



GLEANINGS IN



MAY 92

# BEE CULTURE

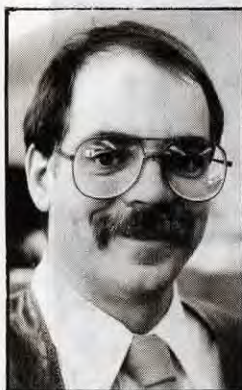
## INSIDE

- **Queen Rearing**  
This Month's Cover Story
- **Better Bait Hives**  
Bees Will Beat A Path To Your Door
- **Annual Honey Price Report**  
Check Out These Figures

Plus – Fire Ants, Lyme Disease, Honey Art, Swarm Story



JOHN ROOT



KIM FLOTTUM

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# Columns

- **Do You Know?** ..... Clarence Collison 266  
*Spring Things.*
- **In My Opinion!** ..... O.B. Wiser 286  
*Some Thoughts on Bee Equipment I've Used.*
- **Home Harmony** ..... Ann Harman 288  
*Just For Kids.*
- **Equipment Basics** ..... Steve Taber 294  
*Think Before You Buy.*
- **Beauty And The Bees** ..... B.A. Stringer 297  
*Vitex - It has lots of names, but all are good honey producers.*
- **Bee Talk** ..... Richard Taylor 299  
*Harvesting and Marketing Comb Honey.*

# Departments

- The Inner Cover ..... Kim Flottum 252  
*There's more to communication than sometimes meets the eye*
- Mailbox ..... Reader's Forum 255
- May Honey Price Report ..... Field Reporters 258
- Questions & Answers ..... Richard Taylor 296
- The Globe ..... News & Events 303  
*Amitraz availability; ASCS fees; USDA news*
- Classified Advertising ..... Bargain Pages 308
- Bottom Board ..... Mike Drummond 312  
*The Last Ninja Beekeeper*

**Cover** - Raising queens can be considered a mystery unsolved by mortal beekeepers, an activity best left to the pros, or an enlightening way to spend some time this summer. But after reading our *Lofty Heights* article this month, you may decide to try it yourself. Yes, even you can raise your own queens.

Photo by Diana Sammataro



# CONTENTS

(ISSN 0017-114X)

Vol. 120, No. 5

119 Years Continuous Publication by the Same Organization

## Features

5 # 6's	29.29	31.02	35.4
<b>Retail Honey Prices</b>			
1/2 #	1.11	1.24	1.1
12 oz. Plas.	1.49	1.54	1.7
1 #	1.50	1.78	1.8
2 #	2.55	3.05	3.4
3 #	3.74	4.10	4.5
4 #	5.01	5.23	5.2
5 #	6.97	6.78	7.1
1 # Cream	2.07	2.25	1.6
1 # Comb	2.68	2.42	2.5

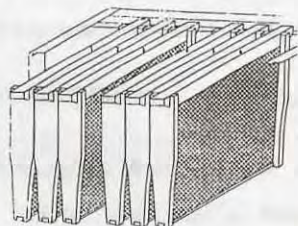
Annual Honey Price Report - Pg. 260



Take The Bite Out Of Fire Ants - Pg. 268



Honey Art - Pg. 280




Queen Rearing - Pg. 290

- **ANNUAL HONEY PRICE REPORT** ..... 260

*An in-depth summary of honey prices over the last 12 months. Our reporters and the USDA supply a wealth of data to use when figuring prices. Use this report.*
- **PREVENTING LYME DISEASE** ..... 264

*Carried by a tiny, tiny tick, this serious disease is spreading, and beekeepers need to know. Here's what to look for this season.*


- **TAKE THE BITE OUT OF FIRE ANTS** ..... Charles Cole 268

*These nasty little creatures can be bad for both bees and beekeepers. Check out this article if they're giving you a headache.*
- **BETTER BAIT HIVES** ..... Roger Morse 270

*Build a better bait hive and the bees will beat a path to your door. Here's what works best, and why.*
- **SWARM STORY** ..... Charles Simon 275

*Sometimes, strange and wonderful things happen when you go to collect a swarm - here's one story you may not believe.*
- **ARIZONA NEWCOMER** ..... Lynn Tilton 278

*Avoiding mistakes saves time and money - here's one Arizona beekeeper who has missed most (but not quite all) of the pitfalls beginners make.*
- **HONEY ART** ..... David Duncan 280

*Making honey already in the bottle is possible - and easy. Here's how.*
- **NOTES FROM A BRITISH BEEKEEPER ...** Karl Showler 282

*Some Notes on swarm collection from our British Correspondant. Some things are similar, and some things aren't.*
- **THE LOFTY HEIGHTS... OF QUEEN REARING**..... A.J. Sarling 290

*Here's the best basic queen rearing article we've seen in a long time. From 'a good idea' to 'a brand new queen' Every step is here.*

# INNER · COVER

One thing seldom mentioned in beekeeping books and magazines (this one included) is how much work working bees can be.

You've already been into those overwintered colonies, with inches of wax, propolis and goo holding the supers together, and you've already busted a few brood frames trying to work them out the first time this spring – hard work by anybody's standards.

But even after a couple excursions into the inside, it's still a job to pop covers, lift supers, pry frames and then get them all back together again, straight, even and just right.

In fact, a quick scan of almost any article, story or research paper shows a complete disregard for how much muscle and sweat, how many busted knuckles and shins, how much dirt and grime is involved in this hobby, or pastime or job.

There are exceptions, of course, but very few, and I don't know why. We try, as an industry, to convince people to take up this activity, to join, to give, to donate and to buy. The carrot we offer is the one-on-one participation in the on-going events of the natural world, and an opportunity to help make that world a better place. We stress the simple life, the solitary hours spent in the field with only the bees, the crickets and occasionally the companionship of like-minded friends and comrades. Beekeeping is all this for some of us, and some of this for all of us.

But please, when taking a rookie under your wing this spring, don't forget the other side of keeping bees. Don't forget to say that most of the time you're working alone, with nobody to hold the smoker while you wrestle a 90 lb. honey super, and one curious bee lands on your nose.

Don't fail to recall the effort in moving five or 50 supers from field to extractor – alone. And of course there's the night-time duty of uncapping and extracting and straining and moving and cleaning up, especially the cleaning up.

There's a million great and wonderful and even profitable moments in the art, the craft, the business of keeping bees. But there are also a few long and tired and sore and dirty hours in there, too.

Be honest with those who don't yet know, and still have only stars in their eyes.

Communication in this business is pretty much one way – us to you. Not completely though. We have an active MAILBOX that shares reader's complaints, comments, hints and other tidbits. That's what the MAILBOX is for. And we read everyone of those cards and letters because they let us know what you're thinking.

We also have an active reader survey program that tells us how *each issue* rates and what could have been better. And we do a large reader survey every year or so that measures past issues, queries respondents on what subjects, topics and authors are most popular, and what there should be more of in the future. Along with this, we measure reader's statistics – types of operations, living arrangements, beekeeping habits and traits, spending patterns, age and a myriad of other facts. We aim to please.

But this works both ways.

We have, during the course of a year 40 or so authors contribute to our pages. Some are here every month – Roger Morse, Richard Taylor, Ann Harman and others. They are active, and reactive contributors – they seek direct interaction from their readers.

Other writers don't show up as often. They have a story to tell, a how-to to share and they're on to other pastures. They are not interactive – they're strictly one-way. In fact, that's the way most freelance magazine writers work.

Our intent is to bring you the best information we can – from whatever source possible. We seek out writers who have important or informative things to say, and can say them intelligently and with style. And some of them don't want fan mail – really. Or, they want it sent in care of the magazine – really.

If we don't publish a writer's address there's a *very* good reason – they want it that way. But that doesn't mean you can't contact them. Just send your cards and letters to them in care of the magazine and we'll forward them on. After that it's up to them, and you.

*Kim Flottum*

## COMMUNICATION

# Reader Assistance

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

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# COMING SOON

During the next several months there's a whole lot going on, on the pages of *Bee Culture*. We've got two great pieces on buying and selling colonies — if you want to know what to look for when purchasing, or how to get yours ready to sell you need to read these articles. Written by Dick Bonney, well known author (one book already, and another on the way) we have a perspective not readily available in *any* publication. Extension agent, inspector, beekeeper, Dick Bonney offers the best there is. Don't miss these.

Protecting citizens, or anybody for that matter, from mass stinging attacks by honey bees or other stinging insects is a nightmare no one wants to think of. But it may be a real-life situation *YOU* have to deal with someday. How can you help? What can be done?

*Bee Culture* has the answer, and *YOU* can share it with your local authorities. We've taken a real-life situation and dealt with real-live bees — and saved, and solved the problem.

If you're interested in knowing how to handle the "worst case" situation in beekeeping professionally, completely and with style and grace — read *Bee Culture* this summer.

But there's more certainly. Handling wax is always troublesome, so we offer all sorts of answers and options. And pallets — how to use them, and why you should be answered by Roger Morse later this season.

More? Of course there's more. Africanized honey bees by regular beekeepers who have to work with them daily — *not* researchers, *not* scientists, *not* five colony experiments — but real world beekeepers who have to make a living, and are making a living.

And what about marketing? Or cooking with honey? Or more on beekeeping equipment?

*Bee Culture* is *The Best* there is for how-to, for right-now information, for the Best Beekeeping you can get — anywhere. Period.

*Bee Culture*, don't miss a single issue this summer, or this year.

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# MAILBOX



## ■ Thanks

A big "thank you" for including us in **Wooden World**. I read the article with great interest (several times) and thought Jeff Ott did a very good job. I was quite pleased with the way we compared to other suppliers even though I have not seen some of their equipment before. I'm sure there are still areas we can improve on, and we are certainly going to do that. I really have a good feeling about our product and service. Thanks again.

Fred Rossman  
Rossman Apiaries  
Moultrie, GA

## ■ Dry Honey

The article on extractors was timely and interesting however an important point was left out by Mr. Jeff Ott, the moisture content of the honey to be extracted. If the honey is 16% or lower as in many Western States, even 14% sometimes in AZ, the ONLY KIND of extractor that will remove this honey is a tangential one, without destroying the combs.

The only motor driven tangential extractor that automatically reverses the baskets while in operation is the Superior from Phoenix, AZ, who make a six and eight frame extractor.

Steve Taber  
Goudous, France

## ■ O.B. Wiser?

I recently read the article **In My Opinion** by O.B. Wiser in the Feb.

magazine. Is this a real person? If so how do you contact him? He wrote an article about two queen systems for honey production and talked about the use of two excluders. In a later article he was against the use of queen excluders. I am confused. Should I be or what?

It would be helpful if you included the addresses of the authors somewhere in their article. Thanks.

Thomas J. Purtzer, M.D.  
Medford, OR

I smell something fishy in O.B. Wiser's **Try Two Queens** (March, 1992). He wrote: "I have had numerous letters (and the Editor has had more) requesting additional details on the beekeeping practice outlined in the November article **The Wall-Street Beekeeper**."

How could any postmaster deliver letters to an author who did not have his name, or address, published with the article? I smell something fishy here.

Also, I suspect any author who must hide behind a pseudonym!

John Iannuzzi  
Ellicott City, MD

**Editor's Note:** As with *any* magazine, if you wish to contact an author, send a card or letter in his or her name in care of the magazine and we will gladly forward it – fishy or not.

## ■ Chalkbrood

In *Questions & Answers* in July *Bee Culture*, I see there was a question about chalk brood. In the reply it was said that a colony is "sometimes severely weakened, but never, I think, killed entirely by chalk brood" While the literal truth of the statement is unassailable, I think it is still misleading. Anyone who has

tried for experimental purposes to maintain colonies which are highly susceptible to CB, will know how difficult it is. Without considerable help by way of added bees, honey and pollen, most will not get through the winter. In normal honey production apiaries therefore, I suspect many 'unexplained' winter deaths represent the elimination of CB susceptible colonies.

The answer given in your column goes on to suggest that keeping hives dry will reduce CB. We kept alternate hives wet and dry in one apiary. The wet ones were kept that way by draping them with sacking which dipped into troughs of water behind the hives. The results were complicated because the colonies in wet hives were generally smaller – presumably due to cooling. However, there was no absolute or percentage increase in CB in the wet hives as compared with the dry ones.

Chalk brood susceptibility is undoubtedly inherited although in a complex way. At least three (and probably several more) pairs of alleles are involved. However, even a rough and ready approach to breeding can give some effect. If, consistently, the queens of highly susceptible colonies are killed and replaced with queens bred from the beekeeper's most resistant stock, then CB becomes less of a problem in that apiary within a couple of years. The key word is 'consistently' – you are aiming to markedly increase the selection pressure against CB, and however good a queen is in other ways, she must go if she heads a stock riddled with CB. It is difficult advice to follow, but in my experience it is the best advice currently available for those who ask – "what can one do about chalk brood?"

Leonard A.F. Heath  
Plymouth Polytechnic South West  
Plymouth, Devon, UK

*Continued on Next Page*

# MAILBOX

## ■ Great Issue!

Well, you outdid yourselves in the March '92 *Bee Culture*! We especially liked **The Backyard Private Label** by W. Schwartz. Now, that is good art work!

Our Buncombe County Beekeeper's Association here in Asheville, NC is 70 strong. Our dues are only \$2.00 but we manage to subscribe to *ABJ* and *Bee Culture* plus maintain a good library for the membership. Ed Buchanan organizes our April auctions of used equipment which helps with the treasury.

Jean Comyns, Treasurer  
Asheville, NC

## ■ Worth Every Penny

The article written by Marshall Dunham, **Fear & Loathing on Interstate 5**, was worth the subscription price for the year.

Allan Davis  
Nashville, TN

## ■ Hive Opening Tool

Have you ever tried to separate two hive bodies with your hive tool and found the task more difficult than you expected? Many times I have

tried to push my hive tool into one corner then into another and finally into a third before I could separate the top hive body from the one below it. Then I was frustrated to see that the bottoms of the frames in the upper body were stuck to the tops of the frames in the body below, and trying to keep the bodies apart with one hand I would try to pry the frames apart with the hive tool. Meanwhile, I was stirring my bees into a frenzy.

My problems probably resulted from excessive bee space between the two sets of frames and from failing to check my hives often enough. Both result in bridge and burr comb.

I have jimmied-up many super corners by this prying, and my 130 pound body gets pushed away from the much heavier hive.

Rather than change myself I looked for some other way to make beekeeping easier. I wanted something that would make hive manipulation quicker, easier and less liable to "fire up" my bees.

My solution is to lay steel strips across the narrow width of the hive bodies, near the rear, as I stack up the boxes.

I used carbon steel strips 17-1/2" long, 3/4" wide and 1/8" thick. The idea is to force the hive bodies apart by rotating the strip along its long axis. The rotating strip presses down on both the lower hive body and its frames, and, at the same time, presses up on the upper hive body and the bottoms of its frames.

All strips have a slot cut near one

end. Thus any strip can be used as a handle to rotate the strip laid between the hive bodies. The length affords excellent leverage. So much that a child could lift 200 pounds with one finger.

Rotation should depress the lower frames and at least one side of the lower body (or bottom board) and elevate the upper frames and one side of the upper body.

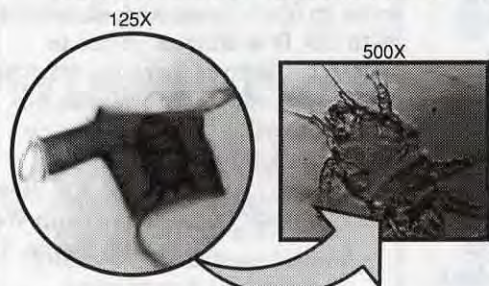
One possible advantage with this hive tool is easier opening with less damage to hive bodies. Using this tool and method should almost completely eliminate corner wear. In addition, opening should be faster and easier with less disturbance of the bees.

It is not necessary to cut a shallow slot in each side of the top of all hive bodies so they fit tightly together. The crack caused by the strip is only 1/8"; not enough to cause robbing. And frequently beekeepers will deliberately offset honey supers

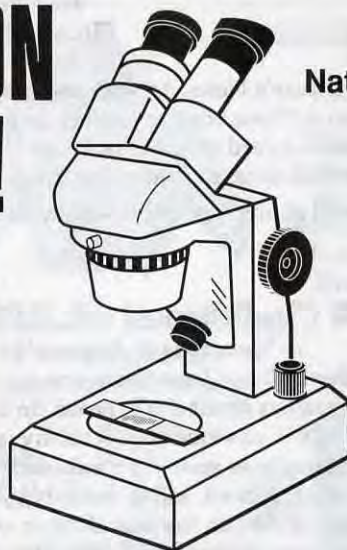


*Easy-opening hive tool. Rotating strip pushes down and up separating hive bodies smoothly. Strips go on as supers go on.*

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Photos of Trachea Mite taken with compound microscope courtesy USDA



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# MAILBOX

to offer bees more ventilation during hot, honey flow conditions.

However, I think slots cut in the top of the bottom board and wintering hive bodies above would make it easy to insert strips in the spring.

Laying strips is one more operation to remember. And the practice of laying the strips might seem awkward at first, but with time will come easy.

And the rewards will be great: smoother, quicker, easier hive manipulation and honey harvesting with less disturbance of the bees and fewer stings.

William A. Gant  
2090 Bauman Road  
Richmond, MI 48062

## CORRECTION

In the story *Spring Tonic*, Terra-Brood mix was incorrectly named as a pollen substitute. It is a pre-mix Terramycin compound that does not supplement pollen in the hive.

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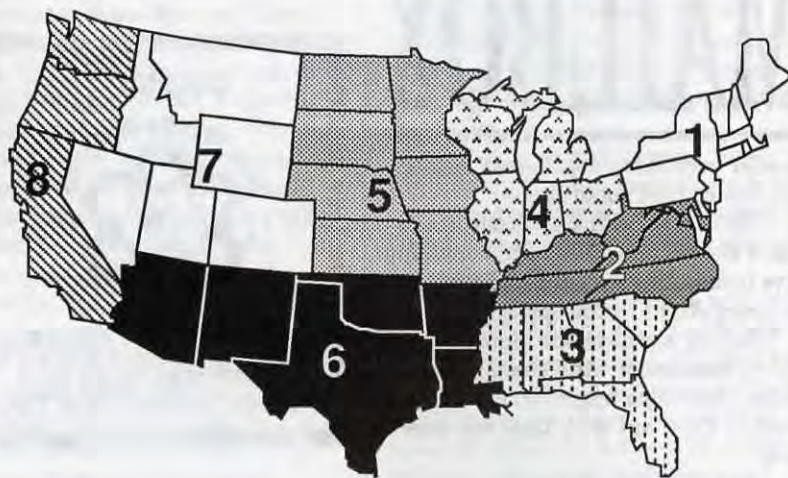


# MAY Honey Report

May 1, 1992

## REPORT FEATURES

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



	Reporting Regions								Summary		History	
	1	2	3	4	5	6	7	8	Range	Avg.	Last Month	Last Yr.
<b>Extracted honey sold bulk to Packers or Processors</b>												
<b>Wholesale Bulk</b>												
60 #Wh.	46.43	46.62	46.00	37.10	49.00	44.52	44.60	45.00	32.40-60.00	44.67	44.25	41.45
60 # Am.	42.73	43.55	37.45	34.13	40.00	41.26	41.64	44.00	31.80-52.00	41.25	41.46	39.04
55 gal. Wh.	.614	.623	.510	.547	.539	.527	.549	.565	.46-.77	.558	.611	.57
55 gal. Am.	.562	.585	.527	.520	.520	.504	.520	.550	.44-.68	.534	.560	.52
<b>Wholesale - Case Lots</b>												
1/2 # 24's	20.04	22.85	21.94	17.69	19.43	21.06	21.31	21.50	15.00-26.88	20.84	20.89	22.46
1 # 24's	27.49	30.99	27.25	30.01	26.41	27.03	31.67	27.50	13.00-38.40	29.22	30.01	29.24
2 # 12's	25.27	29.70	31.93	27.45	28.43	29.24	29.87	31.21	21.84-40.80	28.08	28.04	27.57
12 oz. Bears 24's	26.49	28.44	30.34	25.51	26.99	27.66	28.16	26.00	21.90-36.00	27.25	27.77	27.72
5 # 6's	29.29	31.02	35.67	30.19	30.32	34.08	31.26	27.10	19.50-48.00	29.78	31.49	28.75
<b>Retail Honey Prices</b>												
1/2 #	1.11	1.24	1.15	1.01	1.24	.94	1.13	1.28	.82-1.49	1.12	1.23	1.12
12 oz. Plas.	1.49	1.54	1.76	1.55	1.34	1.44	1.52	1.37	1.17-1.89	1.53	1.51	1.57
1 #	1.50	1.78	1.86	1.86	1.65	1.61	2.05	1.80	1.00-2.25	1.72	1.75	1.81
2 #	2.65	3.05	3.40	3.47	2.59	3.00	3.00	2.51	1.75-4.29	3.04	2.90	3.15
3 #	3.74	4.10	4.98	4.19	3.80	4.33	4.45	4.32	3.00-6.19	4.24	4.19	3.88
4 #	5.01	5.23	5.25	5.09	5.05	4.94	5.02	4.97	4.00-6.00	5.14	5.30	4.96
5 #	6.97	6.78	7.19	6.99	5.49	6.83	6.76	6.04	4.59-9.99	6.72	6.78	6.23
1 # Cream	2.07	2.25	1.63	1.83	1.87	2.04	1.97	2.19	1.39-2.50	2.02	1.99	1.84
1 # Comb	2.68	2.42	2.55	2.98	2.62	2.69	2.78	2.60	1.50-3.70	2.66	2.82	2.71
Round Plas.	2.15	2.38	2.04	2.38	2.04	2.09	1.84	2.74	1.50-2.50	2.12	2.25	2.43
Wax (Light)	2.51	1.24	1.34	1.48	2.01	1.96	1.70	1.12	1.15-3.80	1.72	1.42	1.30
Wax (Dark)	1.87	1.13	1.14	1.05	1.61	1.58	1.07	1.13	.90-3.00	1.30	1.14	1.11
Poll./Col.	29.00	22.25	28.50	32.50	24.45	25.96	27.66	32.33	15.00-40.00	27.81	30.77	27.01

from last year. Survival up this spring, but beekeeper numbers down - about a wash. Honey prices and demand mixed, with imports playing havoc with wholesale sellers.

