate that he or she is aware of and concerned about the inspecting effort. In the bargain, a great deal can also be learned from the inspector, many of whom have years of experience. Finally, the beekeeper should provide detailed information about management and record keeping procedures to inspectors. This helps avoid inadvertent mistakes during inspections.

Beekeepers are independent types, and so are inspectors. Sometimes the meeting of these personalities causes friction. So much heat can be generated from resulting conflicts that "fires of retribution" are not inconceivable. And in most of these instances, the honey bee comes out the loser. There is no substitute for keeping lines of communication open between beekeeper and inspector. Not to do so causes the whole industry to suffer.

Introduction of Varroa has paralleled somewhat the failures of the regulatory community to avert major dislocations in the beekeeping industry. Now, the African honey bee, another regulatory nightmare, has finally entered the country. Meanwhile, the old beekeeping problems, particularly American foulbrood, have not disappeared. All this puts regulators in a bind; there appears to be much more to regulate and in many cases, diminishing resources with which to carry out needed inspections. This also frustrates beekeepers who have seen their profits suffer due to increased costs, in many cases caused by regulations. ○

ON·MY·BOOTS

SPRINGTIME IN THE ROCKIES

O.B. WISER

The grass is greening up out here in the west and there are blossoms here and there. You can even begin to find golden heads of dandelions on southern exposures and sides of hills. The pussy willows are gently jostled by pollen-hungry bees in search of the ingredients for making bee bread. It is Spring. Thank goodness.

Brood nests are filled with capped brood, and the first major cycle is about to come off. Young bees will soon replace the weathered, winter bees whose lives are at an end.

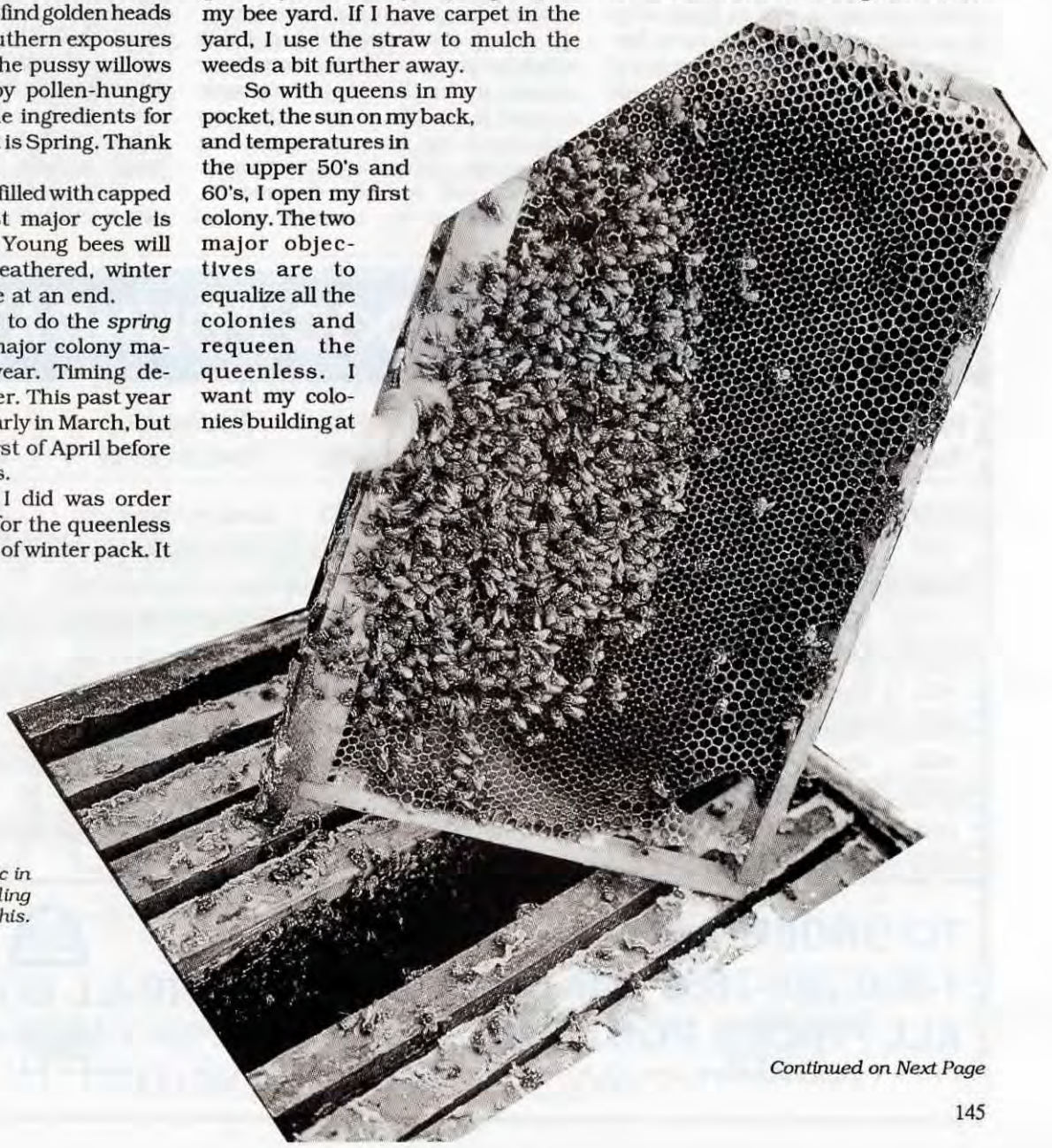
This is the time to do the *spring cleaning*, the first major colony manipulation of the year. Timing depends on the weather. This past year the weather broke early in March, but I waited until the first of April before unpacking the hives.

The first thing I did was order some early queens for the queenless colonies coming out of winter pack. It is not unusual to find five percent of these overwintered colonies queenless but still strong, though.

Unpacking my bees from the covering of straw, tar paper, and chicken wire is the first step. It only takes a few minutes to role up the two inch mesh chicken wire and tar paper and then spread the straw on the pesky greenery that always springs up in my bee yard. If I have carpet in the yard, I use the straw to mulch the weeds a bit further away.

So with queens in my pocket, the sun on my back, and temperatures in the upper 50's and 60's, I open my first colony. The two major objectives are to equalize all the colonies and requeen the queenless. I want my colonies building at the same rate so they will all be ready to divide at the same time.

Taking care of the queenless is quite easy. In the early spring, these hives readily accept a caged queen. I always add one frame of young brood with the queen and put the cage right next to the frame. Letting these colo-



Keep the magic in spring. Avoid finding frames like this.

Continued on Next Page

ROCKIES ...Cont. From Pg. 145

nies raise their own queen works well, too, if you're a mind. Carefully remove a frame of brood from a strong hive, making sure there are lots of available one or two day old eggs. Then place this frame, bees and all (without the queen), into the center of the queenless cluster. Push the frames away from it a little to give it extra room for cells that will develop.

Strong colonies are, by definition, strictly relative. A colony that had eight frames of bees last year because of mites was a strong hive. This year it is considered weak. So colonies with 10-14 frames of bees are my Robin Hood hives now. I use the strong to give to the weak.

My goal is to set the strong colonies back so they will be ready to divide with all the rest in April or the first of May, depending on the weather. I take no more than three frames of brood from the strong. I simply add one or two frames of bees and brood to the weak, making sure the queen from the donor colony is not present. Usually I give more than two frames of sealed brood, and hopefully some brood is actually hatching. Of course, after the manipulation make sure all the brood is pushed together for warmth in each colony.

Feed Extender Patties Now

Now there are other things to be done. I put Terramycin® on now, using an extender patty. I use Super Bee Mix, a premixed medication bought in 50 pound bags. I put each colony's dose into a sandwich bag – you know, the kind you stuff your peanut butter and honey sandwich in. Put about a half to three quarters cup of Super Bee Mix into the bag and fold it over and stack it in a box. ATM/powdered sugar mix would work also.

It is a simple matter to put this extender patty on the top box of the colony, under the lid, making sure you put it over the center of the bees and brood and then flatten the bag and squish a bit out onto the frames. The bag will last about a month, depending on the strength of the colony. They chew up the bag and gradually take the medicine.

Every colony is checked for queens and honey and, when needed, I like to feed combs of honey. I set aside at least one full comb of honey per colony for feed at harvest time. In normal years, I do not have to feed much to the overwintered colonies, so I save the feed for the divides I'll be making later.

Tracheal mite devastation shows plainly at this inspection, and colonies are in one of two conditions. The hive is totally empty of bees; it is dead. But worse, there may be but a handful of totally demoralized bees left with a queen. The study done in Oregon reported in the January issue only addressed dead hives, about 22% mortality, as I recall. This only reflects a part of tracheal mite damage. Whole yards of bees are often reduced to colonies with fewer than two frames of bees – colonies that have no chance of being productive. In my book, these are as good as dead unless you can substantially beef them up with bees, brood, or both.

In years past, I lost bees to starvation and had a mass of dead bees in

the colony to contend with. All you do with these moldy messes is pull the frames out and brush off the loose bees. Don't worry about bees in the cells. You may choose to stagger frames with dead bees in the cells with clean frames when replacing them. Clean off dead bees from the bottom board so there is air drainage and then stack the hive back together, making sure the entrance restriction is in place to keep mice out and just let this empty hive dry. I use these frames in divides or for supering and let the bees drag out all the dead and repair the comb. Do not discard moldy frames – let the bees fix them up.

You may be one of the fortunate that has more time than the bees. You like to use your labor rather than bee labor to clean up a colony. Normally, I never go below the top box when inspecting this time of year. I can gauge where the bees are at by taking only a few hives down to their toenails. The rest I only work in the top box.

If you want to clean up a colony, take the whole thing down to the bottom board and start there. If you must scrape bottoms of healthy colonies this is the time of year to do it, when the hive is the lightest. I never do this, for two real good reasons. First, there are a lot more housecleaning bees that can do the job a lot better than I can. The second reason may be a bit different than you have heard before. Bees eventually will put globs of propolis and burr comb on the bottom board to bridge the gap from the bottom up to the frames. I like those bridges and feel they serve a purpose, so I do not disturb them.

"What you see in the spring is a result of what you did in the fall."

When ready to leave the bee yard, I check to get a final count of dead and queenless colonies. I've marked queenless **♀- 4/2 + ♀+**, short hand meaning this colony was queenless on April 2, 1992. I added a caged queen, but had I added a cell (**+cell**) or added eggs (**+eggs**) the notation would have indicated so.

On my next visit I'll remove the cage and check to see that there are eggs and brood. Then I will simply use my lumberman's crayon to fix the first marking with a simple slash.(**♀+3/1/2**). If I find a colony with AFB, I mark it on the handhold or the bottom box **XXX 2** Which means AFB 1992. I have developed a successful treatment for AFB and

Continued on Next Page

ROCKIES ...Cont. From Pg. 147

tested it for 20 years, but then that is another topic.

I like to check on queen patterns (brood patterns) and if I see one that is real spotty, I'll mark it poor queen (**poor Q+?**). Quite often, queens will improve with weather and time, so it is not cut and dried when you see a spotty pattern the first thing in the spring. Come back and check it at least one more time before replacement.

