Bee Culture

APRIL 1995

Chinese Honey Bumped 141%
Dept. Of Commerce - 237

Spring Inspections
Chris Cripps - 218

Killer Bee Movie
Kim Flottum - 194

Swarming
Dick Bonney - 210

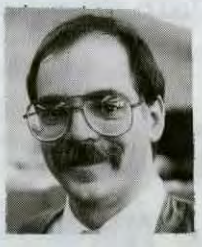
1995 WHO'S WHO IN APICULTURE

Apr

COLUMNS

DEPARTMENTS

JOHN ROOT
Publisher



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Gotcha!, Pg. 215

Spring Inspection, Pg. 218

FEATURES

Cover

When fruit trees bloom wherever you are (and many are already done in the south) a beekeeper's thoughts turn to packages, to swarming and perhaps, to pollination.

Swarming is the major headache now. This month Dick Bonney shows how to stop these swarms from happening, and, Roger Morse shows what to do when you don't.

If you pollinate, no matter what the crop, know your costs, and charge appropriately. Giving this service away only lessens the value, it doesn't increase your income.

photo by Kim Flottum

Save Those Bees, Pg. 226

1995 WHO'S WHO IN APICULTURE

Check Out This Annual Directory of Beekeeping Associations, At The Local, Regional and National Level, Plus All The Rest

INNER COVER

What do Florida Orange Juice, The Ford Motor Company, Cheer detergent, Arby's and McDonald's, The U.S. Navy, M&M's and Sunflower fragrance by Arden, (among others) all have in common? They were the sponsors of the Fox T.V. Network's latest Killer Bee movie.

Did you see it in early March? It was as bad as all the rest, although it did have some interesting twists and 'updates.' But all things considered, it was really, really bad.

If you didn't see it, or even if you did and just watched, let me refresh your memory. I took notes.

It had all the stereotypes. There was a six-year-old, blonde-haired, blue-eyed little girl; a lone commercial beekeeper (more about him later), a USDA dropout (more about him, too) and two of the wimpiest teenagers I've ever seen. Plus some other 'regular type' people. Six of these people died.

The plot was predictable and ran like most of the 'things-that-kill-people flicks – whether it's frogs, ants, giant spiders they're all the same.

Basically, killer bees established a "Primary Colony" (are you bee biologists aware of these?) near a small, picturesque southern California town, attacked people, attacked some more people, and decided to take on a whole house full of people after those people attacked them. The people got away, and the bees were. actually, they never said where the bees went. End of story.

It was those interesting twists and updates that bear special attention, and it was they that sunk this attempt to an even lower low than all those that came before.

Let me tell you about the one commercial beekeeper. He didn't wear a veil. The locals considered him the 'bee expert' (which kinda backfired when he was the first to leave town after the first attack, or maybe not). He did have all the right words at first, but when his colonies were overtaken by African queens (and attacked some of those people), he left town, "Just until the Bee People get things under control." Yes, he really said that. (I'll bet Eric Mussen wonders where the state of California has been keeping those 'Bee People' all these years.)

Another attack came when a couple of kids irritated a swarm with a car horn (like those African queens, this swarm, too, came from that "Primary Colony") and had a car accident while trying to shoo off those bees. By the way, that 'swarm' was eventually killed by local firemen spraying it with soapy water. I liked that.

After that, the whole area was considered a "Bee Red Zone" (a Red Zone?). The 'Official Spokesperson' quoted information from The USDA Apiculture Extension Office, (are you listening Dr. Tew?), and gave the reporter an official copy of the USDA's "Draft Action Plan." Do we feel better now?

But everybody kept referring to that "Primary Colony" as the source of all this nastiness. If you've ever read *War Of The Worlds* the similarity is too obvious. One central invader sends out smaller, mobile units to attack and conquer. It was a good idea when Orson Wells read it on the radio years ago, but over done in the 90s, I think.

Anyway, there's another character that definitely needs mention. His name is Beauchamp. He's really the expert. Well, no he's not, actually, but the writers (William Bast and Paul Huson) want you to think he is. He's a USDA dropout who's worked at Beltsville, Texas A&M, and Carl Hayden (in Tucson). These writers know all the inside language, it seems.

"Ya, I've been all over," he said, but now he's at odds with the bureaucracy so is unemployed (since he mentioned Tucson last, did Dr. Eric Erickson have the last say, do you suppose?).

Continued on Page 236

Killer Bee Movie – ½ ★;

The Good, The Bad & The Ugly;

Fewer Tax Tips, Please?

Reader Assistance

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We encourage letters to the editor on any subject whether appearing in the magazine or not. Direct your letters to: Editor, P.O. Box 706, Medina, OH 44258. We reserve the right to edit letters for content and length, but will avoid this if possible.

Next Month

May. The month we all can't wait for. The time when summer's really here. The time to be a beekeeper. And in May, *Bee Culture* brings you some exceptional beekeeping, and not quite beekeeping articles to use, to enjoy, and to learn from.

Are you a gardener? Fully 74% of *all Bee Culture* readers raise some sort of garden – whether a few flowers by the back door or acres of veggies down in the pasture. Next month we've got a great piece on garden pollination, and a beautiful piece on getting a garden started – all to do with bee plants and bees and what they need.

What value do bees play in the role of pollinating food for wildlife? That's always been used as an argument to support beekeeping, but it's difficult to measure. Larry Goltz takes a stab at getting the measure by making the connections between bees, plants and the animals that need them.

Planning on building a honey house this year. If you start now, it'll be ready by fall, and we've got the "Dream" honey house to show you in May. Everything's been thought of, from unloading to extracting to storage it's all here. Don't miss this one.

Removing bees from a building in the spring is probably good advice, as opposed to the middle of the season, when populations are at their height. But even then things can go wrong, especially when you don't follow directions. Find out what one beekeeper did, and didn't do, so you don't make the same mistakes. Patience, it is said, is a virtue. See why.

But there's more, of course. Looking for customers is always a challenge, and convincing them it's your product they should buy can be even tougher. Next month we've got one way to win that account. And easy-to-make equipment is always a practical way to save money. Roger Morse shows how to make covers, and bottom boards from shingles and scrap wood.

And finally, what's all this fuss about resistant bees? Are there resistant bees? Resistant to what? And why? And how? Take a look at this subject in a little more depth, next month, in May, in *Bee Culture*.

KEEP IN TOUCH

Write: Editor, 623 W. Liberty St., Medina, OH 44256
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MAILBOX

Oldest Beekeeper in U.S.?

Our club, the Northern Illinois Beekeeper's Association (NIBA), would like to bring attention to one of our members, Leo Bentz. We believe at the age of 95 he is the oldest full-time beekeeper in the U.S.

Leo hived his first swarm of bees July, 1916, 79 years ago near the town of Neillsville, WI. It was clustered on a split rail fence bordering a hay field on his father's farm. He hived the swarm in a wooden box with a hole drilled in it and watched it every day. The swarm didn't make it through the winter ("a swarm in July is not worth a fly") but Leo was stung with a love that still continues to this day. That year he began a lifetime of study and joy as a beekeeper.

