



JUNE '91

GLEANINGS IN



BEE CULTURE

I·N·S·I·D·E

HOME SWEET HOME —

Avoiding Those Creatures
That Eat Bees . . . And Beehives

VACATIONS - TAKING TIME OFF —

How Not To Lose A Honey
Crop When You're Not There

INSTALLATION INSTRUCTIONS

Make Sure You Put That Queen Cage In Correctly The First Time, Every Time.



John



Kim

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SUBSCRIPTION RATES: United States, one year, \$14.40; two years, \$27.00. **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.

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There are some beekeepers that inspectors would rather avoid – here's one.

COVER ... *Asparagus is only one of many vegetable crops that need bees for seed set. Blooming in June, these cream yellow flowers are attractive to bees, and when in great enough quantity will produce a delicate pale green honey.*

– Sammataro photo



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INNER COVER

Home Sweet Home, our report of a recent research study, takes a close look at the large and dangerous predators that raise havoc with not only honey bees, but even the boxes we keep them in. Bears, skunks and others can, and do cause problems.

But the spotlight is, and almost always has been on the little beasties that attack from within. It's a safe bet that just a couple of diseases have killed more colonies than all the bears that ever were.

Lately, though, there's a growing number who would argue that tracheal mites are the leading cause of empty boxes across the land. Yet another voice from across the sea says the winner, hands down, will be the varroa mite.

But historical and global perspectives aside, our recent reader's survey sheds yet a different light on the situation.

The numbers speak for themselves –

Percent who have ever had...

Chalkbrood	33%
Nosema	29%
American Foulbrood	25%
Tracheal mites	18%
European Foulbrood	17%
Varroa	6%

Since other data from the survey indicates our readers represent a fairly accurate cross section of U.S. beekeepers, I believe the same can be said here.

But there's more here than meets the eye. Take a look –

Q. Which of these diseases or pests have you ever had?

	Length of Time Keeping Bees			Number of Colonies			Where Bees Are Kept		
	5 yrs. or less	5-10 yrs.	10+ yrs.	10 col. or fewer	10-50 col.	50+	Urban	Sub.	Rur
Chalkb'd	22%	29%	47%	21%	39%	74%	38%	38%	32%
Nosema	13%	27%	44%	19%	41%	50%	22%	33%	34%
AFB	9%	11%	44%	9%	33%	68%	27%	29%	24%
Tracheal	13%	20%	22%	8%	20%	50%	5%	29%	18%
EFB	0%	16%	29%	3%	16%	65%	3%	22%	20%
Varroa	4%	7%	8%	4%	7%	15%	3%	12%	5%

More ... on Page 351

One obvious conclusion is that the longer one has been at the craft, the greater the probability of encountering any given situation. Since both varroa and tracheal mites are relatively new here they tend to buck the trend, but all the rest fall right in line with that hypothesis.

Another conclusion often made is that the more colonies one owns, the more involved (and the longer the involvement) one is likely to be. This is especially true here, with significant differences between those with 10 or fewer colonies and those with 50 or more, with middle group right about in the middle. Also, the correlation between how many colonies one owns, and how long they have been keeping bees is very high. Very few people start with a 100 colonies.

There are some anomalies in the "where you keep bees" category though. Look at Chalkbrood and AFB. It seems that no matter where

you keep bees, the chance of running into one of these problems is equally likely. In fact, there seems to be much less difference between any of the groups in this category, except for tracheal and varroa mites, where the suburban beekeepers seem to have more of a problem than the others.

There are no startling revelations here, but there are some real numbers on how certain groups of beekeepers are affected by the common and daily diseases and pests of the trade.

If you keep records, here's some information you won't be able to get *anywhere* else. And, if you're an everyday beekeeper, this is what you can expect to happen as the years go by. Knowing what's around the corner will let you be prepared. Those little beasties are out there, just waiting and watching for a fast-asleep beekeeper.

Who Gets What, Where, Why and When

Reader Assistance

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NEXT MONTH

July — vacations and holidays, hot weather and hot dogs on the grill. But don't forget your next issue of *Bee Culture*!

To help your bees beat the heat, we've got a great piece on water, bees, and good beekeeping. If you live in an urban area keeping bees out of your neighbors pool is critical, but even country beekeepers should make sure their micro-livestock aren't spending time and energy searching for a long, cool drink. Discover a whole ocean of ways to get bees and water together.

Getting honey from hive to home can be a challenging and rewarding time, or a sticky nightmare of messy supers, mad bees and unhappy beekeepers. Don't let poor planning, or the wrong equipment spoil an otherwise rewarding season.

Public relations is always important, but we sometimes forget these closest to us. Family members can be too close to see, sometimes, and making sure they understand the what's and why's of your hobby is important. And don't forget the land where your bees sit. We too often take land owners for granted — five pounds of honey once a year and thanks. You may need more, now that African bees are commonly in the headlines — don't let lack of foresight lose you a bee yard — take a moment for family *and friends*.

Next month — water, harvesting and good PR. All right here, plus lots, more in *Bee Culture*.

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MAILBOX



■ Elbow Room - 4 More

I'd like to add a comment to Stanley E. Combs inquiry concerning Larry Goltz' methods from the April Mailbox. It just so happens I was one of the original advocates of using nine frames in a ten frame hive body, or seven frames in an eight frame hive, or eight frames in a nine frame hive. The reason being, during hot weather the bees fill the two outside frames with honey to use for insulation, since there is no room for them to cluster there and ventilate the hive. So I suggested using nine frames, spaced such that there would be ample clustering room for the bees to ventilate the two outside frames from the heat generated by the sun. As a result, instead of eight full frames of brood, you would get nine full frames of brood in the two brood chamber deeps of a populous hive. To a commercial beekeeper this means extra income in bees over all apiaries. I presently use the ten frame, western eight inch super as standard equipment. With nine 7-5/8" deep frames, all three holers for wiring foundation. These are much lighter than the standard 84 pound deeps when full. Say 55 or 60 pounds, which sure beats lifting 84 pounds

Joseph M. Howe, Retired
Bee Sweet Apiaries
Seattle, WA

It seems my bees maintain honey and pollen in the two outside frames during spring buildup. That gives me six frames of brood. With nine frame boxes I get five frames of brood. In the second brood (or winter stores) box the broodnest may be wider at peak of

brood rearing and nine frames might be adequate but I use ten frames for standardization.

During the last honey season I weighed the honey from eight, nine and ten frame 6-5/8" supers. The nines produced more honey than the tens. The eights produced more than the nine. The eights save me two frames, they save one fifth the extraction time, and made twice as much cappings.

I draw foundation in ten frame boxes to reduce burrcomb and bridging.

My bees are in permanent yards in central Texas

Bob Sullivan
Austin, TX

This is in response to your invitation for comments on whether to use nine or ten frames per super when starting new foundation.

I have been keeping bees for 25 years and have found the following method easiest, fastest, and cheapest.

New or used frames may be used. I cut strips of comb foundation no more than one inch wide. When using new frames I attach the strip with a cleat. With a used frame I remove the old comb but do not remove the cleat (a messy time consuming job). I warm the strips of foundation and make a ninety degree length-wise bend about 1/4" from an edge, then solder the 1/4" side of the strip to the frame using melted bee's wax applied with a small brush. The object being to end up with a strip of foundation the length of the frame and about 1/2" wide.

In each super I then use four of the above frames and five frames with drawn comb. Frames one, three, five, seven and nine are drawn comb; frames two, four, six and eight have just 1/2" strips of foundation. The bees have no other choice then to draw nice straight comb centered between the frames with

drawn comb.

The advantages of the above method:

1. There is no tenth frame to be removed. This eliminates the task of inspecting the super, rearranging the frames, and running the risk of robbing when a frame containing honey is lying around.

2. The frames do not have to be wired.

3. The cost of foundation is reduced.

4. The frames of virgin comb can be used for cut comb honey, which I dearly love.

5. Old frames can be easily reused.

6. The new frames will probably contain a large percentage of drone comb which is easier to extract than worker comb.

Norman Bantz
Tuckahoe, NY

In north central Arkansas I use nine frames in all stories of the hive: brood chambers as well as shallow supers.

If I were to start beekeeping over, I would use nine frames in all stories and all stories would be shallow supers. Brood chambers seem to weigh considerably more each year.

I do not think too many beekeepers use nine frames in this area for either brood chambers or honey supers.

Thomas M. Dunn
Heber Springs, AR

■ Quiet Noise

An observation regarding Dr. Morse's article in the April '91 *Bee Culture* ("Moves" page 221):

I keep my bees on trailers so that I can move them alone, when required. It keeps the bees off the ground and away from skunks and other livestock that could (and will) turn them over. The trailers are open framework with a walkway down the center which is the same height as the truck bed (hives on each side of trailer). This allows me to

Continued on Next Page

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walk off the trailer right onto the truck.

When I harvest, I use a large, homemade bee blower that stays in the back of the truck. I pipe the air through 3-1/2" plastic pipe and flexhose (from a clothes dryer), layed on the ground to the middle of the trailer and then piped straight up with a 90° elbow and stand pipe to a comfortable work height. Each frame is inspected and passed over the vertical air blast which drives the bees straight up. Frames are then packed in empty supers, covered and walked into the truck.

While doing all this, the truck is not coupled to the trailer, just backed up close enough to walk from one to the other. The bee blower and its engine make a lot of noise – the blower has an objectionable turbine howl and the engine isn't quiet either!

The bees all just mill about in a calm cloud, not at all acting unhappy over the situation until I turn the blower off (or the engine runs out of fuel!) and then they return to their normal behavior under the circumstances.

Since the truck or pipe doesn't couple *vibration* to the trailer and hives, I felt it was the noise alone that calmed them – masked their ability to hear (?) or sense the higher-pitched buzzing (vibrations) of excited bees.

I've noticed, too, on other occasions, that when one or two bees get really excited and are tapping my veil, if I buzz back at them with a real low frequency "Zzzzzz" that they will usually calm down.

This isn't, of course, a scientific experiment, only an anecdotal observation, and I'm not at all sure that calm bees are worth the racket – but then I've learned to turn the blower off *last* when leaving the bee yard!

Has anyone tried similar noise on African Bees? Perhaps there is some frequency and volume of sound that would disrupt their "communications" and reduce the contagion of excitement and aggressive behavior.

Henry G. Cole
Cliff, NM

■ Hot Syrup!

Early last fall I went to feed my bees. I had prepared two gallons of sugar syrup and had put it into a fruit basket.

Arriving at the apiary I put the basket with the syrup beside the hive on a cement block. It was a beautiful cloudless sky. It took one gallon to fill the top feeder of the first hive. After filling the top feeder, I closed the hive.

I turned to the second hive and lo! The basket was in flames! It burned up.

Who can explain this self-ignition?

Answer: The upper part of the gallon was ball shaped and, therefore, worked as a lens.

Ignacy Fryc
St. Catharines, Ontario

■ Magic?

Tips and Gadgets, author Roy Thurber mentioned once seeing a worker bee carrying an egg from below to above a queen excluder, presumably so she could have a queen up there, too. Readers might be interested in a similar occurrence in my hive.

Last year I created a simulated swarm in order to get some foundation drawn. I moved the hive to a new location a few feet away and placed a new hive of foundation on the old location. Then I shook about half the bees from the relocated hive onto a sheet in front of the new one and they marched right in. The queen was removed and placed on the bottom board and she marched right in, too. Of course the field bees returned to the original location.

The relocated old hive now contained all the stores, brood, and, presumably, eggs together with about a third of the bees. As expected, these bees immediately started some queen cells, seven in all. Now it happened that the old hive had included in a super several frames of foundation. I was surprised to discover then two queen cells were built on a frame of foundation, one on each side. Not the slightest amount of drawing had been done on this foundation and, besides, it had been located *above* a queen excluder *before* the manipulations began. I think there is no doubt but that the workers moved these two eggs from the cells in which they had been layed up to the foundation. Of course, I have no idea why they did this.

I cut the most advanced of the queen cells to insure that the first queen to emerge did not originate from

a larva not treated as a queen candidate from the beginning. The only queen cell with a hole in the bottom end, and presumably the first queen to emerge, was one of the two located on the sheet of foundation.

Dan Hendricks
Mercer Island, WA

■ Warm Colors

I just keep a few hives of bees, mostly for pleasure. I have tried insulating my hives over winter and still lose a few. I stumbled onto painting the South side of the hive with flat black spray paint. It costs around \$1.00 per can and will paint ten double hives. I've checked them in freezing weather and found the painted side hot to the touch. When warm weather comes, I paint over the black paint with white.

This past winter I lost none, so I think this is a real cheap way to keep bees warm in the winter, so will continue until a better way comes along.

Charles F. Yonker
Letart, WV

Editor's Note: The black paint will absorb, rather than reflect sunlight thereby warming that side of the hive. What is probably happening is that the increased absorption will cause the internal temperature to rise enough such that the bees can break cluster and move to where the stores are. Sounds like a good idea in moderate climates. I don't think it would work well in severe areas. Does anybody know of a problem with this technique?

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Glen Gibson
Minco, OK

Needs Info!

For years I have sworn by your fine book on Bee Culture (*The ABC and XYZ of Bee Culture*). I will continue to regard it as seminal. But I write now for other information on bees and bee products – particularly bee pollen, propolis, and royal jelly – and whatever else there may be that I do not know about.

I am particularly interested in the scientific studies that have been made in conjunction with the uses of these products for maintaining and/or improving one's general and specific health. I would be glad to receive such bibliographies or lists of product studies or information as to where I can get such information.

Would you also have information about manufacturers of products from pollen, propolis, etc.,? Perhaps there are studies that have been made by persons working in the field of medicine, such as one I have of a dentist in France who wrote his doctoral thesis on the uses of propolis in dental surgery. I am interested in whatever is available, and the language doesn't make much difference because there are persons available for translation.

Richard Johnston
R.R. #4 Rocky Ridge Rd.
Calgary, Alberta
Canada T2M 4L4

I am a member of the Central Maryland Beekeeping Association and can only applaud your publication for its timely and thorough coverage of

beekeeper's information. Thank you very much.

I have an interest in obtaining a specific type of honey, which is RAW (unheated in any way above hive temperature) and organic (free from chemical contaminants.) Preferably honey that will crystalize, (very fine crystals). The lighter the color the better, however, the main consideration is *raw* and *organic*. The honey should not be processed other than extracting and packaging, using a screen size large enough to allow pollen and bits of propolis to go through and small enough to screen out dead bees and other pieces of large hive material.

I will be interested in any quantities of such honey, if available, large or small.

Victor L. Bennett
3315 Powhatan Avenue
Baltimore, MD 21216
(301) 523-SAFE (7233)

I am the proud owner of one of your company's early editions of the *ABC & XYZ of Bee Culture*, in fact the 1905 edition. This book belonged once to my grandfather and it sparked a life for me in beekeeping at a very early age.

The purpose of my writing to you arises from a photograph on page 75, of the Square Oyster-pails? Could any of

your readers possibly write me back whether these pails are still made in the U.S. and if so, who I might contact for further information.

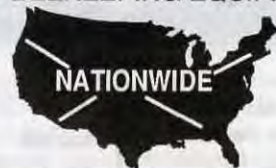
I run 1000 hives and package a good deal of honey and have always been interested in putting up set honey in this type of package.

I would very much appreciate your help in this matter, I can only hope you have some information.

Julian M. Wolfhagen
RSD 942,
Longford 7301, Tasmania, Australia

Editor's Note: They appear similar to containers now commonly used in Oriental cooking, as 'take-out' boxes.

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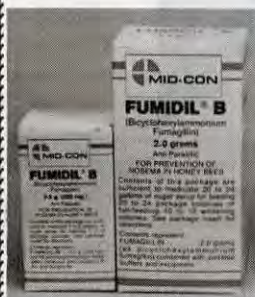


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UNDERSTANDING EXTERNALITIES

GLENN GIBSON

Few politicians, especially those in Washington have a good understanding of honey bee pollination and its relation to agriculture, the wildlife and the overall environment. This lack of understanding must be corrected if we want to keep a reasonable price support program for honey. Congressional opponents of honey price supports did their level-best last summer to discourage the claim that a honey program was necessary to ensure the availability of pollinators. There was some masterful lobbying during the farm bill debate but opponents made headway. A careful reading of the debate reveals a bit of journalistic imagination when they evoked the "economic externality" theory.