I really look forward to this first visit. I make it a point to watch for bees loaded with dandelion nectar, their abdomens full and orange. I spend time watching the pollen gatherers kick off their loads into a pollen cell, and I never cease to enjoy seeing the swollen abdomen of the queen while she goes about her business. If I can find some dandelions, I love to watch the bees frolic on the yellow dinner table.

Springtime is the second period of the beekeeping year. Fall preparations mark the beginning of each bee season. What you see in the spring is usually a direct result of what you did or did not do in the fall. The beekeeping year begins each Fall and I learned that the hard way many years ago. Spring should be a magical, exciting time for the beekeeper to once again become part of the colony. Q

BEE MAN OF OWENSBORO

caroline nellis

Studying bees for over 60 years gives this Kentucky beekeeper/pollinator the right to offer some advice.

During the Great Depression, George Jones' mother asked him to harvest honey from several hives left untended on their property. Unfamiliar with bees and their habits, yet wanting to make his beloved mother happy, Jones agreed to her request.

"I went in with no veil, no gloves and no know-how", Jones recalls with a smile. "I got the honey, which we really enjoyed, but those d– n bees like to eat me up. I had black eyes for weeks!"

That experience convinced that 14-year-old boy there had to be a better way to get honey from bees. Consequently, for nearly sixty years Jones has studied bees. His decades of beekeeping expertise have resulted in Jones becoming known throughout Kentucky as "the Bee Man of Owensboro" Currently, he even serves as vice president of the Kentucky State Beekeepers Association.

Jones' reputation has stood him in good stead. This past year, he was asked to help pollinate cucumber and watermelon crops within Kentucky. Recently introduced into the area, these vegetables are diversifying the state's agricultural production.

Last spring, Ellis Estate's farm manager Danny Mattingly researched the best cultural practices for his new vegetable crops, located on fields near Owensboro. Paramount Pickles, the farms' pickle contractor, recommended the use of a commercial beekeeper for pollination purposes, to insure the largest tonnage yield per acre.

Inquiring for a local beekeeper capable of serving his needs, Mattingly found nearly everyone immediately suggested Jones. A call to the beekeeper confirmed his willingness to be involved in the project.

Initially, Mattingly contracted with Jones to pollinate 80 acres of cucumbers and 15 acres of watermelons. After those crops were harvested, Jones' bees were also used on Ellis Estate's second and third crops – totalling 200 additional acres of cucumbers, with yields that well-pleased Mattingly. Another Kentucky farmer also employed Jones' services for pollinating 10 acres of cucumbers.

Both Mattingly and the second grower contracted for Jones to supply one hive for each acre of crop. Mattingly said this ratio was recommended by the University of Kentucky. One colony per acre, Jones believes, is a minimal requirement for the cucumbers. He reports better pollination with three hives versus the one typically recommended, but he admits the farmer's extra cost in contracting for more hives would probably outweigh the crop's return in higher yields.

Farm manager Danny Mattingly listens as Jones explains a bit of bee biology. (Nance photo)

According to Jones, pollinating with his honey bees requires almost no tools or equipment beyond what he normally employs in his beekeeping activities. "You don't need a lot of equipment except your regular hive tools, your smokers, and transportation for your hives", Jones offers. Due to the weight of the hives, he prefers moving them on a one ton truck with a tommy-lift on the rear.

The Kentucky beekeeper takes the precaution of placing screens over the hives' entrances before lifting them aboard the truck and tightly securing them. Jones puts screens on top of the hives, too, when the weather is very warm. Overheating, he says, will kill bees quicker than anything else. For that

Continued on Next Page

Colonies should be checked after moving to make sure everything is O.K. (Nance photo)

BEE MAN ... Cont. From Pg. 149

reason, Jones moves them early in the morning, during the cooler part of the day.

Occasionally, if there's a crack in the hive, a few bees will escape after being screened into the hive. Jones notes this may require stopping up the crack, but this bee contact is so minimal, he never even suits up for transporting his hives. He does caution, however, on the necessity of driving *carefully* when moving the bees. Jones has never had a wreck while moving his colonies, and he hopes he never will!

"If you move them as quickly as possible – and not too far – the bees won't be in too bad of shape", advises Jones. "But if you keep them stopped up a long time, they could possibly smother." For anyone who must transport their hives either long distances or in hot conditions, allowing the bees to fly freely outside their hives, under the enclosure of a finely meshed net, may provide an answer, Jones says.

Sitting in the adjacent soybeans, colonies need attention during the season. (Nance photo)

"It's the beekeeper's job to educate the grower on what needs to be done so you can take care of the bees."

The beekeeper advises it's best to move the hives at least two to three miles distant from their previous location. If this precaution is not taken, the bees will return to their former home, using directional bearings taken from the sun and aided by visual landmarks.

Once Jones arrives with his bees in their new location, he unloads them, then smokes them so he can check their condition. "After you've moved a hive over three miles from its old location, the bees are very confused and lost. So they're inclined to put their house back in order after being loose only a few minutes", he said.

Jones positioned his colonies in 14 separate locations around the fields to be pollinated. To avoid pesticide sprays on his bees, Jones placed his hives on the edge of soybean fields adjacent to the cucumber crop, rather than directly in the cucumber fields themselves. Since soybeans are sprayed less frequently than cucumbers, such a placement decreases the hives' exposure to pesticides.

To further protect his honey bees, Jones also insists Ellis Estate agree to use types of pesticides least toxic to bees and to only spray late in the evening. This allows the spray's toxicity to diminish overnight, before bees begin foraging again in the morning.

Jones warns it's important to include pesticide application restrictions in a written pollination contract, signed by both parties. Other issues that should be covered in this agreement between grower and beekeeper include the hives' placement pattern (usually in evenly spaced groups near the crop's border), as well as the number and strength of hives wanted. (Typically a pollinating colony should contain a laying queen, a minimum of five frames of brood and enough bees to cover six to eight frames.)

The contract should also spell out the date of the colonies' movement to the crop with consideration of bloom status, plus the removal date. Further items to be included in the contract are: The amount of the rental fee and the date of payment; the right of entry for the beekeeper to enter the property to care for his bees; and the agreement of both parties to discuss and/or reimburse the other for unforeseen circumstances.

To set the leasing fee for his colonies, Jones figures a hive's honey-production rate multiplied by the wholesale cost of honey. Jones says he then adds an extra charge to this amount to cover any additional expenses, such as medicine, that he might incur while his bees are pollinating. The amount Jones receives for his pollination services must exceed this final figure or else it's not worth his effort.

In return for his rental fee, Jones not only supplies the grower with bees, he also maintains the bees during their stay in the fields. The beekeeper recommends regular visits to check colonies. "You want to go into your hives periodically to be sure you don't have disease, a disabled queen, or a hive that's superseded their old queen and got a young queen that's not laying" cautions Jones. He warns that mite problems can slip up very quickly and are often difficult to detect until serious problems arise.

He adds: "You should also be sure your bees have a good water source. If it's not provided by a local pond, creek, river or whatever, then you should make it available yourself." Jones suggests using a water barrel with a flow drip and a long gutter filled with creek gravel on which the bees can rest while drinking.

Screening the gutter's top to keep birds and their droppings out of the water is another practice Jones rec-

ommends. Also, since the honey they eat lacks salt, Jones provides this to the bees in small amounts added to the water supply. He reports this salt actually attracts bees to the water source.

Since cucumbers supply only moderate amounts of nectar and pollen, Jones checks his bees' food supply during visits to the hives at Ellis Estates. He notes the frames show a good brood pattern, but little pollen. However, his bees have obtained a fair supply of nectar, probably from their flights through the soybean fields adjacent to the cucumber crop they are pollinating.

Although soybeans are self-pollinators, crop yields will still improve about five bushels per acre if pollination by bees occurs, according to Jones.

Besides his bees being a boon to the soybean crop next to the cucumbers, they also helped pollinate another nearby crop, watermelons. "Cucumbers, watermelons, squash, canteloupe, and pumpkins are cousins", explains Jones. For that reason, all of them are aided by bee pollination.

Jones has, in the past, used his colonies in apple orchards. However, he reports most fruit crops in his part of the country have cross-pollinating varieties that don't need honey bees to do the job. Wild pollinators whose habitats have not yet been destroyed by pesticides are usually sufficient to do the little pollinating required for these fruit crops.

Every crop has its own peculiarities regarding preferred pollination practices. Cucumbers, the crop with which Jones is most familiar, grow best if they are allowed to bloom two to three days before bees are brought in to pollinate them. "The cucumbers are building root strength during this stage and if you start pollinating them too soon, it detracts from the formation of their root system," Jones warns.

State agricultural universities, county extension offices and state beekeeper's associations are good sources of information on the pollination needs of most crops. A beekeeper considering offering pollination services would be wise to address any questions he might have on a particular crop's requirements to these organizations.

Jones is convinced the market for commercial pollination is an expanding one. He states: "As gasoline prices increase, the cost of transportation increases. So we'll see more agricultural produce grown closer to home in the future. And, as wild pollinators' habitats continue to be destroyed by herbicides and insecticides, the role of the honey bee in pollination of these local crops will become more critical. Honey bees already pollinate 90 - 120 agricultural crops – worth 20 billion dollars – every year in the United States.

Since Jones' work has strictly evolved from word-or mouth, he has little advice to offer commercial beekeepers on how to market their pollination services. However, he does have other recommendations he stresses with potential pollinator-providers. "You want to have good strong colonies of bees and good equipment," Jones suggests. "Also, you want to have a definite understanding with the person contract-renting your bees. You should have a written contract which both parties understand. This is especially important because often the grower doesn't know bees like you do."

Jones concludes, "It's your job to educate the person producing the crop as to how he can help you take care of the bees – particularly in pesticide applications – in order to give him better service." Q

DEALING WITH THE D·E·A·D

roger morse

You can expect to find between one and five percent of your colonies dead each spring in the northern states. The percentage varies in the south, but it's a good ballpark figure. At least that used to be normal. Even a high of 15% wouldn't have raised too many eyebrows. But now, with the presence of tracheal and varroa mites you shouldn't be surprised to find winter loses much higher. Until the mites came onto the scene most winter losses were due to American foulbrood (AFB), other diseases, queenlessness or starvation.

It is important to find out why those colonies died so you know what steps to take to reduce losses in the future.

Inspection History

American foulbrood has been a scourge for years. Until recently many states, especially those with a large number of commercial beekeepers, had good inspection services that focused on this single disease. This kept AFB levels low and in some states it would be found in less than one percent of the colonies.

That is not true today. Many states (most notably California) have given up or have reduced their inspection services so now it is not uncommon to find five percent or more of the colonies in an apiary infected with AFB.

There are other diseases to worry about but beekeepers who live in an AFB free area are especially fortunate. If AFB is not present make a concentrated effort to protect against its becoming established.

Loads of dead bees on the front door step may indicate serious problems inside.

It is important to understand that when more people lived on farms and more legislators were farmers, there was greater concern over agricultural problems. The chief reason for supporting state inspection of colonies has been the need to have an adequate supply of healthy bees for pollination. Apple growers, for example, have always been strong supporters of bee disease inspection programs because they need good colonies for pollination. State legislatures are not so agriculturally oriented today because so few of their members are farmers. Agriculture has been successful in the United States and food is abundant and cheap. As a result people don't worry about their food supply and there is less interest in agricultural problems, including bee disease inspection. In straight forward, simple terms this means that beekeepers must become their own inspectors. They must solve their own disease problems because there will probably never again be a strong inspection force in most states.