In 1926, Leo and his wife Molly moved to land they bought near Woodstock, IL as commercial beekeepers. Leo lost his best helper when Molly passed away in 1979 at which time he sold off most of his out yards to the Eberlys. He has always maintained a beeyard on his property which currently consists of about a dozen hives. He hand-extracts the honey and sells it to drive-up customers, some who tell of being *third generation* customers. When people ask him for the key to longevity his reply is always the same, "I eat honey at all three meals, everyday!"

Leo spends his winters in Albuquerque where his only family resides. He talks about someday soon retiring there where he is sure to still keep a few hives. In the meantime he takes each day as it comes, whether it be making sure the chores are done or battling the mites like the rest of us. Having survived the foulbrood outbreaks of the 1930's and 1940's he is optimistic that mites too will be conquered.

To many people getting started in beekeeping, myself included, Leo has been a great mentor and inspiration. NIBA has made him a Lifetime Member. We are proud to have him as a member and claim him as the oldest full time beekeeper in the U.S.

Philip F. Lauf
Woodstock, IL

Dumb Speech...

"Screw worms and honey bees. It is hard to believe that taxpayers' hard-earned dollars are used to support programs that intersect with these little creatures, but they do. And it has to end. Now.

Nearly $35 million was approved last year for screw worm research by the U.S. Congress. But the United States doesn't have a problem with screw worms. The money appropriated by the Congress – your money – is aimed at eradicating screw worms in Mexico.

Second, the United States – to my knowledge – doesn't have a problem with honey bees. But $5 million was appropriated last year to research them. I believe privately funded research would have worked just as well.

These are just two examples of how an outrageous, arrogant Congress spends your hard-earned dollars, often without debate. There is, I believe, a way to end much of this nonsense. The tool is called the line-item veto."

The above editorial was clipped from the January 31, 1995, "Washington Times" newspaper in Washington, DC. The author, Senator Daniel R. Coats (R) Indiana, admits he knows nothing about bees. Having professed his ignorance on the subject he then sallies forth with an opinion; he advocates that we don't need to spend government money on honey bee research, that private research should be sufficient.

What is it that he does not know? Private research *is* being conducted, by ZOECON, Inc., in search of chemicals suitable for our honey bee problems. But the cost is so high and the payback so small, their options are limited. The beekeeping market is not large enough to support much private research.

We know that honey bee pollination *creates* between 10 and 20 billion dollars worth of food, food that would not be there without bees! The sales and income taxes from that extra income alone, probably exceeds four to five billion dollars. The current baseball dispute involves *only* two Billion dollars.

Bees are a livestock. In Maryland, in the last five months, we have experienced losses between 35 and 50% of our stock. WOULD THE NATION STAND BY AND LET 35% OF THE DAIRY OR BEEF CATTLE, OR POULTRY PERISH, IN SIX MONTHS? I think not! Federal intervention would be swift and certain. Find the cause and find it now!

There are so many other issues I could include; Africanized honey bees, competition from controlled market countries (China); difficulties in getting new treatments

Continued on Next Page

MAILBOX

certified. Pick your own topic.

I urge each beekeeper and beekeeping association to write, send a fax or call the office of Senator Daniel R. Coats and express your support for bee research. We lost honey price supports. We can't afford to lose our bee labs!

David Morris
President, MSBA
Laurel, MD

Sen. Dainiel R. Coats
404 SROB
Washington D.C. 20510

Keep It Like It Is

I enjoy *Bee Culture*. Upon the subscription rising due to cost, I had rather see the price go up (due to increasing costs) that to sacrifice the number of copies or receiving a thinner magazine. I like it just as it is. I never throw away a copy, and have taken it for 30 years. When you compare the price of bee journals to other journals, bee journals are a lot cheaper. If you don't believe me, try the *Rabbit, Organic* and other magazines. If that doesn't please you, try the *Gibson Report*. (No offense Mr. Gibson.)

A problem I have had with queen breeders over the past 30 odd years, and I would like to make an appeal to the breeders is, out of every 100 queens I order, about a third come in as drone layers. I think they should be more careful when collecting queens.

There were two breeders that I always got good queens from; Harpers at New Brockton, AL and Eugene Calahan of Homa, LA. A good queen is worth every dollar you pay, but a sorry queen is not worth the stamp it costs to send her. I wonder if other beekeepers have had about the same percent of drone layers. I'm sure you wouldn't care if they write in and let us know what problems they may be having with bought queens. Again, you are doing a fine job with the journal.

Monte Abbott
Newbern, TN

Wax Wars

I noticed the letter from Gerald Schleter of Fort Branch, IN regarding refining wax for a small operation, because I was looking for the same information this year. I am retrying a family hobby. The equipment has been sitting in the barn for a 1/4 century collecting wax moths, so over the last two winters I've cleaned it up, flamed the pieces and collected bags and bags of old comb. I found some ready local markets but needed a way to render it. Last summer I tried some experiments. My mother used to use a chromed paint roller tray with a piece of glass over it as a solar melter, which worked fine for drained cappings, but the time tending it for the small production in my busy summer season ruled out that method. I thought I could speed it up with a dark background and a heat sink, so I tried an old iron frying pan with a pane of glass. Big mistake. The iron turns the wax a deep chocolate brown instead of its normal golden color. It also had no place to drain. The main problem is separating the wax from the slum gum. There are two points that can help. Wax floats on water and it melts at a lower temperature than what ever else is mixed in with it. This month while my wood stove was running constantly anyway I decided to try the boiling method. The books said to wrap the old comb in burlap with a stone and sink it in a boiling pot. My vision was an old pig scalding vat that would take a full burlap bag but I didn't have that. Checking in the barn I found we didn't even have burlap bags anymore and I was reluctant to use the plastic grain bags because I didn't know their melting point. I eyed my wife's big stainless steel pots, until she saw the glint in my eye. But we compromised, I went out and bought a large stainless pot that just fit inside her biggest and she let me use that as a double boiler. I found an old mosquito netting (natural fiber), wrapped the old comb, put it in the inner pot while the outer one was boiling and ran into the biggest problem, keeping it submerged. The stuff wants to float and the heat agitates it so the round rock I borrowed from her house plants kept rolling to the bottom of the pot. Retrieving it caused splatters of hot wax, frayed tampers etc. When the snow melts, I'll be looking for a flat round rock that just fits in that pot. I boiled and agitated for 1/2 to an hour depending on the heat the stove was putting out, then set the inner pot to cool. A couple of hours later a nice thick block of wax had congealed. I drained the black water and saved the slum gum in a bucket for a 2nd boiling, (a 3rd wasn't worth it). I now plan to remelt these blocks, strain them, and mold them for the various buyers. Is it worth it? It's fun. Kitchen chemistry.

I hope this helps some fellow novices out there avoid the mistakes I've made. The double boiler is important to protect from fire. Stainless steel improves your quality. I'd love to hear low cost improvements to my method.