### Region 5

Northern areas have little demand (and, it appears less inclination from growers) for bees in orchards and other crops. Some do, though. Southern areas have apples, peaches, strawberries and some seed crops. They use more bees there, it seems. Rental runs from free to about \$30 - low on both ends.

### Region 6

Early crops in the south using bees already there. TX quarantine has changed the pattern, but not the need. Growers and beekeepers seem to have adapted. Other areas seem to be business as usual.

### Region 7

Few crops ready yet, but some orchards gearing up already. Migratory colonies moving back to fill the gap, and get ready for later season seed crops and honey flow.

### Region 8

The pollination business capital of the country. Almond crop numbers down more than expected, holding price down a bit. But good weather helped growers and bees, so colonies ready to move north for apples and fruit (at least those not damaged by late frost). Pesticide problems appearing again, expect more.

## MARKET SHARE

This month's report looks at colony conditions, but focuses on the business of pollination in each region. We were disappointed with the annual prices reported, noting little change since last year. Local freebies, and great-big efficient operators tend to drive down prices, but most of us work too hard to settle for \$15. We suggest a \$40-45 price next spring.

### Region 1

Beekeepers in most states reporting mite losses decreasing this year, but areas that have not had trouble in the past are now. Pollination fees are set for most crops, but migratory bees cover the big crops - blueberries, cranberries and some apples. Locals work well on later and smaller crops. Prices range from \$20 \$50/colony, depending on crop and location.

### Region 2

Colonies that were adequately treated last fall for tracheal mites seem to be doing well. Regional losses generally lower this year than last. This will help local growers who need colonies for pollination of apples and other

crops. Though not a big business, colony rent ranges from \$16 \$30.

### Region 3

In areas when the mite has been active for several years losses are down. Beekeepers are either treating effectively, or most susceptible bees are already gone. Pollination big business here melons, berries, apples, even Kiwi. More than 3000 colonies in SC alone used. Prices range \$15 - \$40.

### Region 4

Pollination business centered in orchard areas (MI for apples and cherries, OH for apples etc.) Rental prices not changed much

# ANNUAL HONEY PRICE REPORT

## Price Summary by Region May 1991 - April 1992

## History

	1	2	3	4	5	6	7	8	A	90-91	89-90	88-89	87-88
<b>Wholesale Bulk</b>													
60 lbs. White	44.06	43.17	44.94	37.43	40.97	42.37	43.93	41.82	42.34	41.50	38.19	37.78	36.06
60 lbs. Amber	42.13	39.62	39.85	36.05	38.69	40.43	40.95	38.30	39.50	38.33	35.19	34.68	33.39
55 gal. White	.59	.55	.54	.54	.55	.54	.55	.56	.55	.52	.49	.51	.55
55 gal. Amber	.56	.49	.51	.52	.53	.50	.52	.51	.52	.48	.45	.46	.54
<b>Wholesale - Case Lots</b>													
1/2# 24's	20.23	20.38	22.74	20.45	21.31	21.72	20.18	22.15	21.14	-	-	-	-
1 lb. jar (24)	29.11	30.17	29.06	27.92	25.75	28.81	31.02	28.66	28.81	27.58	26.50	26.19	25.75
2 lb. jar (12)	27.01	28.28	28.12	26.37	23.54	27.31	27.68	29.03	27.17	26.60	25.60	25.40	25.08
12 oz. Squeeze	26.49	26.94	27.66	25.00	23.66	25.77	27.86	25.15	26.07	-	-	-	-
5# 6's	29.78	27.86	29.08	29.78	26.88	33.25	27.15	27.51	28.91	26.96	26.25	25.99	25.53
<b>Retail Honey Prices</b>													
1/2#	1.10	1.21	1.15	1.20	1.01	1.04	1.09	1.22	1.13	1.07	.95	.94	.87
12 oz. Plastic	1.54	1.54	1.54	1.45	1.30	1.40	1.52	1.52	1.48	1.40	1.34	1.34	1.32
1 lb.	1.71	1.74	1.80	1.75	1.43	1.68	1.97	1.75	1.73	1.65	1.55	1.55	1.53
2 lb.	2.95	2.94	3.04	3.28	2.56	2.85	3.07	2.82	2.94	2.96	2.76	2.78	2.68
3 lb.	4.15	3.87	4.50	4.18	4.01	4.00	4.27	4.02	4.12	3.98	3.76	3.77	3.71
4 lb.	5.27	5.09	5.18	5.17	4.91	4.76	4.96	5.17	5.06	4.82	4.14	4.75	4.66
5 lb.	7.06	6.29	6.06	6.50	5.69	6.09	6.02	6.29	6.25	6.07	5.92	5.77	5.73
1 lb. Creamed	2.18	2.12	2.02	1.83	1.77	2.16	2.05	2.16	2.04	1.74	1.59	1.63	1.61
1 lb. Comb	2.78	2.44	2.43	2.94	2.49	2.23	2.72	3.13	2.65	2.44	2.44	2.32	2.16
Rnd. Plas. Cmb.	2.36	2.07	2.31	2.30	2.28	2.23	3.55	2.21	2.41	2.11	1.93	1.88	1.91
Beeswax (Lt.)	1.70	1.18	1.31	1.50	1.22	1.16	1.26	1.19	1.31	1.21	1.07	1.03	1.00
Beeswax (Dk.)	1.39	1.09	1.16	1.05	1.07	1.04	1.13	1.05	1.12	1.07	.94	.90	.85
Pollin. (Avg/Col)	31.22	23.72	29.69	29.62	25.83	27.98	28.01	30.09	25.44	24.10	19.97	23.16	21.55

The Annual Honey Price Report is a season-end summary of the monthly Honey Reports published each month. Numbers are sent in by reporters in the field who fill out a price sheet detailing what they pay or sell honey for each month. We survey just over 100 reporters every month, spread out over eight regions. We have more reporters in re-

gions where there are more beekeepers. We also favor wholesale people in regions of high production and low population, while offering more retail information in high population, low production areas.

We have a proportionate number of hobby, sideline and commercial contributors, who sell honey exclusively

retail, a mix of retail/wholesale, exclusively wholesale and bulk only. We also have producer/packers and packers who look at the situation from their perspective.

By necessity, the price we report for each commodity in each region each month is the 'average' of all the prices we receive for that commodity. As such

## Regional Colony Count & Yield/Colony<sup>3</sup>

Region	1986		1987		1988		1989		1990		1991		Avg. Summary	
	#Col <sup>1</sup>	Yld <sup>2</sup>	Col	Yld	Col	Yld	Col	Yld	Col	Yld	Col	Yld	Col	Yld
1	197	22.0	201	35.7	216	37.5	204	35.9	187	36.1	166	45.0	195.2	35.4
2	117	28.3	116	41.0	123	40.5	118	27.7	94	33.7	89	30.6	109.5	33.6
3	484	47.4	440	49.2	432	59.6	446	31.8	396	57.2	386	49.4	430.7	49.1
4	196	33.0	188	62.8	190	63.8	320	47.4	293	58.6	305	60.6	248.7	54.4
5	613	86.3	640	92.8	829	97.8	941	65.3	849	69.0	883	76.4	792.5	81.3
6	284	57.5	276	64.2	281	65.7	319	60.3	314	66.7	331	70.7	300.8	64.2
7	235	55.8	222	66.2	237	55.0	393	54.7	394	56.2	377	59.5	309.7	57.9
8	654	47.7	630	43.3	645	46.3	693	39.7	621	46.3	661	50.3	650.7	45.6
Tot Col	2780		2713		2953		3434		3148		3198			
Avg Yld		47.3		56.9		58.3		45.4		53.0		55.3		

<sup>1</sup>All colonies in thousands.

<sup>2</sup>Yield in lbs./colony, average.

<sup>3</sup>Colony numbers and yield data may not match other sources due to rounding errors or other grouping situations.

## PRICE SUMMARY BY MONTH • MAY, 1991 – APRIL, 1992

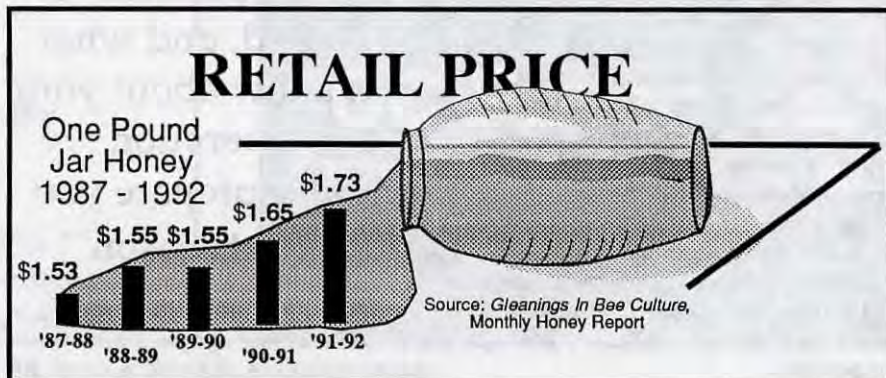
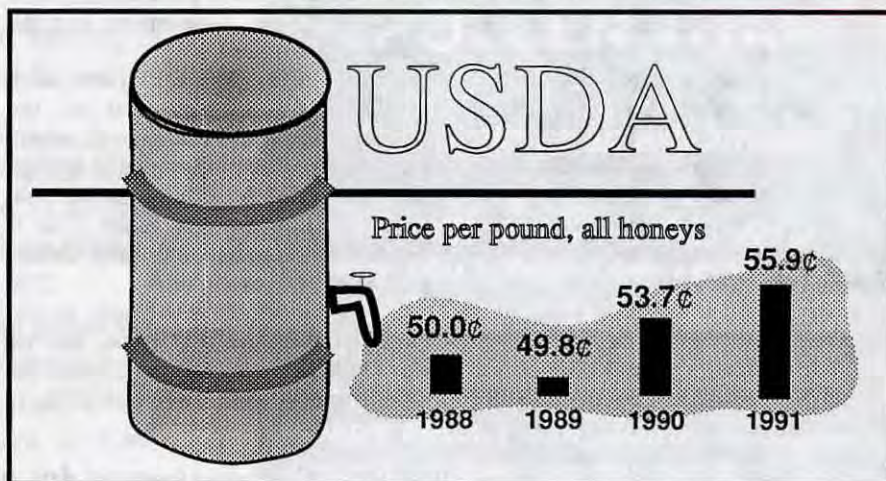
	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
<b>Wholesale Bulk</b>												
60#Wh.	41.76	43.08	41.95	45.14	41.73	42.84	40.21	40.99	42.42	41.28	42.44	44.21
60#Am.	39.02	40.19	38.81	41.83	39.07	39.25	36.49	38.64	40.50	38.75	39.67	41.51
55 gal. Wh.	.52	.51	.50	.56	.53	.57	.52	.56	.57	.58	.61	.61
55 gal. Am.	.48	.48	.47	.52	.50	.52	.52	.52	.54	.55	.54	.56
<b>Wholesale – Case Lots</b>												
1/2# 24's	22.32	22.28	20.32	18.52	18.36	20.12	24.97	22.50	22.17	19.52	21.91	20.74
1# 24's	28.07	29.38	29.53	28.75	28.63	29.78	27.71	28.19	28.58	28.93	28.13	30.28
2# 12's	26.30	27.28	27.97	27.56	26.27	27.66	26.03	26.93	27.13	27.38	26.83	28.68
12 oz. Sqz.	27.81	26.11	26.07	25.78	26.23	25.83	25.33	26.44	23.94	26.43	25.31	27.52
5# 6's	27.77	28.99	29.60	28.21	29.00	29.27	26.94	28.76	28.92	28.89	29.02	31.56
<b>Retail Honey Prices</b>												
1/2#	1.15	1.13	1.10	1.14	1.02	1.08	1.07	1.16	1.15	1.11	1.21	1.23
12 oz. Sqz.	1.59	1.43	1.42	1.43	1.44	1.48	1.43	1.47	1.53	1.50	1.48	1.53
1#	1.91	1.76	1.70	1.70	1.68	1.73	1.57	1.75	1.69	1.70	1.75	1.79
2#	3.08	2.98	2.99	3.07	2.86	2.93	2.73	2.92	2.90	2.92	2.98	2.92
3#	3.86	4.19	4.15	4.08	4.14	4.00	4.43	4.07	4.36	3.95	4.03	4.24
4#	4.85	5.04	5.02	4.99	4.97	5.35	4.85	5.17	5.21	4.98	5.04	5.30
5#	6.09	6.31	6.28	6.39	6.34	6.22	5.66	6.33	6.16	6.67	6.10	6.74
1# Cream	1.86	1.77	1.94	1.95	1.93	1.95	2.39	2.20	2.29	2.12	2.06	2.02
1# Comb	2.52	2.44	2.51	2.71	2.71	2.62	2.59	2.79	2.59	2.87	2.51	2.89
Rnd. Plas	2.29	2.40	2.47	2.25	2.35	2.51	2.40	2.53	2.45	2.48	2.59	2.27
Wax-Lt.	1.37	1.25	1.43	1.18	1.30	1.25	1.23	1.22	1.24	1.36	1.46	1.49
Wax-Dk.	1.14	1.12	1.14	1.05	1.08	1.08	1.06	1.12	1.04	1.22	1.25	1.15
Pollin/Col.	26.68	28.47	29.64	26.65	27.41	27.59	17.09	21.69	17.56	22.62	29.97	29.96

Source: Monthly Honey Report *Gleanings In Bee Culture*

it is always higher than the bulk seller, and always lower than the strictly retail price. However, since few hobby retailers sell 55 gallon drums bulk, they don't often have a price, and conversely, few 1000 colony reporters sell one pound jars out the back door. Over the years we have refined our monthly report, and the prices we list are fairly typical – for the regions they are sold in. But, to give an even better feel for a product's price, we list the 'range' of prices received from all reporters in a region. This summary then, gives an accurate picture of honey prices by region each month.

**The Price Summary by Region, May 1991 - April 1992** (pg. 260) chart is the compilation of those reports for the last 12 months, for each commodity, in each region, with an average price across all 12 months. It also lists the year-end price for each of the last four years. For instance, the retail price of a one pound jar of honey for this year was \$1.73, last year \$1.65, the year before \$1.55 and so on.

*Continued on Next Page*



1991 Honey Imports	
Pounds of Honey Imported From..	
Argentina .....	4,200,093
Australia .....	20,350
Bahamas .....	3,000
Canada .....	2,557,785
Chile .....	173,260
China (Main).....	9,222,032
China Taiwan .....	409
Dominican Rep. ....	31,938
Germany F.R. ....	48,296
Guatemala .....	33,312
Hong Kong .....	7,118
Hungary .....	537,530
Japan .....	108,942
Mexico .....	1,532,891
New Zealand .....	455
Salvador .....	68,758
Tanzania .....	545
United Kingdom .....	787
Uruguay .....	9,144
USSR .....	29,179
<b>Total .....</b>	<b>18,585,824</b>

Any actual one pound jar of honey sitting on a grocery store shelf probably doesn't have a \$1.73 price on it. But, by looking at all regions and the average price, you get a good picture of what that jar is priced at across all regions – and where you should consider pricing yours.

However, there are sometimes seasonal fluctuations in prices, too, that the regional report would not reflect. Therefore, we put together a **Price Summary by Month** report (pg. 261), that would show seasonal changes if they exist.

Generally, reported prices are higher May through September, (which would reflect April through August prices). January (December prices) shows a bit of a rise, reflecting Christmas sales, but it seems insignificant.

Using a weighted average, there is a 7.0% difference between the most and least expensive months (April, 1992 and November, 1991, respectively). Inflation, recession, buy-back prices and specialty crops all play a role in seasonal prices. And each affects each region differently. Add in increased consumption, increased imports, a healthy U.S. crop – and seasonal predictability becomes very, very difficult – perhaps impossible.

Beeswax Imports & Prices and Domestic Honey Production			
	Beeswax Imports x 1000 lbs.	Price/LB <sup>1</sup> Imported Wax	U.S. Honey Produc. <sup>2</sup> x 1,000,000 lbs.
1983	1,610	1.45	205.0
1984	1,210	1.55	165.0
1985	2,120	1.37	150.1
1986	1,470	1.27	200.4
1987	1,840	1.28	226.8
1988	1,700	1.35	214.1
1989	2,280	1.85	177.0
1990	3,070	1.18	197.8
1991	1,780	1.34	226.0

<sup>1</sup>Beeswax import data adapted from Rauch Assoc.  
<sup>2</sup>USDA ERS data

Regional Comparison – 1991 to 1990		
Region #	Col. ....	Yld/Col.
1.	-11.2%	+24.7%
2.	-5.3%	-9.2%
3.	-2.5%	-13.6%
4.	+4.1%	+3.4%
5.	+4.0%	+10.7%
6.	+5.4%	+6.0%
7.	+4.3%	+5.9%
8.	+6.4%	+8.6%

To be able to predict the future is the primary reason to measure the past, and the USDA takes mountains of data on honey prices, beekeepers, and the colonies they keep.

We've taken their colony and yield-by-state data and grouped it into the regions we measure each month, so you can compare, sort of, apples to apples. But we've also added the same information from the last five years. This is listed in the **Regional Colony Count and Yield/Colony** chart.

You can study this graph for regional trends and directions, but we want to draw particular attention to the differences between 1990 and 1991.

“... the patterns developed, and what you know about your own operation ... should prepare you for next season.”

Total honey production was up in 1991, as was average yield/colony, but there are some significant regional dif-

ferences. For instance, region one had a 11.2% drop in number of colonies, yet production was up almost 25% for the year. However, in a strange turn this year the USDA *didn't* report production from CT, DE, MA, NH and RI. This change makes the data difficult to interpret, and brings into question the credibility of the producers who refused to disclose their information.

Nevertheless, the remaining states appear straightforward. Regions two and three also registered decreases in colony numbers, and a corresponding reduction in production – especially Region Three. Florida doesn't fit this pattern though, with an 83 pound/colony average – more than 30 pounds above the regional average.

Meanwhile, regions four through eight all had increases in both colonies and yield – and, with the greater numbers of colonies in the mid-west and west, U.S. honey production was up for the year.

A corollary of honey production is how much domestic beeswax is available for U.S. consumption – and beeswax production is a very difficult animal to measure. However, imports of beeswax are somewhat easier to find, and those numbers reflect both honey production and subsequent wax harvest for a given year. The **Beeswax Imports & Prices and Domestic Honey Production** chart shows this relationship, and the price imported wax commands when U.S. honey production goes down.

The charts, graphs and diagrams here show for the most part what was, but the patterns developed and what you know about your own operation during the same time frame should better prepare you for this season, and the next several seasons. □

PREVENTING

# LYME DISEASE

## *Beekeeper's Need To Be Aware Of Yet Another Tiny Tick*

For many, especially those living on America's East Coast, the simple pleasures derived from outdoor activities seem to have given way to paranoia. Once popular pastimes like hiking, camping, and gardening take a back seat to the fear of a pest often no bigger than the head of a pin. The source of this fear is the consequence that can follow the bite of this tiny arthropod. Whether this pervasive terror is warranted depends on whom you ask.