David Stroope, a beekeeper from Texas, asked congressman (Dick) Armey (TX) to clarify his reference to externalities; but, so far Armey has not responded. This prompted me to explore the matter with some economist friends. Tis a fascinating subject and I have accumulated a mountain of material, but each new piece of information raises more questions. However, I have a vague idea of Armey's position. Also, I can now understand why Senator Jesse Helms suggested in 1985 that maybe the Congress should subsidize pollination. Some research on the subject of honey bee pollination as an "economic externality" was done in 1952 and 1972.

We certainly need to become familiar with the term - externality. Externalities are defined as benefits for which no compensation is made (free pollination for agriculture, wildlife, and the environment). Apparently, our honey program opponents do not understand the physical aspects of beekeeping.

In 1952 economist J.E. Meade wrote a paper (I don't have a copy. My comment is based on a commentary of his report) that discussed the difference between private and social costs. In plain English more government subsidies may be needed. Lo and behold, Meade's prime example, which has become a classic, concerned the case of the apple farmer and the beekeeper. Since the story of beekeeping is exciting, apples and bees have been used as a classic illustration of the externality problem. It was alleged that markets

broke down because the apple grower's orchard provided a positive externality (nectar) for the bee farmer, but the orchard owner received no payment for this nectar. Likewise, the bees provided pollinating services to the orchard owner, but the beekeeper was not compensated for this necessary service. As a result, it was alleged that government intervention was needed to make the orchard owner grow more nectar-yielding apple trees and the beekeeper provide more pollination-supplying bees.

Professor Steven Cheung of the University of Washington refused to take this classic illustration of market failure at its face value. His research, "Fable of the Bees; An economic Investigation" appeared in the *Journal of Law and Economics* (1972). Cheung concluded that no government subsidies were needed for either party. The big flaw in Meade's case was the reference to the existence of a crop of apple honey. Cheung said, "Contrary to what most of us thought, apple blossoms yield little or no honey." Do our opponents really believe that *commercial* quantities of apple honey really exist? Cheung couldn't resist the urge to use a bit of satire:

"Economists possess their full share of the common ability to invent and commit errors - Perhaps their most common error is to believe other economists."

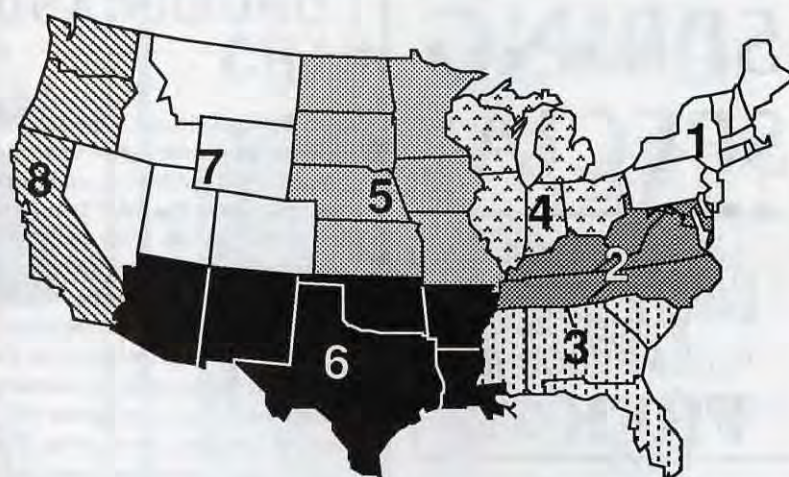
Cheung's following comment probably refers to Meade's carelessness: "Whether or not Keynes was correct in the claim that policy makers are 'distilling their frenzy' from economists, it appears evident that some economists have been distilling their policy implications from fables. In a desire to promote government intervention, they have been prone to advance, without the support of careful investigation, the notion of 'market failure'."

I am awaiting my own copy of J.E. Meade's research entitled *External Economies and Diseconomies*. Perhaps his report will tell why he selected bees for his subject. □

JUNE Honey Report

June 1, 1991

REPORT FEATURES SUMMARY:
R=Range of all prices; A=Average prices across all regions; LM=Last month's average; and LY=prices one year ago.



	Reporting Regions								Summary		History	
	1	2	3	4	5	6	7	8	R	A	LM	LY
Extracted honey sold bulk to Packers or Processors												
Wholesale Extracted												
60 # Wh.	48.00	40.50	38.90	44.14	43.00	41.77	44.33	44.00	36.80-48.00	43.03	41.45	42.16
60 # Am.	45.00	36.25	36.40	41.09	40.00	39.99	39.00	43.75	34.80-48.00	40.29	39.04	37.77
55 gal. Wh.	.51	.44	.49	.50	.52	.53	.52	.53	.42-.60	.51	.57	.55
55 gal. Am.	.50	.40	.46	.47	.49	.48	.48	.52	.40-.60	.49	.52	.49
Case lots — Wholesale												
1/2 # 24's	19.95	17.80	24.25	21.25	22.50	21.75	27.90	22.80	17.80-27.90	22.27	22.46	-
1 # 24's	31.82	30.12	33.00	27.20	23.52	29.00	29.50	30.84	23.50-42.00	29.65	29.24	28.61
2 # 12's	29.17	26.00	31.25	26.22	22.20	29.50	25.90	27.96	22.20-32.10	27.43	27.57	27.69
12 oz. Bears 24's	26.73	24.89	32.00	23.64	24.00	25.12	26.80	25.68	22.80-32.00	26.12	27.72	-
5 # 6's	32.83	26.25	28.50	29.72	31.13	30.00	25.90	27.60	25.90-38.50	29.66	28.75	28.46
Retail Honey Prices												
1/2 #	1.13	1.25	1.37	1.10	.86	1.15	1.05	1.15	.83-1.49	1.14	1.12	1.06
12 oz. Plas.	1.55	1.36	1.60	1.42	1.16	1.29	1.57	1.50	1.13-1.69	1.43	1.57	1.42
1 #	1.77	1.58	2.28	1.77	1.29	1.65	2.05	1.72	1.29-3.25	1.82	1.81	1.64
2 #	3.12	2.40	3.29	3.38	2.73	2.75	3.15	3.00	2.30-3.99	2.98	3.15	3.04
3 #	4.30	3.52	5.25	4.25	4.19	4.00	4.15	3.85	3.40-5.99	4.24	3.88	4.18
4 #	5.75	4.68	5.00	5.10	4.79	4.95	4.85	5.23	4.60-5.75	4.96	4.96	4.83
5 #	7.50	5.80	6.12	6.55	6.10	6.15	6.10	6.16	5.80-7.75	6.49	6.23	6.19
1 # Cr.	2.13	1.31	1.73	1.89	1.55	2.00	1.85	1.68	1.30-2.25	1.77	1.84	1.73
1 # Cb.	3.25	2.22	2.00	2.50	2.98	2.00	2.11	2.45	2.00-3.50	2.59	2.71	2.18
Round Plas.	2.50	1.92	2.00	2.25	2.15	2.49	4.00	1.85	1.85-4.00	2.45	2.43	2.07
Wax (Light)	1.83	1.10	1.23	1.10	1.21	1.05	1.15	1.35	1.05-2.50	1.57	1.30	1.30
Wax (Dark)	1.43	1.07	1.12	1.00	1.10	1.00	1.05	1.20	.95-1.75	1.16	1.11	1.06
Poll./Col.	32.50	18.15	40.00	25.00	25.00	30.00	27.12	30.00	17.00-35.00	28.14	27.01	24.95

Region 5

Sales seem to be improving here, and prices are not weakening to help. Northern areas still having problems with mites, but even there the numbers are encouraging. Southern areas even better. Spring flows on time and strong and moisture seems adequate for ample summer crops.

Region 6

Prices steady, along with sales, even though less than perfect weather and African honey bees have been in the news. Most queen and package producers are on schedule, even if the fields were wet. Early crops were strong for build up and splits.

Region 7

Sales and prices strong, as usual for this region. Some feeding necessary this spring, but moisture seems adequate for a good crop this spring and summer. Early flows good to only adequate and again, some feeding required.

Region 8

Sales steady to increasing and prices doing well and increasing in most areas. Early spring flows good for build-up but then the rains came - slowing movement, build-up and queen and package production - a mixed blessing. The additional moisture will help summer flows though, even if it doesn't fill all the reservoirs.

MARKET SHARE

All reports indicate an increased crop this year pretty much nationwide. That means increased pressure from your existing markets to lower your price. There's always somebody willing to sell for less - and take your market. Start now to establish your unique, locally produced and personally serviced product - or a distant, mass produced, generic blended product will take your shelf space.

Region 1

Sales steady, but prices only steady to even dropping a bit, especially at the retail level. Colonies in good shape generally. Mild winter and good spring flows (between rains) helped build strength. Mites still a problem, but the peak seems to have passed.

Region 2

Sales only steady, and except for specialty crops prices are not rising dramatically. Early spring was ahead of schedule, and build up was strong. Early crops helped make up for some losses to mites. Later rains slowed build-up though, and season closer to schedule.

Region 3

Sales steady, along with prices. New crop should help both though. Early crops were strong, and helped make up mite losses. Most crops seem in better shape this year than last, so production should be adequate.

Region 4

Sales actually increasing a bit here, but only steady to lower prices may be the reason. Promotions are helping but still a price driven market. Colonies in good shape early, with fruit and dandelion strong, but May rains slowed down build-up. Mite loss a bit reduced this year.

NEW

BEE AWARE

QUESTIONS: Which brood disease smells like two-week-old sweat socks? How can you tell if your hives have tracheal mites? Or what you should do if they have tracheal mites?

SOLUTIONS: You could spend hours looking for the answers in books or trying to reach an expert by phone. Or you could spend 30 seconds using a computer and expert system called "Bee Aware."

What is an Expert System?

An expert system is a computer program designed to simulate the problem-solving logic of a human who is an expert in a particular area. By integrating information from many different subject areas the human expert is able to formulate a specific solution to a specific problem. In agriculture a farm manager is sometimes faced with an overwhelming number of variables to consider in making a decision on a course of action. Access to the knowledge of agriculture experts would greatly reduce uncertainty surrounding many farm management decisions. Unfortunately, there are too few experts available in any one subject area and ready access to their expertise is limited.

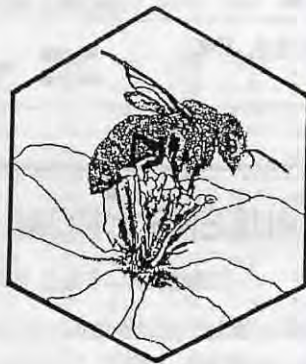
In general, agriculture expert systems are capable of integrating the knowledge of several disciplines (for example, entomology, microbiology, botany, meteorology, economics) into a single knowledge-based system of decision support. Properly developed expert systems can be a powerful tool for providing growers or beekeepers with the day-to-day decision support needed to grow crops or manage bees.

The Bee Aware Expert System

The beekeeping expert system *Bee Aware*, was developed at Penn State University. Currently, the system gives

advice on the identification and management of honey bee diseases, pests, parasites, predators and some information on pesticides. The program is divided into three modules: Information, Diagnosis and References.

The information module provides specific information on individual diseases, pests, parasites and predators. This information is broken down into categories such as cause, symptoms, transmission, life cycle and treatment or recommendations. The diagnostic module is designed to assist the beekeeper in identifying an unknown problem. Through a series of questions, answered by the user, the



computer narrows down the possibilities until it comes up with a suitable diagnosis. If the computer is given conflicting or inconsistent information and can not make a reliable diagnosis, the beekeeper is advised to consult a local (human) expert. Once a problem is identified, the beekeeper can then obtain specific information about the disease, pest, parasite, etc. from the information module. The reference module is divided into four sections. The first section is a list of the scientific references used to make the system. Additional sections include a list of all apiary inspectors in the U.S. and Canadian provinces, a glossary of all the technical terms

used in the system and a list of commonly used pesticides and their relative toxicity to honey bees.

Diseases, parasites, predators, and pests covered by this system include:

Brood Diseases: American foulbrood, European foulbrood, chalkbrood, sacbrood, stonebrood.

Adult Diseases: nosema, paralysis, dysentery.

Parasites: varroa mite, tracheal mite.

Predators: bears, skunks, opossums.

Pests: wax moths, bee lice, ants, mice.

An expert system has certain advantages over a conventional reference or text book. First, an expert system can actually assist you in diagnosing a particular problem. Unlike a human expert, *Bee Aware* is always available and ready to work for you. The knowledge of many human experts can be incorporated into a system and unlike a text book, an expert system can be easily and quickly updated.

How should the system be used:

Bee Aware should be used

as a management tool. It should not be the only source of information that is used by the beekeeper. Recommendations from the computer program should be combined with other sources of information, the beekeeper's knowledge of his operation and good common sense. Moreover, the recommendations issuing from *Bee Aware* are only as good as the information provided by the beekeeper.

Bee Aware was developed mainly for Pennsylvania conditions. However, most of the information and recommendations apply to conditions outside of Pennsylvania as well. It is important to keep in mind however, that laws and regulations concerning beekeeping differ from state to state. If there are questions concerning any of the recommendations or use of any drug or chemical, the timing of treatment application, or laws concerning the use of such chemicals or drugs in your state, you should contact your local apiary inspection service or state apiculturist.

System Requirements:

Macintosh
1M RAM
Hard disk drive

MS-DOS
640K RAM
Hard disk drive
EGA or VGA graphic ability

The Expert System Computer Program Is Available For \$35.00 To Order Or Obtain Additional Information Contact:

**Department of Entomology
Attention: Roxie
501 Agric. Sciences and Ind. Bldg.
University park, PA 16802**

FOR YOU

SKYCLOCK

Skyclock Company of Milford Michigan announces a new software product for the Macintosh computer. Skyclock Solar 1.0 is a new and exciting way of telling time. Skyclock can function as a clock, a calendar, telephone aid, or a guide for travelers. Whether you are a businessman, student, traveler, outdoors person, or just interested in the world around you, Skyclock can provide you with all the information you need with just a click of the mouse.

There are four main windows utilized in Skyclock: The Skyclock Window, The Citybase Window, The Time Control Window, and The Solar Events Window. Each window provides a different view of the world and gives you all the facts you need.

The Skyclock Window is the principal window of the Skyclock application. It graphically displays a sky map for any given day and location on

earth, along with the current local time and where that time is in relation to the day. And, if you have a color system, the sky map is displayed in full color.

"Citybase" is the program's database, and it's a gem. Citybase is a customizable database of over 400 cities around the world. It contains information for each city's latitude, longitude, phone code, airport code, and offset from Greenwich. Citybase provides the user with an array of services and options, including the ability to add, delete, or modify any city in the database. Citybase also provides a powerful search facility. One may search the database in a number of ways: by city name, latitude, longitude, phone code, or airport code. Just type in the full name or the first few letters, in either case, Citybase will list all entries that match your choice.

The Time Control Window allows you to select any date within the valid Skyclock date

range and display the resulting sky map in the Skyclock Window. The Solar Events Window allows you to view the information for any city in a textual format.

Unlike other programs, provisions are given to tell the computer where it is located. Tell your computer you are in Chicago, it's current home location, and all calculations performed by Skyclock are based on this home location. Say your home location is Chicago and you wish to display the sky map for Tokyo. Because of the international date line (opposite Greenwich) it may be tomorrow in Tokyo, and this is reflected in

the sky map, as well as the resulting data. It all depends on what time it is and where the computer is located.

Three kinds of twilight may be employed: Astronomical, Civil, or Nautical. In addition, you may signify and change the way the Skyclock Window displays information for a city. Designations include city title, airport code, or phone code.

SKYCLOCK SOLAR 1.0 operates on a Macintosh 512e or higher and is available for \$64.95 from: Skyclock Company, Box 401, Milford, MI 48381 or contact: John Rosevear (313) 684-2632. □



BOOK REVIEW

Book Review: Verma, L. R. *Beekeeping in Integrated Mountain Development: Economic and Scientific Perspectives*. Oxford and IBH Publishing Co. Pvt. Ltd. New Delhi. 367 pages. 1990.

"Beekeeping as a non-land based income-generating activity is now becoming an important component of present-day strategies for sustainable mountain agriculture". So begins the preface of a long overdue text on bees and beekeeping in the mountainous areas of Northern Asia including Afghanistan, Bangladesh, Bhutan, Burma, China, India, Nepal, and Pakistan. Beekeeping is markedly different in each of these countries. The author states that the "rural people of Nepal have exploited honey bees for honey

since time immemorial" but in the "northern parts of Bhutan, there is no beekeeping tradition, because harvesting honey"—"is considered a sin". In recent years, Burma has had the most aggressive beekeeping project, which has been under the sponsorship of the Food and Agr. Organization of the United Nations. Over 50 people from Burma received training at Ohio State Univ. during the late 1970's and early 1980's. Many students from Burma studied in other parts of the U.S., Europe and Australia.