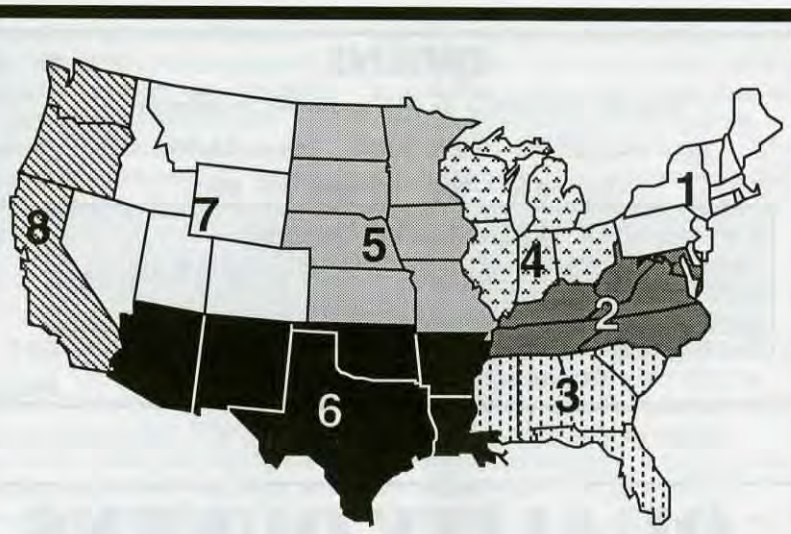
John Lasell
Franklin, ME

APRIL Honey Report

APRIL 1, 1995

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			Last	Last
Extracted honey sold bulk to Packers or Processors									Range	Avg.	Month	Yr.
Wholesale Bulk												
60# Light	39.63	40.50	42.30	44.50	34.20	42.50	42.00	38.70	29.40-56.00	41.49	42.13	45.73
60# Amber	38.45	41.75	43.50	41.00	39.40	40.50	40.00	35.35	26.40-54.00	39.97	39.90	42.78
55 gal. Light	0.56	0.55	0.55	0.54	0.54	0.55	0.55	0.53	0.47-0.90	0.57	0.59	.568
55 gal. Amber	0.51	0.56	0.49	0.51	0.45	0.52	0.50	0.48	0.44-0.78	0.53	0.55	.528
Wholesale - Case Lots												
1/2# 24's	19.10	21.73	16.20	18.74	18.26	20.45	22.85	20.07	14.39-25.20	20.14	20.78	22.30
1# 24's	29.08	29.80	30.76	30.84	28.21	30.75	31.25	30.07	24.00-37.90	30.10	30.53	30.71
2# 12's	27.01	29.32	27.34	29.13	25.95	26.75	30.25	27.00	22.80-33.60	28.25	29.01	28.54
12 oz. Plas. 24's	26.10	28.20	36.00	25.78	22.56	25.45	27.50	24.73	22.56-37.90	26.95	27.26	27.26
5# 6's	28.68	27.50	33.23	31.35	28.77	27.10	29.20	29.15	25.00-36.00	30.16	29.16	30.01
Retail Honey Prices												
1/2#	1.34	1.98	1.00	1.02	1.19	1.45	1.18	1.21	0.89-3.50	1.33	1.34	1.37
12 oz. Plastic	1.54	1.69	2.00	1.47	1.39	1.54	1.70	1.66	1.19-2.00	1.60	1.59	1.63
1 lb. Glass	1.73	1.89	1.76	1.68	1.78	1.89	1.90	1.81	1.39-2.25	1.79	1.83	1.67
2 lb. Glass	2.97	3.26	2.82	3.11	2.93	2.97	3.15	3.00	2.39-3.89	3.08	3.21	3.16
3 lb. Glass	4.23	4.81	4.50	5.70	4.04	3.79	4.50	4.62	3.68-5.70	4.45	4.37	4.32
4 lb. Glass	5.10	4.85	5.75	5.79	5.79	5.09	5.25	5.50	4.85-6.99	5.54	5.87	5.46
5 lb. Glass	6.38	6.34	7.00	6.83	6.40	5.94	6.35	6.58	5.49-8.95	6.62	6.72	6.58
1# Cream	2.11	2.72	1.90	2.07	1.96	2.35	2.15	1.93	1.49-3.50	2.19	2.18	2.40
1# Comb	3.03	3.00	3.25	3.75	2.74	3.75	3.75	3.10	2.50-4.00	3.24	3.27	3.25
Round Plastic	2.83	3.25	3.00	3.10	3.10	3.55	3.10	3.26	1.75-4.50	3.04	3.05	2.79
Wax (Light)	1.65	1.38	1.43	1.63	1.70	1.73	1.45	1.43	1.25-3.50	1.66	1.89	1.68
Wax (Dark)	1.34	1.16	1.15	1.53	1.60	1.08	1.30	1.27	1.00-2.75	1.35	1.43	1.40
Poll. Fee/Col.	29.38	25.00	27.50	32.50	37.00	15.25	35.00	32.00	12.50-55.00	30.86	31.13	32.04

MARKET SHARE

The second step in controlling the price of honey imported from China has gone to the American beekeeper, with the DOC finding a 141% tarriff acceptable. This has already raised the prices of domestic honey in the U.S., (not shown yet on our report), which will probably continue to rise. However, there is lots of domestic sitting in warehouses, so the price will stay lower than anticipated until the surplus moves into packers hands. All in all, a great leap in getting domestic prices into the profitable ranges for a change.

Region 1

Prices declining slowly as weather warms and out-of-state competition gains. Winter kill about normal, but heavy, and light pockets exist. Spring build up average to fast due to early warm spells. Mites still a problem by most growers, with treatment costs mentioned often.

Region 2

Prices down just a bit from last month, but not for all commodities. Demand still strong. Winter losses less than anticipated, but many lost last fall due to *Varroa*. Wax moth, labor, swarming and mites listed as greatest problems.

Region 3

Prices dropping sharply, except for some specialty crops (citrus) and even they aren't doing as well as normal. That is expected to change, though. Colonies in good condition with losses about average. *Varroa* still a problem, but less so than last year.

Region 4

Prices heading up for a change, along with demand, especially at the small outlet level. Local honey is doing well – better than name-brands in most cases. Colony conditions fairly strong, with winter losses at, or near average. Mites, imported honey and good locations most often cited as problems.

Region 5

Prices steady, with wholesale down a bit, but retail gaining to offset the decrease. Demand steady, especially for local products. Mixed reports on colony conditions, with heavy losses reported in the north and west sections, and lighter losses south and east. *Varroa* still the biggest problem, with control costs said to be out of reach. Overall, higher than normal losses, coupled with only steady honey prices.

Region 6

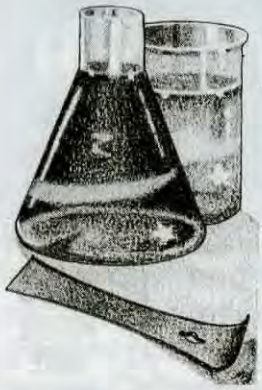
Prices beginning to rise some, as shortages and demand increase together. Overwintering generally robust with colonies in good condition. *Varroa* the problem, though along with treatment costs.

Region 7

Prices rock steady for this region, neither gaining or losing. That may not be quite the case, with a small sample skewing the results. We suspect prices beginning to increase some. *Varroa* a problem, along with finding good locations safe from pesticides.

Region 8

Prices generally down as large packers fight for share. Rain, rain and more rain will change the pollination picture this spring. Early almonds may have crop reduction, along with other fruit trees. Pollination fees reasonable. Most bees in good shape, but untreated, or undertreated colonies in serious trouble. Crop potential good though, if rains do stop.



RESEARCH REVIEW

"Pesticides in Food; Strawberry Pollination and Hive Position."