Between 1982 and 1990, more than 30,000 cases of Lyme disease were diagnosed. It has become the most prevalent vector-borne disease in the U.S. and its geographic distribution appears to be spreading.

Lyme disease is acquired when a person or animal is bitten by a deer tick that harbors the spirochete, or bacterium, *Borrelia burgdorferi*. Like the bacterium that causes syphilis, *B. burgdorferi* can attack the major organs of the body by traveling through the bloodstream. Its attack can result in chronic arthritis, cardiac abnormalities, and neurological disorders. Like

syphilis, Lyme can be a chronic disease and it may take months or even years for arthritic and other complications to occur. Unlike syphilis, Lyme is not transmitted sexually.

### WHAT RISK. . .

Familiarity with the habitat and biology of the deer tick will help you assess your risk of obtaining a potentially infectious tick bite. The deer tick is most abundant in forests and suburban woodlots where deer are also abundant. Because deer, other mammals, and birds serve as hosts for these ticks, their movements will distribute ticks into adjacent areas such as ornamental plantings and lawns. The more distant an area is from woods and wildlife activity, the fewer deer ticks one would expect to encounter. High risk areas can be identified more reliably from reported cases of Lyme disease in residents or outdoor workers, or by collecting deer ticks from the ground and vegetation with a white cotton cloth or blanket. Your local health department or cooperative extension service can provide a tick species identification for you.

The deer tick can be active during all months of the year, but the greatest risk of acquiring Lyme disease is during the months of June and July. It is during these months that the nymphal stage is most abundant and when nearly 90% of the Lyme disease cases are acquired. It is the size of the nymph, about as small as a poppy seed, that makes these months so dangerous. They can attach and feed for several days without being detected. Fewer than one fourth of the victims notice the nymphal tick that gives them Lyme disease. About 25% of the nymphs are infected.

Larval ticks, which are even smaller

than nymphs, are most abundant in August. But, so few of these are infected (less than 1%) that they do not constitute much of a risk. Adult ticks, which are most common in the spring and fall, have higher infection rates (50%) than nymphs. But, their relatively large size, about the size of an apple seed, makes them more likely to be felt and removed before the infection can be transmitted.

### TAKE CARE. . .

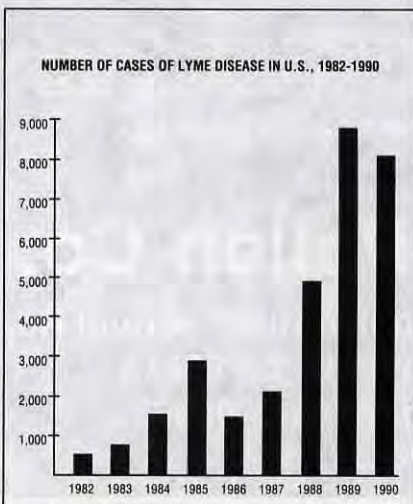
There are precautions that you can take to minimize your risk of acquiring a potentially infectious tick bite. Dressing with clothing that minimizes skin exposure is essential. The idea is to keep ticks outside the clothing so they do not have the opportunity to find a place to bite. Since the nymphal ticks tend to occur close to the ground, it is important to seal the opening between the socks and trousers, a common practice for beekeepers. Light colored clothing will reveal ticks crawling on the clothing which can then be easily removed. Ticks tend to crawl upward until they find skin to bite so it is important to keep them off clothing.

By the nature of their attire beekeepers are fairly well protected from these mites while they work. However, breaks, lunches, and before and after work are high-risk exposure times. Bees, and beekeepers tend to be in the places where ticks are, too.

### IF BITTEN

Even if you take these precautions, you may still get bitten by a deer tick. Daily examinations by people who routinely work outside for ticks attached to the skin are essential. Favorite attachment sites for nymphs are the groin, underarm, and behind the knee. Adult ticks commonly attach in the head, es-

NUMBER OF CASES OF LYME DISEASE IN U.S., 1982-1990



pecially on children. However, deer ticks can attach nearly anywhere, so total body examinations are recommended.

Remove attached ticks immediately. It takes nearly 24 hours for a tick to transmit the infection, so daily tick checks and prompt removal of any attached ticks can prevent Lyme disease. Do not use petroleum jelly, mineral oil, or a hot match to dislodge the tick. Ticks are not more easily removed when dead and these materials may actually do more harm than good. Simply grasp the tick with a sharp pair of tweezers as close to the skin as possible and pull it away from the skin. With adult ticks, the mouthparts often break and remain lodged in the skin. This will not affect the potential for Lyme disease, but an antibiotic ointment should be applied to the site to avoid other infections. You might consider keeping the tick and noting the date and site of attachment. It may assist in a diagnosis if you become ill. Put it in alcohol or in a small vial in the freezer.

### **SYMPTOMS. . .**

Symptoms from Lyme disease usually begin about a week after the victim is bitten by an infected tick, although the effects may be apparent as early as three days or as late as one month after the bite. The tiny nymphal tick, which is responsible for the majority of cases, is so small (no bigger than a poppy seed) that it can feed for several days without being noticed. Less than one third of patients with early Lyme disease recall being bitten by a tick.

In about 80% of the cases, a rash associated with the disease develops. This rash is commonly shaped like a "bull's eye" with a central red area surrounded by a ring of clear skin enclosed in a spreading red band. The rippling



red circles (or ovals) range from the size of a quarter to 15" in diameter. Sometimes the bull's eye is absent, and the rash is simply an expanding red area of varying intensities. In about 20% of Lyme cases, the rash may occur in other areas of the body away from the original site. These secondary - usually smaller - lesions develop as the spirochete, which travels through the blood, attacks other areas of skin.

The first symptoms noticed by most people are headaches, fever, stiff neck, aching muscles, and malaise, which may convince them they have contracted a case of flu. Not everyone develops the characteristic rash, and without it, diagnosis is difficult at this point. About half of those with early Lyme disease are "false-negatives"; although they have developed Lyme disease, they will test negative on the typical blood test.

While most who are infected with Lyme disease do not suffer severe symptoms, some people become so seriously ill that their lives are irrevocably altered. If the initial symptoms escape notice or are ignored, they may eventually disappear, only to return, magnified, six months or more later. Joints may become painful and stiff from ar-

thritis; neurological complications can include meningitis or facial paralysis. Inflammation of the heart can damage the nerves that control heartbeat, often producing irregular rhythms that can be fatal unless controlled by a pacemaker. Seek medical treatment immediately if you experience any of these symptoms.

There is no totally effective method of preventing deer tick bites. But, if you follow these recommendations you can greatly reduce your chances of acquiring a serious case of Lyme disease.

### **INQUIRIES**

If you have any questions about the American Lyme Disease Foundation, or Lyme Disease itself, please write or call and we will do our best to answer your questions. Please note, however, that specific Lyme disease questions are best directed to your personal physician.

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Rye Brook, NY 10573  
Tel: (914) 934-9155  
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# ? DO YOU KNOW ?

## SPRING THINGS

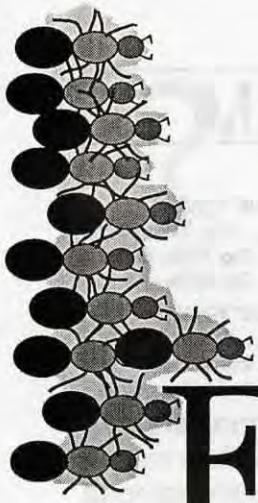
CLARENCE H. COLLISON

Many factors affect colony strength and development, especially in the spring. By understanding these factors and knowing basic bee biology, you will be able to better evaluate colony conditions and develop appropriate management strategies. While the timing of basic spring management practices will vary from one geographical region to another, beekeepers use the same criteria in determining colony needs and perform similar hive manipulations. How well do you understand the factors that affect colony strength and development? Please take a few minutes and answer the following questions to find out how well you understand this important topic.

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

1. \_\_\_ Chalkbrood is considered to be a "stress disease" and rarely kills a colony.
  2. \_\_\_ Finding dead larvae of all ages within a honey bee colony would indicate that the brood was killed by either sacbrood or European foulbrood.
  3. \_\_\_ Sacbrood virus interferes with the molting process late in the larval life of the honey bee.
  4. \_\_\_ The number of queen cups found in a colony is an indication of colony condition, especially crowding in the colony.
  5. \_\_\_ Certain hives gain more bees at the expense of others due to drifting. Within a row of hives, honey bees tend to drift from the end hives toward the center hives.
  6. \_\_\_ Beekeepers should never allow colonies to get down to less than 10 to 15 pounds of honey.
- Multiple Choice Questions (1 point each).**
7. \_\_\_ Strain of honey bees that are reported to be somewhat resistant to tracheal mites.
    - A) Italian
    - B) Midnite
    - C) Caucasian
    - D) Starline
    - E) Buckfast
  8. \_\_\_ Young bees normally begin feeding brood at the age of about:
    - A) 5 days
    - B) 7 days
    - C) 3 days
    - D) 9 days
    - E) 1 day
  9. \_\_\_ Menthol begins to evaporate at a temperature of:
    - A) 55° F
    - B) 75° F.
    - C) 60° F.
    - D) 65° F.
    - E) 70° F.
  10. \_\_\_ Chronic bee paralysis and acute bee paralysis are caused by a:
    - A) Fungus
    - B) Rickettsiae
    - C) Protozoan
    - D) Virus
    - E) Bacterium
  11. Crawling bees with disjointed wings at the hive entrance could indicate what three bee diseases? (3 points).
  12. Name four pathological and detrimental effects that have been observed in individual worker honey bees as a result of tracheal mite infestations. (4 points).
  13. In recent years, extender patties have been used to treat what three bee diseases? (3 points).
  14. Name two components commonly found in extender patties? (2 points)
  15. What explanation would you have for a hive that was ejecting adult drones in the middle of the summer? (1 point).
  16. Name two techniques that can be used to reduce the drifting of bees between hives. (2 points).

ANSWERS ON PAGE 298



# TAKE THE BITE OUT OF FIRE ANTS

Charles Cole

If you have gardened or kept bees for any length of time in the southern part of the U.S. you have no doubt incurred the wrath of the imported fire ant, and also know that it can damage plants in your garden and bees in their hives. This pest also is a nuisance for people who work outside, and for children who play near the mounds. Beekeepers, too, have experienced problems. Fire ants can threaten a colony directly, and their presence can certainly

make working them difficult. But, with some planning you can control these pests.

The red imported fire ant was introduced into the United States in 1918. It invaded Texas in 1956, and since that time it has continued its march westward across the state. It is now found in about 137 counties.

Actually, there are four species of fire ants in Texas. The three native species are not as aggressive as the

imported fire ant, and seldom do they cause the problems associated with the imported species. Where the red imported fire ant has become established, it has dominated the habitat and has eliminated the native species. In many ways this introduced species of ant is interacting with native species and the environment much like the Africanized honey bee and our established honey bees.



*Fire ants damage plants directly or cause wounds where infection enters. (Cole photo)*



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## Methods of applying chemicals for the control of the red imported fire ant.

1. Bait
  - A. Individual mound treatment
  - B. Broadcast
2. Granule
  - A. Individual mound treatment
  - B. Broadcast
3. Spray
4. Dust
  - A. Individual mound treatment
  - B. Area treatment
5. Fumigant
6. Mound drench

## Chemicals labeled for fire ant control on lawns, ornamentals or gardens and available to the general public.

Acephate	Diazinon	Pyrethrins
Allethrin	Fenoxycarb	Resmethrin
Anermectin B1	Hydramethylnon	Rotenone
Bendiocarb	Malathion	Tetramethrin
Carbaryl	Permethrin	Methyl chloroform
Chlopyrifos	Propoxur	



## The Fire Ant

The biology of fire ants is similar to other ants. They have four stages: egg, arva, pupa, and adult. Adult forms include the queen, drones, or males, and various sized workers, sometimes called major workers and minor workers. Fire ants can complete a life cycle in about three to four weeks. A typical colony may contain as many as 100,000 to 500,000 workers. Just before their mating flights the mounds will also contain several hundred winged males and queens.

Worker ants live only 30 to 60 days. A queen may live up to five years, laying as many as 200 eggs per day.

When they are first established, mounds are seldom detectable, but as the colony increases in numbers the mound size increases. Mounds may reach one foot in height and 1-1/2 feet in diameter. Colonies establish in stumps, under rocks or other structures and even under sidewalks, often leaving very little evidence of their presence.

## New Colonies

Fire ants spread in several ways. Their normal means of spreading is the mating flight. When environmental conditions are favorable the reproductive members leave their mounds. This is most common from April to June but can occur at any time of the year. When the mating flights are over the males die and the females (queens) seek out suitable sites and establish new colonies.

New colonies can easily be established long distances away from their original site as mated females are transported in cars, trucks, and other vehicles traveling from infested areas.

Colonies of fire ants can be transported in bales of hay, or contaminated equipment, soil, or nursery stock. When nests are flooded, colonies float to the top, gather around the queen and brood, and may float great distances before re-establishing.

Fire ants also spread when they abscond, or the whole colony simply picks up and moves to another location.

This is generally a short move, but actually very common. It can account for new mounds in recently treated areas, such as lawns.

## Damage

Fire ants cause problems in several ways. First, they can cause medical problems. Although most people experience only mild burning and itching from a sting, some people are much more sensitive to the fire ant's venom. A couple of days after being stung, some people develop pustules which can leave long-lasting scars. Multiple stings can lead to secondary infection, and people who are hypersensitive to the sting may experience nausea, chest pains, or may even lapse into a coma.

In the garden and yard, fire ants also damage plants. They might enter plant pots and excavate the soil, causing the root system of the potted plants to dry out and die. They might feed on the plants, causing either direct damage, or creating a wound for secondary infection to enter.

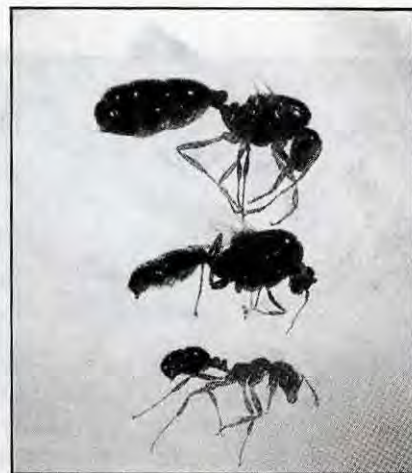
Fire ants also pose a nuisance for people working in the yard or garden, and for children playing in the area. They will invade weak or small colonies of bees and attack brood, causing the colony to abscond.

## Control

Fire ants are very easy to kill; however, they are impossible to eradicate. More than 210 products are registered by the Environmental Protection Agency for use in controlling fire ants. Any one of the products will do a good job if used in the manner specified, and for a specific job.

As a homeowner, gardener or beekeeper you should analyze your problem to determine what type of control you need and choose the product which best serves your purpose.

In lawns and other small-turf areas which are not heavily infested, treating an individual mound generally works well and is the most economical. However, this requires continuous treatment as new mounds are discovered in



Fire ant adult forms include (top to bottom) queens, drones, and workers.

the area. When areas are more heavily infested, and when longer-term suppression is desired, a broadcast application may be necessary. Both bait and granular materials are available for this use. Often, biannual applications of baits are necessary to keep the population of ants down. Broadcast applications combined with individual mound treatments for immigrating colonies has been very successful and can eliminate fire ant problems for the whole year.

Fire ants can also cause serious problems in the vegetable garden. But, a little planning can prevent problems. Use diazinon prior to, or at the time of, planting for controlling soil pests. This will give you good control of foraging fire ants. Keep ants out of the garden or bee yard with a barrier of bait or granular insecticide at the perimeter. Products that contain pyrethrins or rotenone are labeled for treatment of ants. Also, you can physically remove mounds which become established by shoveling them out. You can also kill them by applying boiling water at about one gallon per mound.

Remember, fire ants are not hard to kill. Just be as persistent as the ants – keep after them and you can keep ahead of them.

Before you purchase a pesticide, read the label. Be sure it is labeled for the specific use for which you intend it. Follow all of the label directions and you will enhance control, ensure safety and protect the environment. □



**BETTER**

# BAIT HIVES

ROGER MORSE

On October 15, 1990, a swarm of Africanized honey bees was found in a bait hive in Texas and by now they are in over 20 Texas counties. It should come as no surprise that most of our knowledge about the spread of Africanized bees in Mexico and the United States has come through the use of bait hives. No doubt concern about these bees will prompt many beekeepers to build and use bait hives.

Bait hives can be used anywhere in the U.S. to capture swarms to increase your number of colonies. Or, like me, you can keep one or two in your back yard just for fun. I've done this for years. Watching bait hives is a bit like going fishing – you never know when a fish will bite, or when a swarm will arrive and occupy a bait hive. Ten to 100 scout bees may be active for one or several days around your bait hive before the swarm finally enters. Sometimes, after several days of activity, the scouts reject the site and the swarm goes elsewhere.

Bait hives have probably been used to capture honey bee swarms for more than 5,000 years in Africa, especially East

*A homemade bait hive in position in an Oak tree. (Roling photo)*



Africa. In some areas entire villages are composed of beekeepers who know how to capture bees from the wild. However, only recently have bait hives been studied intensively to learn how they should be made and used.

## Why Bait Hives Work

Basic research on bait hives was conducted in the 1970s by Dr. Thomas Seeley of Cornell University. He began by cutting down and dissecting 21 hollow trees with active honey bee nests. He did this in the vicinity of Ithaca, N.Y. He also studied several feral colonies in local buildings in the area, and learned some basic notions about the natural nest of the honey bee. Seeley realized that honey bees could measure certain aspects of a potential home and make decisions regarding the qualities they wanted in a nest – if they were given choices.

To determine bees' preferences, Seeley designed a series of bait hives of different sizes and shapes. He varied several factors such as altitude, entrance size, draftiness, direction the bait hive faced, and others. The bait hives were hung in pairs or groups of three, about 50 feet apart, in suitable locations, attached to trees that looked as much alike as possible.

As a result of these studies he found that bees prefer the following characteristics when they select a new home.

**Height** Bees will always select a bait hive five yards above the ground over one a yard high.

**Shade And Visibility** Bait hives must be visible so bees find them. They must also be shaded. Bees with no brood will abandon bait hives exposed to the sun.

**Entrance Area** Bees prefer nests with small entrances. Holes that are 1-1/2" in diameter are adequate. The shape of the entrance is not important.

**Entrance Position** Bees prefer bait hives with entrances near the bottom three to one over those with entrances in other spots.

**Entrance Direction** Bait hives with entrances facing south are preferred.

**Volume** Hives the size of a standard 10-frame Langstroth super, about ten gallons in volume, are preferred over those either larger or smaller.

**Shape** The shape of the bait hive is not important.

**Dryness, Air, and Light Tightness** The sides and top of a bait hive must be dry as well as air and light tight.

**Wood Type** The type of wood does not appear to be important. However, cedar or other woods with insect repeller qualities weren't tested. Bees may avoid new wood, but we don't know.

**Odor** Bees appear to prefer bait hives containing a small amount of comb or propolis, or a scented bait resembling odors from the scent gland.



*Justin Schmidt and his flower pot bait hive. (USDA photo)*

**Other Animals** It is important to place a nail or other device across a bait hive entrance to prevent birds from entering. Bees will not accept nests occupied by birds, squirrels, or other animals.

### Construction

One of the biggest surprises in bait hive technology came from Brazil where it was discovered that bees in swarms would accept bait hives made of cardboard. Conventional wisdom assumed honey bees could somehow measure the soundness of a bait hive and would accept only well-built, solid wooden structures. However, that is not the case.

Scouting teams in Mexico found that Africanized honey bees made very good use of cardboard bait hives. The tops of

these cardboard-condos were covered with plastic bags to keep them dry.

As the Africanized honey bee advanced northward there was an obvious need for a system to monitor their movement. As a result, USDA scientists began to study bait hives and make modifications with a view of making their use cheap and practical. Dr. Justin Schmidt and his colleagues at the USDA Laboratory in Tucson, Arizona, found that nursery-plant pots, made of treated paper pulp, could easily be transferred into cheap and simple bait hives.

### Feral Colonies

Chalkbrood, tracheal mites, and varroa mites are all problems that have surfaced in North America within the

*Continued on Next Page*



*Made from the same material this next generation bait hive supports frames. (Scentry photo)*



# SWARM STORY

CHARLIE SIMON

I find few things in God's creation as exciting as a swarm of bees; therefore, it is only natural that I am a swarm retriever as well as a remover of bees from structures. I also do yellow jackets, wasps, and hornets, and have even been called upon to remove bumble bees.

Even after more than twenty years of doing this, I still don't ever receive a call without receiving a thrill as well. Bee jobs are always interesting and always challenging. No two are ever the same. Bees have ways of defying removal that are ingeniously frustrating and sometimes painful, which is probably why there are so few of us removers around.