This book begins with an overview of the special problems associated with a mountain ecosystem and agricultural community. It is pointed out that honey has played a very important role in this area as it is not possible to grow sugar cane in a

temperate area and honey is the only local source of sweet. The first three chapters discuss the sociological aspects of mountain beekeeping. Chapter four is concerned with pollination and the crops grown in mountainous areas. The fifth chapter is concerned with the current status and economics of beekeeping in the eight countries and areas involved in the group. Chapter six is especially interesting as it deals with apicultural practices including honey hunting, traditional beekeeping in fixed comb hives, and modern hive beekeeping. In many of these areas these three enterprises exist side by side. The seventh chapter is devoted to hive products with the emphasis on honey and honey handling.

Chapter eight is the longest and deals with the native Asian honey bees and the role being played by the introduced European honey bees. Professor

Verma writes that there is much controversy over which bees should be used in the area. Some scientists have suggested that only native bee species should be husbanded. However, in the final analysis it appears that economics is winning. Verma writes, "A farmer practicing beekeeping with exotic *Apis mellifera* in the North West Frontier of Pakistan can easily afford an imported car, whereas, the one continuing with native *Apis cerana* is still using a bicycle." The last chapter in the text is devoted to honey plants.

Professor Verma has done Asian apiculture a great service by preparing this text. There is a lengthy list of references for those who wish to pursue the subject further. This text will be especially useful to those who work in the mountainous areas in Asia in the future. —Roger A. Morse



RESEARCH REVIEW

DR. ROGER A. MORSE

Cornell University • Ithaca, NY 14853

“Are Two Queens Best?”

One or More Queens?

Two queen colonies are not more efficient in honey production than are colonies with a single queen according to some new research cited below from Australia. Further, adding caged queens to a colony with a free running queen does not increase honey production. These studies were aimed at determining what combination of queens might be most valuable in honey production.

There are several factors as regards colony morale and honey production that we know and understand very well. For example, young queens lay more eggs, have greater populations, lay later in the fall and earlier in the spring, head colonies that are less likely to swarm, and in general do all of those things that lead to greater honey production. We also know that young queens produce greater quantities of pheromones, the chemical substances that control social order in a bee hive. If all of these things are true, it sounds logical to think that colonies with multiple queens would do better, that is produce more honey, than those with a single queen. The point of the research reported below was to determine if this is true. The answer is that multiple queens do not help, at least under the circumstances tested.

Four treatments were used in these tests: (1) normal two story colonies with a single queen, (2) two story colonies with two queens separated by two queen excluders, (3) normal two story colonies with a queen and a second caged queen, (4) normal two story colonies with a queen and four caged queens. In the colonies where there was a caged queen(s), a strip of queen

excluder prevented the free queen from having contact with the caged queen(s). In all cases the queens were sisters grafted from a single queen mother and mated with their brothers in a highly inbred line.

I find this area of study both fascinating and curious. It is logical to think that if a young queen is better than an old queen it is the queen's pheromones that make the difference. These authors followed this logic and presumably added more pheromone by adding more queens. The results did not support this thought. There is a natural antagonism between queens that we do not understand.

Raspberry Pollination

The weight of an individual raspberry, and the number of drupelets per berry are both increased by multiple honey bee visits to a flower. (A raspberry consists of many one-seeded drupelets. There are about 40 drupelets in a full-size berry and, of course, each one must receive pollen for all of the seeds and the drupelets to develop.) Five or six bee visits to a flower, totaling about 150 seconds, are required for the maximum effect. Earlier research indicated that maximum berry size was attained only if the flowers were visited over a period of four days. In these tests, however, it was found that the visits could all take place during one day and a full size berry would result. Honey bees that collect pollen and nectar from raspberries, rather than nectar alone, are more effective pollinators.

Queen Recognition

When sister worker bees not related to a queen were confined with her

for ten days they came to recognize and prefer her over a queen to which they had not been exposed. It now appears clear, from this and earlier papers, that queen recognition by worker bees involves at least two factors. One is odor. The second is genetic, that is, the degree of relatedness between the queen and workers involved. The authors of this study conclude that their data “provides further evidence that the distinctive odour of an individual queen is probably partly inherited and is learned by workers.”

References:

- Oldroyd, B. P. and P. J. Hunt. *Effects of additional caged queens and free-running queens on honey bee colony performance.* Apidologie 21: 527-535. 1990.
- Chagnon, M., J. Gingras and D. de Oliveira. *Honey bee foraging behavior and raspberry pollination.* Journal of Economic Entomology 84: 457-460. 1991.
- Free, J. B., A. W. Ferguson and J. R. Simpkins. *Queen discrimination by honey bee workers.* Apidologie 21: 493-500. 1990.



This honey bee will help determine the ultimate size of the raspberry. Raspberry flowers are very attractive, and make an excellent honey when in great enough quantity.

ARIZONA CHALLENGE

No doubt, Northern beekeepers wish they could get the benefits that Southwestern beekeepers seem to enjoy. These would include mild winters, plenty of flying days, and exotic honeys, like mesquite and catclaw. But Arizona beekeepers face three major challenges – tracheal mites, varroa mites, and pesticides. Then, there's urbanization, wax moths, and the threat of Africanized bees.

"The mite problem appears to be spotty," reports Eric Erickson, director of the USDA's Carl Hayden Research Center in Tuscon. "Some keepers report as much as 50% loss in the southern part of the state near the Mexico border. We're not getting any reports from up north.

Of course, Northern Arizona is almost devoid of beekeepers. Northern Arizona is high desert, with elevations averaging 7,000 feet above sea level or better, and is sparsely populated. Since Arizona weather tends to follow elevations, the higher you climb the colder it gets.

Erickson reports this is the third year for tracheal mites. "We don't know whether it's the climate or whether the mites are coming from Mexico."

So what's being done? "We're following the work in Texas for chemical control. They're also doing some work on the biology and colony management to try to minimize mites."

Arizona's relatively new to the problem, so researchers are still trying to determine just how extensive the problem is and whether surviving colonies provide genetic resistance.

Optimistic, but cautious, Erickson adds, "It appears that keepers who requeen from surviving colonies are getting some resistance. That's similar to what happened in Europe several decades ago when they had the mite problem."

The research director adds that resistance to tracheal mite is slow to accrue. "It likely will affect production, but we don't expect the mite to wipe out any (resistant) colonies."

For Les Davis, division director of Arizona's Agricultural Chemical Environmental Services (ACES), the biggest challenge, principally in the Phoenix metro and farming areas, is communication. He emphasizes this relates to chemical application. "As biochemicals come more into use, we won't have as much loss, but without communication bee losses will continue."

How bad are the losses? "In some areas they're having a moderate problem. We had only six complaints of bee kills by the end of June 1990. We've heard of 50% kill, but just in conversation, not in written reports."

One problem is refusal to move colonies when a grower has to spray. "Just a few keepers are not cooperating, but they don't give the industry a good image.

"We need bees to pollinate some crops, therefore the

farmer needs the beeman, but the beeman also needs the farmer."

Davis reports that ACES regulates use of pesticides and tries to protect the environment from pesticide abuse. "We try to make sure growers apply according to label and that bee protection labels are not so ambiguous."

One problem is when the label reads, "do not apply if blooming weeds are present in the crop." Unfortunately, some keepers use this to try to prevent application, insisting the grower must wait until wildflower blossoms have gone.

"The beeman's got a lot of problems, and urbanization is a major reason the number of colonies have declined in the past 20 years."

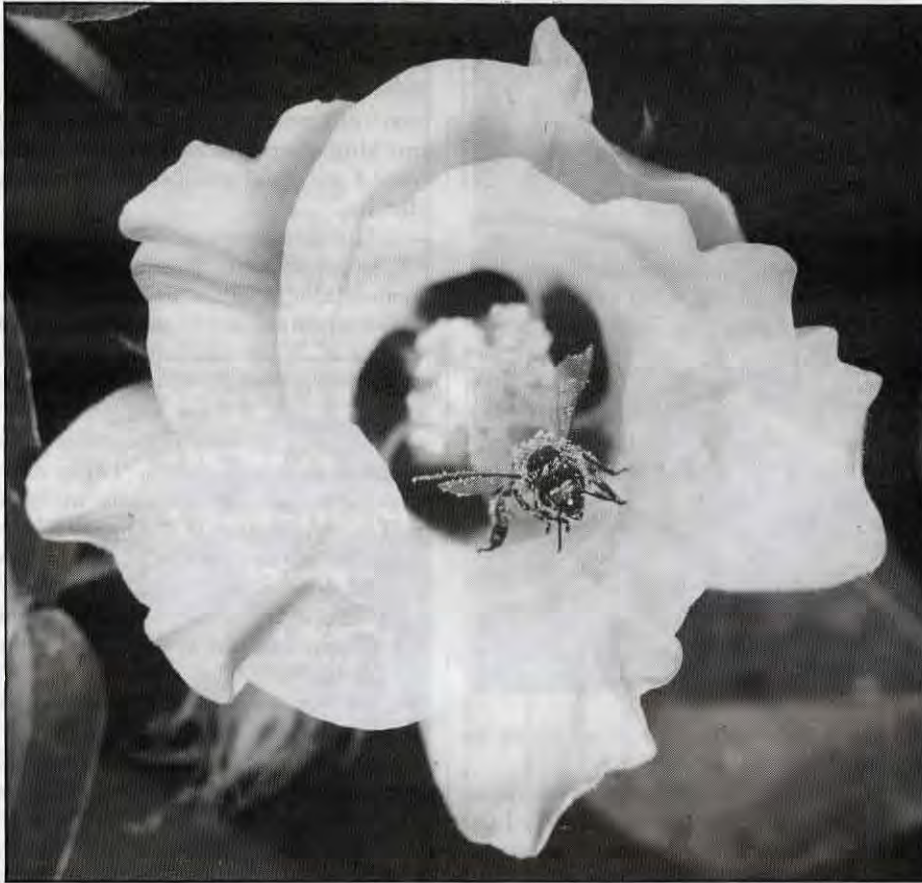
Arizona currently has 130,000 colonies, by estimates from ACES as well as the Carl Hayden Research Center.

Davis adds, "We have had tracheal mites and varroa mites. We're inspecting all the time, but I'm not in that area. I don't have that much to do with bees, except to get frustrated as the devil over the way labels are written, and the lack of cooperation between the beeman and the rest of the ag industry."

Erickson agrees with Davis that further education and cooperation – on both sides of the controversy – is needed. "In many cases, growers are turning to pesticides that are easier on bees. It really depends on the problem that faces the grower, whether he's merely controlling the level of infesta-

Mesquite can be a fickle producer, but it makes a premium honey when it wants to.





A typical cotton flower. This crop is responsible for much of the pesticide conflicts between growers & beekeepers. Below, a cotton field that seems to go on forever.



tion or whether he has to eradicate that particular pest.

Erickson emphasizes that extreme summer heat prevents keepers from closing up hives for the spray. They have to move their colonies – or take their chances.

“We do have some keepers moving out into the wildlands, but melons, cukes and citrus crops, as well as vegetable seed crops need bees for maximum production.

Another concern is the Africanized bee, but it’s not really a strong worry – yet. While the problem is in Mexico, and Arizona borders that nation, the problem is east of the continental divide. Thus, Brownsville, Texas faces a more immediate situation than Arizona beekeepers.

Says Erickson, “Africanized bees are already at Brownsville, but there are mountain ranges and dry desert areas between us. Africanized bees are at the edge of the tropics and no one knows what their movement rate outside the tropics will be.

“Bees on the west coast of Mexico are well south and there are a lot of barriers on the west coast. I’d say we’re a number of years away from the problem at the very earliest.”

Two Arizona beekeepers also be-

lieve their state is a number of years away from the Africanized bee, but there are other challenges they face almost daily. The two interviewed for this article reside in Cochise County, which borders Mexico and New Mexico. It’s the home of Tombstone and the Gunfight at the OK Corral. It’s also home to 94,000 individuals, but with nearly 58,000 square miles, it’s relatively unpopulated, when compared to the Phoenix metro area of two million inhabitants.

Bob Dawson, Hereford, has been a hobbyist for 15 years. His place is a scant dozen miles from the Mexico border. He’s seven miles west of the north-flowing San Pedro River, and runs 16 colonies.

“My father kept bees in Oregon for 40 years. We used to truck 5,000 colonies into Canada and leave them there. Winter kill was less expensive than hauling them back and forth.

“My peak has been 30 colonies, but wax moths got in and zapped me. People told me they wouldn’t get into strong hives. That’s a lot of nonsense; they got into three of my strongest hives.”

Dawson lost five colonies to wax moths in 1990. “I have no problem with varroa or tracheal mites. I don’t spread

my bees around. I know some guy 40 miles north in Benson had mites, but he was following the honey flow.

“I keep my bees on my place. If there’s nothing good, I just let them sit.”

Dawson confesses production has been “lousy” I haven’t taken off any honey in two years. But, if it keeps raining, I’ll have honey this season. We didn’t have any rain the last two winters, so mesquite blossoms stayed on only two weeks instead of six weeks.”

A major problem for Dawson is lack of flying days. Spring winds abound just about blossom time. With a six-week blossom period, there are enough flying days to get some production. “My best production is 50 pounds,” he says.

Dawson keeps his brood box in the bottom, and stacks three - four medium supers above that, keeping a box and a half for bee use. “I don’t move brood. It’s a hobby with me, not a business.” He also uses a queen excluder to keep the queen down in the bottom box.

This hobbyist collects swarms, and hasn’t bought packaged bees in the past 10 years.

“I go out every week or so to see if

Continued on Next page



Wax Moth damage can be devastating if not controlled.

ARIZONA ... Cont. From Page 327

there's any movement. I get into the box when there's lack of movement. I found wax moths every week for a while. They were everywhere, in the wood, wax, frames and honey. They lay eggs behind frames where bees can't get to them.

"After they form their cocoons, bees won't get to them. Bees pack up and leave. That is those who've survived."

Thirty-five miles downriver, and to the north, is veteran St. David beekeeper Dick Tilton, 76, (uncle to the author) who has worked with bees since he was 12 years old. "I only have 20 colonies now; they're too heavy to lift. My peak was 50, but 1990 production averaged nearly 100 pounds.

How does he deal with mites? "I don't move my bees. Period! I keep them right here on my place. I'm surrounded by mesquite bushes. Some years we get

just a little production, some years we get a lot."

Tilton prefers to keep the hive open to the queen. "In March I move all the brood down to the bottom two chambers. I also balance my brood."

Tilton treats with Terramycin after the first hatch. Four days later he gives a second application, then a third four days after that. "I'll manipulate brood at the same time.

"If I want a new divide, I take one brood frame from each of four hives, and their clinging bees and put 'em in an empty brood super. I also give them some stores, including pollen."

Tilton prefers to let his divides make their own queens. "I've been afraid to buy queens since the tracheal mite scare."

So how does he get strange bees to cooperate rather than fight? "I move frames when fruit bloom is on. Young

bees mix quite readily. Worker bees don't mix worth a dang, but they're out working when I make the divides. Last year I got good production out of my divides."

His season opens with fruit bloom. "They get us going, then creosote bush comes along. This helps with the buildup and comes just a shade ahead of mesquite. When mesquite and catclaw comes that's when we get our choice honey."

Unlike Dawson, Tilton reports no problem with wax moths. "I keep colonies strong. In spring or late winter I pull everything out of the honey house that's empty and set the supers on the ground, leaning them against the rear of the hives. This lets in lots of light and air. Of course, we don't get much rain that time of year.

"Put supers under any cover and you'll have wax moths."

After the honey flow, Tilton returns the supers to the beeyard, where they stay until first frost.

"I use deep body boxes throughout. I tried medium supers and they don't work as well. I have 11 medium supers and I've repented building them."

Both beekeepers, like the bulk of Arizona beemen, have no problem with selling their product. Both have built up a clientele to fit their production. Perhaps this proves, even with tracheal mites, varroa mites, pesticides – and wax moths, Arizona still is a good place for savvy beekeepers. □

Lynn Tilton has 13 years' experience as a beekeeper, managing as many as 200 colonies while living in Pennsylvania. When he moved his family to Arizona, he sold his equipment. "I moved hives 2,100 miles when I took my family to Pennsylvania. That was enough migratory experience for me."



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THE HARRIS FAMILY HONEY BUSINESS

LARRY M. BULLING

Dwight Harris is the largest producer of unheated, unfiltered honey in Jefferson County, IA, located in the southeast part of the state. He has a confident, professional air, well-suited to a businessman with millions of employees requiring attention to the season's changes in weather and flowering patterns.