Three federal agencies share responsibility for the regulation and use of pesticides in this country. The U.S. Department of Agriculture checks meat, poultry, and some egg products. The Environmental Protection Agency registers and approves the use of pesticides. However, insofar as beekeepers are concerned, an important agency is the Food and Drug Administration (FDA). This is the group that samples domestic and imported foods for pesticide contamination and other improprieties.

One of the big concerns, of course, is imported foods since the United States has much more rigid controls than most countries. In addition to its own surveys, the FDA contracts with a British firm to receive pesticide usage data from about 30 counties that export food to this country. The FDA also works closely with the State Department's International Development Agency to help foreign governments understand our regulations and to form their own inspection agencies.

I have before me the seventh annual FDA report. This report, which is their most recent, summarizes the activities of the FDA for the year ending September 1993. It describes the surveillance system, how it works and the countries from which food products were surveyed, as well as the types of foods and the pesticides for which a search was made.

The news is good. No domestic honey was found to be contaminated with any pesticide. There were 88 samples of foreign honey examined, and one was found to be contaminated. The report does not give details concerning which pesticide was involved or the source of the honey. I presume the product was not allowed to enter the marketplace.

Attending a Strawberry Research Conference

I attended a recent meeting of strawberry researchers and spoke on pollination. It was different from a bee conference. I was especially struck by the number of sociological concerns in the industry. The hiring of temporary labor for picking brings different problems as do U-pick operations. The ease with which a berry is picked is important to everyone. There were also jokes about children who could eat their own weight in berries in a day in a U-pick operation! The more I think about it, the more I am glad that harvesting honey is not a U-pick operation.

The day before I spoke, I talked to several researchers about pollination. Most people told me pollination was not important in strawberries. I was told that pollen is moved from the male to the female parts on strawberry flowers by gravity and the wind. In greenhouses, a fan serves to move the pollen around sufficiently. Why then, I asked, did I find 16 papers on the subject of strawberry pollination by bees reviewed in *Apicultural Abstracts** in the past six years?

In reviewing the literature on strawberry pollination, I found that most researchers who have studied the subject agree that in 70 percent to 80 percent of cases, the pollen just falls off the male parts onto the female parts. However, one researcher pointed out that that worked well only when the female stigmas were shorter than the male anthers. Wind, according to most, moves three percent to eight percent of the pollen. That leaves about 20 percent of the pollen to be moved by insects. The chief problem in strawberry pollination is that a flower may have 50 to 500 stigmata (female parts). Each one must receive a pollen grain to set a seed. And it has been shown repeatedly that without seeds, there will not be a well-developed fruit.

One of the poster displays at the conference was concerned with fertilizer and production. A picture in the very center of this display showed several large and pretty berries. Fertilizer helps. However, a few of these berries also had green, withered tips. The seeds on the tips were not properly developed, and as a result, there was not fully fleshy fruit. This could be a physiological problem, but it was most likely a pollination problem.

In other ways, the strawberry conference was similar to our own meetings. Strawberry plant diseases are a serious problem, and strawberry researchers are searching for resistant varieties. Each year, they have fewer pesticides with which to work, and the diseases soon gain resistance to these. It is a never-ending battle. Strawberries must be moved to the marketplace rapidly, and there is a search for firm berries that can be easily transported. I'm glad we don't have that problem.

In summary, I think that those who study strawberries have more problems than do we who work with bees. Pollination is not a big problem as opposed to some of the others, and so strawberry researchers do not think about it very much. However, there is an obvious need, not necessarily for more research, but for action on many of the facts we know about how to grow superior fruits of all types.

The Effects of Hive Type and Position on a Pallet

Studies in Australia found that when the drifting of bees on a four-hive pallet was reduced by various markers, honey production was similar for all of the hives, regardless of their position. In these tests, all of the hive entrances faced the same direction. Eight-hive designs were tested; most of the variations were concerned with the ventilation (or lack thereof) in the covers. Again, there was no significant difference between the hive types.

The tests involved 56 colonies. Checks on the brood condition, number of bees and honey moisture content were conducted monthly. The colonies were weighed weekly.

It was concluded that local humidity is most important as far as the honey moisture content is concerned. Insofar as honey production is concerned, the most important consideration is the availability of food (nectar).

My conclusion from reading this paper is that to produce honey, you must move to an area where honey plants are available in quantity. At the same time, the bees don't worry or care too much about the type of hive they live in – they are adaptable. Next to having food sources, the management of colonies is critical. BC

References:

Food and Drug Administration. Pesticide Program, Residue Monitoring, 1993. Reprinted from Journal of the Association of Official Analytical Chemists 77 (September-October), 1994.

Kleinschmidt, G. *Influence of hive design & hive position on pallet on honey production on the Atherton tableland.* The Australasian Beekeeper 95: 111-113. 1993.

*Apicultural Abstracts is a journal that is published five times a year by The International Bee Research Association, 18 North Road, Cardiff, Wales CF1 3DY, UK. It reviews nearly 1500 papers on bees and beekeeping each year and is one of our more valuable research tools.

POLLINATION VIDEO

"Why wasn't this done before?"

The Honey Bee – A Grower's Guide (How to Evaluate Honey Bee Colonies for Pollination) 24-minute video produced by USDA ARS: $49.95 from A.I. Root Co., Medina, OH.

If a picture is worth a thousand words, then a 24-minute video should be worth several million. This video falls into this category and brings up the question, "Why wasn't this done before?"

The main thrust of the video – that bee colonies can vary in strength and that beekeepers should be compensated based on hive strength – is a point that reputable beekeepers have been trying to get across for years but with limited success. The video succeeds admirably in getting this point across.

Hive strength is covered in detail, down to distinctions between different size frames, irregular brood patterns and excessive drone brood, to name a few points covered. As might be expected of a USDA production, definitions and criteria are meticulously spelled out, perhaps in too great detail for some beekeepers and growers, however the guidelines laid down represent a solid foundation upon which the beekeeper/grower can make modifications.

For instance, the video estimates that one person can inspect 50 colonies per day (which could represent 500 colonies based on a 10% sample), evaluating both bees and brood. Robbin Thorp (U.C. Davis) has come up with a "quick-check" method for orchard pollination (cracking supers and estimating cluster size) that allows for a much greater number of colonies to be checked and that has proven effective. Also, for early spring pollination, with a relatively short blooming period, less emphasis can be placed on brood, and more on bees.

In the video, a frame of bees is taken to be one that is 100% covered with bees (the same definition used by Thorp and by some others) however many beekeepers and growers consider a frame of bees as one that is 2/3 to 3/4 covered with bees. Be sure this point is addressed in any written agreement you have (I have found that this point rarely comes up in practice).

This video should put an end to an old illusion: intense bee activity at hives being robbed out can lead a grower to believe he's getting great hives.

Both beekeepers and growers are given a chance to express their opinions and beekeeper Oliver Collins of Vienna, Maryland deserves kudos for being an articulate and believable representative of the bee industry.

A detailed seven-page booklet accompanies the video and covers some of the points in the video in more detail. For instance, a formula is given for calculating "bees in the field" (how many frames credit should you give a hive when bees are flying?) based on a one-minute count of returning bees. I plan to use this formula and have already passed on the information to some of our almond growers. A sample pollination contract is included.