Why They Died

The first step in examining a dead colony is to determine if any brood, even though it be dead, is present. If so, individual cells should be examined. Larvae and pupae that die from American foulbrood lie flat on the bottom of the cell when holding a frame in it's normal position. These pupae may have a leg or tongue sticking upward from the dead body. This symptom is not found in pupae dead for any other reason. Those that die from European foulbrood (EFB), another common disease will usually be curled but EFB rarely kills colonies in the winter.

Colonies dead from an infestation of tracheal mites may or may not have brood present. The chief symptoms of tracheal mite killed colonies are lots of honey left in the combs and hardly any dead bees in the hive. Apparently, individual bees dying from tracheal mites attempt to escape from the hive. There are some reports of infested colonies absconding, (all the bees leave at once), no matter the time of year. Dead bees decay quite rapidly and it is not possible to find tracheal mites in those bees left in the hive.

When Varroa mites infest colonies the lethal result is much the same as when tracheal mites take their toll. A varroa mite infestation is much easier to diagnose, however, since dead mites can be found on the bottomboards and sometimes in cells on dead brood. There may be honey left in the hives if robbing has not taken place.

Honey from colonies killed by either of these mites may be fed back to other colonies. There is no danger of transmitting mites in this manner since neither can live when away from live bees.

Starvation as a cause of death is more common than most of us care to admit. A colony overwintering in two ten frame Langstroth supers will usually need 60 pounds of honey to survive the winter. More will be required in the extreme north, and less in southern areas, but figure on 40-80 lbs., no matter where you live. The best way to avoid starvation is to weigh the colonies in the fall and to feed those that are light.

Clean up and store frames from dead colonies or the wax moths will do it for you - in a hurry!

Cleaning Up

It is important to remove honey supers from dead colonies before robbing can start. Robbing from AFB infested colonies is the easiest way to spread the disease. Robbing colonies dead from mite infestations poses no problems insofar as spreading the mites is concerned. However, when robbing starts the bees will often attack colonies weak from many causes and these may be needlessly lost.

If signs of AFB are present the combs should be

Continued on Next Page

BUT FOR THE LIVING . . .

Across most of the northern U.S. a normal colony of honey bees grows from between 10,000 to 15,000 bees in late March to 50,000 or more by July first. These three-plus months in the life of a colony are critical to practical beekeeping and honey production. Colony management during this period is not difficult but certain practices must be carried out on time to be effective. The goal is to have the most bees possible when the honey flow starts. A good rule of thumb is that this will start early to mid June.

Still Snow

Most beekeepers try to visit their apiaries on warm days in January or February to check for vandalism, plugged entrances, covers that have blown off or packing that has been damaged by deer, cattle or other animals. Looking for the occasional dead colony should be part of this inspection. They should be examined immediately to determine the cause of death. Starvation is a common problem, but check for American foulbrood, or other reasons.

Maple Pollen Time

On the first warm day in late March or early April, when the bees are flying, stroll through your apiary and scan colony entrances for activity. The first pollen usually comes from sources like skunk cabbage and maple, but pussy willow and others soon follow. A colony with several bees at the entrance returning with pollen loads is probably healthy but should be lifted from behind to feel if there's enough food inside. Some of my friends feel this is a kind of "iffy" approach to a serious problem, which is true; conversely, it is fast and can be effective. However, with a little practice you'll be able to tell if a colony has enough food or needs more. It is always well to err on the safe side and to feed if there is any question.

Check again for dead colonies. Examine any you find to determine the cause of death. The examination should be made in an area where there are no bees flying if possible, to avoid robbing. In the event a contagious disease is present, this will prevent it from spreading.

Weak colonies should be combined. To do this, place the brood super of the weaker of the two on top of the stronger, separating them with

Continued on Page 155

Classic remains from a colony infected with tracheal mites. You will usually find honey, but few bees present - dead or alive.

DEALING WITH THE DEAD ... Cont. From Pg. 153

burned (honey, wax and wood) and the interiors of the supers scorched. This has been the standard method of treating AFB in this country for many years and is still considered a sound practice. Unfortunately, in areas where AFB is common burning and scorching may be a futile attempt at eradication and you may be forced to resort to medications to control the disease. The correct medication, properly applied, works well at eliminating the visible signs of the disease. Be warned, though. Once you start a drug program for controlling AFB it is usually necessary to stick with an annual treatment and some colonies may need treatment more than once a year. This is true because the spores remain hidden in honey, comb and in cracks and cervices in the equipment.

Combs in dead colonies may contain dead brood covered with mold and fungi. They may be wet and moldy themselves and there may be some with honey fermenting and giving off an extremely offensive odor. As strange as it may seem, these combs can be salvaged.

The combs in supers from dead colonies should first be removed and examined for disease. Brush the dead bees off onto the ground. Don't worry about removing the dead bees or (uninfested) brood that may be in individual cells. The bees can do that easily enough when the weather is warm and dry. The equipment from dead colonies should be dried which will stop the growth of the mold and fungi. Bottomboards and supers should be scraped and cleaned. Dead bees clinging to the combs were presumably removed in the bee yard. If you're going to store them inside for any length of time, take precautions to protect from wax moth eggs hatching and the larvae damaging the combs.

Bees will clean moldy, fungus covered combs best just before the main honey flow starts. At about this time colonies have their greatest population. The combs should be kept dry until the time the supers are put back onto the colonies. Air colonies that have had a wax moth treatment a day or two to clean out fumes. In the northern tier of states the honey flow starts about June 15, a little earlier in the middle states, much earlier further south. Plan accordingly. Another way to measure when bees will clean dirty combs best is to aim for the middle of the swarming season which is about the same time. You may find it difficult to believe that bees can clean combs that are such a mess. But in a day or two you wouldn't recognize them. A honey flow is a great motivator. Earlier in the year when colonies have fewer bees they have less initiative and are less capable of cleaning combs.

Safe Spots

Most commercial beekeepers believe that bees winter better in some locations than in others. If you have high losses repeatedly in a location you may decide that spot should not be used for wintering. A good winter location slopes to the east or south, is protected from the wind, has relatively dry ground in winter, with air and water drainage away from the colonies. A frost pocket is a poor place to keep bees. Abandoned stone and gravel quarries seem to work well, but meeting the above requirements will help. Not infrequently you'll find a location that is great for honey production but poor for wintering. Moving your colonies is the only answer.

Rest in peace . . .

Beekeepers are unlike those who keep other animals. The interior of a hive cannot be examined in winter, and on a day to day basis you do not know what is happening. In the northernmost states this may mean as much as seven months may pass without inspecting the interior of a hive. In the south it may only be a few weeks.

Wintering bees is an art, but much can be learned by a through examination of dead colonies in the spring. Understanding why colonies die in winter (and what to do to prevent it from reoccurring) is an important part of successful beekeeping.

If it's really early, check for blocked entrances.

LIVING ... Cont. From Pg. 153

a sheet of newspaper. They will combine and make a single strong colony. What is a weak colony in early April? It has less than one pound (about 4000) of bees. There will be only a small patch of brood, usually in only one, or at the most, two combs, and it will be only three to five inches in diameter. While weak colonies may survive they seldom become strong enough to produce a honey crop or even to gather enough honey for winter. Two weak colonies can make a producing unit, and sometimes it is even possible to split the colony into two parts later in the season.

I don't recommend removing and examining frames, or checking colonies closely on this first early inspection. However, wet bottomboards should be replaced. It is always good to carry some dry bottomboards with you during this first visit. Check for wet inner covers, too. Colonies with no upper entrance and coated with a heavy layer of propolis on the inside may not be well ventilated. They may be wet on top as well as the bottom. Colonies that are wet, either on the top or bottom, have problems keeping the rest of the interior of their hive dry and holding a normal brood rearing temperature.

Feeding may be required. Use gallon jars

Cleaning wet tops and bottoms is a good activity this time of year.

Before Dandelions Bloom

A thorough visit should be made to the apiary in late April or early May, or well before the dandelion and fruit bloom in your area. Time your inspection around these benchmarks. In northern new York swarming may start as early as May 15, which is about two weeks before dandelions bloom. Your first visit should take place at least two weeks before the first swarms emerge. The three critical factors to check are: *food, disease, and the queen's brood pattern.* It is not necessary to find the queen but only to make certain she is laying eggs in almost all of the cells in the brood area. At the same time brood of a like age should be next to brood of the same or nearly the same age. Both are important.

Colonies must not be allowed to run out of food at this time. A colony should have 10 to 15 pounds of honey

Continued on Next Page

. or inhive feeders. Keep the feed close to the cluster.

LIVING ... Cont. From Pg. 155

in reserve, in case of a long period of bad weather. A full deep frame weighs about eight or nine pounds. Estimate accordingly. Feeding a sugar syrup solution, using any of several techniques may be necessary if you don't think there is enough. Err on the side of caution if you're uncertain. Better safe than sorry.

Stop That Swarm!

At the time of this inspection you can reverse the brood nest supers (switch top and bottom super, so most of the brood is on the bottom) or add more supers to give strong colonies room to grow. Equalizing colonies by switching the locations of weak and strong units is an excellent method of swarm control and strengthening weak colonies. Or you can take frames of brood from strong colonies and give them to the brood nest of weak ones. This is good swarm control for the strong colony, but be sure the weak colony has enough bees to keep the brood warm. You can take a frame of brood (or two) from an extra strong colony and place it into the center of an added super. This can be dangerous though if there aren't enough bees to cover the brood.

The entrances of weaker colonies should remain reduced with an entrance cleat. Knowing when the entrance cleat should be removed is part of the art of beekeeping and it is always difficult to pinpoint a precise date. Certainly it should be removed when it causes congestion at the entrance.

Before The Fourth

Sometime in late June, or a little earlier or later if the honey flow has not yet started, add a queen excluder and more supers. I'm a strong believer in excluders because they make colony manipulations easier. Precise data that excluders congest a colony or reduce ventilation, both of which encourage swarming, doesn't exist. I recommend them.

Do you place the excluder over a single super into which you've placed or driven the queen? I usually place the excluder over a second super, but I am not in a good honey producing area and not concerned with keeping the early light honey crop separate from the late summer and fall honey. Where you place the excluder is important and a judgment can be made only after observing several seasons of honey flows in an area, and your eventual goals in honey production.

Some beekeepers delay putting the queen excluders in place until early to mid July since almost no swarming takes place between about July 15 and August 15. Placing an excluder on a colony about mid July does not encourage congestion but it might do so if you put it on earlier. It comes down to your management goals and the time you have.

It's All In The Timing

The growth of honey bee colonies is rigidly controlled by climate and the time of year. Likewise, the flowering schedule of local honey plants can likewise be predicted within a few days. A delayed and cool summer or a hot and early spring will change the schedule of both colony and plants. Learn to judge the environment. Since the life of a colony is precisely governed and predictable, you can manipulate their schedules to conform to the weather and your schedule. If your goal is to obtain a maximum crop of honey the management scheme must be precise and tied closely to the time of year. ○

From Southwestern Hive Parts

SWARM RETRIEVER

jeff ott

Recently upgraded, this tool could be very practical for the avid Swarm Collector. I have had great success with it, but there are some lessons to learn first.