In years past, I performed this service free of charge. Now I charge a fee; therefore it is important to dispatch these jobs with professional crispness—a behavioral profile that is inconsistent with the ways of bees under removal conditions.

My operation over the years has become one primarily specializing in removal, as a need-based community service, not one of honey production for profit. The honey that I get, and I do get plenty, is a spinoff, strictly speaking, of the main occupation, which is studying and caring for bees, as ecological agents more specifically than as profitable livestock.

Unlike most beekeepers I know, I do not protect my bees from outside influences, especially since I bring home feral colonies as well as free-hanging swarms. My interest and involvement in feral bees has given me a unique perspective as well as a couple of apiar-

ies well stocked with bees of considerably above-average disease resistance, vitality, and intelligence.

Another advantage of feral bees is that I have learned, and am continuing to learn things I could have learned no other way. I do not fault beekeepers who wish to protect their bees from outside influence, but I believe that in the long run, the best interests of the planet are served by the open exposure to life.

There are many stories I could tell about the removal and relocation of bees. I could probably write a book. But for now there is one specific swarm with

**“There are many stories I could tell . . .”**

which I am here concerned, one that installed itself in some low-lying juniper bushes that adorn the front yard of a real estate office.

The branches were not to be cut since the junipers were part of the landscaping and cutting would have compromised the aesthetics. Still, it should have been an easy retrieval, being both at ground level and a small swarm.

I introduced a specifically prepared, swarm-gathering nuc, set up with one frame of old comb and four other frames, offering the entrance to the edge of the visible and accessible bee mass. Several bees immediately entered, and several more commenced the nassanoff maneuver on the landing board. Based on the response thus far, I expected them to

line up, march in and hive themselves as they so often do. However, this was not to be the case this time.

After the initial response, they stopped entering. There was no further interest in the nuc. Okay. No problem. This happens. I would apply some smoke and herd them in, as I'd done countless times before. Simple? Wrong.

I do not naturally keep my smoker lit, lighting it only when necessary for specific tasks or when it is called for by the attitude of a particular instance of bees. I do not like the smoker or the smoke and would never use it if someone could come up with a better way. Yet I fully acknowledge its relevance, at least so far, and use it when it is called for. This was one of those times I lit my smoker, got down on my knees, and lifted a large bough of the juniper. Well, there were more bees than I had initially thought. They were divided into three groups, clustering under and around three different branches.

I wondered if the nuc box would be big enough to hold them all, but no matter—I had more boxes of several sizes in the truck.

Holding up the vegetation with one hand, I applied the smoke with the other and began driving them toward the box. Many of them went running in. But they didn't stay and started running right back out again, into and through the smoke, and back into the bush. I applied more smoke. I smoked, and they ran; but nothing was being accomplished. They would run ahead of the smoke, fan out, and double back, returning to the bush. The cluster was

*Continued on Next Page*

“For a moment I wanted to quit. But bee removers can’t quit.”

now moving away from me, moving this way and that way, every which way but the way required, moving cleverly and smoothly through the junipers where a beekeeper couldn’t go.

Meanwhile, a crowd of spectators had gathered, and the people who had hired me were cautiously peering through the office windows. And the bees had started stinging. It was beginning to look not good.

So I went to the truck and suited up, taking a few seconds to ponder. This swarm, which at the outset had seemed so gentle and amenable not to mention favorably positioned was now both defying and embarrassing me. The low junipers had become an infinite jungle, among the tangles of which the bees could keep eluding me, forever if they chose.

For a moment I wanted to quit. But bee removers can’t quit. It’s not in them. They might want to sometimes, but they don’t know how to do it. How does a professional, responding to an emergency, tell a group of frightened people, hostaged from their work by a swarm of bugs, that he can’t handle it? Does he say “Sorry”, and pack his gear and leave? It’s just not done.

Society must be able to depend on its deliverers of services, and the bee-care professional is no exception. Due to

the critical nature of bee problems and the hysteria and fear often involved in such situations—it is especially incumbent upon the bee remover to take competent charge of the situation and dispatch his obligation with dignified efficiency.

Too often temporary swarm owners demand the impossible: a guarantee that the bees, once removed, will not come back again, ever. Bees are bees like weeds are weeds: Once they’ve been someplace, there is always the chance that some will come back, no matter whether they’ve left on their own or have been removed. Even the liberal use of the most toxic of insecticides, a practice of which I cannot approve, will not guarantee some bees will not return, some day.

Recently a woman asked me what I intended to do with a colony of bees I removed from a wall. I told her that I was going to put them in a hive and give them a proper home.

“Personally,” she said, “I think you ought to drown them, all of them.”

“What?” I replied, incredulous.

“Kill them.” She said. “Kill them all.”

“But why?” I asked, still incredulous.

“Because they sting, and it hurts.”

“But they are so useful.” I said.

“We don’t need honey,” was her reply, “we use sugar.”

I didn’t argue this point, seeing it to be useless, although I did and do profoundly disagree. However, I did say, “But they are useful as pollinators. We need them to enhance vegetation, to produce large crops.”

“I don’t care.” She said. “We’re human beings. We can invent machines to do all that.”

My pondering, my moment of doubt over, I returned to the task at hand. By now the bees, stirred-up and angry, had discouraged the crowd of onlookers, reducing it to but a few brave souls who were standing way back. This made me feel better, more relaxed and able to concentrate, without a bunch of human beings hanging around in the danger zone, especially since I had politely asked them to stand back early on, and they had ignored me completely.

I proceeded with the smoke again, more liberally this time. Only now, not only did the bees refuse to go into the hive, but they refused to be herded at all, rather rolling up into little balls of two or three bees each and rolling around in agony right where they were. So I backed off and stopped smoking them.

While wondering what to do next, the little voice within said, “Find the queen and put her in first.”

“This story is true, but you may justifiably disagree.”

Okay. Just as I was about to start looking – finding the queen in an organized hive can sometimes be difficult enough, even impossible, but finding her in this infinite bush with the swarm in chaos didn't promise to be easy – I caught a whiff of a distinct, unfamiliar, and most beautiful scent. "It's the queen," I thought instantly and without question. Though I'd never smelled it before, I knew. She and I were on the same wave-length. She wanted this mess straightened out as much as I did, and she was showing herself to me as clearly as if she were waving a flag. She *wanted* me to find her.

Immediately I became receptive, and the odor became overwhelming. It was the most seductively gorgeous aroma I had ever smelled. The word "divine" comes to mind. I have handled many queens over the years, and have read and heard much about this "queen essence" which is passed among the colony and so endears the bees to their queen; but I have never smelled it, nor read about it's being perceivable by humans. I assumed it was something between the bees, and that was that.

Now, apparently, I had been personally honored by a squirt of the stuff, and so thereby initiated deeper into the mysteries of beedom. I now knew, viscerally rather than intellectually, exactly *why* bees are so attached to their queen. The stuff is totally, seductively, instantly addictive. I fell in love with her, completely and hopelessly, right there on the spot. And then there she was, among a group of bees right in front of my face.

I removed my glove so I could handle

her more sensitively, reached into the maelstrom of bees, without the slightest fear of being stung and gently picked her up and placed her on the landing board. She started walking the wrong way. I manually turned her around, at which point she dutifully and *very* casually strolled into the hive.

Within seconds the



tens of thousands of bees of the swarm lined up into countless lines and symmetrical formations all pointing to the entrance of the hive. There was a second or two of suspension, and then they all marched

directly in, with more and more of them performing the nassanoff maneuver on the landing board and the face of the hive body.

A group of bees clustered in the space between the ground and the lip of the landing board, forming with their bodies a bridge over which the rest of the bees were able to pass freely. In minutes the swarm was hived.

So, after 25 years of beekeeping, I have smelled the queen, personally, with my own nose. In this experience I was communicated to chemically by the queen and caused to act in a particular fashion, that which was deemed necessary by nature in that moment to solve the problems of that moment of which I was both a part and a participant. This was not just smelling the odor and saying, "My, My, How lovely!" – but smelling the odor and being induced by it to act in a prescribed and necessary, though unpremeditated manner. And, after all, isn't that what pheromones are all about?

Beekeeping has always given me the feeling that I am indeed a part of Nature, a feeling that human beings need more of, and *this* experience was the epitome of that.

This story is true; although you might justifiably disagree with my interpretations of the events herein described. For example, you might say the queen did not release her essence out of the desire to be found, but rather as an automatic response to the stress of being choked with too much smoke. I could agree with this explanation but would have to ask, really, what's the difference? □

# ARIZONA NEWCOMER

LYNN TILTON

It took Ray Simmons just a year after moving from Illinois to Arizona to decide to become a beekeeper. He did so well that by the middle of his third year, Cochise County officials had him set up the honey and beekeeping display at its annual fair.

"A friend had developed an allergic reaction to bees, so he sold out to me," Simmons explained. In all, Ray's bought out four people no longer in bees. One was a widow of a beekeeper, another was overtaken with a major illness.

Ray found these people via the newspaper. He noted that when he and his wife, Kerry, moved to the desert eight miles north of Douglas, a border town in southeastern Arizona, "We had no water, no electricity, no telephone."

First came water, which brought Ray the privilege of taking cold showers until electricity finally appeared. But there's still no phone. "The phone company said they'd put us in a line – for \$35,000."

So *Bee Culture* made contact for a visit with Simmons via the postal department. This, after observing the pro-

fessional manner this relative newcomer to beekeeping demonstrated at the county fair.

"I have 30 hives altogether, in three yards. One yard is here on the home place." Home place is headquarters for a non-denominational missionary group that works in Mexico. "Missionaries use this place to prepare to go to Mexico and a place to recoup their energy when they return," Ray explained. That's also where they coordinate food and clothing donations, and other activities associated with the work at Son-Shine Acres.

His second yard is in Douglas, on the banks of a defunct catfish farm. "But my largest yard is further up Leslie Canyon," Ray explained as we piled into his pickup and rode up the dirt road, past the "Do not enter when flooded" signs posted at each wash that crossed the road. "July is our rainy season, so I try to time my trips up here two days after a rain," he added.

A dozen miles later we turned off and headed directly towards a set of cattle corrals adjacent to the only trees in sight. (In Arizona trees mean water,

an essential ingredient to any agricultural activity, including a beeyard.) "This is the Bar 99 ranch, and Peter Bennett, the owner, has been real cooperative. Many ranchers won't let beekeepers set up a yard because they worry about cattle getting stung. But that's never been a problem."

Ray's job that day was to put menthol into each hive. "It's to treat for tracheal mites," he said. "I read about this in *Bee Culture*, and I decided that menthol on the top bars is cheap insurance." So far, mites aren't a problem for Ray, although they are a real problem for beekeepers in the San Pedro Valley, the next valley to the west of Ray's own Sulphur Springs location.

When asked how he got so proficient in beekeeping in such a short time, Ray added, "Each time I bought somebody out, I also got the books he used. I read everything I can, figuring it's cheaper to learn by someone else's mistakes instead of my own."

"That's what I like about this magazine. People aren't afraid to talk about their mistakes – so I don't have to make

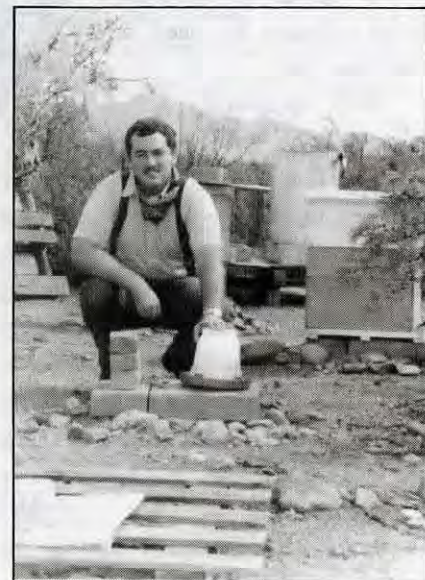
*One of Ray's colonies – check out the stand. That's Mesquite behind him.*



*A hive scale helps tell when the honey flow starts, and stops.*



*Water is critical in this part of the country. These chicken waterers work fine.*







A sample of Ray's honey crop, and .



how it gets there.

them myself."

So what mistakes *has* this successful keeper made? "I tried to go too fast. I found I was putting in ten times the money I was getting out. I slowed down and reevaluated my market."

Fortunately, he'd already learned it's never wise to build a new enterprise on debt. Like others, he'd learned that those who understand interest earn it; those who don't - pay it.

His market strategy consists of retail pricing for all products. "My nectar sources are desert wildflowers and mesquite. There is no agriculture in this part of Cochise County." There are no crops he can rely on, either for pollination contracts or as sources for nectar. "My production averages just 30 pounds per hive per year, so I can't afford to wholesale."

Even the half dozen 'mom and pop' stores that carry his honey pay the same price his retail customers do. "I have a list of customers, and I find that by contacting them and asking for the sale I sell more honey than if I just wait for their order."

A popular item is the "Cowbee" bottle, which is a one-pound round jar decorated to look like a bee sporting a neckerchief and cowboy hat. "People buy them for souvenirs, something to remind them of their visit to Arizona."

Talk turned again to mistakes he's made. Ray laughed, "Well, one night a friend and I tried moving hives without making sure the lids were on tight. I had him suited up, but when he tilted back the dolly, the cover slipped and bees crawled all over both of us." When

Ray got home he had turned beet red. He counted some two dozen stings. His suited friend also got stung.

"At night bees sting first and ask questions later. Now I make sure the lid is secure before I move a hive."

Another lesson he's learned is that he can't rely on a fall honey flow for winter stores. "My first year two of my three hives starved out. Now I check them, weighing each hive, just like an article I read here, with the scales, hive tool and a length of cord." Ray demonstrated how he used the set-up. He hasn't lost a hive since then.

He's also learned that bees need to be near water. Since there is no open water within miles of the home yard, Ray waters his bees via a pair of plastic chicken waterers. "They seem to be doing better since I put out the waterers," he said.

A particular challenge where the first frost is mid-November and the last frost occurs about St. Patrick's Day, is wax moth. "We have a long, warm season. There is no such thing as winterkill for wax moths. Their eggs survive all winter. They're not eating wax in winter, but come spring they can ruin a super in a hurry."

"I store supers five high, with a screen on the top super. I put a half-can of para crystals on each stack, and let the crystals vaporize under the plastic garbage sacks I put over the supers."

Two weeks after the late November treatment, Ray pries apart the stacked supers and checks the frames to make sure no more eggs have hatched.

In early April, supering season be-

gins. "I'm after spring wildflowers to help my hives gather strength for the main flow, which is mesquite."

"I use top supering, although I've heard of others supering on the bottom. Frankly, I'm not sold on that idea. I don't think trying to force them down is natural, but I know it's successful for some."

He bases his opinion on the fact that the bottom three inches of his brood chambers are generally unused.

As a newcomer, however, Ray is open to suggestions. In fact, if you'd like to contact Ray, write him at RR 1, Box 232-M, Trailer 2, Douglas, AZ 85607. You still can't call him, though, not until he can come up with \$35,000 for a phone (but he'll take donations!). □

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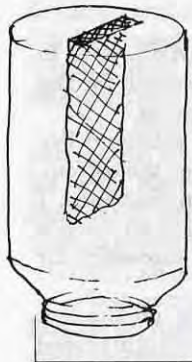
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# HONEY ART

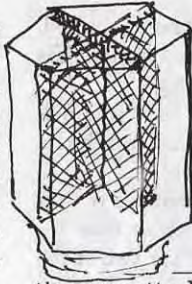
DAVE DUNCAN

## TRY THIS THIS YEAR

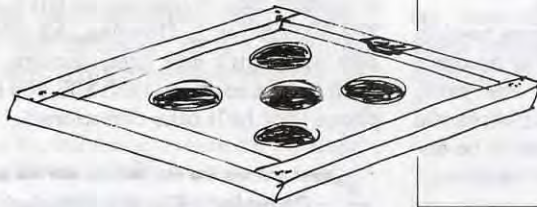


While reading through an old bee-keeping book recently, I stumbled across a picture of a jar of honey with the comb built right inside by the bees. This struck me as very unique and the concept stuck in my mind.

So I decided to unravel the mystery of that special jar of honey.

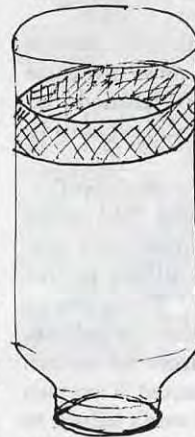


With some experimentation I came up with a simple method to duplicate these jars of "honey art". I say "art" because each jar is unique - the bees make each comb design to their specifications by attaching comb to the wall of glass pretty much as they please!



To start, I took an inner cover and cut holes in it the same size as the inside diameter of the jars I used. Then, I covered the oblong hole in the center of the inner cover with large-mesh bee-proof

screen for ventilation. This is very important. I bore six to eight holes, but you could probably drill more, since I didn't want my bottles too close together. Leave the half-round hole in the rim open.

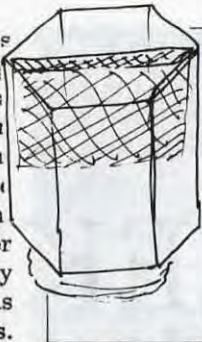


Next - the bottles. Any bottle will work; I use large-mouth and small-mouth pint and half pint Mason jars. They must have a piece of foundation attached somewhere inside to work best. I take a piece of foundation and bend the end (see the drawings). Then, using the eraser end of a pencil I smash the bent-over piece onto the bottom or sides of the jar.





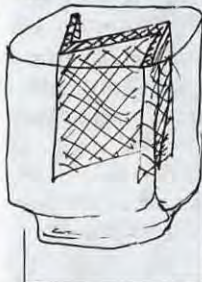
You can help the bees create an interesting pattern if you press a strip of foundation in a circular pattern inside the mouth of the jar or higher up inside the jar. Another trick is quick and easy but not drawn out as quickly by the bees. Just take chunks of foundation and stick them to the sides or bottom of the jar. The bees take it from there. Again, see the drawings.



I keep spare bottles prepped with foundation, either inside the super on the hive, or ready at home to exchange with the fully drawn-out bottles on the hive. I finish the honey-art jar by filling with liquid honey - heated to about 120°. The lighter colored the honey you add the better, I think, so customers can see what's inside.



When the bottles and inner cover are ready, place an empty super and an outer cover over the bottles.

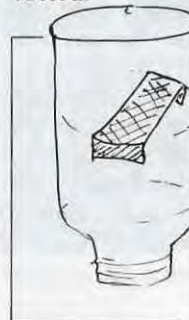


This technique is rewarding in many ways, but one I like is to walk up behind the hive without a veil and lift the lid to show your friends the bees working undisturbed under glass bottles. It is an observation hive that can be harvested.

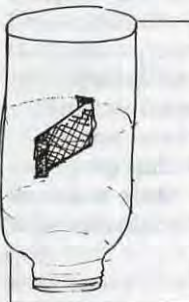


To get the bees to work in the bottles you must crowd them - considerably

You may do this with an established hive, but I don't like to take a good hive out of production and induce it to swarm by severe crowding. Rather, I use collected swarms. I hive them in a shallow, medium or deep super with drawn comb. A three to five pound swarm in a shallow super, a five to eight pound swarm in a medium or an eight pound and over in a single deep super are the sizes that work best, but use your own judgement about crowding. Personally, I feel a little guilty (and somewhat panicky) when I see handfuls of bees hanging outside their hive, but this seems to be the only way to make them work the bottles.



When most beekeepers see these jars of honey, they are amazed. When regular customers see them, and understand what they are looking at, they are equally if not more so, amazed.



Sometimes I'll say that I'm too lazy to work my bees so I have them put the comb and honey in the bottle for me! But no matter, I get \$5.00 *per pint* for these works of art, and have even sold a lot of them to beekeepers!



Well again, I'm not taking credit for this idea and after all, the bees do all the work.

If you have more questions, contact Dave Duncan, 1042 Co. Line Rd.,

Crestline, OH 44827, and send a SASE. He'll be glad to help.

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*Jottings, from a*

# BRITISH BEEKEEPER

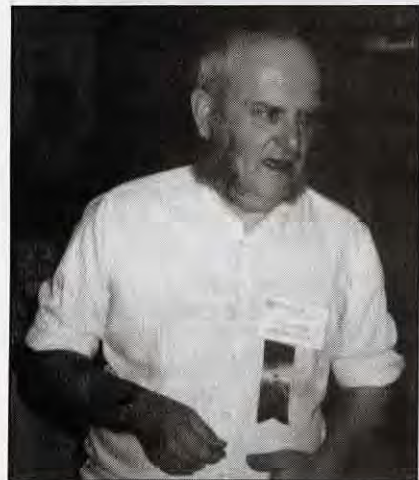
KARL SHOWLER

**I**t will be difficult for an American to picture the small, neatly walled town of Hay-on-Wye, it is so compact that most of the houses touch one another. The narrow streets were built for packmules.