Jeffrey Harris wipes the dining room table after lunch so I have a spot to take notes. His mother, Karen, sits nearby ironing a girl's white blouse for a Maharishi School uniform. Dwight Harris can be heard in another room somewhere in the house talking on his amateur radio to a fellow ham in Spokane, Washington. A bookcase on

one wall of the dining room has assorted magazines for ham radio operators and beekeepers, some beeswax candles of pink and red, a cardboard box of Mason jars, a photograph of Maharishi Mahesh Yogi and parts of blouses waiting to be sewn together.

The Harris family lives three miles north of Fairfield, Iowa, off Highway One. They bought a small farm in 1989 for the peace and quiet and to expand their beekeeping business. Karen and Dwight have three boys: Karen, 16, Kristopher, 13 and Jeffrey, 10. Karen is a teacher's assistant at Maharishi School and Dwight works pretty much fulltime on the honey business with help from the family on bottling.

The family started business four

years ago. Dwight started with 60 hives bought from a friend's brother in Texas and 30 hives purchased from the former Sidha Honey Company of Chuck and Wendy Needham. The first year Dwight was able to increase the first 90 colonies up to 100. Next year more colonies were acquired and in the third year Dwight bought 200 hives from Bob Hauger in Fairfield to bring his total to 350 hives.

According to the National Honey Board, about 95% of the beekeepers in the country have fewer than 25 hives. Dwight's 350 puts him in with approximately 1,600 full-time commercial beekeepers in the country with over 300 hives. "You need about 1000 hives to make a good living at it," says Dwight.

Marketing

HONEY Dwight markets a significant portion of his honey to the Annapurna Cafeteria of Maharishi International University (MIU). MIU insists on honey which is unfiltered and unpasteurized, following the advice of doctors practicing Maharishi Ayur-Vedic medicine. The cafeteria purchases honey in 650 lb. bulk barrels and uses as much as two barrels a month in winter. The rest of the family's honey is sold in 1 lb., 2 lb. and 5 lb. glass jars. Three-quarter pound plastic honey bear bottles are also sold. Dwight contributes one cent from every pound sold to the National Honey Board.

POLLEN Pollen is wholesaled to C.C. Pollen Company in Phoenix, Arizona at \$3.50/lb. "Selling pollen is an opportunity a lot of beekeepers seem to be missing out on," said Dwight. Pollen is

Dwight Harris, loading his Cowen Silver Queen Uncapper.



Continued on Page 332

HARRIS' CALENDAR

February - Tilt & Kick

Examine hives by tilting and tapping with a boot to check on food supplies in the hive. Dwight tries to leave each hive with 60 to 90 pounds of honey to survive the winter. If the food supply runs low, HFCS is provided as supplement. The hives are not opened unless they fail the tilt and kick test.

March - Queen Check

Hives will be opened on the first warm days and checked to see if they are queen-right and have adequate food supplies. Dwight's goal is a peak population by May 25 for the honey crop.

April - Queen Rearing

Continue checking hives as in March. Begin evening out the populations between hives. Between the 15th and 20th of April, when dandelions begin blooming and the hives turn a bright orange yellow with pollen, Dwight starts queen raising. Larvae are grafted from the previous years' best hives into queen cells mounted on a queen cell bar and put into a queenless hive full of young workers, who then feed the larvae royal jelly to induce queen formation. "The larvae selected must be less than three days old but the younger the better," said Dwight.

Dwight looks for queens that respond to his management practices. He has a mixture of Italian and Carniolan queens. Some mite-resistant queens were purchased from Steve Taber, then in California. Dwight wants queens that are programmed to local seasonal changes; queens that know when to begin laying eggs in Fairfield, Iowa.

By the tenth day after grafting the larvae into the queen cells, the cells are normally fully formed and ready to transfer into a nuc box (a deep divided into two compartments with one queen each) consisting of a frame of honey, a frame of pollen, and two frames of empty drawn combs with bees from a strong hive.

Dwight admits queen raising in April has a low success rate, only 10% to 20% of the queens survive. "It's like planting early sweet corn, if it makes it, you can hit the market early and do very well." Dwight will graft queens every seven to 10 days with the success rate improving to 80% by June.

Dwight puts pollen traps on strong hives to catch the spring pollen crop. Weak colonies and colonies he is trying to build up will not receive pollen traps.

May - Making Splits

Grafting continues. Begin splitting strong colonies to make more hives. A strong colony will be split down to eight frames, with the surplus going to a new colony of six frames and fresh laying queen. Queens exhibiting weak laying patterns will be replaced with a new queen. Dwight will work with a queen in a weak colony if she appears to be O.K. "It's an intuitive decision, really," Dwight said. Another factor to consider in a colony's growth is that queens won't lay drone eggs until later in the spring.

Supplemental feeding ends the 10th of May unless no flowers are available.

June - Supers on, Pollen Off

When the honey flow begins, Dwight makes sure the bees have plenty of supers in which to put the honey. He places queen excluders above the brood boxes to keep the honey combs free of brood.

Pollen is harvested every three to seven days, depending on pollen flow, rain, and humidity. Pollen trays are harvested immediately after a rain to prevent losses due to mold. Dwight puts his pollen traps in hives that are close to good roads or within easy walking distance of muddy roads that are impassable after heavy rains. Dwight says the pollen traps collect about 60% to 80% of the pollen the bees bring in.

Dwight chooses not to kill queen cells he finds in the hives. This saves him from visiting the colonies every seven to 10 days to remove queen cells. He would rather see 5% to 10% of the colonies swarm and use the time saved for other duties, such as providing more space for the colonies. He catches what swarms he can and those he is called on to collect. If the honey flow is very heavy and he begins to run out of space, he will begin extracting.

July - Extraction Begins

Continue activities begun in June. Beginning near the end of July or early August, Dwight creates new colonies by placing the new queens from the nuc boxes into deeps, covering them with queen excluders, and stacking supers from the field on top. After a few days, he uses fume boards treated with "Honey Robber" to drive the workers down into the brood box. He then extracts the vacated frames and places the extracted supers back on the colonies.

August - Finish Extraction

Dwight begins the honey harvest in earnest, with the goal of completing by September 20. After this date, the honey produced is for the bees to over-winter with.

Last month of pollen harvest.

September - Fall Preparations

Finish harvesting honey. Set out extracted frames for bees to clean before putting them away for winter storage.

October - Winter Protection

Inspect colonies for adequate food supply to survive the winter. Remove queen excluders. Dose with terramycin. Close entrance openings down to exclude mice which nest inside and eat honey, wax and bees.

Depending on weather, Dwight may use cardboard hive wraps and provide an upper entrance if deep snow is anticipated.

November - Equipment Repair

Repair hive boxes and perform equipment maintenance. □



"Too many beekeepers miss the income opportunity of trapping pollen."

in plastic five-gallon buckets in a freezer. Freezing kills any insects or eggs and helps stabilize the product. When time permits, the pollen is sifted through a five mesh screen to remove dead bees and foreign matter. The sifted pollen is then placed on cafeteria trays inside the warming room, and a dehumidifier reduces the moisture content down to about 10%.

POLLINATION In the spring of 1990, Dwight and another beekeeper brought 320 hives to CA to pollinate almonds. The hives were placed in the orchards February 10 under contract and returned to Iowa at the end of March. Dwight made the trip in three days, traveling non-stop during daylight hours. No net was placed over the hives during transport. About 20 hives were lost due to stress on the trip. Almond growers paid \$28 to \$30 per hive.

Dwight met expenses and wages for the trip but says that he was lucky not to have many problems. He observed that weak hives got weaker and strong ones stronger. Next time only the strongest hives will be travelling for pollination service.

Strong hives are difficult to get in Iowa in February. The queens usually stop laying eggs in November and the workers spend their time clustering inside the hive.

The Business

I asked Dwight about the large number of companies that are second and third generation beekeepers. "The dollar return on the capital invested is not real high and labor requirement is intensive," he said, "it's hard to get started."

The family goal is to build the business up to 4,000 colonies so that each son can make a good living on his own. "Right now they really have a ball bottling and selling because there is a quick return on the effort. But being kids, it can seem a drag when they're cleaning boxes, getting stung and there's no money coming in for it."

Jeffrey dashes into the room, asking Dwight how to answer a contact on the ham radio. "Ask 'em what number they have. Tell them you're from Iowa. By the way, you've got to change the tire on the tractor, hitch it up to the trailer and haul it over to the warehouse and unload those boxes. That's your job for the day." Dwight smiles. The family business is moving right along. □

This arrangement removes most of the foreign material before the pollen gets placed in the freezer.



sold to health food stores as a high protein food supplement and horse racing tracks add it to horsefeed. He averaged 10-20 lbs. per colony in 1989, and shipped out nearly 2,500 lbs.

BEESWAX Three quarters of the company's wax goes to candles or candle makers at \$3.00 to \$3.50 per pound. The rendered wax is poured into one gallon plastic pails (about 7 lbs.) or plastic pint containers from a local ice cream factory (about 2 lbs.). The balance is used for foundation.

Equipment

EXTRACTING ROOM Dwight built an insulated extracting room in the corner of his warehouse and keeps it at 80°F to 85°F. He fans the warm air through the stacks of supers before extraction. He uses wooden frames, "I don't think plastic belongs in a beehive." said Dwight.

EXTRACTING A Cowen "Silver Queen" uncaps the frames which are then extracted by 20-frame and 30-frame Dadant Extractors. Dwight plans to upgrade to another 30-frame extractor. The collector sump is water-jacketed to warm the honey to 90°F. From there it is pumped into a 200 gallon dairy milk tank and allowed to sit so the wax can rise to the surface and be removed. From the tank, honey is gravity-fed into 55 gallon barrels for storage and eventual bottling. He averages 80-120 lbs. per colony.

Barrels are emptied by gravity into the first bottler tank, strained through an 80 mesh cotton cloth and pumped into the second bottler which warms the honey up to 104°F for bottling into jars or barrels.

POLLEN EQUIPMENT Pollen is stored

HOW SWEET HOME

Those boxes we put bees in are a wonder of wooden construction. Each handled and sanded side grasps its neighbor with tightly woven, chiseled fingers, held with bushels of nails and bottles of glue. Tops, too, are joined and glued and nailed and sometimes even covered with weatherproof, rotproof metal. And bottoms, made to stand the weight of a thousand pounds are thick and strong and tough.

So it's no wonder we sometimes take the safety of our hive's inhabitants for granted, especially when it comes to external assaults. But

because these boxes seem so strong and safe doesn't mean they can withstand all of nature's nastiest insults.

In the scheme of things, those safe and solid boxes so carefully set out are merely the crunchy outsides to sweet and tasty insides. And there are things out there only too willing to brave not only the stings of bees, but the wooden barriers we so smugly construct.

On a more realistic note though, those finely crafted boxes cost money. It

doesn't matter where you bought them, or what material you made them from—buying and putting together those boxes costs time, labor and cold, hard cash. So when something starts peeling away that crunchy outside to get at the sweet and tender insides, most beekeepers tend to get upset.

But what right-minded pest would

“What right-minded monster would even consider an assault on a fully armed beehive?”

consider an assault on a fully armed beehive? Well, there are many, it seems, willing to tackle those barbed inhabitants. And, there are a few cunning enough to escape those stings and arrows and rob or destroy the rewards of a season's labor, without so much as a scratch in return.

To document the damage done by both the brave and the sly, the Apiary Inspectors of America, in 1990 funded a study conducted throughout the United

States and Canada. They had the data compiled and tabulated, and the results published for all to see; and, finally, to put those who dare destroy those finely crafted boxes on notice—we know who you are, and how to stop your costly, killing behavior.

The authors of the study, John O'Brien, Ag programs Coordinator, NV Dept. of Agriculture, and Rex Marsh, Specialist in Vertebrate Ecology, Univ. CA, Davis, sent questionnaires

to state and provincial apiary inspectors asking what vertebrate pests they had experience with, the cost of the damage inflicted and what control measures were used to reduce or stop the damage. The paper was published in the Proc. 14th Vertebrate Conference, Published at Univ. of CA, Davis, in 1990.

Not surprisingly, bears are considered the most serious pest in the study, with over 60% of the respondents say-

ing they were always or sometimes serious. Financially, bears cost the most, too, with 90% of the responses placing them in the most or second-most loss category. Loss estimates totaled \$623,000/year, but many didn't (or couldn't) report a value of colonies destroyed.

California, Florida, Maine, West Virginia and Massachusetts in the U.S. and Alberta, Ontario and Quebec in Canada were the leaders in reported damage. The authors state these figures are low, and mention studies done in Minnesota, Florida, and other places supporting this conclusion.

Bears are probably attracted by the smell of honey, but they eat honey, brood and even bees. Their dining behavior tends to make kindling out of both boxes and frames, and often all hive furniture is damaged beyond repair.

Electric fencing is the best, and most often used protection, but trapping and shooting are used, too. Relocating hives to safer yards, thus avoiding the problem is probably least expensive in the long run.

Nearly three-quarters of the respondents considered skunks to be always or sometimes serious. The same number said they were the leading or second leading cause of losses, too. In fact, even though only half gave dollar estimates of losses, the figure was over \$400,000/year! Skunks are the most frequent pest encountered by inspectors, so, although one individual's damage may be small, the number of skunks is significant.

Signs of a skunk include scratches in the earth in front of a hive and on the hive itself. Ground scratches gradually develop into holes after repeated visits. Skunk scat (fecal droppings) are often found nearby containing obvious undigested bee bodies. A colony that has



"Now these, my cubs are delicious, crunchy on the outside, sweet on the inside."

Electric fences are the most common means of protecting colonies from our friend (upper right) from doing the kind of damage shown below.



Alt photo



been plagued by one or more skunks will be weakened, and will probably be more aggressive or out-right nasty.

Control is possible, however. Trapping is often mentioned, as is poisoning, shooting and elevating colonies. One method suggests spreading high-nitrogen fertilizer in front of the colonies, which will irritate the skunk's feet. One wonders, though, what the weed population will do with treatment like this.

For most of us, keeping skunks away from a colony is easier, (and safer) than killing the skunk outright. Boards with nails, tack strips and rolls of chicken wire stapled to the front of the hive box all work well. Nails make walking (for both skunks and beekeepers) tricky (See nitrogen, above). Tack strips (those used for holding wall-to-

wall carpeting in place) keep the skunk from scratching the landing board or other areas. Beekeepers often are the victims of their own devices, however, and care should be taken.

A roll of wire forces the skunk to expose its tender underside when trying to get to the door, giving the guards an easy target.

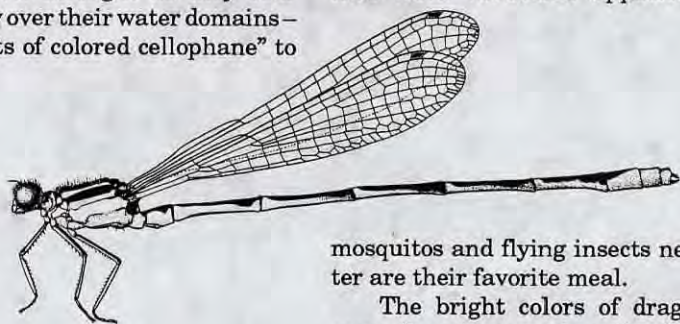
Unlike skunks, housemice (and their cousins voles and deer mice) actually invade a colony, taking up residence and eating their landlords, as it were. They are ranked as 'always minor' by most inspectors, and never ranked as 'no problem'. But the few who did report damage estimates gave a figure of over \$100,000 - no small figure by one so small to begin with.

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DRAGONFLIES

DEWEY CARON

Honey bees, butterflies and dragonflies are all familiar, much-loved insects. Dragonflies, and especially the more delicate damselflies have bodies of gorgeous hues of scarlet, orange, yellow as well as more basic greens and blues. They are elegant insects in flight as they soar gracefully over their water domains—"living bits of colored cellophane" to some.



Dragonflies come in many sizes but all are basically the same familiar shape. Well-known and easily recognized, some of the larger dragonflies can pose a threat to honey bees under the right circumstances. If a dragonfly's prey happens to be a foraging honey bee, or more importantly, virgin queens making a mating flight, these living bits of colored cellophane may come into conflict with our interests as beekeepers.

In fact, they are equally at home in city parks or wild places provided there is water nearby. They have been reported as bee pests from virtually every place bees are kept including Germany, Russia, India, Australia and the U.S.