Under *A Grower's Dozen Do's* (on the sample contract) one of the "Do's" is "Turn entrances toward the field, away from roads." This is a good recommendation for summer pollination, but for early spring pollination hive entrances should be faced south, where possible (or east and west for hives on pallets) to take advantage of the warming effects of the sun (any way but north in the northern hemisphere).

The video is professionally done and although a bit pricey, those beekeepers doing significant pollination work can easily justify the cost as a relatively cheap bridge between beekeeper and grower.

Joe Traynor

Joe Traynor is a pollination and crop consultant in Bakersfield, CA.

? DO YOU KNOW ?

All About Queens

clarence collison

The queen honey bee has two primary functions in the life of the colony. She is responsible for reproduction in the form of egg laying and produces several chemicals (pheromones) that are important in maintaining the organization of the colony. Since success in beekeeping is so dependent upon one individual bee, beekeepers need to understand the biology of the queen and how to manage the colony so that conditions will allow it to be reproducing at the maximum rate at the appropriate time. Please take a few minutes and answer the following questions to determine how well you understand this important topic. The first nine questions are true and false. Place a T in front of the statement if entirely true and F if any part of the statement is incorrect. (Each question is worth 1 point).

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1. ___ When a beekeeper finds a colony with laying workers, the best way to deal with the problem is to introduce a new queen to the colony.
2. ___ Both queens and workers have two ovaries each.
3. ___ Queen cells will inhibit the development of worker bee ovaries just as a live queen will.
4. ___ In laying workers, each ovary is normally composed of 2 to 4 ovarioles.
5. ___ Colonies with laying workers will eventually die if the beekeeper does not intervene.
6. ___ The queen's sting aids in the laying of the egg in the bottom of the cell.
7. ___ Honey bee queens are unable to feed themselves.
8. ___ Queens are sexually mature when they emerge from the queen cell.
9. ___ When a queen goes on her mating flight, a group of workers expose their Nasanov (Nassanoff) gland at the colony entrance to assist her in orienting back to the colony.

Multiple Choice Questions (1 point each).

10. ___ If a queenless colony fails to raise a new queen, the ovaries will develop in approximately _____ percent of the worker bees in a colony.
    A. 40 to 45
    B. 2 to 5
    C. less than one
    D. 10 to 15
    E. 70 to 75
11. ___ Laying workers produce between _____ eggs per day.
    A. 10 to 30
    B. 60 to 80
    C. 1 to 10
    D. 200 to 250
    E. 100 to 120
12. ___ "Queen substance" the primary pheromone of queen honey bees is produced by the ____ gland(s).
    A. Tergite
    B. Koschevnikov's
    C. Labial
    D. Dufour's
    E. Mandibular
13. ___ Queens are often marked with the International Color Coding System for queens. In 1995 the color used is:
    A. Yellow
    B. Red
    C. Green
    D. Blue
    E. White
14. ___ In order to have the maximum number of field bees present at the time of a major honey flow, the queen should reach her maximum daily egg-laying rate during the period _____ weeks prior to the honey flow.
    A. 3
    B. 7
    C. 5
    D. 4
    E. 6
15. ___ Gas used to anesthetize the queen during instrumental insemination is:
    A. Nitrogen
    B. Helium
    C. Oxygen
    D. Hydrogen
    E. Carbon Dioxide
16. Queen honey bees are occasionally closely surrounded, mauled and even stung by their own workers. What is this behavior called and under what conditions will it normally occur? (2 points)
17. Audible sounds produced between a queen and immature queens yet to emerge from queen cells are referred to as _____? (1 point)
18. What are the three conditions in which queens are produced within the honey bee colony? (3 points)
19. In what two ways does the food supplied to larvae developing into queens differ from the food supplied to worker larvae. (2 points)
20. During the last year a new strain of honey bee has become commercially available to the beekeeper, referred to as ARS-Y-C-1. Where did this line of bees originate from and for what primary trait were selections made? (2 points)

ANSWERS ON PAGE 231

WHAT, EXACTLY IS RESEARCH WORTH?

Payback Time

mark winston

One of the usually pleasant parts of my job is to serve on supervisory committees that oversee the progress of graduate students. The culmination of graduate study is a formal oral examination, in which the student presents his or her research and then faces about two gruelling hours of difficult questions by the committee. I recently participated in one such examination for a student who had worked on bird behavior and had produced a superb thesis. I was the last committee member to ask my questions, and by the time my turn came around, there really wasn't much left to ask the student about his thesis. So, I posed the following question:

"I estimate that your thesis cost the taxpayers of Canada about $100,000 for your salary and research expenses. Let's say you're talking with my neighbors, who include a commercial fisherman, a retired janitor, a high school teacher, a secretary and an ambulance attendant. Their tax dollars funded you, and they ask you to explain why it was worth it to them to have paid for this study. How would you respond?"

To my surprise, this otherwise eloquent student was floored by my question. He had answered every previous question with confidence and skill, yet he simply could not come up with even one justification for the taxpayer dollars he had received. Even worse, he seemed almost insulted that I would ask such a question, as if he and his fellow academics had some divine right to conduct research at the taxpayer's expense. Perhaps his response shouldn't have surprised me; after all, at least some of my colleagues show a similar disdain for the public trough that nurtures them and feel that knowledge for its own sake is ample justification for the research dollars that come their way.

I thought it might be interesting to try to answer my own question: Has it been worth it to the taxpayers of Canada to fund my job and my research for the last 14 years? I could try to avoid the question with some of the stock answers: "I've trained students for useful careers," or "I've advanced knowledge," or how about "I work with bees, which are important for agriculture." Somehow, though, these answers don't satisfy in today's deficit-ridden, overly taxed society, and my neighborhood taxpayers want to know dollar values for the costs and benefits of their investment in government-funded programs. So, I decided to figure out the average amount that Canadian taxpayers pay me in salary and research funds every year, and then calculate the financial returns based on some monetary value for my output.

The cost to taxpayers each year was the easy part to calculate. On average over the last five years, Canadians have funded my research team and me to the tune of $200,000 per year (all values used here are in U.S. dollars). The clear majority of those funds are for research. They pay for student and technician salaries, equipment and supplies, operating expenses for two trucks and travel to research sites and scientific meetings. The rest is my salary.

My job basically consists of three components: research, teaching and administrative duties, each of which takes up roughly one-third of my time. Let's make this easy: Assume that the value to society of all the university committees I work on, faculty meetings I attend, forms I fill out and position papers on university policy I write is $0. Not a great start; one-third of my time is worthless from my neighbor's point of view.

Research and teaching, however, can be given some monetary value for society. Let's start with research: What is the annual value to taxpayers that has resulted from the research my students and I have done? I've chosen to include only three of our research projects that seemed to have the most applications for beekeeping and crop pollination: 1) queen and package bee production, 2) mass queen overwintering and 3) pheromones. For each project, I've taken the conservative approach that, whatever the annual commercial value generated by this research, my team and I should take only 20% of the credit. After all, the results of each project were implemented by beekeepers, growers and industry, who deserve the lion's share of the credit for taking our results and turn-

Continued on Next Page

"The student could not come up with even one justification for the taxpayer dollars he had received for his education. Even worse, he seemed almost insulted that I would ask such a question, as if he and his fellow academics had some divine right to conduct research at the taxpayer's expense."