This community of 1200 inhabitants is typical of the little towns along the border between England and Wales. Towns of small markets and owner-occupied shops are steeped in the half-forgotten history of the struggles between the English and the Welsh. However, Hay-on-Wye does have a modern claim to fame as the international center for buying and selling old books. Thousands change hands every day at prices from \$1.00 to several hundred. However, the story I am about to relate shows that other things happen here, too.

The country round-about is well cultivated up to 800 feet, where trees take over. Higher still are wide-open sheep pastures. The main cultivated crops are wheat, potatoes and a range of rootcrops for animal feeding. Much of the less-easily cultivated land is either permanent or long term grass mown for silage. The grass meadows are impor-

*Karl Showler sells antique beekeeping books, and collects swarms from his home in Hay-on-Wye.*



tant to beekeepers as they contain either sown or wild clover. The range of wild plants is extensive but cultivation limits them to waste land, although dandelion occurs as a meadow plant to give a significant honey crop.

Oil seed rape has become important in lowland Britain and is now being cultivated in this part of the Wye Valley. It gives abundant spring honey that can trigger early swarming. Rape has radically altered beekeeping in respect to honey crops, bee temper and swarming... but oil seed rape and bees is another story.

This is a Northern land where the summer sun is "up" longer than in any part of the U.S. except Alaska. The climate is extremely variable, going from cold to hot overnight and Atlantic rainclouds are never far away.

**I**n early May, the days rapidly lengthen and my wife Betty and I know the swarming season is starting - bees with their long legs hanging down start to fly to and fro in front of the bait hive at home. On sunny days in and out they go; as the weather gets warmer their numbers increase as does our anticipation of a swarm.

Clearly somewhere in town hives are preparing to swarm as some bees are definitely yellow while others brown. Here on the edge of the uplands there are survivors, from before the acarine (tracheal) mite outbreak at the beginning of the century, of the British Brown Bee.

Most beekeepers in the immediate area live in the Cusop Dingle, a typical deep, narrow valley running back into the hills from the main Wye river.

On Sunday the swarm arrives. We get the feeling that bees prefer to swarm on Sundays, or at least that's when people are at home to see them. Thankfully it goes into the hive and not into an

adjoining garden. I wonder how often beekeepers are blamed for swarms attracted to their hives that start life elsewhere.

Late May, a very hot day, scouts again show up at a replacement bait hive so we are not surprised when a rather breathless man calls at the front door "Excuse me, sir. my neighbor's distressed because there's a lot of bees in her garden."

Karl togs up and walks round to the house. A tall willowy young woman appears clad in a miniscule bikini. "Oh, you must be the beeman; do come in". Down a long dark passage and into the blinding sun; a garden like a battlefield, "Oh, I'm rebuilding the garden. "there on a side wall is a giant cotoneaster humming with bees - on parting the enfolding branches a small swarm is revealed. The young lady hovers in the distance. Karl offers to return when it's cooler and bees less likely to fly off when disturbed.

Home. . . Phone hums. . . "Excuse me, sir, there's a lot of bees in my restaurant. " We suggest lighting a smoldering fire of paper in the wide open hearth because the bees are falling down the chimney.

**B**ack to the young lady and her swarm. . . not a bee to be seen. When Karl peers over the garden wall a surprised sunbather points up the street in the general direction of the restaurant, where Karl arrives, blind from the bright sun and cannot see bees or anyone else for that matter. In the backyard are some young people playing with children. "The bees, well, we did what you said (fire and smoke in the chimney), now look next door at the Bank." The Bank does not believe in bees as they have not shown up on the computer. However, some weeks later the bees are driven down by a rain storm into an air duct and escape

into the banking hall.

Phone rings again. "Excuse me, there are a lot, well, thousands. . . Betty takes details. . . in a bush at a local private school. Karl drives out to find a fine old house inhabited by a blind old man who hears him arrive and sends his equally old wife out to find "Leslie". Leslie views the bees with considerable mistrust but takes Karl to the swarm which has emerged from one of two hives whose owner moved, leaving the bees behind. A small swarm hanging from a branch that was easily shaken into a straw skep (we are permitted to keep bees in skeps). My decision was then to keep this swarm in its skep for some weeks, let the bees draw out combs then carefully drive them off so that we would end up with an exhibition set of "natural" combs.

S.O.S. Betty takes a message. " .there's a lot of bees IN MY DRIVE, been there three days. " We go at once. Betty feels that neighbors are at war over two colonies Neighbor One has at the bottom of her garden; they have DARED to swarm just over the fence. Neighbor One claims the swarm is not hers. We find a small cluster hanging temptingly at the tip of twig effectively blocking the drive. Snip into a skep, enfold with sacking, up and away, 15 minute job. No sign of either neighbor. Bees given to a beeman wanting to make good winter losses.

**P**hone. . . "Excuse me, sir, there's a lot of bees in the local Community Centre; come at once or we may have to close. " Betty off to look, finds a few scout bees inspecting ventilators. Warden wants bees out at once. Betty explains there is nothing to "out" so she calls the municipal pest officer to treat the ventilators with a smelly substance to repel the bees.

An evening call, a large swarm on a tree in a children's play area. A magnificent swarm wrapped round the trunk of a small oak. A little smoke and a fine water spray keeps the bees clustered as a goosewing lifts them into a skep. Karl makes skeps so we are never short of them.

S.O.S. Grubby, weary builders appear at front door. . , "Excuse me but here's a lot of bees in a roof and the men do not want to work near them. " We offer to go as soon as our mail is done. Thirty minutes later the builder returns, bees are killed by a gardener



*Karl is a skep maker, and we always have several around. (Honey Acres photo)*

with a sprayer. However we go to the site to see all is well . . . lucky we did. In the space between the inner and outer roof linings is a soupy mess of collapsed white combs and honey drowning bees - odd, no smell of insecticide. Karl puts the fallen comb into a plastic carrier and dusts the site to kill off any scout bees from nearby hives who could be attracted by the spilled honey.

**A** cold spell and no swarm calls but at the end of the week we do a routine check in the apiary. There, high up in a larch tree is a giant swarm hanging over a thicket of bramble. After much snipping Karl gets under it to find the thinnest swarm possible. It hangs like a flag along the branch and not around it in a cluster. Betty also finds another swarm on the back of an occupied hive. She sees one queen, Karl finds another, Betty another and Karl another. We decide to hive both swarms with one

queen, but then we look up; we are standing under a cloud of excited bees that is drawing more and more of them to it.

The swarms are diminishing. Were they originally one that divided in two? Turning, we see the bees in the air are coming down to a hive that is now covered in bees like a thick overcoat. In a few minutes nothing remains of either the cloud or the two swarms.

Betty and Karl give a routine check to the other hives and gently upturn the comb building swarm we collected at the school. This seems frail; the recent cold weather has not helped it. Then, inspecting another colony that had shown considerable resentment at our manipulations, Karl spotted its queen. Snip, and she joins her foremothers. This we now leave for two days to get thoroughly queenless, standing the skep over it on a sheet of perforated newspaper. Thus, queenright bees in the skep can contact the queenless in the colony below becoming acceptable by the time

*Continued on Next Page*



Swarms. a mysterious and wonderful event.

**JOTTINGS...Cont. From Pg. 283**

they have gnawed the paper away. The skep, we assume, is queenright as it is peaceful when upturned and queen cells are not visible on the lower edge of its small combs. We leave the uniting colonies alone for two weeks and then peep in. The skep is half full of nice empty comb, they had not had any brood, possibly due to their queen being a virgin or the weather too cold. However the lower box was full of happy bees and a laying queen.

We have had a cold dry spring so we have been regularly topping up the bees' water trough. Modern land drainage

has reduced the number of natural springs, damp places and streams; bees are looking for water; they quickly gather at the trough when we refill it.

**A**t home on June 29th. After two weeks the sun appears and scout bees circle round the bait hive and the solar wax extractor starts to ooze clean wax. Suddenly a loud hum. Betty and Karl look up into a slowly anti-clockwise-rotating column of bees that passes over them towards the river. Karl walks

slowly down the lane to the landing stage under a cloud of bees which then pauses over a line of steel canoe transporters. These are being loaded by orange clad canoeists who take no notice of either Karl or the cloud of bees. Suddenly a column of brightly clad children surges along the river path looking for the shingle foreshore. Not one of the 60 or so people look up into the bee-filled sky. The children do a rapid about turn, departing with the bees overhead.

Next day we were due to go to the Royal Agricultural Show but Karl could not resist the temptation to go to the apiary at sunrise "to water the bees" There against the rising sun is a massive swarm, the sort that beekeepers dream about. Of course it's only just out of reach and on a bush near the ground is a miniature swarm. First the little one goes into a nuc box. Then the task of tempting the big one down starts. An upheld comb will just reach its lower edge. As the bees run out onto the comb surface they are transferred to a hive body. Then as patience seems to be bringing success a ball of bees rolls down over the upheld comb to spill out over Karl's upturned face. Although protected by his veil, his nose and lips get a series of injections with his beard for once protecting his chin. Clearly it was time to let nature take its course.

A week later, on returning from the show, there was no sign of either the massive swarm or its little companion except the latter left a few waxen bumps on its branch.

The five swarms we hived settled down and thereafter superceded their queens. July was tranquil in the apiary and we had a small crop of oil seed rape honey but suspect most of it had turned into bees, our main crop was from clover and an interesting honeydew from the oak. Fall was notable for a major war with yellow jackets, but that is another story. □

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# IN MY OPINION

O.B. WISER

Smokers *without* heat shields should be banned as hazardous to your health. There are three places a smoker should be found – in your hand, on top of the next beehive or between your legs. If it is between your legs and you do not have a heat shield, it can only stay there so long before it burns your knees, or something else. Wherever you put it, it is a menace.

Another piece of equipment needs attention I think. These are frames with drilled side bars less than 3/8" thick, and a slot in the bottom bar. Thin side bar begs to bend inward when you tighten the wire – even if you use those four little holes with grommets. Of course, if you do not use the metal grommets they won't bow because the wires eat into the wood and go slack.

Then there's topbars with the wedge. You know the little sticks you spend hours nailing in after you slip the foundation in. Of course, you miss the nail head and hit the foundation, ripping lots of holes in it, and what is really wonderful is when you replace the foundation trying to take it all apart.

Frame wedges are a nuisance unless your time means nothing. When I make my topbars, I take an eighth inch regular blade and hit the teeth with a hammer to bend them out for a wider cut so the foundation slips in easily. I don't think the people that designed the wedged topbar knew bee behavior. They say to use the wedge so the wax foundation will not fall out.

Any beekeeper knows that if he puts a whole box of foundation on a strong hive, within the first few hours the bees have glued the top slit solid with nature's perfect adhesive, a wax and propolis mix. I guess if you put supers with paper-thin foundation on a weak colony and the temperature is above 105° there may be a problem – but the only kind of foundation to use is wired, reinforced, at six sheets per pound anyway.

Then there is the slotted bottom bar. It seems that is all that is available any more. These weakened bottom bars are supposed to make better combs because the bees build all the way to the bottom. Have you ever tried to pry a

super apart with lots of burr comb? The slotted bottom bars pop off the bottom of the frame like magic. It's just wonderful how they bend under pressure. If they do not pop off and you have plastic foundation in, when they pop back into place the bottom of the foundation is almost always outside the slot and gets smashed up into the comb, resulting in lots of transition and drone cells in the center. The best part is when the uncapper gets hold of this frame and cuts the center out of the lopsided frame.

I cannot help myself. I just opened up a bee magazine and staring at me was a galvanized water-jacketed wax melter. You know, the one that is round and has a water-heated cone up in the center with a small tub off to the side. The one that when you put cappings in it from more than one super you have to wait and wait and wait for them to melt. The best part is the bucket that separates the wax from the honey. It runs so slow you have to heat the bucket. I actually bought one of these. Used it once, plugged it up and let it gather dust. Maybe I did something wrong, but I eventually sold it. He traded me a pump Winchester 12 gauge shotgun for it. I was tempted to use the first shell on the wax melter.

Then there's the ever-changing beehive lid. Over years of buying out many beekeepers, I have seen every kind of top that could be conceived by the imagination of a beekeeper. There are some pretty weird ideas out there, folks.

The classic, of course, is the tele-

scoping lid, designed and marketed by an engineer who wanted to use twice the amount of lumber necessary and make three times the amount of work to use and maintain a simple hive cover.

The eves that overhang the sides are totally unnecessary. This is really appreciated when the wind blows. Updrafts grab that overhang and rip those over-built covers off. Thus was born the proverbial brick-on-top-of-every-hive concept to hold the lid on. Then there is the joy of prying off the sucker that has been welded to the super and you break the overhang in the process.

In my opinion the telescoping lid has no place in a bee yard. Well, hold it now, there is one exception. If you are really hard up for a hive stand, they make dandy supports under a hive if they are put together right, and of course when you are painting supers they make a *great* paint stand. Other than that, they make sure the good beekeeper does not sleep well when the wind blows because he knows the lids are frisbees and he will have to make an extra trip to reclaim those wayward tops.

After 34 years of mistakes and inheriting other beekeepers' stuff, I have developed the ultimate lid. Needs no brick on top to hold it down, it is light and easy to handle, quickly pops off no matter how much burr comb there is and it lasts forever, as far as I can tell. It is cheap and easy to make. Anyone with a table saw can make one. But while I am talking about the top, the bottom needs to be discussed also. But I'm out of room, so sometime in the future we will talk about the lid that lets you sleep at night when the wind blows and the hive bottom that works just as well. And *I learned all about these the hard way!* □

*Telescoping lids wear out fast, use too much wood, and should be banned.*





# HOME HARMONY

ANN HARMAN

6511 Griffith Road • Laytonsville, MD 20882

## FOR KIDS ONLY

This month's article is for children. So please either read this to the younger ones or give it to the older ones. Some of the recipes will be very simple for kids just beginning to cook, while others are for those more experienced.

School will be out soon and a long lazy summer is ahead. We all know that honey makes cereal taste good and is great in a peanut butter sandwich. But have you ever made something good to eat that uses honey? Summertime is the time to learn to cook with honey. You can fix treats for your friends and family. You can fix a nice dish for the family's supper.

Let's get off to a good start. First, wash your hands. I have never seen a recipe that needed the flavor of grubby hands. Next find the potholders. You will want them ready for hot pots and pans.

After you have chosen your recipe, read it – read the whole thing. Why? So you can find out if you need a big bowl or a small pan, if you need to heat up the oven, and (most important!) if you have ALL of the ingredients. It's no fun to get some cookies all mixed then find out you don't have the raisins or nuts that are supposed to be added.

Here are some hints that will make cooking easier and the results better. Rub the measuring cup for honey with a little oil or margarine – the honey will slide out easily and make cleanup quicker. Have a dinner knife ready to level off the measuring spoons. Grease your cookie sheets or pans before you start mixing. If you will be using the oven, make sure the oven racks are in the right place, about in the middle of the oven, before you turn the oven on. Take a good look at the measuring

spoons – the “tablespoon” is much bigger than the one marked “teaspoon” Using the wrong one can make your dish horrible instead of delicious.

Now it is time to get the spoons, cups, bowls and pans ready. Next, get all the ingredients together. Measure – very carefully – all the ingredients. (Do you need the oven turned on?) OK! you're

### THE BASICS

Recipes have been carefully worked out for your success. However, you have to be careful about a few things. Please remember: when the recipe calls for eggs, the eggs are graded “LARGE”, which is printed on the egg box. “Cups” means the standard measuring cups – the ones with marks on the sides. “Tablespoon” and “teaspoon” means the standard measuring spoons, which are also marked. “Beat” means to use an electric hand mixer or hand beater. “Stir” means to use a spoon and move it around the bowl or pan. Baked goods that use honey will brown quicker than ones made with sugar. Remember to keep an eye on those cookies and cakes in the oven. □

ready for the fun part – mixing everything together. You do need to follow the instructions given in the recipe. You see, someone has tried all sorts of ways and the best way is what the recipe says.

### Honey Snacks (hands clean?)

1/2 cup peanut butter, either smooth or chunky  
1/2 cup honey (your favorite kind)

1/2 cup powdered milk

Put all the ingredients in a bowl and mix very well. The mixture should be very stiff. You can add a little more powdered milk if the mixture is too sticky. Shape into balls. If you like coconut, you can roll the balls in coconut. Put the snacks in a container with a lid. Store in the refrigerator.

This next recipe makes a super summertime treat. Since you have to put it in the freezer, you might want to make it in the morning so you and your friends can enjoy it in the afternoon.

### Banana Popsicles

4 firm bananas  
4 wooden sticks  
1/3 cup honey  
1 6-ounce package chocolate chips  
1/2 cup peanut butter (smooth works best)  
1/4 cup milk  
1/2 cup finely chopped nuts (peanuts are good)

Peel bananas. Insert wooden sticks into them, lengthwise. Put on plate, cover with wrap and chill one hour in refrigerator. In a saucepan, combine honey and chocolate pieces. Place over low heat and STIR until chocolate pieces are melted. Add peanut butter. Continue heating and stirring until well blended. Remove from heat. Stir in milk. Dip chilled bananas in the mixture, coating bananas well. Roll in the chopped nuts. Freeze in freezer. Serve frozen.

*The Healthy Taste of Honey*  
L.J.M. Lonik

A cheese sandwich is good for lunch, as well as for a snack. Try this “one-sided” sandwich for a change.

### Super Cheese Sandwich

On a broiler pan, place as many slices of your favorite bread as you need. Spread each slice with a thin coating of butter or margarine. Spread a thin layer of honey on top of the butter. Put a slice of cheese



(everyone's favorite) on top of the honey. Broil until cheese is melted. Watch carefully – it doesn't take long!

*Treasured Honey Recipes*  
California Honey Board

You can fix a nice dish to be served with a barbeque supper. Sweet potatoes go very well with grilled chicken or pork. If your sweet potatoes get done before the grilled meat, just turn the oven down to about 200° to keep them warm until time to eat.

## Honeyed Sweet Potatoes

6 medium sweet potatoes, canned or cooked  
2 Tbs butter  
1/4 cup honey  
1/4 cup orange juice

Place sweet potatoes in a baking dish. Combine butter and honey in a small saucepan, put over medium heat. Stir until well mixed. Pour over potatoes. Drizzle orange juice over potatoes. Bake in 400° oven 20 to 25 minutes. This will serve 4 to 6 people.

*Honey Cook Book*

Missouri State Beekeepers Association

Everyone loves chocolate chip cook-

ies, and they are especially good when made with honey. Fortunately, cookies are easy to make. If you are just beginning to cook, try these cookies.

## Chocolate Chip Cookies

1/2 cup butter or margarine  
1/2 cup honey  
1 egg  
1/2 tsp vanilla  
1-3/4 cup flour (measure gently – don't pack)  
1/4 tsp baking powder (read label)  
1/2 tsp baking soda (read label)  
1/2 tsp salt (can be left out)  
1 cup semi-sweet chocolate chips  
1/4 cup chopped walnuts (only if you wish)

Sift together the flour, baking powder, baking soda and salt. Set aside. Using an electric mixer (either hand-held or the large one), cream the margarine and honey until light and fluffy. Add the egg and vanilla and beat well. Add the dry ingredients (that's the flour, etc.) and mix carefully but thoroughly. Using a big spoon, mix in the chocolate chips and nuts. If you chill this mixture for a while, it is easier to work with. Take a teaspoon and scoop some dough into it, then shove off onto your greased cookie sheets. Leave about 2 inches between the mounds of

dough because the cookies will spread out. Bake at 350° for 10-12 minutes. (Did you remember to heat up your oven?) Watch the cookies! Burned cookies are terrible. When you take the cookies from the oven, you can remove them from the cookie sheets onto a cake cooling rack. Be careful – the chocolate chips inside the cookies are very hot so wait until the cookies have cooled a bit before eating one. Makes about 36 cookies.

*Gourmet Honey Recipe Book*  
B.C. Honey Producers Assoc.

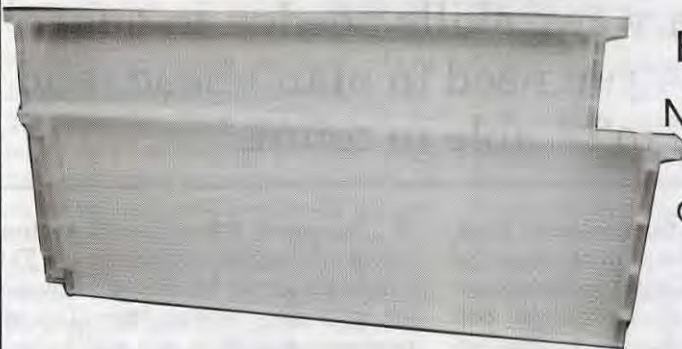
You might like to try inventing your own honey recipes. That can be fun and the summertime is the best time to try them out.