Dragonflies have several common names, including devil's darning needle, snake doctors (or snake feeders), horse stingers and mosquito hawks. The devil's darning needle label comes from an English fable that has dragonflies sewing up the ears of bad boys. Since they are found near water where snakes may be common dragonflies were erroneously believed to guard snakes.

The characteristic needle-like shape is believed to be the origin of

the name "horse stingers" They do not have a stinger in the long abdomen. Perhaps because they do resemble winged dragons they have been called dragonflies for centuries. Of all the common names "skeeter or mosquito hawk" is the most appropriate; dragonflies have voracious appetites and

mosquitos and flying insects near water are their favorite meal.

The bright colors of dragonflies come from hues, prismatic effects, a pale white bloom of hairs and iridescent colors. The wings are especially iridescent; color comes from light reflected off a thin layer of blood between the parchment-like transparent exoskeleton. In addition to the color effect, the wings have a special crinkly noise when they touch each other or vegetation that is characteristic of the group. Males are more brightly colored, and have different color patterns, than the females.

The majority of dragonflies have wing spans in the 3" to 5" range and these are the dragonflies that may eat honey bees.

In fact, feeding dragonflies have been recorded to attack a wide variety of insects. Even a ruby-throated hummingbird was attacked in at least one



instance. In Florida one large species with 5" wing span has been named the "bee butcher" as it has been observed feeding on honey bees. Mostly they are considered beneficial insects because the usual diet is mosquitos and the numerous flies that are common near the water courses they frequent.

Most reports of dragonfly predation on honey bees come from Florida and Louisiana. Wright described the damage two species of dragonflies did to a Louisiana apiary in the vicinity of New Orleans along the Mississippi River in the 1940's. During the summer when dragonfly numbers were high, only about five percent of the queens in several mating yards located alongside the river mated successfully. Normally 75-85% mating success is the expected range.

The dragonflies were not just feeding on queens though. Heavy predation on worker bees was also occurring, to the point "the colonies were severely weakened." It was not possible to get enough bees for packages from the "depleted colonies", according to Wright.

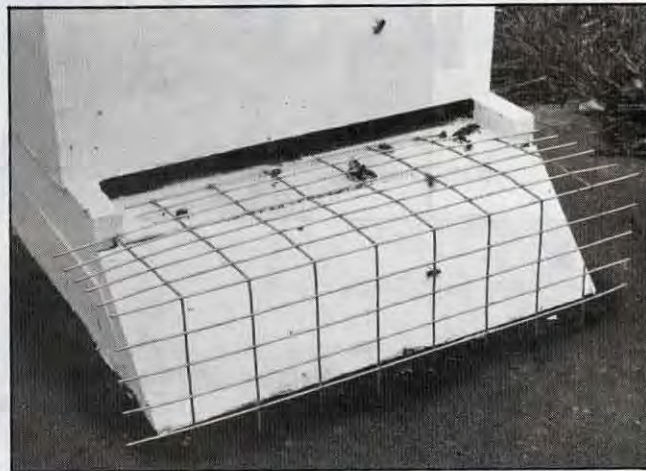
The Root Company reported that one year dragonflies did \$1000 damage to some 300 to 400 colonies located along the Apalachicola River in the Florida panhandle. This happened in a four to five day period in spring before the bees could be moved to a different location.

Predation by dragonflies is not predictable. A few dragonflies eating a few bees is not a problem unless it is a queen on a mating flight. However on occasions there are large numbers of dragonflies that hatch from the aquatic naiads (young stage) and it is obvious that they are capable of causing a lot of damage in a short period of time.

There is no effective control to protect honey bees from occasional dragonfly predation. Insecticides would not be effective, and chemicals

Continued on Next Page

Possoms (right) and skunks do similar kinds of damage, and the same techniques for protection work for both. Below left, is a nail board – effective, but dangerous for beekeepers, too. Below right is a wire guard that makes the predator expose a tender underbelly – an often effective, but not foolproof method.



These little felons generally enter a colony in late fall or winter when bees are clustered and unable to defend their space. Mice consume bees, honey, and pollen, defecate in, and generally mess up the inside of a colony, chew foundation, comb and frames and even bottom boards. Their damage usually goes unnoticed until spring cleaning, after they've done their worst.

But controlling these little demons is easy and inexpensive. Exclusion is

the safest, easiest and most thorough measure to take. Reducing an entrance to only a quarter inch works well, but a three-eighths inch opening, the size used most often, works almost as well.

Poison bait is often used, but non-threatening species may be affected when used outside. But for stored equipment it is best. When compared to bear or skunk control, keeping mice out, and away, is the easiest by far.

Raccoon and Opossums were also

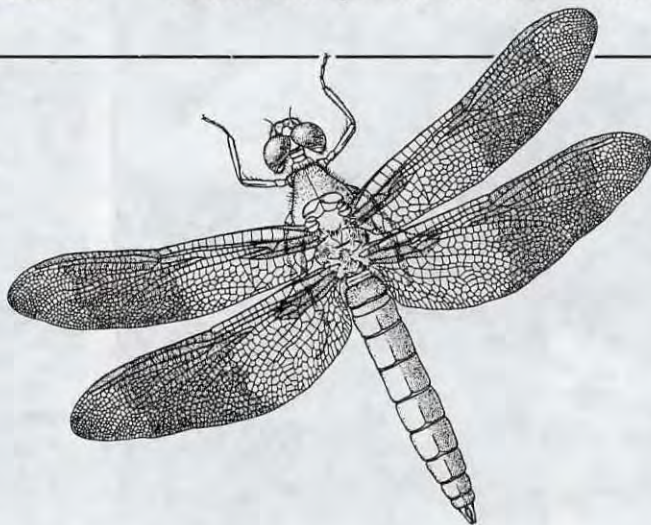
listed as occasional pests. Raccoons can tip over hives, and will carry full frames of honey and brood some distance. Their damage may be mistaken for that of a bear. Opossum damage looks like a skunk's, and similar control measures are effective. Trapping works, as does shooting and poisoning.

Several birds were listed as problems, but woodpeckers were the only species mentioned as destroying boxes. But summer tanagers, tree swallows,

Continued on Next Page

to kill the naiads would cause great damage to other aquatic organisms.

One older recommendation was to "arm small boys with a whip, switch or brush broom and place them in convenient positions for whipping down the hawks, as they pass" What about success? The author stated "if you will persevere in this warfare



for a week, they (the dragonflies) will completely disappear"

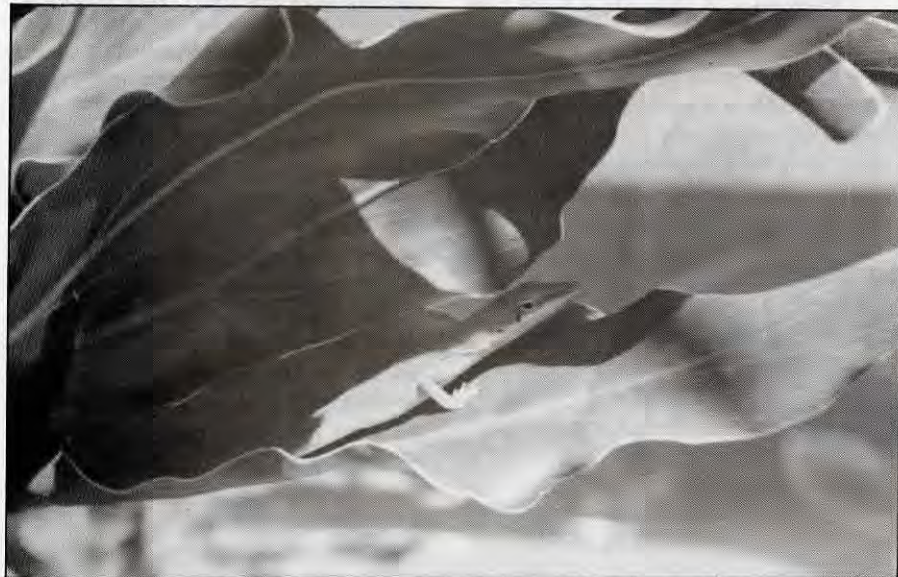
The more modern response would be to move colonies to a different apiary site.

The dragonfly is a well-known and colorful insect. Their rare predation on honey bees disrupting beekeeping only adds to their mystique and lore. □



A snug and dry mouse nest. They can raise particular cane when they spend the winter inside. They eat bees, honey, wax and even wooden parts. Nor do they bother to go outside – all winter. The 3/8" mesh wire is an effective guard, and can be stapled to the bottom board and left all year.

Lizards, and their ilk also eat a bee or two on occasion, but are seldom serious population reducers.



blue jays and eastern kingbirds can, and do eat bees on the wing. The kingbird has been noted as a predator of queen yards on occasion, but instances are rare. Control entails shooting (*not recommended!*), relocating colonies, and, for woodpeckers wrapping colonies in chicken wire.

Lizards and toads also eat bees, sitting just outside colony entrances and munching on anybody who comes near. Though not serious, in tropical and semi-tropical areas their populations, and problems, are increasing.

Horses, cattle and sheep are often unintentional colony destroyers, too. Using the corner of a colony as a scratching post, they can, and do over turn the boxes. If left uncorrected the exposed colony will certainly suffer. Death or absconding is usually the result.

Fencing is the only way to avoid this – to keep animals away from the colonies, and colonies on their feet. However, if this isn't possible, grouping colonies together so tipping isn't likely to occur may work.

“Bears and horses, skunks and sheep ... and even man.”

Finally, man himself made the hit list of predators to avoid. Outright theft is reported as a problem on occasion, as is the age-old tipping-and-running vandal attack. But the scariest stories are those of beeyard competitors poisoning each others bees, or rampaging through a yard in the dead of night with a battering ram pick-up – destroying everything in sight – bees, boxes and pallets.

So, it seems, when compared to bears and skunks or raccoons and mice – man is the deadliest predator of all. The creator of those finely crafted colony containers is too-often his own worst enemy. □

THE WEEKENDER

HOW TO TAKE A VACATION

Make sure you don't lose your honey crop, even if you can't be there.

JEFFREY L. OTT

You've waited patiently all winter, and not quite so patiently this Spring, and now, it's finally Summer! You've planned and schemed, built hives, fed, inspected and medicated, got through the swarming season and now everything's in good shape. Feeling pretty good, are you? Well now it is time to take some time off and go on a well deserved vacation.

Before adding supers for the honey flow that will (probably) occur while you're gone, be sure and add a queen excluder to keep brood out of the honey supers.

Beekeeping offers many advantages over other live-animal hobbies. One of these is being able to leave on a vacation and not worry about your hives, or to have to pay for some sort of 'sitter' In fact, studies have indicated the less a colony is disturbed, the more productive it will be. Chances are, like most weekenders, you're going to have a two or three week stint this month or

next when you won't be able to get to your bees. Whether it's a vacation, family commitments, house painting or whatever, this time we're going to look at how to get ready for that time away.

So, before you get your 'Family Truckster' loaded and head out on the open road, what are some of the things you can do to help your bees work while you play? June, in the northern tier of states is the end of the swarming season and the first of several honey flows. In June think supers. And, whatever else it is that will help your bees make the most of those sweet summer flows.

Being prepared for the honey flows really started before June, though, especially if you need more supers and frames. These tasks were best done on a few January and February weekends. But, since the bees usually get lower priority you probably have boxes of supers, frames and foundation still waiting to be knocked together.

When putting woodenware together, be sure to use glue in addition to nails to insure a long and durable life. Supers should be painted with a quality latex paint or stain and left to air several days before you use them. Because the end grains of the super will absorb more water, thus rotting sooner than the rest of the box, some beekeepers soak the ends of the supers in a wood preservative before assembling and painting. This takes a bit longer but will help put off the Grim Reaper of all supers for awhile.

Continued on Next Page





WEEKENDER ... Cont. From Page 339

Frames take quite a bit of abuse throughout their lives so assemble them with this in mind. If you produce extracted honey reinforce the frame and foundation by using wire. This will help to keep the comb and frame from breaking when fully loaded, especially the first time you extract.

Many beekeepers only use nine frames in a honey super. This is because the bees will draw a deeper cell, making uncapping easier (and inspecting supers, too). However, do not load up a new super with nine frames full of fresh foundation. The bees will draw this out unevenly and create quite a mess for you to contend with.

To avoid this, either place ten frames of foundation in the super or alternate the new frames of foundation with last season's frames of old comb. Honey bees seem to prefer storing honey in old comb, so by intermixing old and new the bees will be lured into the super sooner. If possible, don't put frames of foundation next to the outside of the super. Keeping them towards the middle and above the center of the

Check brood frames for spotty patterns, disease and other problems.

broodnest will help get them drawn out quickly.

Only experience (and sometimes luck) will tell when the major flows occur in your area. But lacking these use the knowledge of local beekeepers. If you had a hive scale you could monitor daily weight gains. This is certainly fun and worthwhile, but who has the time? So, before going on vacation place *at least* one extra super, and maybe even two extra supers on each hive before you leave. This will generally give the bees plenty of room to expand. The next time you check on your hives see how many frames of honey are capped. The general rule is, if the top honey super is 80% capped – add another super on top.

When inspecting honey supers don't go into the brood unless you suspect disease, a failing queen or other problem. Just "taking a look" will disrupt the colony. Each time you open a hive the bees lose hours of work so they can repair everything that was broken and clean up the mess. It saves you time in your yard too, if you don't examine

every frame, in every hive, every time.

And now, the Great Debate: *To Exclude or Not To Exclude!* Weekenders are short on time, generally, and want to simplify, simplify, simplify. When you put honey supers on, put on a queen excluder, too. If the opponents of excluder use are correct, you *may* lose some honey production, but you will not have to be concerned about the queen putting brood in the honey super while you're away. It is a management technique that many weekenders use. If you are really worried that the queen excluder will act as a 'honey excluder', bore a 5/8" hole in the top honey super, above the front hand-hold. This super, now with a top entrance provides a quick entry into the hive for nectar-laden field bees.

June is a good time to requeen if you need to. During your pre-vacation inspection take a look at the brood pattern. Is it full, looking like a text book picture of a healthy, productive queen? Or is it peppered or scattered, indicative of a failing queen or maybe a disease problem.

Now is a good time to requeen for two reasons. First, commercially produced queen prices generally drop after the end of May. And second, bees are more willing to accept a new queen during a nectar flow. It may be a bit harder to find the old queen now though, because the colony is near it's maximum population for the year, but replacing a failing queen will be worth your time. Besides, the colony has produced all of its nectar collectors for the season already, so a break in the brood cycle now shouldn't affect honey production very much. And besides, if you choose the queens you know what you're getting, rather than letting the bees decide themselves.

One last thing to do before you take off – yard maintenance. Keep the weeds down around the hives, especially right in front of the entrances. Not only does it dress up your apiary, but it helps the bees as well. The less they have to dodge, scramble, and scamper over and under on their way in and out of the hive, the more efficient they will be in their work.

There are several ways to do this. Some beekeepers just throw their weed-wacker or push mower in the bed of their truck each time they go to the yard. A few passes with either of these will keep the weeds at bay. One beekeeper who has access to carpet remnants, 'carpets' the area in front of



If you must requeen, make sure you remove the cork and make a small passage in the candy before placing the cage in the colony.



Don't forget to trim-up and clean-up before you leave. It's amazing how much unattended weeds will grow while you're away.

his hives. The same thing can be done with a roll of tar paper, scrap plywood, and anything else that costs little (or nothing) and happens to be available.

While you're there, pick up any trash that's around. Move rocks and other obstructions too. Nothing is worse than tripping over something and dropping a super full of honey (especially if it's on your foot!). Appearance is especially important if your bees are on someone else's property or within

public sight.

There are probably hundreds of things to do for your bees before you leave on vacation that will never get done. You'll get to do the things that need doing the most, if you're lucky and that will be it.

Remember - give them room, don't disrupt anymore than necessary, and requeen when required.

And have a good vacation!

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INSTALLATION INSTRUCTIONS

O. B. Wiser

Why do so many queen shippers put corks in the candy end of queen cages? In 33 years of installing queens, I have never seen one bunch of bees *in* a cage eat their way *out* of a cage through the Nulomoline plug. I have, however, seen a cork left in accidentally and the queen die in the cage. But some queen breeders still persist wasting

their corks and my time, taking those pesky critters out. And that is no easy job either. It takes a 5d nail and just the right twist to get the little snots out. Thank goodness Homer Park has never put them in, which is one more reason I buy his queens.