PAYBACK TIME ... Cont. From Pg. 207

ing them into income.

Our work on package bees and queen production contributed to the bulk bee industry in Canada by demonstrating that we could rear our own queens and produce packages and nuclei here in British Columbia for sale in the spring. Further, we developed methods to produce bees and queens economically. The value to British Columbia for queen and bee production is worth about $450,000 per year, so my 20% share of the credit produces a value to society of $90,000 per year for that research.

The queen overwintering project investigated how to produce fall queens and keep them alive in banks through the winter. The methods developed in that study allowed an individual beekeeper to earn an additional $10,714 per year above his expenses, on average. If we assume that 20 beekeepers take advantage of this technology, which is a very conservative assumption, and again give me 20% of the credit, this project is valued at a $42,856 annual contribution to pay back the taxpayers' investment in my research team.

The pheromone work is just reaching the market, with our queen pheromone being sold throughout North America by a local Canadian company for various beekeeping uses and as an attractant to enhance crop pollination. A lowball estimate for the annual sales of these pheromones is $250,000 (my value here: $50,000), but the most significant value is in increased crop yields following sprays during bloom. Let's look only at the two crops for which we have been most successful at demonstrating yield increases – highbush blueberry and pears, with average yield increases of approximately 5% following pheromone sprays, producing an average profit increase of about $1000 per hectare. If I use a hyperconservative estimate of 1000 hectares in North America that show increases following pheromone sprays, I calculate a profit increase of $1 million, of which I can take credit for $200,000 per year that our work has contributed back to the taxpayers.

I also teach, and it took me some time to decide how to put a dollar value on my teaching. Then it hit me: My courses are worth what students are willing to pay to enroll in them. Total tuition for a Simon Fraser University course is $157.50 (yes, tuition in Canada is mega-lower than for U.S. universities, which actually works against me in these calculations). I also teach courses such as the Bee Masters course, a week-long course in advanced beekeeping that we offer every other February, which costs about $450 for the week, including tuition and room and board. Grand total: $30,937 that students pay to take my courses.

Another component of my job is delivering lectures to beekeeping groups, usually in Canada or the United States, but sometimes as far away as New Zealand or Australia. My "value" for these lectures can be calculated as the amount beekeepers are willing to pay me to attend their meetings. I attend about nine beekeeping meetings a year, for which my average airfare and accommodation expenses total $4500 annually, which seems to be a realistic monetary value for this service.

Finally, I've written two books that sell about 3000 copies per year, generating $40,000 income for the publisher. I also write this column for *Bee Culture*, but I won't embarrass my editor, Kim Flottum, by telling you what he pays me.

Adding it all up, I calculate a value of $458,293 return per year to the taxpayers for their $200,000 annual investment in my salary and research expenses. I think these calculations are conservative, but even if I use a reduced value of one half of what I calculated ($229,147), or dismiss the largest single component of these calculations, the $200,000 value for pheromone-based yield increases for blueberries and pears (leaving $258,293 in returned value), the taxpayers' support for my salary and research program still leaves society in the black.

University administrations and individual faculty members have resisted these types of calculations, partly out of a philosophical belief that our benefit to society is self-evident, and partly out of fear that perhaps we would come out on the taking rather than the contributing end. The luxury of receiving copious amounts of money from taxpayers for unjustified expenditures is no longer available, however. Governments running huge deficits are trying to "rationalize programs" and are demanding that each funded unit provide some payback to the funders, much as stockholders in private business demand dividends and rising stock prices from their investments.

I'm not sure that this approach is so bad, partly because I believe we all should be able to justify the money we're paid by our bosses, whether they be the stockholders of our company or the taxpayers on the streets where we live. However, I also think that universities are selling themselves short by not aggressively promoting the value of the university education we provide. I don't know about your local university, but the one I work at provides real returns to the taxpayers in terms of new products, job generation, and consulting services that enhance our local businesses and governments. For you taxpayers out there, don't be shy about demanding some value for your

"For you professors out there, don't be reluctant to put a dollar value on your work. Education does have an important role in society that goes beyond the financial bottom line, but nevertheless a strict accounting of that bottom line should be a positive one for most of us who teach and do research."

investment in your universities. For you professors out there, don't be reluctant to put a dollar value on your work. Education does have an important role in society that goes beyond the financial bottom line, but nevertheless a strict accounting of that bottom line should be a positive one for most of us who teach and do research. We return good value to the taxpayers who support us, and I think we have an obligation to our funders and to ourselves to convince the taxpayers that their investment is worthwhile. BC

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

SWARMING

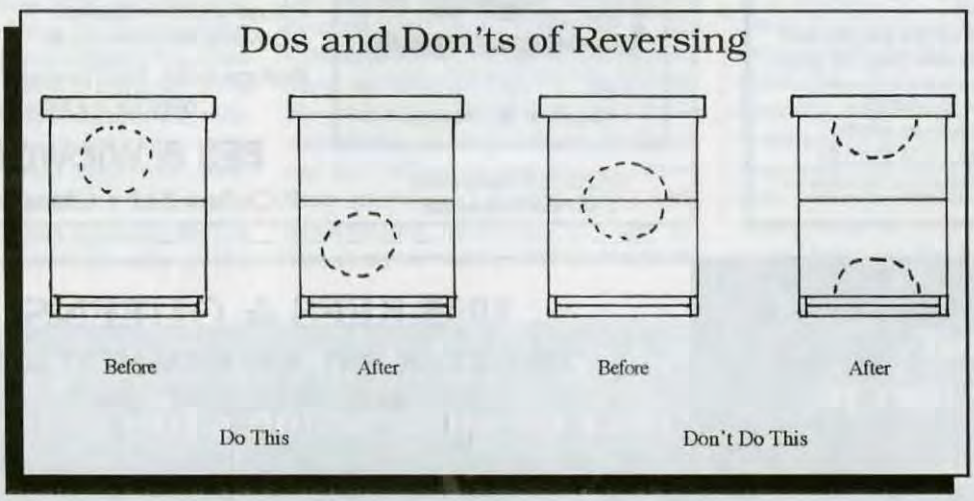
STOP THE CHARGE

richard bonney

How Do You Stop A Swarm? First, Know What's Going On Inside Your Hive. Then Act On What You Know.

Swarm control and swarm prevention - these terms are commonly used among beekeepers, and each has been defined by one authority or another to have specific meaning. However, not all authorities define them the same way, and they are often used interchangeably. Control, to one beekeeper, may be prevention to another. To me, swarm control encompasses all of those hive management activities practiced through the year to keep the bees from starting to think about swarming (I know, they don't 'think' but anthropomorphism is convenient for us.). The goal of swarm control is to prevent the bees from ever developing the swarm impulse, that impelling force that we discussed last month.

Swarm prevention, on the other hand, encompasses those practices we call on when our swarm control has not worked, and we find that the bees are preparing to swarm. This of course requires that we recognize in time that swarm preparations are underway And here is where so many of us have questions. How do we know if a colony is about to swarm?