I don't know about you, but it's becoming increasingly difficult to find time to do the things I *have* to do, let alone the things I *want* to do. Between my job, being a father and husband, and a few other things I've committed myself to, I seem to have little time left for being a beekeeper. And not that long from now it will be swarm season. Seeing a honey bee swarm in flight or hanging on a tree branch or even the fender of a car is a rewarding aspect of beekeeping. Being beekeepers lets us understand and fully appreciate this act of nature.

Fortunately, due to our rather unique and seemingly undying interest, we get called to remove these "perils of life, limb and property", and in the process, increase our visibility in the community. Is it possible to participate in these adventures of beekeeping and not spend a lot of time doing it? I was wondering that when I saw an advertisement in *Bee Culture* last summer.

There are several products on the market that take advantage of the honey bee's desire to swarm. You can buy swarm traps, pheromone lures, and an actual swarm retriever. Southwestern Ohio Hive Parts Company in Centerville,, OH bought the Swarm Retriever Co. from the family of John Musgrove after his death.

The Swarm Retriever itself consists of a box, about the size of a deep super, a screened inner holding cage, and the heart of it all, the converted vacuum cleaner. In addition to the vacuum, the Swarm Retriever comes with 6 feet of flexible 2-1/2" hose with various nozzle attachments and extensions. This is a one-of-a-kind piece of hardware you can purchase that has the potential to pay for itself within a season.

The main box of the unit has a lid made of clear Lucite. The vacuum cleaner is mounted on top of this. Through a hole in the top, the suction inlet of the vacuum enters the box. Inside the main box sets a removable wire cage, bound on both ends by wood. The bottom of the inner cage is a sliding sheet metal "door" When you are finished collecting the swarm and are at the hive that will house the swarm, it's easy to remove the inner cage and slide this door open. The bees can easily be emptied out. This is easier, in fact than shaking bees out of a mailing cage.

I received a Swarm Retriever last June. Swarming season had just begun and I was eager to give it a try. It was completely assembled and ready to go, except for the top. Southwestern makes the Swarm Retriever with the clear Lucite top so it is interesting watch while using. However, the first thing I found out was that the weight of the vacuum cleaner on top, and UPS's rough delivery had put a lengthwise crack in the Lucite. I called Southwestern and they promised a new cover in a few days. Unfortunately, before the new cover came I got a swarm call.

Of course I was anxious to use the Swarm Retriever and of course, it was supper time, and of course, I promised my wife that I would be back in "only an hour" I thought that I could get away with using duct-tape to repair the broken cover and made the repairs before I left.

The swarm had clustered within the English Ivy that was clinging to a chain link fence bordering a small carpet store north of town. It was a small swarm, about the size of a football. I was all set. I had the Swarm Retriever and

Continued on Next Page

SWARM RETRIEVER ... Cont. From Pg. 157

a 100-foot extension cord for power from a conveniently located electrical outlet. Still thinking that I'd make the one hour time commitment to my wife, I turned on the Retriever and started what I thought would be a quick job.

The bees that went into the hose seemed to be able to crawl out almost as quickly as they went in. There was hardly any suction at the end of the hose. My repair job to the top was not holding and I quickly learned (a little too late for this swarm) the importance of maintaining an air-tight seal around the top. The vacuum cleaner was not able to compensate for the cracked top. I watched some of the bees go into the inner cage like they should, but most seemed to get jammed in the hose.

That was the next lesson I learned that day. Do not clog the hose with bees. There is no easy way to unpack the hose when it's full of bees, short of shaking them out. The jarring and shaking causes the bees to regurgitate and the mess is unpleasant, at best, and lethal to the bees, at worst.

Few bees survived the trip to the apiary. I stared at the wet mass of mostly dead bees and what was once a hopeful swarm. It was a lesson I learned, and they paid for.

Needless to say I was well over an hour late and supper (and my wife) were cold.

I am not telling you about this disaster to lay blame with the Swarm Retriever or the good people at Southwestern Ohio Hive Parts. The death of that swarm was entirely my fault. It points out the importance of learning about new equipment before using it. The second lesson is do not use equipment for the first time under "rushed" conditions. Allow plenty of time to familiarize yourself to the operation and limitations of any new piece of equipment you purchase. Since that first swarm, I have had many occasions to effectively use the Swarm Retriever and have had great success. If you keep a couple of points in mind, you will have no problems with the unit.

KNOW THE EQUIPMENT BEFORE YOU USE IT When you get new equipment – practice. Don't try and piece it together at the last minute. Use it as the manufacturer suggests. There are reasons for their instructions.

MAINTAIN THE SEAL This is the key to the entire operation of the Swarm Retriever. When you put the unit together use glue and the nails common to building supers. You may want to drill a few pilot holes first to avoid splitting the wood. Make the box as solid as possible. You don't want it to come apart at the seams by throwing in the back of your truck or car when you're in a hurry.

TAKE YOUR TIME AND DON'T RUSH THE JOB Don't make unreasonable demands on your time. Plan to spend more than you really think it will take. This way you will not feel rushed and under the gun. Don't go out at supper time and tell the family you'll be "right back" You'll only put yourself and your family under unnecessary stress. A job that is rushed is not always a good job, or worth it in the long run. Take your time and do the job right.

DON'T GET GREEDY Take care when retrieving swarms and don't get greedy with the bees. If you stick the hose in the middle of the swarm and try to suck them all down at once, you'll only succeed in clogging the hose. There is no easy way out of a clogged hose problem short of shaking them out. Which is just too hard on them. Better to avoid the problem in the first place.

NO DIRECT SUN Even though the Lucite cover makes it easy to see what is going on in the collection cage, bees will die from overheating if left in direct sunlight. Keep a burlap cover handy to cover the glass or make sure the collection box is kept in the shade. In fact if you are done collecting the swarm, remove the inner cage from the retriever and place it in a cool spot. Place a piece of duct tape over the inlet hole. At this point, you can treat them as you would any packaged bees.

The Swarm Retriever is expensive – $324.95. However, if you capture many swarms each season and charge for the removals it would be a nice piece of equipment to have. Some swarms can be quickly had with just a burlap sack and a sharp tug on a branch, but often you'll run across swarms (such as on a bumper of a car, or mixed up with English Ivy in a chain link fence) that will only be quickly gathered with a Swarm Retriever.

Shine On!

Put a shine on almost anything with one of these tried & tested Polishes!

elaine white

After completing a beekeeping course at Mississippi State University, I wanted to keep bees. I had no beehives, so I bought 60 pounds of honey and 10 pounds of dirty beeswax from a beekeeper attending the course. All summer was before me to dream about getting bees next spring and to experiment with the wax and honey.

The bees, hives, and honey arrived that spring, but after four years, I am still fascinated by formulas containing honey and wax. New books fill my shelves and two cardboard boxes contain thousands of formulas. My family is accustomed to my experiments and will no longer taste anything in the kitchen without asking, "What is it?" We use beeswax skin soap and drink carbonated soft drinks sweetened with honey. I use ultra-rich skin cream and tend the fermenting mead. Vinegar, liqueurs and honey jelly are in the cupboard and the furniture is protected with beeswax polish. I am in the process or organizing my notes. This is what I've learned about beeswax polish.

Be Careful

Work outside or open windows and doors for adequate ventilation when mixing mineral spirits. Due to danger of fire when heating wax and mineral spirits, do not use direct heat.

Beeswax polish with its soft, satin shine was once considered the ultimate in wood care. It is fast losing this distinction due to poor products being sold and good products being sold without proper proper instructions for their use. There is also confusion between beeswax polish formulas designed for bare wood and sealed wood surfaces.

Formulas containing beeswax, turpentine and *linseed oil* are designed to provide a hand-waxed finish to bare wood. Linseed oil takes days to dry. This old fashioned and labor intensive method of finishing wood involves the application of multiple layers of wax and friction polishing between each application. Hand-waxed finishes permeate wood and provide a finish that is impossible to remove. Hand-waxed finishes still remain on a few glorious antiques, but are rarely seen on modern woodwork.

Modern woodwork is almost always sealed with varnish, shellac, paint or synthetic finishes. Most polish formulas for sealed-wood surfaces contain beeswax and turpentine, the amount of turpentine will determine if the product is a liquid or a paste. This type of polish is slightly tacky and has the unpleasant odor of turpentine. Avoid turpentine odor by using mineral spirits instead and by adding small amounts of oil of citronella, lemon or pine. Adding carnauba wax to beeswax polish formulas solves the tackiness problem and makes buffing much easier. Carnauba wax is very brittle. When struck sharply, it will break and can be measured as a powder. Oil-soluble aniline dyes are available in many colors and can be added to any polish formula to help conceal scratches in the finish.

Lacquered tins and wide-mouth jars are appropriate containers for cream or paste polish, while small-mouth bottles and squeeze containers are appropriate for liquid polish. The label should state the producer's name, address, product net weight and ingredients in order of content. Include complete directions for use of the product, perhaps as a folder taped to the bottom or as a tag attached to the neck.

FORMULAS

Liquid Polish I

1/2 cup beeswax (about 4 oz. wt.)
2 tablespoons carnauba wax
2-1/2 cups mineral spirits

Melt the waxes on high in a microwave (watch closely) or in a double boiler. Remove from heat and stir in the mineral spirits.

Paste Polish I

Use the Liquid Polish I formula reducing the amount of mineral spirits to 1-1/2 cups.

Liquid Polish II
1/2 cup beeswax (about 4 oz. wt.)
2 tablespoons carnauba wax
1/8 teaspoon lye (sodium hydroxide)
2 cups water
2 cups mineral spirits

Melt the waxes on high in a microwave (watch closely) or in a double boiler. Add lye to the water and stir until it is dissolved. Remove the wax from heat and add the lye water. Immediately add the mineral spirits while stirring briskly or by using an electric mixer.

Paste Polish II
Use the Liquid Polish II formula reducing the amount of water to 1/4 cup and mineral spirits to 1/2 cup.

Cream Polish
Make Paste Polish II and allow it to cool. Make small additions of mineral spirits while whipping with an electric mixer or blender until the polish has the consistency of hand cream.

Paste Shoe Polish
There is no difference between polish for sealed wood and polish for polished leather. The aniline dye in this formula helps cover scuff marks on leather.
3 ounces (wt.) beeswax
1/2 ounce (wt.) carnauba wax
1/2 cup mineral spirits
1 tablespoon soap (not detergent)
1/2 cup water
oil-soluble aniline dye

Melt the waxes in a microwave or double boiler. Dissolve the soap in hot water. Dissolve the dye in the turpentine. Remove the wax from heat and stir in the turpentine and dye mixture. Stir in the soap water mixture. Stir until cooled (at least 108°F) and pour into tins.

NOTE: Containers used to melt beeswax are easily cleaned in the dishwasher.

LOCATING INGREDIENTS
Beeswax and carnauba wax are sold by most candle making suppliers.

Oil-soluable aniline dye is sold by artist suppliers and some candle making suppliers.

Mineral spirits is sold with painting supplies.

Some drain cleaners are 100% lye. The label should state the contents as sodium hydroxide.