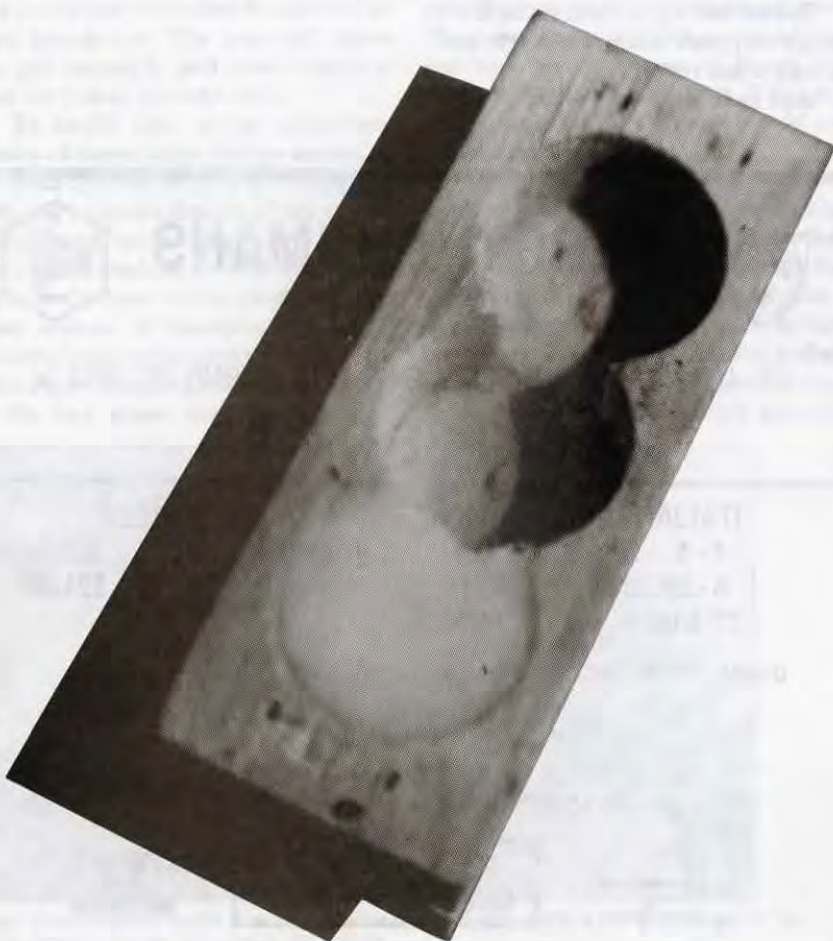
How to put these little three hole cages into a divide or hive? Well there

are a bunch of wrong ways, like with the wire side up so the queen can drown in the honey when the frames are pushed together. Or, you can put the cage outside the main cluster so the queen chills and dies. And, of course, you can put the screen facing the comb so there is no way the hive bees can feed the queen and get acquainted to her queen pheromone. But I've learned the hard way, at \$6 a mistake, how to do it the right way.

First, I like to poke a hole through the candy with a 7d nail so the hive bees can get the queen out of the cage soon. There is no great advantage to leaving her in there more than two days. The bees will only raise cells, some of which may be saved by the bees and the new queen bumped off in favor of the virgin. Bees are funny, you know. They do things their way.

Now, placing the queen cage is a simple matter. First you place it with the screen *down*, with the cage on a 45° angle, with the candy end down. Put it between two brood combs in the center and deep off the top bar. Do not stick the queen cage *between* the wood of two top bars. This is queen murder. She chills or falls down when the unit is bumped.

Put her down between the brood combs and squash the two combs together on the queen cage, squeezing it from both sides so it will not fall down between the combs. Queens die very nicely on the bottom board or between the top bars when that cool snap comes



along and the bees shrink back, leaving the queen to chill. Do not fret about squeezing into the brood comb. The few bees you may kill in the brood comb are just not worth it. Queens are more important. Squeeze all the frames together to one side, tight as can be, to reduce the space the bees have to cluster over. **Do not space new divides**, squeeze their frames together. Later, when you come to take the cage out, you can space the frames.

Some of you have what we call two **hole cages**, that are put into packages and do not have a candy plug. Why the industry has not figured out in the last 80 years that a three hole queen cage is better, I will never know. We are slow, in this industry, to change.

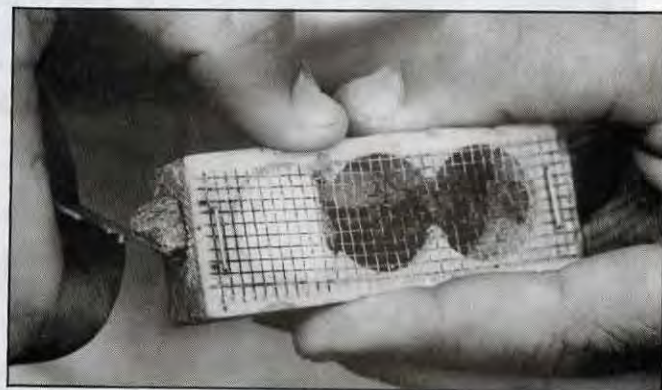
Now, the biggest mistake you can make when installing a package is to shake it into the nuc in the middle of the day, when the sun is out and it is nice and warm. If you think you can just pull the cork and release the queen into the bees because they are used to her by now and there is really no reason to keep her caged, you're dead wrong! Queens in those two holers are nice and shrunk up, and by the time you are pouring the third package in, the first one you installed is heading for the trees with a slim, trim, flying queen.

So what to do? **Put your bees in during evenings last light**, or even better, in the dark. But, most important, *do not release the queen*. Pull that little cork and put your thumb over the hole and take some masking tape and totally cover the hole, just one tape-layer thick. Make sure you run the tape down both sides so it sticks. Then take a dull pencil and poke a good sized hole in the tape, just small enough to keep the queen in one or two days, while she fattens up to get ready to lay eggs. Of course, if you just love to catch swarms in the trees, pull the corks and release the queens and do it on a warm sunny day.

I did it right the last time. I dumped 400 two-pound packages between 9:00 p.m. and 1:30 a.m. And you know, I was so tired afterwards that I did not even miss the challenge of catching half of them in the trees. The next day, in fact, *not one package* hit the trees, and all the queens were out and laying on the third day, which is the way I wanted it to happen.

I still wonder why some package producers do not use three holers with a candy plug. It sure would make my job a lot easier and I would be willing to pay the extra nickle. But then they might not fit into their strawberry packing boxes as well. Their world would have to change, and change is not easy. Of course, there is another alternative. That is, stick a tack into the cork with a nylon line attached to it and leave it hanging out the front of the hive. Then, you can pull the cork from outside the hive three days later. I can just see my friends in Canada releasing 1,000 queens that way. They do not have anything better to do that time of year anyway, do they? Do you?

Queen cages, know how to use them! □



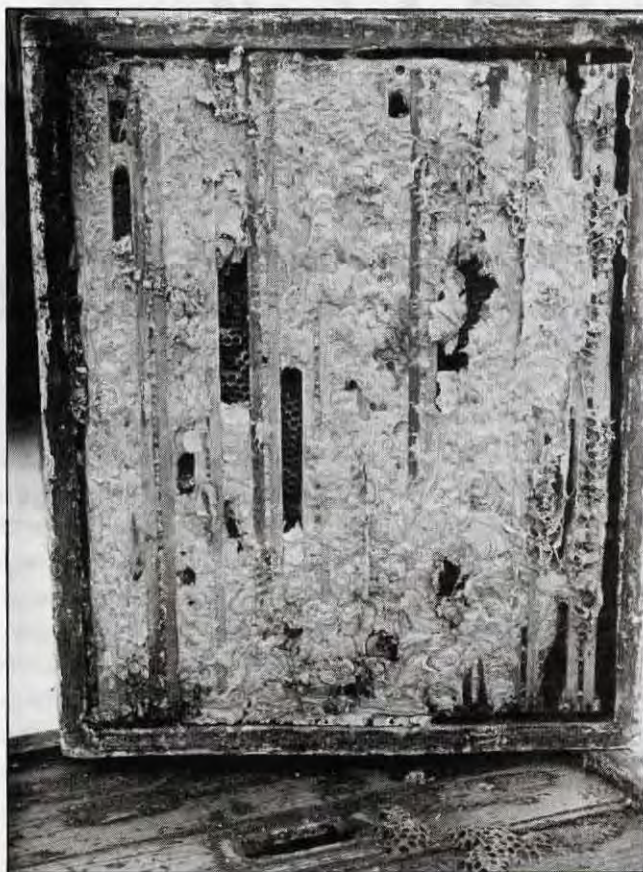
Remember to poke a hole through the candy before you put the cage in.

NEVER – NEVER – NEVER put the cage in with the screen facing the comb. The bees won't be able to get to the queen, and she'll die.



HONEY WASPS

With all this talk about mites and Africanized bees I got so discouraged I decided to raise honey wasps instead of honey bees. Well, not really. Actually, I was very surprised to find that a stack of my supers became home for a nest of paper wasps. Two of my supers were completely filled with this paper-like material. What I found very interesting was the way these wasps constructed their home. Each of the two supers had ten frames, and the wasps built their nest around these frames. A perfect bee space was made between the supers so I was able to pull the supers apart without tearing any paper. Also vertical bee spaces were made between several of the frames in the lower super so I could pull the frames out without damaging the nest. It's amazing how similar this paper nest is to the wax home of the honey bee. So if mites and Africanized bees have got you feeling down, don't feel too bad because there's always honey wasps! *by Mark Jordan*



S • T • R • A • N • G • E

HONEY POT

Last Spring I was cleaning up some equipment, and my friend, Paul Miller, stopped by my house. He said he had a friend who had a friend who had honey bee problems. He said these people had a swarm of honey bees that took up residence in their *outhouse*. I had to laugh, and my first question was, "Are the bees in the top or the bottom?"

"The bottom," Paul said. At that point I envisioned ropes, ladders, and gas masks. I guess you can leave it to honey bees to keep things interesting.

It took a few days to contact the owner, get the exact location and set up an appointment. The outhouse was approximately 35 miles from home, in a very small town on Rt. 511 called Widowville, OH (my grandmother told me the town acquired its name during the

Big War).

My nephew, Adam, and I arrived at the scene, and we talked to the owner. He said the bees had been in the outhouse since he had lived there – at least two years – and that the man that lived there before had kept bees on the property. Then the owner promptly told me that he would like some comb honey if I was going to remove these bees. It was very early Spring. I told him there wouldn't be much surplus honey, but if there was he could surely have it. I couldn't see much appeal in any honey coming from the basement of an outhouse, anyway.

I suited up and had my nephew fire up the smoker. We pried the door of the outhouse open and had to remove about 50 slate shingles that were stacked in



there. After we cleared enough room to work, I slowly lifted the toilet lid. Paydirt! As I lifted the lid higher, I could see a buzzing mass of comb and bees attached to the inside perimeter of the toilet around the lid. Luckily, the colony only extended down about two feet. It was truly a glorious sight to behold! The bees had used a vent as an

entrance in the back of the outhouse.

The bottom of the basement of the outhouse was only three feet from the top of the toilet lid, and fortunately covered with leaves and grass clippings.

Adam and I cut brood comb to fit deep frames, and we ended up with six deep frames of salvaged comb. We at-

tached the comb with rubber bands. I went back after sundown and brought the hive home. A few days later I saw rubber bands on the entrance of the hive.

I had a five-gallon bucket of scrap comb, but I did manage to save some comb honey for the owner—he was quite pleased! *by David Duncan*

BEE TREE

Early last fall I received a call from Ed Weiss, a well-known beekeeper here in Connecticut, asking if I would be interested in a bee removal job. A homeowner in Trumbull, Connecticut had recently called to have a colony of bees removed from a tree that had been cut down. The homeowner had not realized the bees were inhabiting the upper part of the tree.

Having done a couple of bee removal jobs in the earlier part of the year (one in a 102 year old church and the other in a camper that had been in storage for several years) I had had a taste of the challenge, and was ready for another.

I arrived at the house at dusk where I met Bohdan and Cindy Seniw, the homeowners. In the backyard Bohdan had cut down a large tulip tree, or yellow poplar as it is also known. They grow from 80 to 110 feet tall and the trunk is free of branches on the lower part of the tree.

Bohdan and Cindy's tree was about 100 feet tall with a trunk diameter of two feet and circumference of a little over six feet. About thirty-five feet above the ground was the entrance to the colony, an oval shaped opening about two and a half feet long and six inches wide.

After I put screening over the entrance I decided to make a cut with a chainsaw about twelve feet above the opening and then to cut off two foot sections of the tree until we reached the hollow part where the colony was located. When the second of the two sections had been removed, we found the hollow.

Shining a flashlight into the open-

ing I was very surprised to find the honeycomb still intact after the jolt it took hitting the ground. I found out later that honeycomb seldom breaks away on impact. Looking in with a flashlight was wonderful. I felt truly privileged to have a small glimpse into a colony no one had ever seen before.

My original plan was to cut open the small two foot sections we had cut off and remove the bees with a vacuum, then to remove the broken honeycomb. But when I saw the bees were intact I thought what a wonderful nature display this tree would make. I immediately thought of Tim Chaucer, the director of the Milford, Connecticut Marine Institute and Nature Center.

I first met Tim when he was conducting a bird-watching tour at the Milford Point Bird Sanctuary during Earth Day observances. Tim and I had talked about the Nature Center he was in the process of establishing and had told him that I would like to set up a beehive at the center as an exhibit, and to also offer my help with the fledgling center. The problem was how to get the log into my van and then to the nature center, 15 miles away.

After telling Bohdan of my plan, which he thought was a great idea, he went to see if he could enlist the help of neighbours for some muscle to wrestle the log into my van.

He came back with two neighbours, one of which had a large automotive floor jack. I backed the van up to the tree and with the jack we were able to lift the tree up high enough so I could back the van underneath one end. With the end of the tree in the van we moved the jack back and proceeded to repeat the process again.

The log stayed in the van overnight, but I didn't want to drive to work all week with the log sticking out the



back door of the van, so I decided to move it to my back yard.

With the help of Joe Aveni I unloaded the log from the van and moved it to the back of my house. With a block and tackle we were able to get the log to an almost upright position. It weighed around six or seven hundred pounds, but with the help of a neighbor we stood the log on end.

I made arrangements with Tim the next weekend to move the log to the nature center. Tim and a group of Cub Scouts would help, and with the help of the adults we would set up the log as a display.

With many hands to help, setting up the display went on with little trouble. I used a utility trailer to move the log, which was much easier than loading it into the back of the van again. I hung a sign "live bees" on the back of the log and off I went through the city to my appointed delivery with no problems — and no tailgaters!

I was very pleased that I was able to get the nature center this display because it will be a valuable teaching tool for years to come.

If you like a challenge, have a sense of adventure and enjoy working with bees, then perhaps removing bees is for you. *by Ralph Harrison*

P • L • A • C • E • S

HONEY PLANTS

In the past ten years the United States commercial honey crop has ranged from an estimated 165 to 230 million pounds. This honey is produced by about 6500 full-time and part-time beekeepers who operate about 3.1 million colonies of honey bees. A little over half of this honey is bottled, most commonly in one pound jars, and sold as table honey. The remaining honey is blended and sold in bulk as bakery grade honey.

Honey bees gather nectar, which they make into honey, from as many as 1500 to 2000 plants in the U.S. However, only a small number of these, nearly 40, produce nectar in sufficient quantity that the resulting honey reaches the market and is sold as a varietal honey for either blending or packing under its own name. Listed below are those honey plants responsible for the production of half a million or more pounds of honey each per year in this country. Not all of these

Sweet Clover



plants may secrete sufficient nectar every year to produce this quantity but their honeys are sufficiently distinctive that they are known as varietal honeys.

Clovers and Alfalfa

clovers

white clover (-white dutch clover this is the best honey plant in the country)

white sweet clover (this and alsike clover are the third and fourth best honey plants)

alsike clover

yellow sweet clover

a mixture of several other clovers

alfalfa

The clovers and alfalfa are widespread and the most important U.S. honey plants. Together they are responsible for about 55% of the total honey production; alfalfa is responsible for 10 to 15% of the total crop by itself. These are the leading honeys used for table in both liquid and crystallized form.

The Oil Seed Plants

rape and canola (canola is a modified rapeseed, and production is rapidly increasing. Rape, as such, will probably decline to little or no value.)

safflower

soybean

sunflower (production varies, but may be increasing due to new farm bill.)

other seed oil plants

The above, as a group, have become increasingly important as Americans have come to consume more seed oils. This group is probably responsible for 10% of the total honey production. Most of the honey produced by the oil seed plants is used in the baking industry. Canola honey is high in glucose and crystallizes too easily and rapidly to be used as table honey, even though it is light in color. Some of the other oil seed honeys contain a large quantity of pollen and are darker and stronger in flavor.