Now, you have been busy in the kitchen for a while and your family and friends are appreciating your cooking skills. CLEAN UP THE KITCHEN! The cups, spoons, pans, bowls need to be washed. The counter needs to be washed. Don't say the dog is supposed to clean up the floor. Make sure the oven is turned off, and last of all – is that honey jar sticky?

Now that you have started cooking with honey, keep it up throughout the year. □



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# NORTHERN EXPOSURE

## THE LOFTY HEIGHTS OF QUEEN REARING

A. J. SARLING  
Fairview College  
Alberta, Canada

As hobby beekeepers become more 'bee literate', they often see the lofty heights and pinnacles of the last bastion of beekeeping – raising the Queen Bee. For many this is an untouchable mystery. Often shrouded in secrecy – maybe purposely, by those who have the knowledge – the concept can be intimidating to many hobby beekeepers. If you took all the books and articles on queen rearing from around the world, of which many are excellent, you would probably have chosen work to rival the Encyclopedia Britannica. But when you analyze much of this you'll find it oriented to specific geographic areas or systems dedicated to raising queens on a commercial scale.

All of these systems work very well, though, particularly for the people who wrote the articles. So one more won't do any harm, and with luck should shed a little light on the subject for a few. This system can be used anywhere and with relative simplicity by anyone who wants to produce only a few, or even many queen cells.

There are two basic facts about raising queens. One, you can't wake up on Saturday morning and decide you are going to raise queens that weekend. Two, you need to be able to count. If you have these two down, you'll have no problems at all. If you do not, it is probably easier to find a local queen breeder and buy your queens there.

In the prairie provinces of Canada the queen rearing industry is relatively new. Previously, 73% of our colonies were developed from packages from California each year. Since border closure in 1987 this option is no longer available so many beekeepers started

raising their own queens. Simplicity is of the essence with such a short season – there is only three weeks – from the end of May to mid-June where you have time to raise queens and use them effectively to raise the honey crop. Queen cells or mated queens can be used to requeen colonies, build two-queen colonies, or create stock for nucs and singles that can be used to produce a crop the following year.

There are many different systems of raising queens and nearly all of them work well. The system of choice for most commercial queen breeders in North America is the "Doolittle System" This basic principle involves removing the

Before you begin, a number of requirements must be met

1. You need a grafting frame with three cell bars with 15 or 18 cells per bar. These can be purchased or made. Wax, wood or plastic cups are the most popular in the commercial industry and can be purchased from a variety of sources. Plastic cell cups are as effective as wax cups, however there are advantages and disadvantages to each.
2. You will need a tool for grafting. This can be a 00 fine paint brush, a metal grafting tool, or simply a toothpick.

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**“There are two skills needed in queen rearing – you need to plan ahead, and to be able to count.”**

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larvae (grafting) from selected stock, which are then placed in cell cups and raised to queen cells in a special colony, commonly called the *cell builder*. Setting up a cell builder and grafting larvae seem to be most intimidating for many fledgling queen rearers.

There is one golden rule: **Raise Queen Bees at the Same Time of Year as a Colony Would.** This is on the *upswing* to the honey flow. This is when the colony is preparing to swarm and there is an abundance of fresh pollen and nectar for the bees to collect. There will also be a large population of young bees in the colony, and mature drones to mate young virgin queens.

3. You need a *breeder colony* from which to take your grafting larvae. This will be the Queen Mother of the queens you will raise – her daughters. This will represent the stock you will have in your beehives so care and attention should be paid to selecting this colony. If you have only five to 10 colonies it's quite simple to choose the best. If you have 25 to 50 colonies, or more, you have a wider selection. Characteristics to consider are brood viability (which takes the form of a solid brood pattern in the brood nest) good honey production, good wintering ability, gentleness, and color. There are many, many characteristics which can be selected for



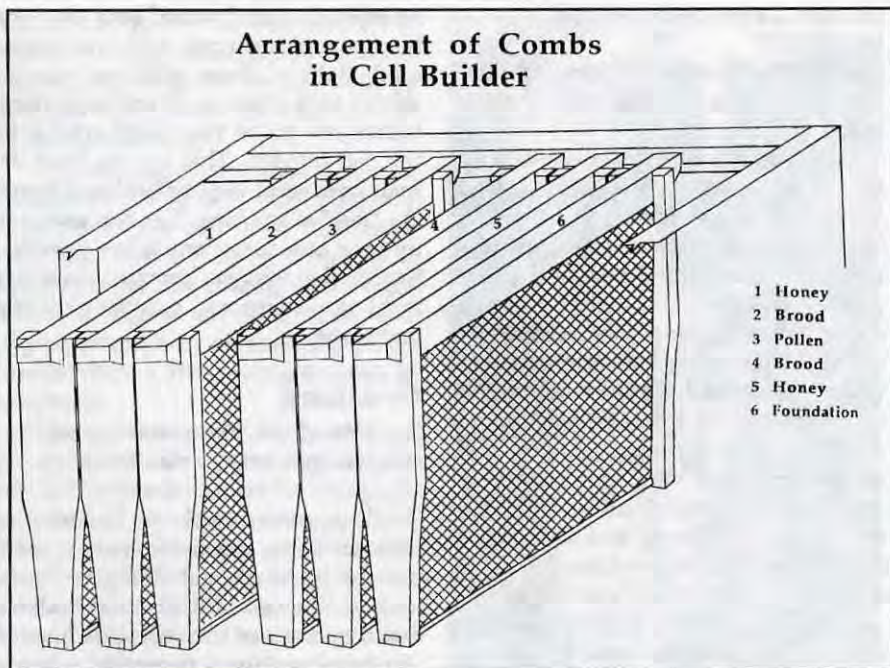
Your grafting frame should be placed in the space between frames three and four.

that have been documented in previously published articles, here and elsewhere. Choose those important to you, in your situation.

4. You also need a strong, two-story colony for a *cell builder*. This colony should, ideally, be on the verge of swarming. Cell cups (play cups) can be present but not swarm cells.

The first thing you have to decide is when you will need your mated queen. For example, you need a queen mated and laying before the honey flow starts. From the time you put the queen cell into the nuc to the time it is laying, depending on mating weather, is 11 to 14 days. Take a look at the chart on pg. 293. Therefore, if you wish the queen to be laying a week before the major honey flow, you need to put a cell which is about to hatch into the nuc 21 days or more beforehand. From the time you graft to the time you put the cell into the nuc is 10 days. The cell builder should be prepared one day before you graft. The breeder colony (the selected stock) from which you graft the larvae should be prepared four days prior to grafting. The whole process from start to finish, given good mating weather, takes 26-28 days.

There are several "must-have" tips to good queen-rearing. You must have the right aged larvae to graft. They should be 24 to 30 hours old. No more. Research has shown that the younger the larva the more ovaries the queen



will have on emergence as a virgin. After 48 hours the larva has already entered the process of caste determination and the result will be a very poor queen, if it even is a queen.

After the larva is grafted, it must be fed *very well* to produce a good virgin queen. This is carried out (three days after you started) by the bees in your cell builder. Before the virgin hatches you will find a large blob of royal jelly which the queen, as a larvae, was unable to consume. Take one of your unhatched cells and open it. If this blob is not in the cell then it was not a well-fed larva.

There must be sufficient mature drones for the virgin to mate with. It takes a drone 10 to 15 days after emergence to become mature enough to mate. There is no point in raising queens until there are large numbers of drones hatching in your immediate area. It takes the same amount of time for you to graft and a virgin to emerge and mature as it does for drones to mature to mating age.

There must also be good mating weather. Ideally, the temperature should be above 75°F for two consecutive days after the queen has matured. This is between five and seven days after she has hatched. Marginal weather when the queen is ready to mate could lead to a poorly mated queen who will have limited sperm stored and hence a shorter productive life span.

## The Process

First, make sure the *breeder colony*

has a good population of bees, is being fed syrup, and has a frame of fresh pollen. It is essential the larvae are fed well. The better fed the larvae the easier they are to graft, thus you will get better acceptance of the grafted larvae.

In the morning, four days before you wish to graft, insert an empty dark comb into the *breeder colony*. This is the colony from which you will graft the larvae. Make sure the breeder queen has no other laying room so she is forced to lay on this particular comb. Place the pollen comb next to it. Four mornings later there will be larvae 24 hours old in this comb - perfect for grafting.

Check the comb 24 hours after you place it into the colony to ensure the queen has laid in it. Your schedule will be delayed if she has not.

Twenty-four hours before you wish to graft, you must prepare the *cell builder*. There are many different kinds of *cell builders*. Some are referred to as swarm boxes, starter boxes, queen right, queenless, starter finishes. the list is endless. All work but serve different purposes. If you have limited resources for queen rearing equipment, the queenless starter/finisher has a number of advantages. It is simple and requires very little maintenance, especially if you are grafting only once. It does not require specialized equipment such as shaker boxes or especially constructed hives. It can be used once and then the original queen replaced in the hive, or be used several times in succes-

Continued on Next Page

sion with relative ease. It can also simply be used once and then split to make nucs.

To make a queenless starter/finisher, start with a two-story colony which has an abundance of bees. The bees should be clustering across the bottom of the second box to all four corners and possibly raising play-cell cups in anticipation of swarming. Find the queen (this may take some time, so be prepared), and set her aside in another box with a frame of open brood and bees, and a supporting frame of honey and bees. This unit should be moved some distance away. Find the two largest frames of sealed brood, a frame of fresh pollen, and two frames of soft, heavy, partially sealed honey.

Arrange these in a single super on a bottom board with an entrance block. Leave a 1-1/2" gap between the pollen frame and the brood frame. In this gap you will place the grafting frame. Shake all the remaining bees from the two-story colony into this single super. There will be a large cluster of bees hanging in the gap between the pollen frame and brood frame when you're done. Lots of young bees is the key to raising good queen cells. The remaining frames of pollen and honey can be stored or given to other colonies. The remaining frames of brood can be placed above an excluder on another strong two-story colony or given to other colonies. The now-single story colony is placed in the same position as was the original two-story colony. There should be a frame feeder full of feed inside the cell builder and a frame of foundation if there is a honey flow. This is left as is for 24 hours before you graft.

Four mornings after you put your empty comb into the breeder colony, there should be 24 hour old larvae which are well-fed and floating on a pool of royal jelly. The cell cups should be prepared before grafting by either placing them in a warm place, or in the sun (not directly). They can also be placed in the cell builder four hours before use.

The biggest single problem with grafting, especially for someone who is not familiar with it, is the larva drying out and dying of dehydration before it is placed into the cell builder. Carry the frame from the colony to your grafting area wrapped in a warm, moist towel. A second problem is flipping the larva over and drowning it. The spiracles are

on one side and if turned over they are blocked and the larvae will be asphyxiated. Both of these problems can be solved with practice. Practice grafting before you make your final graft into the cell builder. This can be done an hour or several days beforehand to get the "feel" of grafting. You can even set up your breeder colony a few days beforehand so that you know you have the right age larvae and practice grafting technique.

## Grafting

1. Use a light. Fluorescent is best because it does not dry out the larva.
2. If you are unable to remove the larva with your tool on the *first try*, don't use the larva. Do not ride your larva around the cell cup like the wall of death and expect it to survive. Also, if you have problems removing a larva from your grafting tool, remove it from the cell cup and start again.
3. Mark your comb of grafting larvae in such a way so you will not go back to the same cell twice to remove an already damaged larvae.
4. Better, do not leave the damaged larvae in the cell cups - remove them.

5. Do not lick, suck, or stick in your nose, your grafting tool while grafting. Also, do not smoke while grafting.
6. Place larvae in the bottom of the cell, as close to the center as possible.
7. Try to graft in a warm, humid area. Commercial queen breeders have an area that is heated and humidified which is often not available to the small scale beekeeper. However the cab of a truck can suffice well by turning the heater of the cab of the truck on half an hour before use.
8. Keep your grafted bars wrapped in another warm wet towel as you finish each bar before putting it into the *cell builder*. This will stop the larvae from

drying out while you graft the remaining cell bars. Use this towel to ferry the cells to the *cell builder*, unwrapping shortly before placing the cells into the *cell builder* colony.

The gap between the pollen and brood frames in the *cell builder* should be full of bees. Place the grafting frame into this gap and push the frames on either side snugly up to the grafting frame.

Five days after grafting into the *cell builder*, you have to go back and check all the combs for natural cells. If you do not it is likely a natural cell will hatch before your cells are ready and the fresh-hatched queen will destroy your handiwork. Check the cell builder every other day for syrup in the frame feeder.

Count 10 days from when you grafted. If you grafted on the first of June cells would be ready to put into the nuclei on the 11th of June. The nucs, whether they are mating or full-sized equipment should be queenless one day before you introduce the cell. Your queen cells will be hatching on the 11th morning after grafting, so the cells should be placed into the nuclei from the 10th morning onward to the afternoon.

They should be handled with ex-

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## "Raise Queens the same time of year the colony would."

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*treme* care as the last stage of gestation of the pupa is the forming of the wing pads. If the wing pads are damaged then the hatching virgin will not have wings and be unable to mate. *They should not be chilled, heated, or bumped so extreme care must be taken.* First-time grafters should expect to have an acceptance rate of 60%, hopefully ending up with around 30 finished cells. Commercial producers expect 90% or better.

Candle the cell in front of a light (desk top) by passing them in front of the light about six inches away. If the cell has a pupa in it you will see a silhouette. If the cell is diseased the light will shine straight through. The cells will then have to be removed from the cell bar. If wax they are normally

cut off with a hot knife. If plastic they can be removed individually. Commercial queen breeders have many different systems of transporting cells from the queen yard to the mating nucs. Some as simple as a padded box which is covered with a towel, others have elaborate sponge pads which hold individual cells in rows that are heated with a hot water bottle. For a small-scale beekeeper a small picnic cooler with a towel on the bottom can be used. The cells can be carefully placed on top of the towel and then another towel placed on top. Then the cells can be carefully held in the cab of a truck, which is heated, until they reach the cell yard. When removing the cells from the *cell builder*, a bee brush should be used, carefully stroking each side of the grafting frame to remove bees. This should be done with some haste to ensure the cells will not chill.

When placing the cell in the nuc ensure that the cell is pointing *straight down* and the end of the cell is *not covered* so the virgin can hatch. To place the cell in a colony, choose a brood frame, and very gently attach the cell

cup to the surface of the frame. **DO NOT** squeeze the cell, rather, gently push the original cup into the frame, making sure you don't break the wax cell, or crush one side of it.

The mating nuclei should not be disturbed until 12 to 14 days after you have placed the cell in it. The more disturbance of the virgin queen in a nuc, the lower the mating percentage will be. It is generally recognized, on a 10 year average by commercial queen breeders that a 70% mating average is acceptable.

This system can be easily adapted to raise more cells by grafting into the cell builder five days after the first graft is capped. If you do so before, you will not get a good acceptance of cells on the second graft. Before grafting for the second time into the same *cell builder*, a pound of bees should be shaken in the evening before and a new frame of capped brood should be added. This will ensure plenty of new young bees will be present to feed the new larvae.

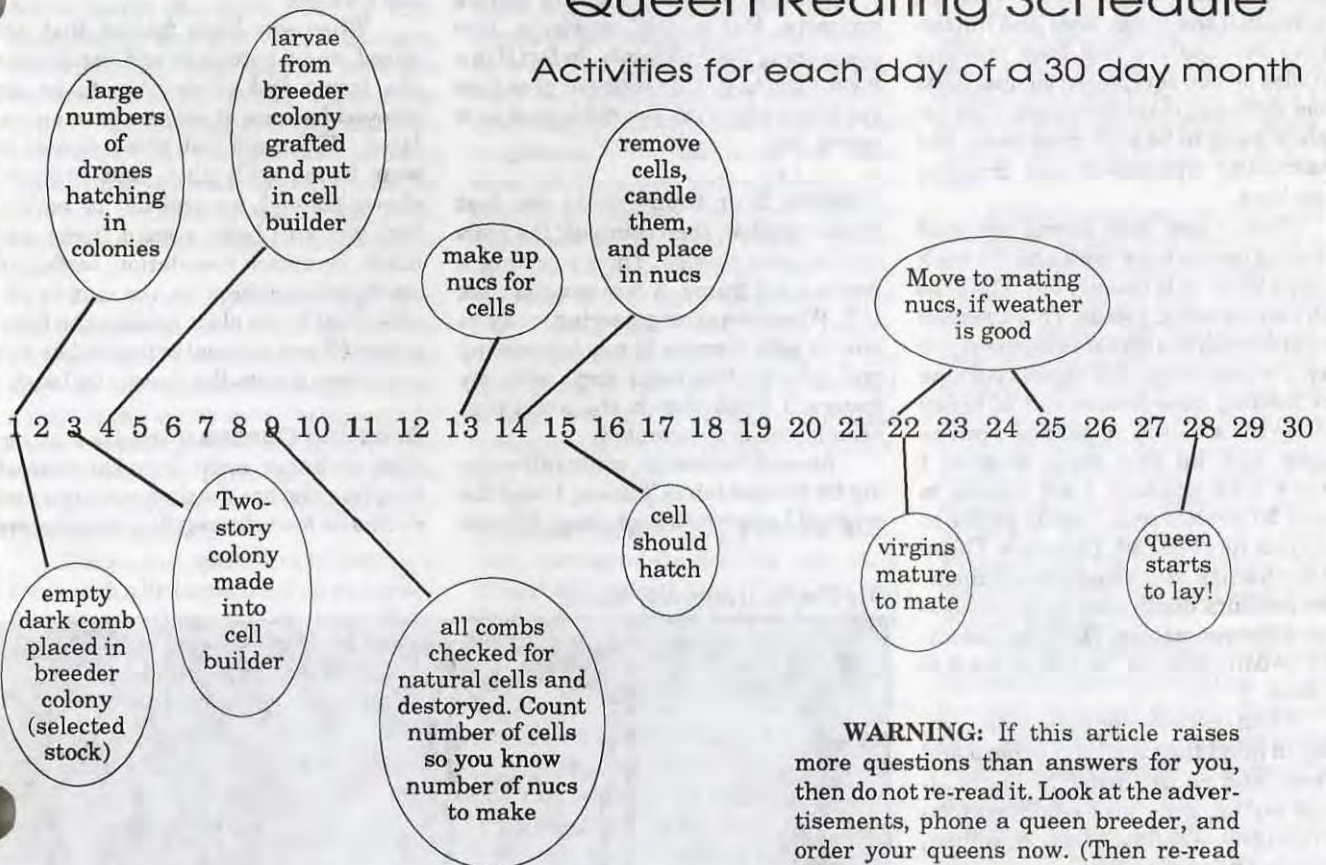
Yes, anybody can raise queens. All you need to know is how to plan, and to count.



The goal - a perfect queen cell.

## Queen Rearing Schedule

Activities for each day of a 30 day month



**WARNING:** If this article raises more questions than answers for you, then do not re-read it. Look at the advertisements, phone a queen breeder, and order your queens now. (Then re-read this article, so you know why queens cost as much as they do.) □



# Equipment Basics

STEVE TABER of Honey Bee Genetics

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*"The really important thing is, have FUN keeping bees."*

'Tis the season. The birds are singing, bees are a' buzzing and soon the butterflies will be about and the thoughts of a whole bunch of guys and gals will be about getting some bees. (When I lived in Baton Rouge I had a neighbor, and next door to him, two professors in the zoology department of Louisiana State University, one was a lepidopterist, who studied moths and butterflies and the other an ornithologist who studied birds. So between us, we studied the birds, bees and butterflies.) *Bee Culture* has been running articles on bee equipment comparisons from different manufacturers. This article is going to be a bit more basic, like assembling equipment and ordering your bees.

First – just how strong are you? Keeping bees is hard work and the work is done when it is usually hot. The bees don't do the work, you do. This question has to do with the sort of equipment you buy. For instance, a full depth 10-frame box holding nine frames full of honey will tip the scales at 80 pounds. I can no longer pick up that much because I have a back problem. I am limited to about 50 pounds and I really prefer to only pick up about 30. Therefore, I have all my frames, supers and brood chambers medium depth size, called by several different names, "Illinois" "Modified Dadant shallow" or just boxes 6-5/8" deep.

When you order or build your own, keep in mind that bee work is hard and heavy. And as Dr. Roger Morse is always saying, keep your equipment interchangeable and standard. Now then, put it together correctly.