We addressed this in a general fashion last month and considered the circumstances that might lead to a particular colony preparing to swarm. Good colony condition and plenty of stores in the fall, an easy winter, an early spring with ample nectar – each of these and more can make life easy for the bees. Population can build, and congestion, or the perception of congestion, can result. This situation, coupled with an aging queen, can cause the swarm urge to develop. It is our job to be on the alert and take appropriate actions.

Specifically, what do you do? First, be sure you know what is going on in the hive. Don't just guess. At the earliest opportunity, open the hive and look for telltale signs. Is there a good population? Is brood rearing proceeding apace? Is there plenty of room for expansion in both the brood area and in the honey storage area? Given plenty of space, are there any barriers to such expansion?

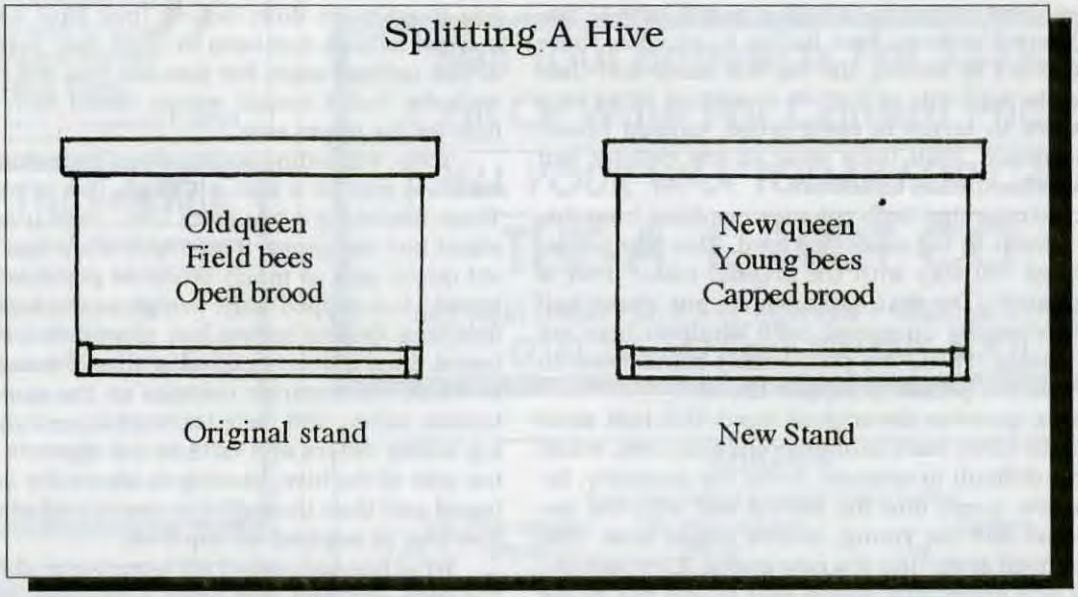
Look for a large number of queen cups. A few queen cups are almost always present in a hive, usually on the bottom bars of the frames, and the number normally increases somewhat in the spring. A large increase, though, suggests that they are thinking of swarming. Each queen cup is, of course, a potential queen cell.

Watch also for early drone rearing. This in itself is not a sure sign of swarming, but the external conditions that allow or encourage the bees to expand the brood nest and start rearing drones are the same conditions that encourage swarming.

Know the age of your queen. The easiest way to do this is to requeen regularly with a marked queen. Annual requeening is good, but biannual replacement will usually work if it is done as part of an overall swarm control plan.

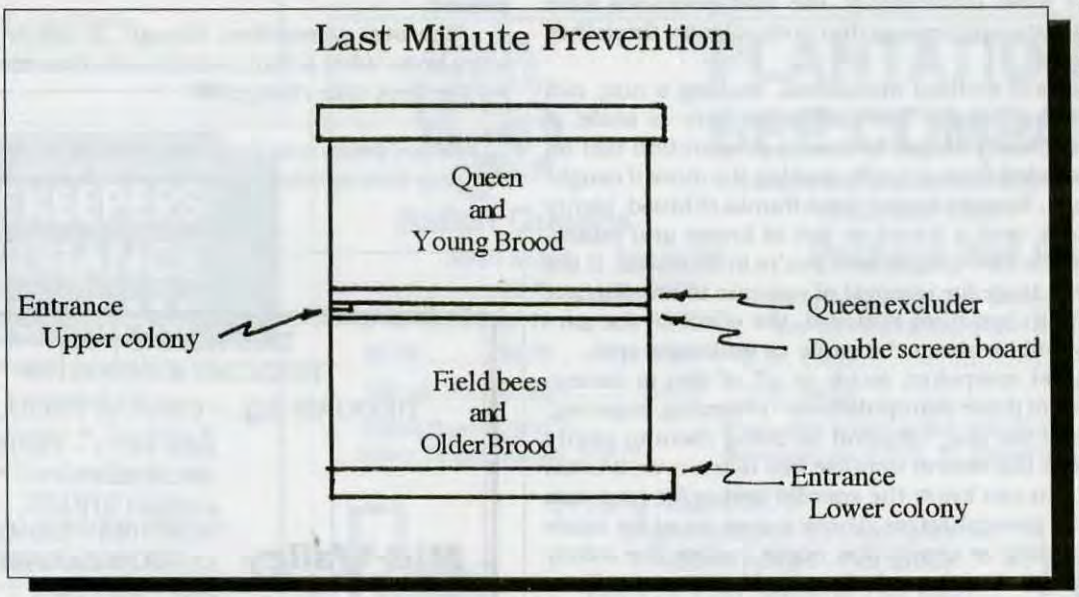
Next, take some specific actions. First, assuming that your basic winter hive configuration is two deep hive bodies, the bees are most likely to be in the top box in the spring, having worked their way there during the winter.

Reverse the positions of those two hive bodies, placing the empty one on top. Here we are recognizing a basic of bee behavior – bees work upward by preference. Give them a sense of space above. Do not do this, however, if it will result in a split brood nest. In some colonies, the brood nest may not be entirely in the top box and reversing may put part of the nest at the bottom of the hive and part at the top. Rather than split the nest, it would be better just to shift a few frames to relieve any sense of congestion. The bees cannot tend a split nest efficiently, and a cold snap could result in the loss of brood.



Next, super in plenty of time. After reversing, a strong colony can fill that second hive body very quickly, often much faster than you expect. Then they will again have that sense of crowding if there is no super above. Get the first super on in plenty of time and stay ahead thereafter. My rule of thumb is to put the next super in position as soon as the previous one is about one-half full Sooner doesn't hurt Supering, of course, is a subject unto itself, and there are many methods and systems. A basic rule is that space must always be available for processing and storage when a nectar flow starts. Never wait until a flow is underway. The bees plan ahead; you should, too.

The next line of defense, if you believe your bees may have swarming in mind, is to take action to make the bees think that they have already swarmed. There are at least two ways to do this, but each involves the same principle – take bees from the parent colony. To understand this, consider what happens when a colony swarms. First, about half the population leaves, taking the old queen. The balance of the population remains, plus the brood However, the brood cycle has been interrupted, and the numbers are down. In fact, the queen probably laid no eggs during her last three days in the hive and was tapering off during the few days prior to that. Further, queen rearing is underway so that when the swarm departs, a number of capped queen cells are on hand. The overall result is a colony with reduced population, both adults and brood, and no laying queen. But most importantly, since they have swarmed, the swarm impulse has been dissipated. This, then, is your goal to bring them to the same state of mind.