Miscellaneous (1/2 to 6 millions pounds each)

asters

basswood (is becoming more common in the east as natural reforestation occurs)

Brazilian pepper (FL only; recent freezes have reduced production)

buckwheat, wild western (primarily California)

catclaw acacia

cotton

fireweed



Alfalfa

- gallberry (one of the more important plants in this group)
- goldenrod (was once more important)
- locust (mostly black locust)
- mangrove (becoming less important as more seacoast in FL is developed)
- mesquite
- milkweed (may not belong on this list)
- orange blossom (far more important before the FL freezes and the urbanization of southern CA)
- palmetto
- purple loosestrife (increasing in importance)
- raspberry and blackberry (primarily in ME and the Pacific northwest)
- sages (several species, one of the more important of this group)
- salt cedar (important in the southwest)
- sourwood (Appalachian area; not a consistent yielder, but a high-quality and high-priced table honey)
- Spanish needle
- sumac (many species; widespread in the country)
- tallow tree (=Chinese tallow)
- titi (the most important in this group – an estimated six million pounds produced)
- tupelo (the trees are widespread but this is a major honey plant in Florida only; traditionally the most expensive honey in the U.S.)
- tulip tree (eastern U.S. south of NY and north of Florida)
- vetch
- yellow star thistle (western U.S.)

The above 29 plants are responsible for about 35% of the U.S. crop.

The "Has Beens"

- buckwheat, eastern cultivated (will probably never be important again as the grain is not in demand)
- heartsease
- wild thyme

The "has beens" have come about because of changes in American agriculture. For example, in about 1900 the bee-



Soybean

keeper with the greatest number of colonies in the country lived in Ithaca, NY; he had 4000. At the time the area was heavily farmed and only 20% of the land was wooded; today the area has been abandoned insofar as most agriculture is concerned and 50 to 60% of the land is wooded. Wild thyme was once important, too, but that was 40 and more years ago when the Catskill Mountain Area of New York state was heavily involved in dairying and cows were pastured; the cows ate almost all of the plants in a pasture except the thyme, which flourished as a result. Wild thyme plants are now widespread in New York and New England but the reddish, strong-flavored honey produced from its nectar is little seen on the market.

The Origin of This List

I have made up this list after conversations with many people across the country, too many to mention here. I thank all of them. I would appreciate hearing from those who have suggestions as regards changes that should be made. □



Star Thistle



BEE TALK

RICHARD TAYLOR

Box 352, Interlaken, NY 14847

"Lead, Kindly Light"

I finally got around to checking my apiaries in late April. I'm sure I had been sort of putting it off. I knew I would find a lot of colonies lost to tracheal mites. Last year half the colonies in one of my largest apiaries had succumbed to the mites, and about a third in another yard. It was a depressing thing. Since I hadn't treated them with menthol or anything I was sure it was going to be just as bad, or worse, this year.

It didn't look like I was going to be able to get my little bee truck going, either. She was finally a goner, I was sure. I had been told two years ago that she was on the verge of collapse. Her chassis was so rusted and rotted that the transmission was about to drop out. Last fall I drove her up into the yard, for some reason, and then I found I couldn't shift the gears to drive her back where she belonged. So she just settled into the ground there, and over the winter the wheels froze into the mud. By the time I had finished with her last fall the engine was coughing pretty bad, and wouldn't stop running when I turned the ignition off. The only way I could get it to stop was to hold my foot on the brake with the engine in gear while I let out the clutch. And she wouldn't idle until the engine got hot. So going around to my bee yards, I had to keep my foot on the brake, instead of on the accelerator, until the engine finally got warmed up. Now, this spring, when I finally went out to try to get her out of the mud, and got rid of the puddle of water on the floor where the driver's feet belong, I found, of course, that the battery was dead.

So it was all pretty discouraging. In fact I had advertised, last winter, to sell most of my bees, and a lot of people had

phoned wanting to buy them. I thought I would just keep my home yard, where I wouldn't need the bee truck, and sell off all the other apiaries.

Well, I dug out a battery charger from my shop, which I had never used, and didn't know how to use. I learned what to do with that, and charged up the battery. It still had a good charge a week later, and the little truck started right up. And she ran just right, purred like a kitten, didn't race at all. I felt a glow of warmth, as my love for that old heap was rekindled. We've been so many miles together, just the two of us, and all my apiary stuff piled on the seat. Her tires were pretty soft, but I got her out of the mud, and got the tires blown up. One of them, which I bought second-hand for three dollars, now has no tread at all. But it doesn't leak. Something began to drizzle ominously from underneath. That turned out to be nothing but a little water.

So, off I headed for the bee yards, which I hadn't seen since last fall. The old truck continued to purr along, the engine didn't race a bit. Maybe she just needed the winter's rest. The temperature needle began to rise rather fast, I thought, but then, after a couple of minutes, it went right back to normal. I was getting quite a few pleasant surprises.

By now the sky had turned grey, appropriate to the depression I was sure would settle over me when I began to check the hives.

But then began one of the most astonishing series of surprises I have ever experienced in my whole life. Every colony in the first yard was alive!

Most, in fact, were quite strong! I have a way of identifying, in the fall, those I think might not make it through the winter. I put the brick, on the cover, to the rear. That means it is light, and going into winter somewhat weak. There were a couple of these in this first yard, and even they had made it! Wow! I just couldn't believe it. So off I drove to the next yard. This was the one in which the mites had killed off half the colonies last year. I found the same thing here — every colony alive, many of them very strong. And so it went with the third yard, and my home yard — 100% survival. Holy cow! What had happened to the tracheal mites?

I drove back home that day, my little truck still purring happily, like the dear friend she is, and found myself humming the old hymn, "Lead, Kindly Light!" about the joys nearly lost, then found again. I told my wife what I had found, and we rejoiced together. She never had liked the idea of my selling off some of my apiaries.

So no, the bees aren't for sale after all. I hope there won't be hard feelings about that. I should be able to produce an awful lot of comb honey this year, and I notice the price of comb honey has risen rather well. And in the meantime, I have an awful lot of work to do, getting supers ready. It ought to be a good year. It better be, after last year's discouragements. In any case, the gods seem to be smiling on me, and my mood is high. □

QUESTIONS?

Mites and more

Q. Members of our state bee association insist that responsible beekeepers should tear down every hive twice a year and check for mites at least once a year. Some even say that we should inspect the tracheae of at least 50 bees from each hive under a microscope. You, on the other hand, advise just waiting for spring and then reviving mite-killed colonies with nucs from surviving colonies, which is much simpler. But does that not risk causing a local plague or epidemic?

Name withheld by request

A. I am convinced that it is not worth the time to go inspecting hundreds of bees microscopically for signs of tracheal mites. First, tracheal mites have little adverse effects on a colony once the weather warms and nectar gathering commences. Second, there is nothing you can do about it if you do find mites after the nectar gathering season has begun. You can't use menthol with honey supers on the hive. Third, the idea that you might cause a plague of tracheal mites by not going to great lengths to try eradicating them makes about as much sense as thinking you might cause a plague of houseflies by not keeping them swatted in your house. The mites are already just about everywhere. Fourth, the problem of tracheal mites is that they cause winter losses, so the response is either to medicate against them in late fall, when supers are off, or treat in the spring before supers are on, or just wait until spring and restore the losses in the manner suggested. However, many beekeepers have only a few colonies, and may not have enough to split out replacements. For these, I guess a fall treatment with menthol is certainly a safety factor. Feeding with an oil/sugar pattie in the early spring may also insure against losses. Finally, what is the *point* of "tearing down" every hive twice a year? Some might call that active beekeeping, but I would call it plain meddling.

Covers

Q. I have a problem with covers. The telescoping covers, with inner covers, are expensive, and they become a haven for bugs. I want to go to flat covers, but this raises the question of ventilation. Would you recommend drilling a hole in the upper part of the hive?

Robert Taylor
Ponchatoula, LA

A. Many beekeepers in the West use plain flat covers without any inner covers, and this is economical. Even a slab of unwarped heavy plywood works fine. I know of one successful commercial beekeeper who uses for covers nothing but pieces of tar paper weighted with rocks. I do not recommend drilling holes in hive bodies. There is no need for it. Ventilation can be gotten by slipping a nail or small stick under one corner of the cover, allowing moisture to escape but without creating a bad draft where winters are cold.

Good Beginnings

Q. Is an introduced queen better than one they raise themselves?

Maurice J. Walsh
Limerick, Ireland

A. Usually it is, but the main factor here is the strength of the colony. Weak colonies produce inferior queens, because of the shortage of royal jelly (and the workers needed to care for a queen cell). Of course this isn't a problem with introduced queens.

Both?

Q. Is the foraging worker likely to gather pollen and nectar currently from the same blossom?

Charles Brand
Beltsville, MD

A. Some blossoms do not yield both, but bees gather both simultaneously from those that do; sometimes intentionally, sometimes not.

Pricing & Storage

Q. I have some questions about round sections. What should one charge for them? How long can you keep them before selling them, and how should they be stored? How long should they be kept in a freezer? Do you recommend that the purchaser store them in a freezer?

John Kauzlarich
Farmington, IL

A. My price last year for good quality circular section comb honey was \$1.95. It will be more this year. Prevailing prices for various regions of the country are given regularly in the *Bee Culture* Honey Report. Comb honey should be put into a freezer soon after harvesting for two or three days to destroy any wax worms or eggs. After that it can be stored in a warm dry place until ready for sale or use. Comb honey that is liable to granulate can be stored in a freezer indefinitely, to retard granulation, but in the case of most nectar sources this is not necessary.

(Questions are welcomed. Send to: Dr. Richard Taylor, Box 352, Interlaken, NY 14847. Do not send to Medina. Enclose stamped envelope for response.)

Readers please note: I continue to get questions unaccompanied by a stamped self-addressed envelope. Please be advised that these will not receive a response. It has gotten too troublesome and expensive.

ANSWERS!

Richard Taylor

A somewhat recent trend, if the last three years or so is recent, has been the 'legislation' of beekeeping in urban areas. Changing the 'rules' seems to have been common-place and beekeepers have been on the short end more often than not.

If you want to know who's been getting what, where, think about who's been giving us the shaft lately. And that's what we want to measure (so to speak). Our research department (yes, we have one, albeit small) is compiling a list of municipalities that have *banned* beekeeping within their borders within the last 24 months or so. We want as accurate a measure of this 'bee banning' as possible, so if your town has recently banned bees and beekeeping from the eyes and ears of its inhabitants - let us know.

But we don't want to forget those who have had to do without for a longer time, though. If your city, county or whatever *forbids* bees and beekeeping, send us a note and let us know.

Here's what to do. On a post card (keep it cheap!), tell us -

1) your name and phone number (so we can get back to you if we need to).

2) The city, town or county that has banned beekeeping, including the information as in the following example -

A) Kim Flottum, New City, OH 216-555-1212

B) New City outlawed beekeeping about three years ago, and,

C) is located in Northeast Ohio.

That's all. Who you are, where your city is (or the city in question, if it's not your own) and when this crime against beekeeping started (if you know) and about how long it has been in force - ("as long as I can recall", is a perfectly good answer).

We're going to follow this closely, and we'll be asking, again, both you and others in the industry. We want a picture of what's what, and where. Help us help you keep beekeeping a viable hobby and business. Send in the names and information. Let's find out who doesn't like bees, beekeeping and, maybe even beekeepers.

There is an overriding theme to the request we've made here. And, quite simply, if your city or county (yes, entire

counties!) has not yet banned bees or beekeeping, the plan may already be in the works.

Often, outright bans or severe restrictions occur when one, rather vocal and often important city resident has a problem with 'bees'. And generally there is only one beekeeper who, either because of lack of foresight, or plain indifference, has caused a 'situation'. The 'violated' party then goes to a city council meeting, states the complaint (about 80% of complainants are women), and the council enacts a ruling banning bees and beekeeping - you never had a chance, friend, and that's that.

Less often there is an intermediary, and a well meaning beekeeper, or beekeeping group goes to both parties and tries to work out a compromise. Sometimes this works, sometimes not.

The fact remains - we are always on the *defensive*, trying to 'catch up', rather than 'get ahead'.

There is a term - Proactive - that means taking control **BEFORE** you are on the defensive. If your community has not yet crushed the life blood of your hobby, has not yet snatched the good times out of your back yard, right *NOW* is the time to get organized and beat the legislators, the zoners and the proverbial city fathers to the punch.

Fifteen (more or less) swarms of African honey bees have been discovered in southern Texas so far this year. How long before panic hits the streets of your town?

Next month, a plan to keep your bees in *your* backyard. Meanwhile, let us know what's happening in your town - write! ZONED, P.O. Box 706, Medina, OH 44256, Today!

We tried three things last fall and early this spring that have paid off well in terms of colony strength. They fall into three basic categories - nutrition enhancement, environment enhancement and pest protection. I recommend all three.

First, we fed all weak, and even moderately weak colonies Beltsville Bee Diet last fall, and again this spring. They weren't the same colonies each time, but some were.

Ninety percent of our colonies (about 30) got oil patties this spring. Only shortening and sugar, and only a half pound/colony, but the differences

are remarkable. One yard with four colonies had two with and two without oil - the two without died. No, we didn't check for mites first, we 'assumed'. Negligible cost and all that received - lived, and 25% of those that didn't - didn't.

Next. Last summer we painted a bunch of our colonies with a ceramic paint, touted as an insulator. Let me tell you about those colonies - all treated the same as other colonies without ceramic paint and essentially the same strength, same size and same everything else. This spring - on April 30 - ceramic hives had 'capped' queen cells, while the rest had no cells, or at best only uncapped cells. The data we've collected so far shows that colonies covered with this stuff stay cooler in summer (especially those with metal lids) and warmer in winter. Hey, capped queen cells vs. none - you explain it.

We had one more variable this year, too. With one exception, our Buckfast and Carniolan stock built up faster, had stronger hives, and by May first had collected more honey and pollen than their Italian counterparts.

All of this is unscientific, but the basics are still proven - Keep 'em fed, keep 'em protected, and pick the best bee for where you live. It'll pay you big dividends in better colonies, more honey and less work. So what's wrong with that?

I don't care that they've already finished extracting the first crop in Florida, the honey flow in Ohio is in full swing, today.

You could wander into a bee yard in only a figleaf this month and walk right on through, with nobody but the neighbors noticing. Honey bees on a mission just can't be bothered with silly people.

Whether they make enough for them and us remains to be seen, but right now, today, I don't care. Standing in the midst of a billion, billion bees, all in a hurry to get to or from somewhere is an experience only a beekeeper can appreciate and enjoy.

Being a part of this spectacle is limited to a very special few though, a select and finite group that, as each day passes, is growing smaller, it seems.

Enjoy your billions and billions of bees this month. Savor the smell of honey in the making and the sounds and sights of bees and beekeeping. Enjoy June.

Kim Flottum

GLEANNINGS GLOBE

JUNE, 1991

ALL THE NEWS THAT FITS

15 By Early May

MORE SWARMS FOUND

U.S. Department of Agriculture officials announced in early May that about 15 or so more swarms of Africanized honey bees have been found and destroyed at trapping sites near Roma, Brownsville and Progreso, Texas, just north of the U.S.-Mexico border. USDA officials confirmed these introductions of Africanized honey bees. The first swarm to reach the United States through this natural spread was found in the Rio Grande Valley near Hidalgo, TX, in Oct. 1990.

Like the first and second swarms, these new swarms were preliminarily identified locally. Samples of bees from the swarms were sent to the Agricultural Research Service's Bee Research Laboratory in Beltsville,

MD and were confirmed as Africanized Honey bees.

"Since this is the swarming season," said James Glosser, USDA/APHIS Administrator, "as long as the weather and food supply remain favorable, south Texans will continue to see honey bee swarms." If any honey bee swarms are seen, he recommends leave them alone and contact the agricultural extension agent in your county for more information.

APHIS is assisting State survey efforts inside a two-mile radius around these finds.

However, TX officials are already beginning to reconsider the quarantine and other restrictions because of the increasing number of swarms found.

Beekeepers Benefit

MORE CANOLA IN U.S.