GENERAL DIRECTIONS
These polishes can be used on sealed wood surfaces such as floors, furniture, paneling and other woodwork. Try waxing half of a wooden surface with beeswax and the other half with one of the silicone products that are popular today. The silicone shine will fade in a few days while the beeswax shine may last a year. Liquid polishes and creams can be used to polish metal, chrome, and glass. It is amazing how easy appliances are to clean once they have been waxed. Paste or liquid polish can be used on items made of polished leather, such as shoes.

NOTE: Never dust a waxed finish with an oiled cloth or it will have to be buffed again with a clean cloth to bring back the shine.

Creams and liquids are easy to apply and they clean as well as polish. Apply the polish with a clean cloth and rub in small circles (6" to 8") over dusty surfaces or surfaces with a slight wax build-up. Turn the cloth as it becomes dirty. Allow the polish to dry, then buff with a clean cloth. Rub in circles and then with the grain of the wood. If your finger leaves a print after buffing, more buffing is required. A quart of liquid polish covers about 40 square feet.

Pastes contain more wax than liquids, are long lasting and provide a harder finish. The surface to be waxed must be clean. To remove years of dirt and wax build-up mix:
1 cup boiled linseed oil
2/3 cup mineral spirits
1/3 cup vinegar

Apply the cleaning mixture to finished wood surfaces with a soft cloth, rubbing to remove dirt and wax build-up. For problem build-up, use 4/0 steel wool. Allow the surface to dry overnight. Paste waxes are applied the same as liquids, but remember that pastes are concentrated and a very small amount is applied. Polishes have a long shelf life, but paste wax may become hard. Place the container in hot water to soften the paste and stir in a small amount of mineral spirits. One pound of paste wax covers about 125 square feet.

KEEPING 'PURE' IN PURE HONEY

andrew matheson

Look through any bee magazine and you'll see what we think of honey. We pride ourselves on producing a pure food, one of nature's best products. But already in some countries people are worried about chemical residues in honey, and I think that this issue is poised to be one of our most significant challenges over the next decade.

We need to be increasingly concerned for two reasons: the use of drugs in beehives is increasing; and consumers are becoming more concerned about the purity of foods.

Chemical Increase

Chemical use is growing because pests and diseases are spreading. In North America, for example, medication has been used to control (and sometimes to prevent) the two foulbroods for a long time. But now we have two mite parasites and a lot of beekeepers use acaricides to stay in business. Beekeepers have more bottles in the cocktail cabinet, and have to use drugs for several different (and new) reasons.

The other thing that's happening is that more beekeepers are using chemicals for the first time. Varroa is marching around the world – it was discovered in the United Kingdom in April of this year. Beekeepers there don't use antibiotics to prevent or control AFB, but now that mite control compounds are becoming registered most beekeepers are stocking up that cocktail cabinet.

In Australia antibiotics are not used against American foulbrood. But European foulbrood arrived in the late 1970's and spread rapidly in the early 1980's. There the disease seems to be more harmful than it is in this part of the world, and many beekeepers feed oxytetracycline quite regularly.

Residues

Residue problems occur two ways: traces of chemicals that arise from careful use of registered compounds, following label directions; and those resulting from improper use of registered chemicals or illegal compounds. In practice there's not really a strict distinction between these two categories.

Careful use of registered compounds can result in traces being found in the beehive.Recent studies in Israel have found fluvalinate residues in beeswax have been increasing progressively over the past four years. The communal pool of wax used by the industry has accumulated more of this chemical. At what point will this become a concern for honey consumers, especially of comb honey? Current German studies show that even low levels of mite-control chemicals in wax do diffuse into honey.

In Austria scientists have also found that, even with extremely well regulated and co-ordinated applications of fluvalinate, residues can be found in the hive. I don't wish to pick on fluvalinate, but even careful use of registered chemicals can still lead to problems.

But fluvalinate isn't alone. You can also find residues of other mite control compounds, the antibiotic oxytetracycline, paradichlorobenzene, phenol, as well as the so-called 'natural' compounds formic acid and menthol. Remember, these are all legal to use.

But then there's the other type of residue problem, caused by maverick beekeepers using either unregistered chemicals or home-grown recipes to medicate hives. I've been horrified recently at the widespread drug abuse practiced by some beekeepers.

"Apistan strips are too expensive – instead of putting two strips in for four weeks I'll drop in one strip for eight weeks – it must amount to the same thing. Or perhaps cut a strip in half and leave it in for 16 weeks." (Or maybe forget to take it out altogether.)

I have come across people using cough drops as a source of menthol because it's cheaper, and I'm sure you know someone who has bought an agricultural preparation of fluvalinate and applied it on plywood, paper, or even rags.

These are not imagined events – they're real-life cases. Beekeepers the world over, I'm afraid, are too happy to cut corners to save a buck or two. If that attitude prevails, the outlook for residue-free honey is gloomy indeed. Beekeepers in the U.S. or Canada don't need very long memories to recall the effect residue scares have on the honey market.

Big Brother Is Watching

There's an added dimension to this issue – the increasing concern about the purity of food, concern that's being backed up by stronger government regulations.

In Guelph, Ontario, the federal government has recently spent $C24 million on a food testing laboratory,

that will be rigorously testing food for residues. Honey has been selected for a high level of testing because of the problems of sulfathiazole residues from a few years ago. Once a food gets a bad name, it attracts increased attention.

South of the border in the U.S., the FDA has recently completed the sixth year of its pesticide monitoring program.The most recent report documents analysis of nearly 20,000 samples of local and imported food – only 60 samples of U.S. honey were tested, but two had residues of pesticides which have a zero tolerance.

Safeguarding Honey

Who's responsible for making sure honey remains safe to eat and retains consumer confidence? We can find jobs for scientists to develop better chemicals, and for chemical companies to devise safe formulations, but ultimately it's beekeepers who must take responsibility.

Beekeepers have the greatest control over honey's production and much of its processing. It's the beekeeper who has the most to lose if customers are afraid to eat honey.

One exciting development in helping beekeepers take on this responsibility is the PRIDE Program, launched recently by the National Honey Board. Using attractive written material and an informative video, this program promotes the message that all beekeepers are responsible for producing pure honey.It's their job to put quality into honey rather than relying on regulatory agencies to find and remove defective products from the marketplace.

Using the slogan "Working together to preserve honey's golden reputation", the PRIDE Program has three main messages:

- Medicate colonies carefully, following label directions.
- Observe strict hygiene standards in the honey house.
- Keep proper records.

This last point might be quite a surprise to some beekeepers, but any quality assurance system relies heavily on good documentation. Keeping detailed records will enable you to check on your product at any stage, and trace back to the source of any problems.

I urge you to get hold of a PRIDE Program kit, and introduce its principles to your beekeeping – whether you keep two hives or 2,000 hives.

•

The purity of honey is an increasingly important issue for our industry – some beekeepers may already be sitting on a residue time bomb. Honey is facing greater competition for space on the store shelves, but in the U.S. there are excellent programs to promote honey and increase consumption. We've all seen the effects a chemical scare can have on food consumption, whether it's apples or honey. It would be a shame to undermine the promotional efforts of the Honey Board or private companies by being sloppy with drug usage. 'Residues' isn't just a buzzword. Is an important issue for the 1990's.

The author is Director of the International Bee Research Association, 18 North Road, Cardiff CF1 3DY, United Kingtom. Information on the Pride Program can be obtained from The National Honey Board (303) 776-2337.

b.a stringer

PHENOLOGY

The study of natural phenomena that recur periodically, as migration, blossoming, etc., and of their relation to climate and changes in season.

Webster

As beekeepers, we become intensely aware of the seasons of bloom of the plants around us. The health and well-being of our honey bee colonies is closely tied to the available forage surrounding the hive.

Honey bees fly miles from the hive in all directions, covering a total area of many square miles, in search of nectar and pollen. Observations of plants blooming within a normal area (five to 15 square miles) at different times of the year will give you a good idea of where your bees are "shopping for food".

From several years' records you will become familiar with the chronological sequence of bloom (or phenology) of your local bee forage plants. This will help you determine the best time for supering and honey harvesting, as well as alerting you to the most likely conditions for swarming or hive starvation.

A phenological chart is one of the most interesting and useful records a beekeeper can make. This chart will be tailored to your particular apiary site or sites, as a detailed diary of plant bloom. It will tell you the dates of bloom for specific plants for the year and, after several years of compilation, will indicate the sequence of bloom in your locality.

A phenological record cannot, however, *predict the actual date* of bloom of one plant from the flowering date of an earlier plant. Weather patterns play a large part in determining exactly when plants flower: bloom time may be hastened by a warm spell, or delayed by a cold snap. The amount of time a plant is in flower is similarly affected by the weather. Remember even when a nectar or pollen producing plant is in bloom, your bees may be prevented from foraging by adverse weather conditions.

When spring begins early, plants may bloom ahead of their average dates. The sequence of bloom will be compressed. There is effectively less time between flowerings of different plants, and a tendency for overlap in bloom times which, in a cooler year, would be sequential. This series of events poses problems for the professional pollinator, whose growers want bees in the crops at bloom, sometimes before the previous pollination set is completed.

Making a phenological chart is not difficult. Use the format of the enclosed chart (make copies of the blank first, for future years), and note the name of the plant in the left hand column. Mark on the same line when the plant begins and ends bloom. For the most accurate records, it is best to observe the same plants each year, as small differences in location can often mean quite large changes in microclimate. A shrub growing next to a protected south wall will bloom earlier than one in a shady or exposed situation. Similarly, plants in warmer, sheltered areas will usually bloom before their struggling neighbors in more adverse conditions.

Each year, use a new chart to plot bloom times of plants used by your bees. You may also want to note other details on the chart, such as whether nectar or pollen or both are collected from recorded plants,(N/P) and when your periods of peak honey or pollen flow occurred. Perhaps you are also interested in the colors of pollen produced by each plant, and the amounts which turn up in your pollen traps.

After several years, you will be able to average the dates of bloom for your selected plants, and also have an idea of the earliest and latest bloom encountered through that time. In addition, you will be able to determine the order in which your local bee forage becomes available. Using this information you will become aware of the vulnerable forage times for your bees when few flowers can be expected to be in bloom in the forage area. If the season leading up to this lean time has been unfavorable for bees, colonies may be facing critical food shortages during such a dearth period. On the other hand, colonies which are heavy with abundant food supplies will be well equipped to survive the lean times.

Similarly, colonies which have had favorable foraging conditions and have built up quickly may be likely to "outgrow" their living space and swarm unless the beekeeper manipulates the colony in a timely manner. When weather prohibits collection of even the most abundant nectar and pollen sources, colonies are unable to build up in the usual way, and may require supplemental feeding to survive.

I encourage you to keep phenological records of the forage in your locality. Remember to write on each record sheet the year of the data collection and the area observed. I would be most interested in receiving copies of your completed annual records for general reference. Please send copies to B. Stringer, P.O. Box 511, Blodgett, OR 97326.

And, this year, when you stop and smell the roses, make a note!