**Deeps and Supers** When those pretty

new boxes arrive and you unpack them they look like the finest furniture you've ever seen. They fit so nice and tight it won't be necessary to put in all those nails, right? Wrong! Stop that type of thinking right now. Those boxes will get heavy with combs, honey, brood and bees. You will drop them or put them down on a corner a little too hastily and within three or four years they will begin to wobble and the frames will fall out because the boxes aren't square anymore. Put a nail, or staple, into *every one of the lock joints*. In fact it is a good idea to put waterproof glue into the joints when you assemble your new boxes, too!

**Frames** Your frame joints are best glued together, then clamped; the nails can be your clamps. Then you have a pretty solid frame. A few months back O.B. Wiser ran an engineering study on how to wire frames. It was interesting and informative, but I don't wire my frames. I think that is the worst bee-keeping job ever invented.

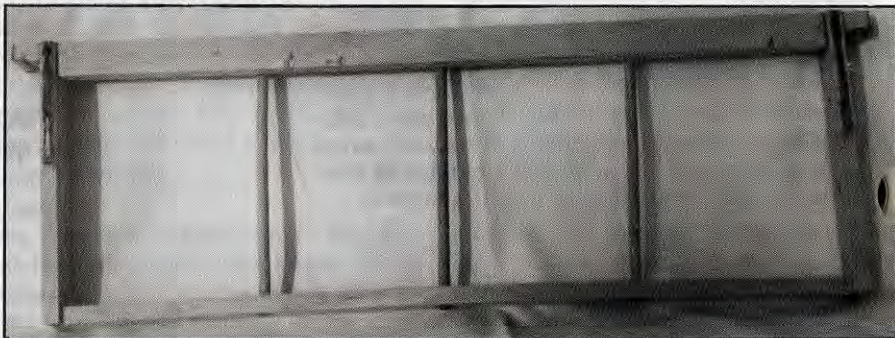
About 20 years ago, while still working for the bee lab at Tucson, I read the original Langstroth book; he didn't use

wire either. But you have to have something inside the frame to hold the comb or it will fall out just by turning it over. Langstroth fastened into each frame, vertically, three or four little strips of wood to which the bees fastened their comb. I tried it and it works great, except I use 3/16" dowels. Then I drill holes for them in the top and bottom bars, cut them exactly to size and glue them in place. **Now** you really have a solid frame.

When you have frames that are wired, and a bottom or end bar breaks, the frame and comb have to be destroyed because it cannot be manipulated. When you put three dowels in your frame with glue, and a mouse chews through an end bar or bottom bar, you still have a solid frame and comb. To attach foundation, work in a warm environment so the wax is pliable. Nail in the cleat holding the foundation (if you use one) in the top bar and just press it onto the dowels by hand.

**Bees and Queens** If you are starting with packages, order from the nearest supplier who has the cheapest price and claims he feeds fumagillion to suppress

*One of my well supported frames.*



nosema. After your bees have been established, probably a year, you can be concerned about replacing the existing queen with one you think is special.

If you are just beginning, start with a three pound package and plan on constantly feeding sugar syrup until fruit bloom is over (or maybe longer). Figure on feeding each hive 25 to 35 pounds of sugar. In some places bees will still need to be fed after fruit bloom, as I used to have to do when I lived in Vacaville, CA. At this point don't forget the biology of what you have set in motion. No new bees will be added by nature to your starting units for about three weeks and every day you lose some of the original bees you bought and installed.

When I kept bees in Wisconsin we had our most severe blizzards in March – and some in April. Once we even had one on Memorial Day. If you installed your bees the 25th of April and a big storm rocks through the state about the 8th of May, your bees are in trouble and they will lose some brood.

When faced with that problem, I cheat. By that I mean I do not depend on the original bees being able to solve all their problems without me to help them. Never forget Murphy's Law, "If anything can go wrong, it WILL". So, have the original package supplier send you another package, (minus a queen) to add to your fledgling colony(s) about 11 to 14 days after the first one has been installed. If you want to secure a honey crop from your new hive their first year, add a third package about 10 to 14 days later.

When combining bees like that there are two general methods. The one I use is to smoke the first bees heavily so they are all confused and sprinkle or spray sugar syrup over them; both of these treatments will disconcert their little minds from fighting the new bees which should be so wet with sugar syrup they can hardly fly.

The second method is to remove a comb with a little sugar syrup and brood into an empty box *above* the parent hive and over a newspaper. Dump the new package into this empty box and then let the bees chew through the paper. In that case don't wet the new bees so heavily. Poke several holes in the paper to help them chew through to the bees below.

If you start your new colonies with swarms, which will be a month or so later than packages can be purchased, combine swarms until you have a big

population of bees. In most areas the swarming season is usually most intense right before the honey flow starts in early summer. Since most honey flows last only three or, at the most, four weeks, many swarms will be hard put to make enough honey and build a population and survive the coming winter.

One year I was helping my son get started in bees and I put out the word I was interested in picking up swarms. Over a three-week period I picked five – two were small, one very large and the other two about the size of a two pound package. They were all combined into one unit, which produced about 50 pounds of surplus honey that year.

**Where To Put Them** Your bees, that is. If you live on a farm and are isolated from everyone else in the world you can be picky and put them anywhere that is the best for the bees. Like on a slope facing South, next to your bird bath so they have plenty of water and sun. This happens to be my situation. I have about nine acres and my nearest neighbor is a half mile away. Most people aren't so lucky and end up placing or at least wanting to place them on a city lot. If this is the case hide your hives. Paint them dull camouflage colors, plant evergreens around them and put them as far away from any neighbor as you possibly can. Next, keep your mouth shut, don't brag about your bees to any of the neighbors. If you tell them you have bees, tell them they are on a farm in the country some place. Two of my children keep bees in big cities, one in Tucson and the other in Denver. And I defy anybody to find those bees they are so well hidden. My friend Louis Dubai, who keeps about 30 hives of bees in the city limits of San Francisco, all well hidden, rarely if ever gets complaints which would require him to move them out.

**Disease** The last thing I want to mention, but certainly not the last word about beekeeping basics. There are two diseases you should be aware of and look for. The worst is a small but visible mite, called varroa, which will kill an infested colony unless treated. There are no bees resistant to this mite. If you find your bees have it, the only approved treatment is Apistan®. These should be put in the hive as directed. A biological method of treatment is available but takes time and patience. The varroa mite prefers to lay eggs on drone brood, so put into each colony empty

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frames with no foundation and let the bees build drone comb. When the drone comb is full of capped drone brood remove it from the hive and let the sparrows or ants eat the drone pupae. Or better, use some of the pupae for fish bait.

If this is done once or twice during the active season you should not need any chemical control methods for varroa – but don't ever let your guard down.

The second disease which can kill your bees is a bacteria called American foulbrood. Bees resistant to this disease are available and can also be developed. If you do not have bees resistant to this disease and become infested, they should be treated with the only approved microbiological agent, Terramycin® (oxytetracycline) at the recommended dosage and recommended time of application.

The most important thing, I mean the *really important thing*, is to have fun with your new hobby. Read about bees, go to bee meetings, meet and talk with other beekeepers. In many places there are county or local bee clubs, regional bee clubs, state associations, national meetings and even international meetings. Keeping and having fun with bees is one great way to enjoy life to its fullest. So enjoy. □

# QUESTIONS?

## Desperately Seeking . . .

**Q.** When my bees first start flying in the spring they work sawdust piles and even bird feeders. What are they after, and what can I feed them to satisfy this craving?

Lloyd A. Tyler  
Coudersport, PA

**A.** They are desperately seeking pollen, because brood is emerging in the hives and flowers are not yet blooming in sufficient abundance to yield the large quantities of pollen they need. This behavior ceases as soon as the willows or other early pollen sources bloom. Meanwhile, you can offer the bees soy flour, if you want to.

## Swarms?

**Q.** Last April I divided my colonies by taking frames of sealed and unsealed brood from the center of the brood nests, in order to prevent swarming. Most of them swarmed anyway. How come?

William L. Garrison  
Bountiful, UT

**A.** Certain precautions are important in making splits. For instance, you must leave the chamber that is heaviest, that is, the one that contains most of the honey, on the original stand, starting the new colonies on new stands in the same apiary, and closing down the entrances to the new colonies to a narrow passage. If the colony to be split is very strong, then remove four, five, or even six or more frames of brood and bees to start the new colony. The original or parent colony will rebuild very quickly, since it retains all the field bees. If you let the queenless part raise their own queen, then it should preferably be the parent colony that does this, rather than the new one, though this is not absolutely necessary, in case you do not have time to find the old queen. If, on the other hand, you requeen the queenless part with a new mated queen, which is the best way, then she is much more likely to be accepted by

the moved colony, since the older field and guard bees will have stayed with the parent colony. I think perhaps you made these splits too early. Early May might have been better.

## Smell Right

**Q.** Where can one obtain the queen pheromone or queen scent?

Howard Briggs  
Junction City, KS

**A.** Queen substance, as it is called, which is exuded by queen bees and is believed responsible for holding a colony together as a unit, is not, so far as I know, obtainable. The bee pheromone, on the other hand, by means of which worker bees communicate through chemical senses, is obtainable, I believe, from Mr. Steve Forrest, Rt. 1, Box 135, Moravian Falls, NC 28654. This is, I believe, the substance sometimes sold with bait hives to attract stray swarms. It should be noted, however, that the cavities that stray swarms move into are first located by scout bees and not by swarms themselves. Hence, to attract a swarm to a bait hive, all you need is something that will draw the attention of scout bees, and there is no reason to think that a pheromone would be any more effective for this than pieces of old honey comb or, perhaps, scents such as anise oil.

## Questions

**Q.** 1) What distance to you recommend between hives? 2) Can they be placed side by side? 3) Should they be staggered or in a straight line? 4) Is it okay to have several races of bees in the same apiary? 5) How often should combs be replaced with foundation in the brood chambers and in the supers? 6) Should inner covers be placed with the deeper side down, or up?

Howard Wagner  
Girard, PA

**A.** 1) Whatever distance is convenient to the beekeeper. I like my hives in pairs separated enough so I can set covers and inner covers between them when I work them. 2) Yes. 3) It makes little difference, but if you have more than three in a straight line the bees from the center hives, unable to distinguish their hive from neighboring ones, sometimes drift to the outer hives. 4) Yes. 5) In brood chambers you should replace combs that are half drone comb, if you have time, and the combs in extracting supers should probably be replaced if they become dark as a result of brood rearing in them. 6) Always with shallow side down; otherwise you will get a lot of burr comb, sometimes filled with honey, on the underside.

## Hot House Pollination

**Q.** A friend of mine raises strawberries in a hot house and wants my bees to pollinate them. Is this possible?

R. H. Biggerstaff  
Johns Island, SC

**A.** I do not believe it is feasible to use bees for pollination in a hot house, but if anyone has experience to the contrary I would like to hear about it.

**Editor's Note:** Honey bees are occasionally used to pollinate crops in greenhouses, especially high-priced specialty crops. Strawberries would qualify in some situations.

To reduce the stress on an inside colony, move it into a greenhouse in the middle of a warm, sunny day, leaving the older foragers behind. Thus, new foragers will learn to navigate in the greenhouse and not fly to the ceiling and die trying to get back home.

Make sure there is water available (clean, without pesticides or fertilizer) and watch for chalkbrood and European foulbrood (stress diseases). Also, watch for honey and pollen storage, and feed sugar water if needed (starvation is very real under these conditions).

Remove and replace with a fresh colony when needed. Determine how many colonies to place by counting visitations to flowers in all parts of the greenhouse.

*Questions are welcomed. Address Dr. Richard Taylor, Box 352, Interlaken, NY, 14846, enclosing a stamped envelope.*

# ANSWERS!

Richard Taylor



# VITEX

B. A. STRINGER

*Many names, but all  
produce honey*

Vitex plants were first introduced from Shantung, China, by Frank M. Meyer, a plant explorer for the Bureau of Plant Industry. He described his discovery as "a sage which may prove to be a good plant for the arid Southwestern states. It is able to resist alkali remarkably well. The Chinese use it for basketry manufacture, taking the annual shoots for this purpose. It has pretty blue flowers and is diligently visited by all kinds of bees, and as such it might be grown in gardens as a semi-ornamental shrub. It grows, when left alone, up to 20 feet tall."

In October of 1916, Frank Pellett said 50 whips, 20" high, of *Vitex negundo incisa* had got to Atlantic, Iowa, in the spring of that year. By late July, 1916, the plants were blooming profusely and were visited by bees through September. "The bees sought it eagerly and apparently, if abundant, it would be a valuable honey plant."

By 1923, H.B. Parks reported that this species was becoming very common in the San Antonio area of Texas, and that it "makes a wonderful growth and is a most remarkable honey plant." Another species of Vitex, *Vitex agnus-castus* has become naturalized from the Old World on sandy soils from North Carolina to Florida and Texas. Mr. Parks stated that this species, commonly known as Alhuzama or Mexican Lavender, Chaste Tree, Monk's Pepper, or Hemp Tree, is not of much value to the bees, although it blooms profusely from June till October.

Before 1948, Frank Pellett had grown *Vitex negundo incisa* in the *American Bee Journal* Test Gardens in western Iowa. It usually killed back to the roots in winter, and the regrowth bloomed on new wood. While some speci-



*Vitex Negundo var. incisa*



*Vitex Agnus-castus*

mens from the original planting lasted ten or more years, Mr. Pellett considered the plant to be more suited to slightly warmer areas such as Kansas City. The plants are slow to leaf out in spring, sprouting much later than most shrubs.

Propagation is mostly by seed, which germinates easily if the seedbed is kept warm and moist, and softwood cuttings will also root. It grows over a wide range of soils and sites, reported as a good honey plant wherever it grows. Although it is drought tolerant when established, a longer bloom period will be gained where there is adequate moisture. By the late 1940's, Vitex was reported from central Missouri to the southern states, west to Arizona and California, Florida to New York.

Vitex was introduced to Oregon beekeepers in the 1930's by Dr. Herman Scullen, the state apiarist at Oregon State University. He distributed "specimens of this highly publicized plant" to beekeepers throughout the state in an effort to evaluate Vitex as a potential late summer nectar source. The climate appeared to have been too cold, as "all reports later indicated that the plant was easily killed out during the winter or otherwise did not thrive in Oregon."

Mr. John E. Johnson of Verona, Missouri, had a grove of 700 Vitex plants which bloomed for the first time in 1951. He noted that bees worked freely on the small blue flowers from about June 25 through the first week in October. Other reports are of "two months of solid bloom". The honey was of very fine quality, golden color and pleasing flavor. Mr. Johnson said he had "never found anything so desirable and reliable" He also planted Vitex along river valley

*Continued on Next Page*

waste land to help prevent erosion. Quail and other birds found the seeds to be an excellent food source.

The plant appeared periodically in the bee magazines with favorable mention. In 1963, Mr. Harry Stitt of Arkansas wrote to this magazine saying "This Vitex shrub is the best for the bees to make honey."

In 1965, the Abbey of Gethsemani in Bardstown, Kentucky, gathered seeds of Vitex from their apiary area and gave them to the state bee inspector, Mr. Bill Eaton. He sent seed packages to beekeeping chapters throughout the state for beekeepers to plant. Several recipients reported large stands from the seeds, with rapid growth and several weeks of bloom in the late summer. It was noted that the Cut-leafed Chaste Tree, (*V. negundo incisa*), produced more nectar than the Chaste Tree, (*V. agnus-castus*), although the latter was more ornamental and bees did work its flowers.

The plant's name of *Vitex* is derived from Latin *viere*, to bind, alluding to the flexible branches which are used in basketry. The descriptives *negundo* and *incisa* refer to the pinnate leaves which, like those of the box elder, are deeply and irregularly cut, or incised.

Mr. Frank Pellett noted "We have yet to receive a report of its failure to attract bees". The shrub appears to have a good track record as a bee plant, but is unlikely to be sufficiently abundant to contribute significantly to the honey harvest. □

## Answers To ? Do You Know ?

- True** - Research has shown that larva fed the spores that cause chalkbrood will only develop the disease if they are physiologically stressed in some way. Chalkbrood is most prevalent in the outer regions of the brood nest where there is less temperature control. Larva three to four days old are most susceptible, especially if they are chilled. The disease rarely destroys a colony but can reduce the population of bees and consequently affect honey yield.
- False** - Finding dead larvae of all ages within a honey bee colony would normally indicate chilled brood or possibly death due to pesticides. The primary symptom associated with chilled brood is brood of all ages being killed at the same time. No single brood disease kills equally in the egg, larval or pupal stages.
- True** - Sacbrood virus interferes with the larval molting process by preventing the honey bee larva from completing its final molt into a pupa. Failure to complete larval development results in death.
- True** - The construction and number of queen cups found in a colony, especially in the spring is a good index of colony condition, and the first sign visible to the beekeeper that a colony is beginning to be crowded and might swarm in several weeks. The greater the number of cups, the greater the congestion or crowding.
- False** - Within a row of hives, bees tend to drift from the central hives towards the end hives, resulting in the two end hives being the strongest colonies in the apiary.
- True** - Colonies should never be allowed to get below 10 to 15 pounds of food at any time, otherwise optimum conditions for brood rearing are not present. If reserves fall below this amount, colonies should be fed or they will likely face starvation.
- E) Buckfast
- C) 3 days
- E) 70° F
- D) Virus
- Paralysis, honey bee tracheal mites, nosema
- Shortened honey bee longevity, increased bacterial count in the blood. Deterioration of flight muscles and nerve ganglia, infested tracheae deteriorate progressively with crust-like lesions and become stiff and brittle, increased winter mortality, degeneration of brood-food glands.
- American Foulbrood, European Foulbrood, tracheal mites
- Sugar, vegetable oil (shortening) or petroleum jelly, and Terramycin (oxytetracycline) for American Foulbrood and European Foulbrood.
- Drone production and tolerance is related to food stores and nectar flows. When flowers cease to provide nectar for the colony (nectar dearth) either in the fall or more rarely at any time of the year, workers no longer tolerate the drones and begin forcing them from the colony.
- Use irregular or non-repetitive patterns for arrangement of hives. Arrange hives so they face in different directions. Use hives of different colors or paint different patterns on the front of the hives. Place hives near landmarks (trees, bushes, fences etc.)

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

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

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# BEE TALK

RICHARD TAYLOR

Box 352, Interlaken, NY 14847

*"The final chapter – harvesting  
& marketing."*

**H**ere is the fourth and, I hope, final installment of my discussion of comb honey production. When I began I thought a couple of installments would be enough, but then I got going and am having a hard time stopping.

First, a word about supers. The depth of a circular section super is four and a half (4-1/2) inches. This is important, because some manufacturers of beekeeping equipment, including one of the largest, sell their regular rectangular-section supers as being suitable for circular sections, which they are *not*. The regular comb honey super is four and three quarters (4-3/4) inches deep. This is a fraud upon the buyer, because if you use that size super you will find the top plastered with burr comb that is filled with honey when you harvest it, and you will have the stickiest mess you ever saw when you go to remove the frames to harvest the round sections. It would, of course, be no trouble at all for such manufacturers to trim those supers down to the right depth, but they prefer to create big problems for their customers rather than spend the extra minute to make proper equipment. If you already have those regular comb honey supers, put them on a table saw and cut them down.

In the December issue of this magazine, on the "Question and Answer" page, the circular section super depth is given as four and a quarter (4-1/4) inches. This was a most unfortunate typographical error. So let us have it straight, once and for all: **FOUR AND A HALF INCHES**. It may seem like a quibble, but it is important.

Another preliminary point: A reader wrote to me noting that I had

recommended against the shook swarm method, as involving too much labor, but then, he said, he searched in vain in my discussion for what I consider a better method. Well, it is right there, in the February issue, and the reason he missed it, apparently, is that it is so simple. The system is to have strong colonies that will not swarm, and in that issue I said how I achieve that, more or less.

Now for a few words about harvesting and marketing, picking up where I left off last time.

I pile the supers up in my honey house, staggering them a bit so that any bees still in them can escape to the screen door to be liberated. Now you cannot leave them stacked there too long, because some of those supers have wax moth eggs in them. A week is about

*When bagged, condensation moisture isn't a problem.*



the maximum. Then I take out the frames, one by one, each with its four sections, all connected by the foundation between sections. I line these up, vertically, on my table, four sections at a time. When I have gotten the honey out of two or three supers I lay two-by-fours, edgewise, alongside the rows of sections, and on each of these two-by-fours I lay a strip of scrap wood, then a couple sheets of masonite or plywood, on which go the contents of another two or three supers. The harvested sections are thus tiered up, to four or five layers, which is the honey from ten to a dozen or more supers, ready for packing.