New management techniques must be used to take advantage of this crop. Proctor & Gamble Co., a primary supplier of edible oils in the United States, has decided to change the composition of its famous Crisco oil. What has traditionally been a 100% soy-oil product is being changed to a blend of canola, sunflower and soy oils. The change warrants farmers' attention. It would eliminate the need for approximately 600,000 acres of soybeans. Soybean demand could drop further as competitors fol-

low P & G's lead. Weaker soy-oil demand, in an already soft soybean market, will dampen prices. But expect an equally positive reaction in the canola and sunflower markets, he says. The growing demand for canola and sunflower oil should strengthen prices and encourage production in the United States. Eighty percent of the canola oil used in the United States is imported, but U.S. acreage is increasing at a steady rate as farmers respond to higher prices.

And All the rest of Nature, too

HONEY BEES HELP ELEPHANTS

"In the past, governments tried to lock resources away," said Henry Nsanjama, former director of Malawi's national parks and wildlife and new vice president for WWF's Africa/Madagascar program. "Now we are telling local people that this is *your* resource, and here are ways you can use it without destroying it."

Helping local people benefit from preserving their natural resources has greatly benefited wildlife in Malawi, a small nation in southeast Africa.

The government there has allowed beekeepers to place their hives in national parks, so long as they use new, environmentally friendly equipment. This equipment, funded by WWF, will prevent the wildfires that sometimes result from traditional beekeep-

ing methods. As a result, beekeepers have already vastly improved their honey production without harming the parks in any way.

In fact, the program has been so successful that beekeepers now constitute an effective back-up to official enforcement efforts, Nsanjama reports. Beekeepers tending their hives often spot, question and even catch suspected poachers of park wildlife, which includes some of Malawi's few remaining elephants.

"Poaching in the parks has been significantly reduced since the beekeeping operations began. You see, in a very real sense, even the bees help the elephant."

World Wildlife "Focus"
Mar./April 91 Vol. 13 #2, 1991

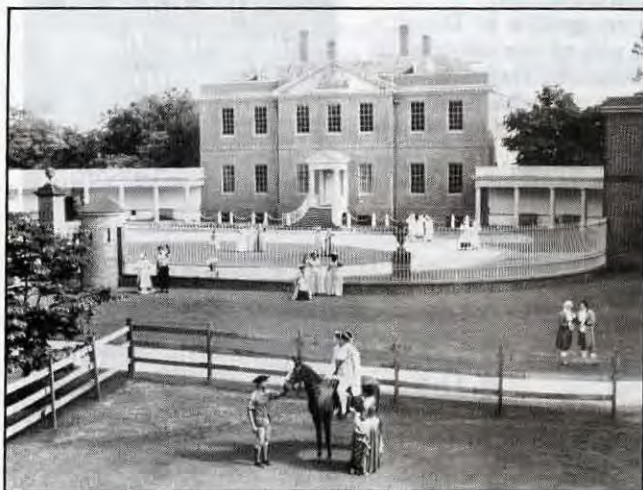
How much do you spend?

DID YOU KNOW

Did You Know? Each person spent an average of \$1,691 for food in 1989 (figured at retail prices), compared with \$1,645 in 1979 (at 1989 dollars) and \$1,522 in 1969 (again in 1989 dollars)... The expense of operating U.S. farms averaged nearly \$575 per person in the U.S.... There are 2.14 million farms in

the U.S.; the average size is 461 acres ... Each U.S. consumer is supported annually by the output of only 1-1/4 acres of land. Farm assets, including real estate, farm operator households, livestock and poultry, machinery, crops totaled over a trillion dollars in 1990.

EAS MEETS IN NC JULY 22 - 26



Tryon Palace – the colonial capitol of North Carolina. Many of the EAS activities will be on the grounds of Tryon Palace.

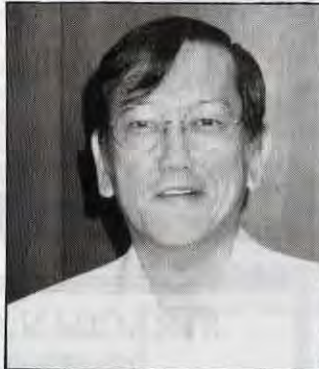
EAS registration begins at 9:00 a.m. on July 24, 1991 and the meeting will run through a closing banquet on July 26, 1991. All activities will be in the Sheraton Resort and Marina Hotel in New Bern, NC. All of the facilities and activities for the general meeting will be under one air-conditioned roof. New Bern was the colonial capitol of North Carolina and its history and charm will be incorporated into our convention. Costs will run about \$253.00 - single; \$310.00 - 2 adults; \$345.00 - 2 adults and 2 children (these prices do not reflect meals).



Reg Wilbanks

An outstanding array of speakers and workshop organizers have committed to this year's EAS convention. To whet your appetite a sampling follows:

Speakers include Jack Cahn, Anita Collins, Al Dietz, Richard Fell, Mike Hood, Francois Huber, Sherry Jennings, Roger Morse, Kenneth Naumann, John Root, H. Shimanuki, James Tew,

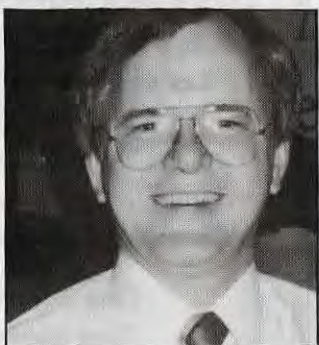


H. Shimanuki

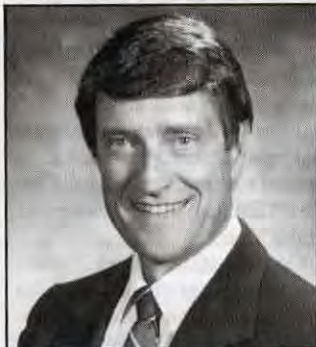
Reg Wilbanks, and many, many more.

Workshops feature Bob Berthold, Candle Making; Jack Cahn, Treating Insect Sting Allergies; Kim Flottum, Crisis Management; Wyatt Mangum, Beekeeping Museum; Jed Shaner, Marketing the Honey Crop; Logan Williams, Honey Plants, and more.

EAS always has a short course prior to the start of the general



Jim Tew



John Root

convention and this year's offering has something for everyone. The Short Course begins at 1:00 p.m. on July 22, 1991 and runs through noon on July 24, 1991. Evening sessions will be conducted on July 22 and 23. The short course will be divided into two general themes.

Part I – Beekeeping Challenges ... Africanized Bees, Mites, Diseases, Pesticides, Ordinances and Liability, Quarantines and Regulations.

Part II – Opportunities ... Retailing Honey, Honey Wine, Queen Rearing, Grafting Queens, the Jenter System, Working with the Media, Pollen Collection, Bee Cosmetics, Pollination, Promoting Bees and Beekeeping, Cream Honey.

The projected registration fee for the Short Course is \$40. Lodg-



Sherry Jennings

ing costs at the hotel for two nights will be \$59.40/ person (double occupancy) and a meal plan will be available.

For a complete program schedule and details and a registration form, write to Dr. John T. Ambrose, Box 7626, 1114 Grinnells, NC State University, Raleigh, NC 27695-7626.

NEW

HONEY BOARD MEMBERS

Secretary of Agriculture Edward Madigan announced the appointments of four members and four alternates to three-year terms on the 13-member National Honey Board.

Madigan named H. Binford Weaver, Navosota, TX, to represent Region 5 honey producers. Harry Roy Fulton, Starkville, MS, was appointed as his alternate. Region 5 consists of AL, AR, LA, MS, MO, OK, TN and TX.



Binford Weaver

Appointed to represent Region 7 honey producers was Edward J. Doan, Hamlin, NY. David E. Hackenberg, Lewisburg, PA was appointed as his alternate. Region 7 consists of CT, DE, DC, IL, IN, KY, ME, MD, MA, NH, NJ, NY, NC, OH, PA, RI, SC, VT and WV.

Reappointed to represent honey importers was Hans J. Boedecker, Santa Ana, CA. Nicholas J. Sargeantson, New Canaan, CT, has been named as his alternate.

Appointed to represent marketing cooperatives was Dale Bauer, Fertile, MN. Robert L. Buhmann, Zurich, MT was appointed as his alternate.

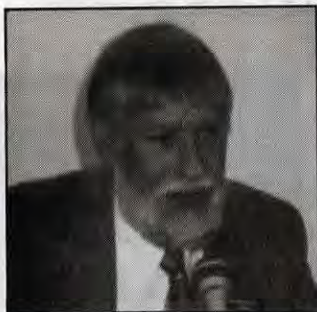
All of the appointees will serve three-year terms beginning April 1 and expiring March 31, 1994.

OBITUARY

DARRELL WENNER

Darrell C. Wenner, 49, of Glenn, CA, died Jan. 24 at his home of lung cancer.

Darrell became active in his father's bee business in 1960. Clarence Wenner established his business in 1931 and was known worldwide as the "King of Queen Bees", a tradition Darrell continued. Wenner Honey Farms, Inc. is a business they both worked hard to be proud of. Darrell's wife Virginia has worked side by side with both Clarence and Darrell in the raising of queens and running of their business and will



be continuing that tradition.

Darrell was deeply involved in the activities of the beekeeping industry. On the state level, he was immediate past president of the California State Beekeepers Association and had served the association in various capacities. Likewise he was active in the California Bee Breeders Association and has represented it on several national panels. In 1984, the CSBA named him Beekeeper of the Year.

On the national level, Darrell was organizing chairman of the Tri-Country Committee on Africanized Bees and Parasitic Mites. He served on the USDA-APHIS advisory committee for the U.S./Mexico cooperative program, the APHIS Technical Advisory Committee on Africanized Bees and Parasitic Mites, and the Varroa Mite Negotiated Rulemaking Committee. He made trips to Venezuela, Central America, and Mexico to investigate the Africanized bees. He represented California on the initial National Honey Nominations Committee.

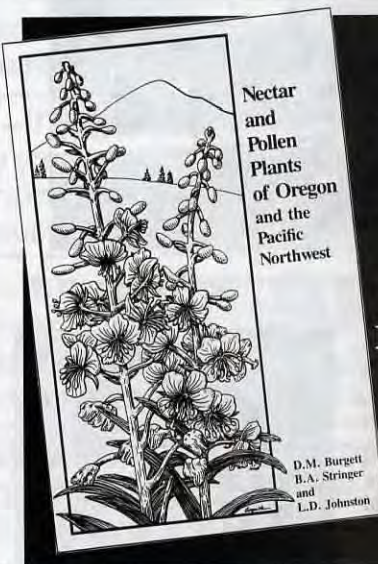
A director to the American Beekeeping Federation for many years, he had served two terms on

the ABF Executive Committee. He had also served as chairman of the ABF Research and Technical Committee and on the Convention Committee.

In recognition of Darrell's work with various activities for the betterment of his community, his home county has presented a commemorative plaque to his wife.

Survivors include his wife Virginia, a daughter and a son.

Please send your association event schedule to Calendar, *Gleanings In Bee Culture*, 623 W. Liberty St., Medina, OH 44256 Allow eight weeks lead time.



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Regular Flavors	\$ 0.45 per Stix	\$7.20 Bag
Fruit Flavors	\$ 0.475 per Stix	\$7.60 Bag

Refill Bags—1600 (10 Bags of 160 stix ea)

Regular Flavors	\$ 0.39 per Stix	\$6.25 Bag	\$62.50 cs
Fruit Flavors	\$ 0.45 per Stix	\$7.20 Bag	\$72.00 cs

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1 Canister	\$ 9.60 ea
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Sour Raspberry Honey Stix-6	\$ 4.16 per bar	\$19.99 Bx
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Don Strachan, President
Strachan Apiaries, Inc.

Will They, or Not?

CANADIAN NEWS

At least two Canadian groups oppose proposals to exempt Hawaiian queen bees from the Canadian ban on imported bees from the United States.

Both the Canadian Honey Council (CHC) and the Manitoba Beekeepers' Association have voted against the proposal.

A CHC proposal that would have supported allowing Hawaiian queen bees to enter Canada because "there are no scientific reasons to continue the ban" was defeated 4-3 with three abstentions.

Instead, the CHC executive approved a motion that it ask the federal government extend the ban on importation of honey bees from the U.S. for another two years.

The CHC did approve, by a 5-4 vote, a proposal to have the CHC co-operate with Agriculture Canada in a scientific study of the merits of importing Hawaiian queen bees. The study results would include scientific criteria under which Hawaiian queens could be imported.

The Manitoba Beekeepers' Association also voted to instruct its board of directors to continue to oppose bee imports from anywhere in the U.S.

The CHC executive also decided to seek a wider 'no-man's land' between Maine and New Brunswick. The council said that between 25,000 and 35,000 hives from the southern U.S. are taken to Maine for the blueberry season there.

It will ask the federal government to contact the U.S. government requesting these hives be kept back five miles from the international border.

The CHC is backing efforts to import under quarantine Buckfast stock from England, Denmark or Sweden for the breeding program at the University of Guelph, Ontario.

Since the Canadian closure to most imported bees, there have been incidents of bees being smuggled into Canada from quarantined areas. The CHC noted only minimal fines have been imposed and decided to ask the federal government to approve a minimum fine of C\$25,000 (US\$21,625).



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When I was an inspector, I always had mixed feelings about finding the beekeeper at home. With some, there would be a pleasant conversation, perhaps some questions and answers exchanged, and one or both of us might learn something new. Others just stood back and watched, never saying a word, while still others might just as well not have been home. Their attitude was along the lines of – there's the hive over there, let me know if anything is wrong. They were as likely as not to have disappeared by the time I was through. If I did discover a problem, they did not want to hear about it. And then there were the ones who couldn't wait to give a hand. One in particular stands out.

On this memorable day I was not actually the inspector. I was observing, riding along with Doug, the regular inspector. We were having what he described as a routine day, but as we approached our next stop Doug stated with great feeling that he sure hoped this beekeeper wasn't home. I asked why he was so concerned, figuring that we were about to encounter someone who had a violent dislike for bee inspectors. Before he was able to answer we came into view of the property and there, standing outside the house, was the beekeeper. He seemed to be waiting for us, as if he knew we were coming. He was smiling though. Doug muttered a bit under his breath and then told me that I was about to find out the cause for his concern.

As we got out of the truck Doug told me to get my veil on quickly and maybe we could be done before the owner was ready. Ready for what, I wondered. As we passed the owner, heading for the bee yard, he called to us to wait, that he would be along in a minute. Doug did not wait, in fact, we hurried, me still not knowing why. I found out shortly.

There were eight or ten hives in this yard, all in a long row on a common, wooden platform. This elongated stand was raised above the ground, wide enough so that we had no choice but to get up on it to work the hives. It was not particularly sturdy. Though we stepped carefully, the platform vibrated slightly with each of our movements.

We hurried, but to no avail. As we were finishing up the second hive, Doug working, me handling the smoker, the owner arrived. He was suited up – coveralls, veil, gloves, cuffs tucked in, the works – no bees would get near him. Doug and I were each wearing a veil but no other protective gear.

"You should have waited for me. No need for you guys to do the heavy lifting. Here, let me open this for you", said the owner as he went over to the next hive.

Just as I was about to step up with the smoker, he attacked. A couple of good jolts with his fist on the side of the outer cover to loosen it, then he lifted and tossed it to the floor. The platform reverberated from end to end and bees began to stream through the hole in the inner cover. He shoved his hive tool under the inner cover, pried it up, let it fall back noisily, then lifted it off and set it down next to the hive. More bees came out, decidedly more agitated.

I had backed off a bit when he went into action, but I figured I should do my part and stepped up again with the smoker.

"Let me give them a little smoke", I said.

"Nah, stings don't bother me, I never use smoke", was his reply from inside his suit of armor. He then proceeded to go after the honey supers with the same enthusiasm that he had demonstrated on the covers. There were at least two supers on each hive.

About then I noticed that Doug had disappeared. He had been standing right next to the hive when the commotion started. Then I spotted him leaning into the truck. He emerged a moment later with a jacket. He donned this quickly, and tucked in his cuffs, all the while

fending off several agitated bees. The bees were checking me out rather thoroughly by then and I began to realize the cause of Doug's earlier concern. I, too, went over to the truck, but I climbed in and stayed there with the windows rolled up. I had seen agitated bees before and I decided there was no need to stay and observe these.

The constant commotion as the owner continued to "help" alerted each hive long before Doug got to it. The long platform was telegraphing all of the bang and clatter in both directions as each hive was opened in its turn, and of course the hives that had already been inspected did not settle down as might be expected after they were closed up. I marvelled at Doug's patience and thoroughness as he continued inspecting to the last hive.

"Well, now you know", he said, as he got back in the truck, leaving the owner standing next to the hives in a cloud of bees. □

ONE STANDS OUT

Richard E. Bonney