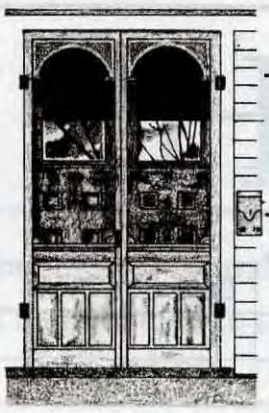
HONEY PLANT RECORD FOR 199_

Location (town, state) ______________ **Recorded by** ______________

Address ______________

Plant or Tree	N/P	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	To Frost

Please send copy of completed form to: B. Stringer, POB 511, Blodgett, OR 97326



HOME HARMONY

ann harman

Rabbit Time

Rabbits, and their relatives, hares, occupy an important spot in our lives. Although appearing cute and loveable, rabbits seem to be at the center of mischief. Remember Peter Rabbit and the problems he caused Mr. McGregor? Then, in more modern times, Bugs Bunny announced his arrival, carrot in hand, with "What's up Doc?" Alice, in her travels through Wonderland, met the March Hare, and attended a confused tea party.

Although popular as story characters, rabbit meat has not really achieved the popularity it deserves as food for our tables. Given proper care and attention to specific needs, rabbits can be as easy to raise for meat as chickens. In many ways rabbit meat is superior to chicken. The proportion of meat to bone is excellent. The meat is lean and is recommended for those watching fat in their diets. It has a lovely mild flavor, and is as versatile as poultry – you can substitute rabbit in any recipe calling for chicken.

If you live in the country you should be able to find farmers raising rabbits for meat. Or check through the frozen food section of your supermarket to find nicely packaged and frozen rabbit meat. The packages generally include a few recipes as a bonus.

Just as honey enhances many chicken dishes, so honey can be used in sauces for rabbit. Rabbit can be baked, braised, used in pot pie (just as Peter Rabbit's father), stews, soups, and salads.

Hasenpeffer

One of the classic rabbit recipes comes to us from Germany – Hasenpfeffer, literally "peppered rabbit", but actually a marinated rabbit stew. The following recipe is a classic and calls for crushed juniper berries. If you are unfamiliar with these, check the spice shelves at the supermarket. Juniper berries, crushed to let the flavor escape, are useful in stews. Try them in some of your other recipes for a different taste treat.

1 rabbit, about 3-1/2 pounds, in serving-size pieces
2 cups vinegar
2 cups dry red wine
2 large onions, sliced
4 teaspoons salt
1/2 teaspoon coarsely ground black pepper
3/4 teaspoon crushed juniper berries
6 whole cloves
3 bay leaves
1 teaspoon mustard seed
flour, salt, pepper
1/3 cup cooking oil
1 cup water
1 tablespoon honey

Combine vinegar, wine, onions, salt, pepper, juniper berries, cloves, bay leaves and mustard seed for marinade. Pour over rabbit pieces. Marinate in refrigerator for 2 days, turning rabbit pieces occasionally. Strain and reserve marinade. Dry rabbit pieces. Coat lightly with combined flour, salt and pepper. Brown pieces well on all sides in the oil. Pour off oil. Add marinade, water and honey. Cover and simmer 45 minutes or until rabbit is tender. Thicken gravy, if desired.

Marinating Tip

Tip: When marinating, put the meat and marinade in a plastic "zipper" bag, zip tightly and refrigerate. Instead of turning the meat, you just shake it around in the plastic bag. This technique actually works much better than bowls or pots.

Rabbit A L'Orange

This recipe gives a fantastic blend of flavors for the sauce and is suitable for serving to discerning guests.

2 to 3 pounds rabbit, in serving pieces
1-1/2 teaspoon salt
1/4 teaspoon pepper
1 tablespoon lemon juice
3 tablespoons orange juice
2 teaspoons grated orange rind
4 tablespoons butter
1 tablespoon honey
dash of nutmeg
few grains of cayenne
small pinch of rosemary

Rub moist pieces of rabbit meat with salt, pepper and lemon juice. Mix remaining ingredients and simmer gently for 10 minutes. Place meat in a shallow pan and brush with sauce. Bake at 350°F for 1 hour or until tender. Baste frequently with hot orange sauce, turning rabbit pieces once during baking. 4 to 6 servings.

Pel-Freeze Rabbit Recipes

Chinese Sweet-Sour Rabbit

The Chinese sweet-sour sauces are popular and versatile. You can use them on pork, chicken, fish – and even rabbit!

2 to 3 pounds rabbit, in serving pieces
1/4 cup oil
1-1/2 teaspoon salt
1/4 teaspoon pepper
1 cup pineapple juice
1/4 cup vinegar
1 cup pineapple chunks
1 medium green pepper, cut in thin half slices
1-1/2 tablespoons corn starch
1/4 cup honey
1/2 cup water

Heat oil and brown rabbit over moderate heat. Season with salt and pepper. Pour

off any excess oil. Add pineapple juice and vinegar. Cover pan and cook over low heat for 45 minutes or until meat is tender. Add pineapple and green pepper then cook a few minutes longer. Mix cornstarch, honey and water. Stir this mixture gradually into liquid in the pan of rabbit and cook slowly, stir until sauce is thickened and clear, about 5 minutes. 4 to 6 servings.

Pel-Freeze Rabbit Recipes

Celebrate March with a meal of rabbit – whether it be a brand new taste experience for you or a meat that you serve only infrequently.

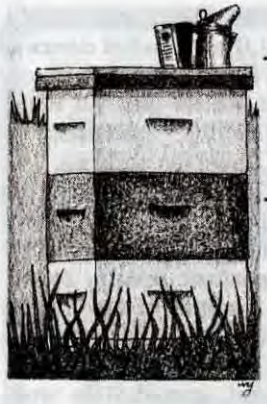
And keep in mind that rabbits do appear in serious literature, too. Ralph Waldo Emerson observed: "All the thoughts of a turtle are turtles, and of a rabbit, rabbits."

?Do You Know? Answers

1. **False** The wax moth is sometimes accused of killing colonies, however, they are not capable of doing so. Whenever colonies become weakened or die during warm weather, wax moths quickly reduce the combs to a mass of webbing or debris. Conditions that render colonies susceptible to wax moth depredation include lack of food, disease, failing queens, queenlessness, pesticide poisoning etc.
2. **False** PDB (paradichlorobenzene) kills adult and immature wax moths, but not eggs. The continuous presence of crystals within the stack not only repels moths and prohibits egg laying, but also kills any young larvae that hatch after the combs are placed in storage.
3. **True** The best line of defense against most pests that affect honey bees is maintaining strong, populous colonies. The bees need access to all parts of the hive so they can effectively guard the hive against unwanted invaders.
4. **False** PDB can be used to protect all combs in storage except those containing honey intended for human consumption. The odor of PDB is readily absorbed by honey, making it unfit to sell and eat. The only approved method for preventing wax moth damage to comb honey is freezing.
5. **False** The bee louse has a very limited distribution in North America. In the United States it is predominately found on the east coast; having been reported from 14 states, all east of the Mississippi River except for Minnesota.
6. **True** Some species of yellowjackets at times become serious pests of honey bee colonies. Weak colonies are especially susceptible. In general, yellowjackets become pests of honey bees in late summer through fall and are more serious pests in dry years. They attack adults, eat bee brood, rob honey and sometimes kill the queen or the colony.
7. **False** PDB works best above 70° F. as it volatilizes into a gas. Since the gas is heavier than air, the crystals should be placed at the top of the stack and on every fifth super within the stack.
8. **True** Wax moth larvae cannot survive on pure beeswax, on honey combs that contain no pollen or on cells not previously used for brood rearing. They must have the protein from pollen, cocoons, and other materials obtained as they devour the combs.
9. **False** Moth balls and crystals made from naphthalene should not be used to control wax moth. This chemical is readily absorbed by beeswax and is detrimental to the colony.
10. **True** Wax moth larval growth depends largely on temperature as well as on the quantity and quality of food and may extend over a period of four weeks to many months.
11. Place the collected pollen in the freezer to kill all insects that are present.
12. First check the colony to see if it is weak and take corrective measures to insure that it will become strong. Place hive up off the ground and cut the weeds and grass around and under the hive. Treat individual ant mounds with an approved insecticide, being careful not to have the insecticide so bees can come in contact with it. Treat the ground under the hive with an oil barrier or the hives may be placed on stands with the legs in tins of water or oil. The legs of such stands may also be ringed with "tanglefoot" to keep the ants from making contact with the hives from the ground.
13. A. Wax Moth Larvae
    B. Larvae of the Bee Louse, *Braula coeca*
    C. Termites
14. Destroys dead diseased colonies so combs do not serve as disease reservoirs.
    Used for fish bait
    Raised for pet food
    Used for research and teaching entomology
15. **B.** Cockroach
16. **G.** Ant
17. **C.** Earwig
18. **E.** Termite
19. **F.** Bee Louse
20. **D.** Dragonfly
21. **I.** Praying Mantis

There were a possible 25 points in the test this month. Check the table below to determine how 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



BEE TALK

richard taylor

Let's Dance.

This is probably the last time I'll bring up the "dance language" controversy, but I do want to discuss it again because it seems finally to be settled, once and for all.

Here is what the controversy was all about. As is well known, Dr. Karl von Frisch, over many years of painstaking research, established close and sometimes astounding correlations between complex dance-like behavior of scout bees on the honey combs and the recruitment of foragers to nectar sources, sometimes distant ones. The behavior itself is well known. The scout bee does a figure eight dance, rapidly shaking her abdomen at the midpoint of that figure. The direction of the bee's movement turns out to have a precise correlation with the direction of the nectar source, in relation to the position of the sun at that moment, and the rapidity of the shakes correlates with the distance. The same behavior is observed on the surface of a swarm of bees, and is found to correlate with the new nesting site that the bees fly off to.

This, of which I have given the most superficial description, quite stunned the scientific world with amazement. Dr. von Frisch drew the natural inference that this dance was a form of communication, an apparently sophisticated one, and he entitled his monumental work *The Dance Language and Orientation of Bees* (Harvard University, 1967). Smaller works, derived from lectures he gave at Cornell University and elsewhere, came to be widely read and admired. Dr. von Frisch was everywhere hailed for his astounding discoveries and eventually awarded a Nobel prize.

In time, however, doubt was cast on all this, the leading critic being Dr. Adrian Wenner, currently of the University of California. Dr. Wenner claimed that the bees' discovery of nectar sources, nesting sites and the like could all be explained in terms of random search plus clues provided by scents. He claimed, in effect, that the behavior of bees is no more wonderful than that of most ants, which simply follow scent trails. This alternative view of Dr. Wenner's did not draw its plausibility from any vast amount of original research, and the defense of it has been largely anecdotal. But it seemed to many persons to be more plausible, and Dr. Wenner's book *Anatomy of a Controversy: The Question of a "Language" Among Bees* (Columbia University) evoked considerable approval from segments of the scientific community, though rather little from those directly involved in bee research, the vast majority of whom believe that Dr. von Frisch was entirely correct in his interpretations. Dr. Wenner was saying, in effect, that this notion of a bee language was a hoax and a pipedream, and that the vast army of bee researchers who went for it had simply been carried away by romantic hogwash.

This whole controversy has now, I believe, been resolved, not by arguments back and forth as to whose interpretations are more plausible, but by recent scientific experimentation whose implications are quite incontestable. Before describing this, however, some preliminary points are in order.

First of all, it is in some ways unfortunate that the expression "dance language" is used to describe the bee behavior in question, as it suggests that bees employ a kind of signalling akin to the human use of language. Indeed, I believe there are people who imagine that the bees stand around watching another bee "dance" and then make sophisticated inferences involving the position of the sun and so on. This is of course absurd.