Packing consists simply of trimming off the foundation that protrudes from each section and adding the lids. Usually one side of a section will be a little nicer than the other, and a clear lid goes on that side, an opaque one on the other. You could use clear lids on both sides, but you are sure to get a drop or two of honey on the inside of the bottom one, and this looks very bad. Using an opaque lid solves that problem. Of course you don't want to use an opaque lid to conceal any serious defect, such as one side being only half-capped over. The rule here is that the purchaser must not be irritated after the bottom lid is removed.

That is sort of a tedious job, packing the honey, but I while away the hours with a radio in my honey house, and of course you can always stop if it gets tiresome and resume another time.

Next, the comb honey goes into the freezer, to destroy any wax worms. I have a dinky little freezer, apartment size, but it is adequate. I bag the sections, twelve per bag, using the plastic bags saved from the super market and

*Continued on Next Page*

**BEE TALK ... Cont. From Pg. 299**

other stores. Fasten the tops tight with a twist-em. My freezer holds twelve such bags, or 144 sections. They stay in the freezer until the temperature has dropped back to near zero, which takes two or three days. Then the bags are removed, freezing cold, to go back to room temperature, which takes another day or two. Moisture condenses on the outside of the plastic bags, thus keeping the sections dry, that being, of course, the purpose of the bags.

Now it is just a matter of labeling and marketing. In addition to the wrap-around label, a little label is stuck on the underside, explaining what comb honey is and how to use it. I have found these little explanatory labels have greatly increased sales, for in truth, most people still do not know what comb honey is or what to do with it. I have sent samples of this little label to many readers, and will be glad to send more in exchange for a stamped envelope.

Places to market comb honey are fruit stands and specialty shops. It does not move well in supermarkets. If you live where there is active tourism you are doubly lucky. Comb honey, in circular sections, is very appealing, even to those who have no idea what it is. It catches the eye, and the impulse to buy quickly follows. In addition to this, once you start selling comb honey you will find people coming back year after year, often to buy very large quantities, to last them through the year. Thus your market is likely to expand.

The comb honey cycle will resume very soon, now, and I must be sure to be ready for it. □

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

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# GLEANNINGS GLOBE

MAY, 1992

ALL THE NEWS THAT FITS

## Registration in Limbo

### NOR-AM SELLS AMITRAZ

Nor-Am Chemical Company has sold their Amitraz pesticide division to Hoechst-Roussel Chemical Co., in Germany.

Amitraz has been shown to be effective in controlling tracheal mites in honey bees, and a conditional use permit (Section 18) label has been granted to MI and other states for that purpose. When used in beehives, Amitraz was impregnated in a plastic matrix strip, three of which were applied to a super, and left for 30-40 days.

However, the use of Amitraz in the swine and dairy industries, was the primary motivation for Hoechst-Roussel's interest in the purchase.

The U.S. Government had until April 21 to decide on the purchase, but no problems were con-

templated as of April 1 (presstime).

After that time, the new owners will analyze the beekeeping market to determine if the Miticur product is marketable (and profitable).

Some industry sources indicate that neither Canada or Europe will use Amitraz because of its toxic breakdown by products. This would limit use to the U.S. — a large market, but probably not large enough to warrant new product registration, packaging and distribution costs.

A fall release date is the earliest chance the product could be ready, a company spokesman said, and then, if approved by EPA, would most likely be available from the three of four major suppliers.

## Traps Honey Bees, Too

### WASP TRAP CAN BE TROUBLE

Available from Foster-Trent, Inc. in NY this wasp trap technique has always bothered beekeepers. A sugar water solution is used as bait for wasps, hornets and yellow jackets.

Although moderately effective for these pests, they do attract honey bees on occasion. The good side is that once in, honey bee scouts don't return to recruit more, increasing the kill. But they do attract scouts — who never return.

Especially dangerous during dearth periods in late summer (during the peak pest population) they should be used with caution — especially by beekeepers, around honey bees.



## User Fee Adds Cost To Producer

### ASCS SERVICE CHARGE

The Agricultural Stabilization and Conservation Service collects a nonrefundable marketing assessment from honey producers for the Commodity Credit Corporation. The ASCS marketing assessment is separate and distinct from the Honey Research, Promotion and Consumer Information Order assessment.

"The ASCS marketing assessment is frequently confused with the National Honey Board assessment," said Bob Smith, executive director of the National Honey Board. "The ASCS assessment is not submitted to the National Honey Board."

ASCS assesses honey in an

amount equal to one percent of the national average price support loan rate. The 1991 crop was assessed \$.00538 per pound. ASCS deducts the amount from new loan disbursements and loan deficiency payments.

The ASCS marketing assessment is required by the Omnibus Budget Reconciliation Act of 1990. It is transferred directly into an account for the CCC.

Essentially, it is a user-supported tax that pays for ASCS to handle the loan program. ASCS has estimated a significant amount of money will be collected from this fee, and will be applied toward their budget.

## Some Materials in Spanish

### SHOW & TELL KIT AVAILABLE

A Show and Tell Kit containing educational materials and information for children has been developed by the Texas A&M Agricultural Extension Service in work supported by the Extension Service, USDA. The "Bee Box" contains lesson plans and educational materials that are designed for use by elementary school teachers (grades K-4). The goal of the educational material is to teach grammar school children about honey bees in general and specifically about Africanized honey bees.

The kit contains: 1) a booklet having four lesson plans with glossaries, bee cartoons, worksheets and bee projects; 2) a beekeeping slide set with an audio cassette; 3) a honeycomb

sample (plastic); 4) a bee Trap Box; 5) honey bees cast in resin molds (both European and Africanized bees); and 6) three large beekeeping photo prints having instructional information on the back of the photos. Some of the materials are also available in Spanish.

The Kit, costing \$45.00 per kit, can be ordered from: Bee Kits, Dept. of Agricultural Communications, Room 201 Reed McDonald Building, Texas A&M University, College Station, TX 77843-2112.

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## USDA INFO

**WORKERS** There were 254,000 hired workers on farms and ranches in the four states USDA surveyed during the week of Feb. 9-15. The four states were: California, Florida, New Mexico and Texas. During the January 1992 survey week, there were 280,000 hired workers. There was no comparable survey in February 1991.

**SUGAR** For the third consecutive season, world sugar production is outpacing use, replenishing stocks after several years of drawdowns, USDA economists say. This production, forecast at 111.4 million metric tons for 1991-92 is expected to exceed consumption by about 1.2 million tons. The world production forecast is 91,000 tons higher than the number released on March 12 because it includes the revised U.S. production forecast.

**RDA FORMED** Seven regional offices of the newly created Rural Development Administration will be set up and fully operational by October, Secretary of Agriculture Edward Madigan says. RDA is taking over responsibilities for several present Farmers Home Administration programs. "These offices will assist rural areas and small towns throughout the nation in economic and infrastructure development," Madigan says. The new office locations and the regions they will administer are: Klamath Falls, OR, Western Region; Levelland, TX, Southwest Region; St. Joseph, MO, North Central Region; Vicksburg, MS, Delta Region; Aiken, SC, Southeast Region; Huntington, WV, Mid-east Region; and Sayre, PA, Northeast Region.

**WETLANDS** The latest USDA tally of the nation's wetlands on non-federal rural lands shows the pace of ag wetland conversions is slowing significantly. From spring of 1987 to spring of 1991, 431,000 acres of wetlands were converted to other uses, according to a USDA study. Results of the study show annual conversions for ag purposes have declined significantly, says James Moseley, assistant secretary of agriculture for natural resources and environment. The annual conversion rate is down about 21,000 acres per year.

**REMOVING BEES** With the arrival of the African honey bee, there continues to be increased interest in the art of removing honey bee nests from buildings. Dr. Jon Williams at the USDA Bee Laboratory, Baton Rouge, LA, is attempting to locate persons who are in this specialized business. He is interested in experimenting with various means to remove bees from difficult places without the use of pesticides. If you have or wish to gain experience in this, contact Dr. Williams by calling (504) 766-6064.

**FOREST SERVICE** USDA's Forest Service has submitted its plan for managing the habitat of the northern spotted owl on national forest lands in California, Oregon and Washington to the U.S. District Court in Seattle, WA. The plan designated 5.9 million acres of national forest land and designated wilderness as Habitat Conservation Areas to be managed primarily as northern spotted owl habitat. The plan also provides an opportunity to make some timber sales within the next few months to help maintain and support jobs and communities. "This plan was considered the most appropriate after all factors were weighted," says James Moseley, assistant secretary of agriculture for natural resources and the environment.

**COTTON** Cotton supply and demand projections for marketing year 1991-1992 continue to indicate world production in excess of world consumption, resulting in increasing world cotton stocks, USDA economists say. This month's world production forecast of 95.5 million bales is 3.5 percent above last month's projection, and about 10 percent above the 1990-91 level. The revised production estimates for China and Pakistan represent the largest upward adjustments.

**TIMBER** USDA's Forest Service has reported revenues from timber sales on national forests exceeded costs by \$472.3 million in fiscal year 1991, based on \$1.2 billion in gross revenues. The revenues were generated from the harvest of 8.5 billion board feet of timber. "The national forest timber program this year supported as estimated 103,000 local jobs, which generated approximately \$4.7 billion in income and \$713 million in federal income taxes returned to the Treasury," Forest Service Chief F. Dale Robertson says.

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# HONEY BOARD NEWS

A new honey cereal created by the National Honey Board will pave the way for breakfast cereal manufacturers to use more honey.

Cereal manufacturers often use honey's name to achieve a competitive advantage, although actual usage of honey is only between four to six percent of the total formulation.

Using higher levels of honey in cereal formulations have presented significant technological problems including excessive browning, limitations on processing, packaging and storage environments, loss of crispness as well as stickiness and clustering of individual pieces in the package.

The Honey Board has developed a new processing technique which will allow cereal manufacturers to use up to 15 percent honey and overcome the typical processing constraints.

The research and development of new honey cereal prototypes is being conducted at Kansas State University and overseen by research scientist Paul E. Neumann, former senior food technologist at the Kellogg Company.

Results will be published in trade publications after being formally presented in September 1992 at the American Association of Cereal Chemists trade show.

The National Honey Board will be funding a pollen analysis research project which will improve U.S. honey exports.

Many countries abroad require pollen analysis documentation of claimed floral source before they will purchase imported honey. The United States is presently the only major honey-producing country which is unable to supply published information on the distribution of pollen types in its honey.

The Honey Board's research project, entitled Pollen Analysis, Composition and Properties of U.S. Honey, will provide extensive and authoritative pollen information on all significant honey types produced in the United States.

Research will be overseen by Dr. Jonathan W. White and conducted at Texas A&M University. Work on the project will commence this spring and results will be published in late 1993.

"The National Honey Board is committed to supporting research which will strengthen the market for honey. This project will aid producers in building the market for specialty honeys, and more broadly, it will provide useful honey data to the honey scientific community," said Bob Smith, executive director at the National Honey Board.

## EPA being Pressured

### SUNFLOWER GROWERS WANT PARATHION

The National Sunflower Association is joining with other commodity organizations to inform congressional leaders of the importance of maintaining approved labels for the insecticide ethyl parathion. The Environmental Protection Agency earlier reduced

the chemical's registrations to just nine crops. More recently, EPA has indicated it intends to review that decision.

John Gordley, NSA's Washington, DC representative, is leading the ethyl parathion information effort on Capitol Hill.

## MARLA SPIVAK TO MINN.

Dr. Marla Spivak has accepted a three-year appointment as Assistant Professor in the Department of Entomology at the University of Minnesota in St. Paul to conduct applied apicultural research. Dr. Spivak's career began in 1974 when she worked for commercial beekeeper, Jerry Cole, in New Mexico, and later for Paul Limbach in Colorado. In 1978 she completed a Bachelor's degree in Biology from Humboldt State University in California. She then became a research assistant for Steve Taber at the USDA Bee Research Center in Tucson before traveling through much of South America. There she gained experience with Africanized bees by visiting and working for beekeepers, especially near Machu Picchu in Peru. In 1980, she assisted Dr. Orley Taylor with research on Africanized bees in Venezuela and then entered graduate school under Dr. Taylor at the University of Kansas. She moved to Costa Rica from 1984 to 1986 to conduct the research for her doctoral degree, which emphasized the identification of Africanized bees and the comparative ecology of Africanized and European bees over a range of elevations. After completing her Ph.D., she obtained a post-doctoral research fellowship with the Center for Insect Science at the University of Arizona to do

collaborative research with the USDA Bee Research Center in Tucson. Her research efforts there include studies on hygienic behavior and resistance to chalkbrood, the role of temperature on queen development time and color, and the use of worker cell size to identify Africanized bees. She also co-edited the book, *The "African" Honey Bee*, (1991, Westview Press) with Mike Breed and Dave Fletcher.

It is expected that with the movement of Africanized bees into the southern U.S. and the spread of tracheal and varroa mites, new management and queen rearing systems for the northern states will be required. The University of Minnesota desires to become the focus for a north central apiculture program designed to address these needs. The Department of Entomology would like to expand an apiculture program into surrounding states by developing a regional approach to apicultural research, teaching and extension. With Dr. Spivak's experience in beekeeping and applied apicultural research, and her rapport with beekeepers and scientists, it is hoped her research efforts and outreach programs will generate sufficient support to make the regional effort a fact, and the apiculture program at the University of Minnesota permanent.



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# KANSAS CITY, HERE WE COME

The American Beekeeping Federation's 50th Anniversary Convention is set for Jan. 20-23, 1993 at the Westin Crown Center Hotel in Kansas City. The Westin is the jewel of Hallmark Card Company's Crown Center. The 725-room hotel connects into the 3-level shopping center and Hallmark's Visitor's Center.

Plans are being made for tours and sightseeing in the Kansas City area, such as the Harry S. Truman Historical site, highlights of Kan-

sas City, museums, and a trolley ride to the Country Club Plaza to shop the day away in more than 185 shops, boutiques, cafes, etc. An outing to a commercial honey producer-packer's operation is being set up.

The ABF convention is open to all beekeepers; non-members are encouraged to attend. For specific convention information, contact the American Beekeeping Federation, P.O. Box 1038, Jesup, GA 31545, ph. 912-427-8447.

# IOWA HONEY QUEEN

Heather Pomeroy is the 1992 Iowa Honey Queen. She is the 17-year-old daughter of David and Stephanie Pomeroy of Wayland, Iowa. At Waco High School she is a straight A student.

Heather was the Eastern Iowa Honey Queen during the past year speaking at schools, doing in-store promotions and attending state and county fairs. Heather and her mother are both beekeepers and have kept bees for several years.



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H51	Shallow Wired - 50	30.50	6 lbs.																																																																																																					
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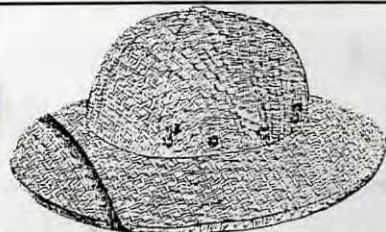
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## Display Index

### Bees & Queens

Alamance Bee Co. ....	272
Bee Happy .....	257
Bee Bob's .....	305
Blue Ridge .....	302
Can-Am Apiaries .....	249
Cathy's Queens .....	302
John Foster Apiaries .....	302
Glenn Apiaries .....	284
Hardeman Apiaries .....	298
Hawaiian Queen Co. ....	301
Heitkam's .....	302
Holder Homan .....	272
Homan Honey Farm .....	273
Koehnen, C. F. & Sons .....	295
Kona Queen Co. ....	301
Linkous Bee Farm .....	309
McCary Apiaries .....	304
Norman Bee Farms .....	298
Park, Homer .....	272
Pendell Apiaries .....	304
Plantation Bee Co. ....	287
Rossmann Apiaries .....	310
Smith Apiaries .....	304
Shuman's Apiaries .....	263
Strachan Apiaries .....	274
Taber's Honey Bee Genetics ..	310
Tollett Apiaries .....	300
Weaver Apiaries, Inc. ....	273
Weaver, How. & Sons .....	274
Wenner Honey Farms .....	254

Wilbanks Apiaries .....	265
York Bee Co. ....	267

### Education

African Bee Video .....	301
Apicom I.B. ....	300
Bee Ware .....	281
Global Nature Tours .....	257
Honey Maker Productions .....	284
WICWAS Press .....	254

### Equipment

ANP Frames .. Inside Back Cover	
Better Way Wax Melter .....	309
CC Pollen .....	263
Clement's Apiaries .....	274
Cook & Beals .....	301
Cowen Mfg. Co. ....	287
Dakota Guinness .....	310
Fairfax .....	300
Glick's Custom Tarps .....	304
Golden Bee Products .....	254
Hackler's Honey Punch .....	301
Hive Tops .....	300
MDA Splitter .....	273
Miller Wood .....	272
National Microscope .....	256
Nucleus Specialties .....	287
Olsson Distributing .....	257
Pierce Mfg. ....	254
Pierco Inc. ....	289
Simon Super Frames .....	300

Southwestern OH	
Hive Parts .....	263

### Related Items

Beehive Botanicals .....	295
Custom Labels .....	300
Designs by Diana .....	300
R. M. Farms Labels .....	310
St. Simons Trading Co. ....	301

### Suppliers

B & B Honey Farm .....	274
Better Bee .....	263
Brushy Mtn. Supplies .....	267
Chrysler, W.A. & Son .....	279
Dadants .....	Inside Front Cover
Draper's Super Bees .....	300
Economy Bee Supply .....	302
Groeb Farms .....	298
Jones, F W & Son .....	301
Kelley, Walter .....	311
Mann Lake Supply .....	257,259
Maxant Industries .....	273,287
Mid-con .....	254,274
Perma-Comb Systems .....	306
Ross Rounds .....	306
Root Publications .....	249,285
Scentry .....	281

Our strawberry patch seems to double in size every year and is threatening to overrun the east end of our garden. This is fine with me – there is nothing like a bowlful of freshly picked, juicy strawberries, as long as someone else picks them. The problem is that “the yield” is way down. Healthy plants now cover five times as much ground as when we started, but only produce twice as many berries. The latent cost-accountant inside me was worried. My know-it-all neighbor agreed.

“Looks like you’ll have to pollinate them flowers yourself,” he said with a suggestive leer and thrust of his hips. He paused long enough for my active imagination to envision a pre-dawn raid by the SWAT team from the unannounced-acts-to-the-plants division of the Department of Agriculture.

“Or,” he continued, “you could get yourself some bees.”

I knew that my neighbor had some hives out in the country, but I also knew his ironclad reluctance to lend anything to a fellow neighbor, especially to one in need. Clearly a case of the hives and the hive-nots.

Since I wasn’t in a position to make a major investment in hives, smokers, and other equipment I gave the local Bee Club a call.

“How many do you need?” the friendly voice buzzed.

“I don’t know.”

“Well, you are in luck. We are having a demonstration this afternoon. Drop on by and we’ll talk.”

How many bees would it take to pollinate a 10’ x 50’ berry patch? The bees in my garden only spent a few seconds at any one flower. Each plant was about a foot apart, so I had 500 plants. If each plant had ten flowers, that was 5,000 flowers that needed pollinating. When I allowed for travel time between flowers, nectar breaks, lunch hours and hallway gossip, I came up with 5,000 bee-minutes worth of work. My strawberry patch offered one bee about two weeks of steady employment, or if she preferred to work as part of a two-bee team, they might finish in a week.

“There has got to be a Shakespearean pun in here somewhere,” I droned as I dressed for the meeting, “Two bees or not two bees. .”

I’d seen pictures of beekeepers before: pith helmet, veil, white coveralls, and gloves. I didn’t have these things, and that lack should have reminded me of Thoreau’s words, “Beware of all enterprises that require new clothes.”

Well, I wasn’t setting up an enterprise, I just wanted some cheap farm labor. I threw together my own bee-man outfit from things in the closet – trying to make a fashion statement. White seemed too bland. Black was better, more mysterious. The bees would keep their distance, I thought. I donned my black sweatsuit, tightened the hood drawstrings around my chin, strapped on my safety goggles, grabbed a match box to hold my bees, and headed for the door.

“Bruce Lee film festival in town?” my wife laughed, chopping at the air.

Five seconds after I arrived at the Bee Club meeting I sensed that few successful ninjas keep bees. Agitated bees hurled themselves at my goggles until their numbers blinded me. I fell to the ground under the weight of thousands of bees as they attacked my flailing arms. In the nick of time I smelled the billowing cloud of smoke that my rescuers used to calm the tiny-winged assailants.

When I recovered, and the laughter was subsiding, I was told that bees dislike dark objects. Reminds them of bears and other honey-stealers in the wild.

Which is why pollinating time at the Clear Creek Ranch strawberry patch will be calculated in knee-minutes and not bee-minutes this year. I bought an artist’s brush and I’m working my way up and down the rows hunkered over on my knees, one eye out for the SWAT team, pollinating one tingling flower at a time.

## The Last Ninja Beekeeper

Mike Drummond

# BOTTOM BOARD