Second, Dr. Wenner does not deny that bees behave in precisely the way Dr. von Frisch and so many others have described. Indeed, the behavior is perfectly apparent to anyone with an observation hive.

Third, and more important, neither Dr. Wenner nor anyone else, so far as I know, has denied that this so-called "dance" behavior is correlated with nectar sources and nesting sites in precisely the way Dr. von Frisch has described. Thus it casts no doubt on Dr. Wenner's views to point out, for example, that a human being, observing this behavior and applying Dr. von Frisch's rules, can be led to the same nectar sources or nesting sites the bees are visiting. More than one observer, for example, interpreting these dances in a swarm, has proceeded to the nesting site indicated and arrived there ahead of the swarm. Dr. Wenner, I believe, does not deny this sort of thing happens, and that there are precise and astonishing correlations between these "dances" and the locations which human observers can find through their interpretation of them. He only denies that the dance-behavior was what led the *bees* to those locations. He claims that the bees simply follow each other, assisted by scents.

Continued on Next Page

BEE TALK ... Cont. From Pg. 169

How, then, might this controversy be resolved?

Well, some researchers in Germany designed a little metal bee, coated it with beeswax, and equipped it to emit a faint sound resembling the sound dancing bees have been found to make. They rigged this "robot" bee, as it has come to be called, to a computer, by means of which the investigator could cause the robot to simulate the familiar dances real bees perform on the combs. The robot bee was then added to a regular small colony of bees, to test their response to its dances. Then the following experiment was performed, several times: With the colony and its little robot bee at the center of a large meadow, eight observation posts were set up in a circle around it, each of them 370 meters (about 400 yards) from the hive. A mild scent was applied to the robot bee, and the same scent placed at each of the eight observation posts. Then the robot was caused to perform the dance which would correlate with one, only, preselected observation post. Eight observers waited at these observation posts, one at each, to record how many bees visited each one.

Under the conditions described one would expect, on Dr. Wenner's thesis, each of the eight observations posts, all equidistant from the hive, would be visited by about the same number of bees, provided there was no breeze. In case of a constant breeze it would be expected, on Dr. Wenner's thesis, that more bees would visit the observation post upwind from the hive, guided to it by scents.

And what happened? The bees that visited the observation post indicated by the dance of the robot bee outnumbered those visiting any of the other observation posts by a ratio of about twenty to one! And under the conditions of a light breeze, the bees, by about the same ratio, went to the observation post that was in the *opposite* direction from the one they would have been guided to on Dr. Wenner's view, and to the one indicated purely by the dance of the robot bee! In other words, they flew more or less downwind from where scent would have guided them, to get to where the dance behavior was guiding them.

It seems to me incontestable, therefore, that the so-called *dance* of the bee is the means of communication, and that scents play an insignificant role in the recruitment of foraging bees to nectar sources.

I am much indebted to Dr. Tom Seeley, a leading bee research scientist now teaching at Cornell, for bringing these important results to my attention. At the end of our rather long discussion of these things I asked Dr. Seeley, in the way of small talk, what's new, and immediately wonderful smile graced his face. It seems that what is new is that he and his students have, with painstaking research, made a discovery. They have, as he put it, "decoded" the so-called "tremble dance" of the bees – a kind of behavior that Dr. von Frisch and many other observers had often noticed, but which no one had understood heretofore. That is a whole new story, which I shall not go into. But no wonder he smiled! Here is something, hitherto unknown through the entire past history of the human race, of which he is the discoverer! How many – or rather, how few – of us can glory in such realizations as that?

QUESTIONS?

Placing Patties?

Q. How much Terramycin does one put in extruder patties? How much of the final mix do you use per double-deep? If the nectar flow begins during the second part of February, when should the patties be used to ensure no Terra in the supers? Where in the hive should the patties be put?

Michael Celano
Redlands, CA

A. It is not necessary to use extender patties unless you think your equipment, such as supers, is contaminated with AFB spores. Otherwise, dusting with a mix of Terra and powdered sugar two or three times in the spring should suffice. I have never used extender patties, but a very successful beekeeper friend advises as follows: 100 patties – 16 lbs. crisco, 32 lbs. gran. sugar, 2 lbs. terramycin 6.4 oz.; 20 patties – 3 lbs. crisco, 6 lbs. gran. sugar, 1 pkg. Terramycin 6.4 oz.; 6 patties – 1 lb. crisco, 2 lbs. sugar, 6 Tbl. Terramycin 6.4 oz.; 2 patties – 1/3 lb. crisco, 2/3 lb. sugar, 2 Tbl. Terramycin 6.4 oz. It takes some strength to make the big batches. Make as many patties as you need and divide them into the amount of the formula. Make flat patties and put them between your two hive bodies. You may choose to put them on wax paper. Put these in the hive where they will be more easily accessible to the bees, that is, right in or over the brood nest, and then remove them a week or two or before putting supers on the hives.

Poor Substitute?

Q. Very early this spring I fed my bees pollen substitute in patty form but they did not take it. What did I do wrong?

Leroy S. Yoder
Flemingsburg, KY

A. Probably nothing. Either there was natural pollen in the fields, which the bees preferred, or more likely, since it was early spring, they had so little brood to feed that they did not need the pollen substitute. There is, in my opinion, seldom a need to feed pollen substitute, since it is almost everywhere readily available when the bees need it most.

Moving Old Hives

Q. I was given a hive of bees a mile from home. It hasn't been opened for ten years. It has one good hive body but the other, and the bottom board, are falling apart. How do I transfer them? Can it be done in winter? I am 80 years old and live alone.

J.A. Coleman
Wellsville, OH

A. Wait until spring and then transfer the combs from the good hive body, one at a time, to a different hive. When you have salvaged everything that is in decent condition, set all the rest to one side and put the new hive in that place, and then, a few days later, move the new hive home. If you have no one to help, then call your nearest cooperative extension office for leads on local beekeepers, from whom someone will be glad to give a hand.

About Mites

Q. I dread the possibility of mite infestation of my colonies. Are wild or feral bees likely to be more resistant to them? Is it necessary to treat colonies against mites? Is the situation going to improve? Are there any mite-resistant strains now available.

Rufus G. Weaver
Scottsville, KY

A. These questions have been pretty well dealt with in this magazine over the past many months, but since they keep coming up, perhaps a few words should be said. Tracheal mites (acarine) cause winter loss, sometimes heavily. They are not a significant problem at other seasons. I do not believe in treating with menthol, because it is effective only in warm weather, when there are likely to be supers on the hive. A better plan, in my opinion, is simply to revive any winter-killed colony with combs of brood and bees from surviving colonies and give them a new queen. The colonies all build up fast and swarming is somewhat inhibited by this procedure. The symptoms of a colony lost to tracheal mites are the presence of stores in the hive in the spring but no bees, dead or alive. The bees are simply driven from the hive in the fall by the mite infestation. *Varroa* mites, on the other hand, kill off a colony slowly but surely. There is no way to entirely avoid infestation, and these mites will almost certainly be found in every colony on this continent within a few years. They can be controlled very effectively with Apistan strips, readily available. In time – perhaps within ten years or so – we will have resistant strains commercially available. Some bees have already shown strong signs of resistance. These bees simply attack the mites in their midst and throw them out. So the long range outlook appears very good.

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

ANSWERS!

Richard Taylor

GLEANINGS

MARCH, 1993 ALL THE NEWS THAT FITS

FDA Almost Sure

NEW LABEL RULES IN EFFECT

The FDA has established label guidelines for honey, to go into effect May 8, 1994, unless health claims are made for the product, which then become effective May 8, 1993.

Contained on the new label will be – serving size (1 Tbsp. [21g]), servings per container (varies, see below), calories (60), total fat (0.0g), total carbohydrates (16% daily value [DV], 16 g sugars), protein (0.0g) and 0.0g sodium. Two styles, linear and tabular (tall and wide) are allowed, and several format and typographic regulations must be met.

Serving size of typical containers are: 8 oz. – 11; 12 oz. – 16; 1 lb. – 22; 1.5 lb. – 32 and 2 lb. – 43.

Exempt from nutrition labels are businesses whose annual gross sales of any commodity are less than $50,000, annual or, food sales are less than $50,000. Honey bears, because of their size, require no nutrition labels, but must have an address or phone number provided on the label so information can be obtained.

'Sugars' must be used instead of glucose and fructose, and creamed honey, unless significantly different or with added ingredients (nuts, fruit, etc.) can be labeled the same as liquid honey.

Claims about 'cholesterol free' must be as follows – "Honey, a cholesterol free food" The term "Healthy", as proposed but not yet final, describes a food low in fat and saturated fat and does not contain excessive sodium or cholesterol. Final ruling is expected later this year, but honey generally falls in this category.

"Natural", however, has not yet been defined, nor has "wholesome" for any food. The FDA seems to think these do not apply to honey, but a final ruling is not yet completed.

Most FDA food label requirements become national uniform standards that preempt state and local "nutritional" guidelines. Other standard state and local guidelines still stand, i.e. the "Produced By", or "Packed By", and name and address of the producer/packer still must be prominently displayed, as do other standard face label requirements (wt., honey, country of origin).

To have the FDA review your label, the following information must be sent: formula, quantity, dimensions of container, and draft of the label. Or, send a physical sample. It will take 60-90 days to review. Send to: Center for Food and Applied Nutrition, FDA, Office of Food Labeling, 200 C Street SW, Wash., DC 20204.

Because of some uncertainties listed here, and not yet listed some of these rules may change slightly. Check before you finalize any new format.

Bee Culture will publish the required format changes, dates of application and other pertinent data as soon as the FDA finalizes its decisions. If your company is required to add a nutritional label, or you wish to add one as a marketing tool, be sure of what you are adding before investing in design and other changes.

OKLAHOMA WINNER

Chuddie Smith, Dorothy Garroutte, Mrs. Rosalie Kelting

For the first time the Albert Lincoln Oklahoma Beekeeper of the Year award was presented posthumously. The man to be so honored at the fall meeting of the OK Beekeepers Association died a week before the meeting.

Clyde Garroutte, of the Frontier Country Beekeepers Association, Guthrie, Oklahoma, was selected for the honor because of his generosity in time and energies given to help other beekeepers, and in encouraging new and potential beekeepers.

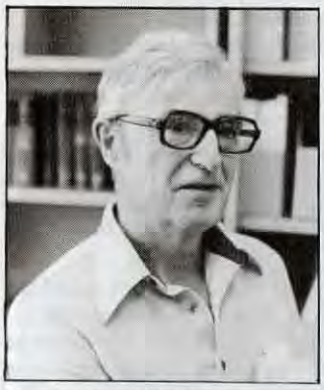
He was active in the local association as president, and giving talks. During his travels he would visit beekeepers in other states and bring back interesting news and ideas to his local association.

The award plaque was presented to Mrs. Garroutte and daughter Rosalie Kelting by Chuddie Smith, president of the Frontier Country Beekeepers.

Send Your Meeting Notices to *Bee Culture* at least TWO MONTHS in Advance so we can publish them for you.

Involved In Honey Industry Since 1948

WHITE WINS AWARD



Dr. Jonathon White, Jr.

On January 22nd, at the American Beekeeping Federation Meeting, in Kansas City, the DUTCH GOLD HONEY BEAR AWARD was presented to Dr. Jonathan White by Bill Gamber, President of Dutch Gold Honey. The Dutch Gold Honey Bear is awarded each year to an individual who has made significant contributions to the beekeeping industry. The award is in honor of Luella and Ralph Gamber, the founders of Dutch Gold Honey, Inc.

The award is a bronze honey bear on a walnut base – a replica of the original model created by Woodrow Miller and W. Ralph Gamber in 1957. A $1,000.00 research grant in honor of Dr. White was also presented to further bee research.

Dr. White grew up in State College, Pennsylvania and completed his undergraduate degree in chemistry at the Pennsylvania State University. He continued on to complete a Ph.D. at Purdue University. Following the completion of his doctorate, Dr. White began to work for the Eastern Regional Research Center of the USDA in Wyndmoor, PA. In 1948, Dr. White first became involved in honey research.

At this time many of the methods for honey analysis were not able to support precise research, thus Dr. White improved or discovered various methods of honey analysis. Many of these methods have been accepted worldwide. White's "Composition of American Honeys", a technical bulletin published in 1962 by the USDA is still one of the most referenced publications on honey composition.

Dr. White's most significant contribution to the honey industry has been the development of an AOAC approved method for the detection of high fructose corn syrup and cane sugar in honey. This isotope ratio test was the first mass spectrometric method adopted by the AOAC and this type of testing aided the honey industry and several other industries who adapted this methodology for their own specific use.

Upon his retirement from the USDA, Dr. White founded Honeydata Corporation in Navasota, TX as a consultant and laboratory company for the honey industry. The recipient of many distinguished awards, including the Harvey Wily Award in 1986 from the Association of Official Analytical Chemists (AOAC), Dr. Jonathan White has devoted a great deal of time and energy to the honey industry, for which we are most grateful. The entire honey industry applauds his efforts and accomplishments.

Send Your News To *Gleanings*

40 Year Walter T. Kelley Co. Leader

DORIS PHARRIS RETIRES

Doris J. Pharris retired from the Walter T Kelley Company, Clarkson, Kentucky on January 15, 1993. Her retirement came after forty years with the company and serving as company president since the death of Mr. Kelley in 1986.

Mrs. Pharris said the hardest part of retirement is first, the decision to do so, followed then by the sadness of leaving the long-time associates and acquaintances of the industry which has been such a vital part of her forty years of employment. As with any retirement, she plans to actively enjoy her family, her home and her many hobbies.

The new Executive Officer is Sarah Manion. Ms. Manion has been with the company for twenty years and has been a Trustee and Officer of the company since 1986. Sarah has worked closely with customers and listens intently to their needs. She has much experience in the internal affairs of the company and possesses excellent qualifications to excel in the beekeeping industry.

Earl King is another newly elected Trustee and Officer of the company. Earl has been employed by the company for eighteen years and has been supervisor of Shipping and Receiving for several years. His expertise and years with the company will be a great asset to Ms. Manion, the company and the beekeeping industry.

Doris Pharris

Mr. Paul Bryant, newly elected Chairman of the Board of Grayson County Hospital Foundation is also a Trustee and Director of the company. Mr. Bryant owns and operates Bryant & Sons Feed and Seed and adds excellent qualifications and expertise to the board of this company.

WETLANDS BOOK

Endangered Species, Endangered Wetlands: Life on the Edge is a comprehensive summary of the crisis of wetland-dependent endangered species in the U.S. Published by the National Wildlife Federation, this 49-page study serves as a synopsis of the conditions in all 50 states as well as a call to action to save our wetland sanctuaries. Although wetlands occupy only five percent of the total area of the lower 48 states, 43% of all endangered species utilize these aquatic oases for feeding, breeding and shelter. Unfortunately, these precious resources are disappearing at a rate of 35 acres every hour.

To order this report (item #79932) and become active in the battle to save these resources, send $6.75 (includes shipping) to National Wildlife Fed., Dept. 318, 1400 16th Street, N.W., Wash., DC 20036-2266.

KEY ISSUE

The environment is likely to be the one issue that permeates all policy decisions in 1993 and beyond. Agriculture will be particularly affected, according to agricultural and natural resource policy analysts at Ohio State Univ. Environmental issues will be a part of trade negotiations, discussions on farm crop-support programs and formulation of national science research policy. That's in addition to debate over legislation related to such "normal" environmental topics as clean water, endangered species and overall environmental quality. What's clear is that the environment is no longer a topic to be lumped into separate legislation. That could mean more middle ground will be reached in policy discussions as more viewpoints are brought to the negotiating table.

USDA NEWS

USDA's Animal and Plant Health Inspection Service announced that it is simplifying and updating its quarantine and interstate movement regulations to control the spread of imported fire ants. The imported fire ant came to the U.S. from South America in 1918 and has spread to an area stretching from southern North Carolina to central Texas. The quarantine is in effect because evidence shows that the imported fire ant could thrive in other areas of the country. The quarantine is the only preventive method because no effective chemical controls have been ruled environmentally safe.

Honey production is expected to decrease in Canada, Mexico, Brazil, Argentina, China and Australia due to unfavorable weather conditions. Germany is the only country expected to register an increase in production, due to favorable weather conditions. Exports are also expected to be reduced because of lower production. However, sharp export decreases in Argentina and Mexico are expected to be offset by increases in Germany.

After proving that four different compounds kill honey bee mites, ARS researchers have provided data to help private companies quickly register them. Varroa and tracheal mites, which have spread to 49 states since the early 1980's, weaken honey bee colonies and can wipe them out entirely. ARS research proved that fluvalinate, amitraz and formic acid kill Varroa mites, while menthol, amitraz and formic acid kill tracheal mites. Agency scientists provided technical assistance to companies wanting to market the compounds. As a result, beekeepers now legally use three of them. The fourth, formic acid, is currently being evaluated by regulatory agencies for approval. The compounds have reduced colony mortality and improved bee health, resulting in better honey production and pollination. That has meant millions of dollars a year to beekeepers. And menthol and formic acid have an added benefit: they are naturally occurring materials, so beekeepers can maintain honey's reputation as a safe and natural food.

Trap Inspectors have been replacing a large number of bee traps that have been damaged by wind and/or rain. A swarm of AHB's was captured during the month in one of the six traps near the Hidalgo Port of Entry. Two more samples from feral colonies were received by the laboratory for identification. Both were of African Ancestry. The temperature in the Rio Grande Valley has been as low as in the forties and it has been rainy or cloudy.

Texas A&M laboratory identified 17 AHB and six European samples. All were collected from feral colonies. One of the above Africanized samples was collected in Williamson County just two miles from the Travis County line. Williamson County was not placed under quarantine.

ARS laboratory identified four samples and all were Africanized. As can be noted, even in low temperatures there is some Africanized Honey Bee activity.

MORE ON MEAD

Susanne Price of Boulder, Colorado has taken over as director of the American Mead Association, replacing outgoing director, Pamela Spence. The Association and newsletter will now be based at the Green Mountain Meadery, 830 35th St., Boulder, Colorado 80308.

Price, an avid brewer of beer, wine and mead since 1986, is also active in the Boulder brew club, Hop, Barley and the Alers and editor of the homebrewing newsletter, Wort Alert. She will be editing the Mead Association newsletters which will continue to provide information of interest to the home and commercial meadmaker.

The Assn. was started by Spence in 1986 to stimulate interest in an alternative market for honey. The association is dedicated to increasing quality of meadmaking worldwide. Newsletter is $10.00 per year.

New Zealand company Harvest Wine has won a NZ$6-mil. contract to supply 640,000 liters of mead to South Korea in the next two years.

Harvest Wine – which is also a major cider maker in New Zealand and operates out of Gisborne on the east coast of North Island – won the competition against international competition.

"The quantities we will now be producing will make us the biggest mead producer in the world," said managing director Brian Shanks.

The mead is being supplied to South Korea at a rate of three container loads a month.

"The significance of the contract can be gauged by comparing the figures with New Zealand grape wine exports," Shanks said. "The value of the country's entire grape wine exports in the 1991-92 year was NZ$34.7 million."

The South Korean importer is conducting a marketing campaign aimed at the gift market for weddings.

Korean tradition has it that drinking mead guarantees the birth of a son within a year of marriage.

"We achieved the contract by our ability to produce mead in large quantities to the high quality required," Shanks said.

Display Index

Get Rich Quick

charles simon

In today's struggling economy who couldn't use a good little business? And how many have considered beekeeping and decided against it, because it is reputedly too hard and unrewarding? Well, the way the art is taught it certainly is. The way it's set up only a fool would take up the occupation.

But it's not true what they say in the books. And don't listen to the oldtimers either. They love to make things as complicated as possible. But do they really know anything? Anything at all? Ha! If they did the world wouldn't be in the sorry shape it's in today. Who do you think allowed this to happen?

Do you think that people who know what's happening are going to let you in on their good thing? No way. Why would they? Who do you think you are, anyway?

Forget what you read in the books. The literature is cleverly designed to make everything obscure and inaccessible, to keep it all hidden behind a forbidding hocus-pocus of professional mystery.

Haven't you noticed how, when you finally do figure something out after a long and frustrating study, you say "Aha!" – primarily because you realize that the significant aspect is just how different it is in reality than the way it appears in the books? When you understand it, it's simple. But how different are the representations from the realities! Almost to the point that the very attempt to understand the literature is the very thing preventing the true understanding.

I, and I alone will demystify the field, initiate you into the inner sanctum of beedom, the holy of holies, where the deepest, most complicated rules of creation are so simple that any idiot can understand them. And you, too, will be able to make lots of money, practically without lifting a finger. Because the really neat thing about beekeeping is that the bees do all the work! And the really neat thing about making money is that those who make the most money do the least work. All you have to do is take it all to the bank. Sound good? Just keep reading.

Supers, dupers, and slumgum scoopers? Forget about all that. You don't need 'em. And beesuits! They're expensive, hot, restricting, and besides you get stung anyway. You don't need gloves. You don't even need a veil. Not if you master my technique. You don't need hive tools. You don't need brushes, blowers, bee escapes, or fume boards. You don't need hive bodies, frames, foundation, wires, or uncapping knives. You don't need knowledge. And best of all, you don't need experience.

Heck, you don't even need to own your own bees. Really. In fact, if the truth be known, you're better off without them.

All you need is an extractor and a smoker. That's it! And of course jars and attractive labels, because your product must be properly packaged in order to be commercially viable – the most important rule of doing business.

Peeled of all the hoopla and mysterious jargon, it is, as are so many complicated procedures when stripped down to what they are really about, the essence of simplicity.

The bottom line is: You find yourself a bee, blow some smoke on her, grab her, and throw her into the extractor. Spin it real fast, and the honey comes out the bottom. (Make sure you have a jar under the spout. You'd be surprised how many novices forget this most important detail – and then go running around whining about how messy beekeeping is.) Needless to say, the more bees you throw in the better. And the bigger the extractor, the better. And of course the faster you spin it .

That's all there is to it.

What could be simpler?

And during the off season, when there is no honey to be taken, and in case you don't want to move to the tropics to extend the season, you can use your extractor to milk the cow. Just throw her in and turn that puppy on. And if your machine is too small, cut her up into appropriately sized pieces. There is a drawback to this technique however. If you want more milk you're going to need another cow.

Stick with me. I'll take you to the *real* land of milk and honey.

BOTTOM·BOARD