The simplest way to do this is to make either a split or a nucleus colony (a nuc). If the colony is exceptionally strong, a split is probably best. If it is not as strong, but still threatens swarming, a nuc may do the trick.

Making a split, of course, means splitting the hive into two parts. Often unspoken is that these must be equal parts – but equal in terms of resources, not just in

Continued on Next Page

SWARMING ... Cont. From Pg. 211

terms of equipment. In other words, don't just take the second hive body off and set it up as a new colony without regard as to its contents. Remember that one box or the other may be empty or nearly so, or one may be all brood and one may be all stores. In part, this depends on how early or late in the season you actually make this split. Almost certainly, though, you will have to manipulate frames between hive bodies to equalize those resources. Start by setting the top box aside and then inspecting the contents of both to know just what your resources are in terms of open brood, capped brood, honey and pollen. Split them more or less equally, but with some adjustments as follows.

First, assume that both colonies resulting from this split will remain in the same bee yard. This being true, the field bees will stay with the original stand; that is their orientation. On that same stand, put about half the brood, primarily uncapped, with whatever bees are on those frames. These are presumably nurse bees. In the other box put primarily capped brood.

Leave the queen on the original stand. This half, since it contains the older, more cantankerous field bees, would be the most difficult to requeen. Avoid the necessity. Introduce a new queen into the second half with the uncapped brood and the young, mellow house bees. This half will be most accepting of a new queen. Alternatively, you could give developing queen cells to one box or the other and allow the bees to raise their own queen. This, of course, puts a substantial delay into the subsequent development of that colony as they wait for that new queen to emerge, mate and begin to lay.

Making a split as described does not truly divide the resources of the parent colony into equal parts initially, but it does make an equal division of their *potential*, and within a very short time, the two colonies will, in fact, be equal. But most importantly, the manipulations have brought about conditions so that both colonies think they have swarmed.

The second method mentioned, making a nuc, can have the same result. The difference here is scale. A colony in the early stages of swarm preparation can often be dissuaded from actually making the move if caught early enough. Remove two or three frames of brood, plenty of adult bees and a frame or two of honey and pollen, give this nuc a new queen, and you're in business. If the colony is too large for removal of one nuc to be effective, take two. With two nucs removed, the effect on the parent colony will be about the same as making a split.

An as yet unspoken factor in all of this is timing. The success of these manipulations - reversing, supering, the split and the nuc - depend on doing them in plenty of time. Once the swarm impulse has taken over, it is too late. Only you can know the specific timing for your own hive, but in general terms, these moves must be made before crowding or congestion occur, before the colony starts raising new queens, before significant nectar flows begin. But for those times when the bees get ahead of us and swarming appears to be imminent, there is still hope.

Assume that you go to your hive one day, and it is immediately apparent that the bees are on the verge of swarming. The bees are restless, little foraging is in progress, few eggs are present, a number of queen cells are about ready to be capped – it is obvious that a swarm will leave in a day or two. What can you do?

But first, cutting queen cells is not the answer. This alone does not satisfy the swarm impulse. If you cut cells, the bees will immediately select day-old larvae and start raising new queens. Since the swarm normally leaves the hive when the first of these queen cells are capped, they will be ready to go in about five days. Once again, you must make them believe they have swarmed. One method follows, but keep in mind that many variations of this method exist. For this one you will need a queen excluder and a double screen board with an entrance hole on the upper side.

Then, depending on the size of the colony, you might want to remove a nuc, although this is not necessary. Then, assuming a two story hive, leave it on its original stand but reorganize it so that the top box contains the old queen and as much brood as possible. The leftover brood, but capped only, can go in the bottom with the field bees. On this bottom box, place first, a double screen board, then a queen excluder, then the top box, giving, in effect, two separate colonies on the same stand. The bottom colony will have its original entrance while the top colony enters and exits in the opposite direction, at the rear of the hive, passing in above the double screen board and then through the queen excluder. Both colonies can be supered as required.

What has happened? All incentive or ability to swarm has been removed. The lower colony has no queen, nor do they have the wherewithal to raise one since they have capped brood only. The top colony has lost a substantial part of its population, including its field force. This alone will probably stop it from swarming, but as insurance, a queen excluder prevents the queen from leaving. After about one week, it should be safe to remove the double screen and the queen excluder and place all the supers on top normally. All inclination to swarm should have passed.

The best prevention, though, is better control. Always know what is happening inside that hive, and never let the bees take charge. BC

Richard Bonney is the Extension Apiculturist for the state of MA, author of two books on beekeeping and a regular contributor to Bee Culture.

GOTCHA!

Hiving A Swarm Can Be Fun, Good P.R., Profitable, and The Thrill Of A Life Time.

roger morse

In the spring of the year, nine out of 10 natural, feral colonies of honey bees living in trees or the sides of buildings will swarm. Colonies in man-made hives that are properly cared for will swarm less often, but even these colonies produce some swarms. When a colony swarms, 30 to 70% of the bees and the old queen leave the hive and seek a new home.

When a swarm emerges from its parent colony, it settles nearby, usually within 50 to 200 feet. At this time, if the swarm is near the ground, or if it settles temporarily along the route to its new home, it may be easily shaken into a new home. Most of the bees in a swarm are fully engorged when they leave their home, and engorged bees are not inclined to sting unless they are harshly treated.

SHAKE THAT SWARM The bees in a swarm cling to each other, and to the branch or object on which they settle, with their tiny claws. They are easily dislodged, but when you shake a swarm do it firmly and without hesitation. In an ideal situation, an empty super that is stapled or nailed to a bottom board is placed under the swarm, and with one hard shake, the swarm is dropped into the box. One or two old, dark, drawn combs may already be inside. The rest of the combs that are needed to fill the super are put into place, and the cover is added as rapidly as possible.

If the bees are on a wall or clinging to a telephone pole or some other firm object, they may be brushed gently into a super, but brushing may cause some of the bees to become defensive and sting. Often bees will crawl rapidly into an old super with old combs if it is placed right next to the bees, but the cover must be in place. Interestingly, smoking the bees will often cause them to move into the super more rapidly. The odor of an old super and combs is attractive to the bees; a new box and new frames are not nearly so attractive, though the odor of the beeswax foundation may help. Plastic foundation isn't usually recommended to hive a swarm since it has no attractive odor.

The first swarm I ever saw captured had been shaken and tied into a burlap bag. It was proudly presented to my father by our neighbor, who had found it hanging on a low branch along a road. My father wet the burlap with about a quart of water to keep the bees cool. He waited until evening, about an hour before sunset, and carefully turned the bag inside out on the ground in front of an old super containing old comb, with the bottom board and cover already in place. The bees immediately crawled into their new home as content as could be. The next day, the workers foraged, the queen laid eggs, and we had a new hive. An all-plastic bag can be used to capture a swarm but not to keep one in as there will be no fresh air for the bees.

NO LIGHT From our studies on bait hives it is known that bees will not move into a home that has light entering from above. Light from below, such as at an entrance, is not a problem. As soon as the swarm is shaken into a hive body it should be covered. A telescoping cover, whose sides hang down over the super, does a good job of excluding light from the top of the hive, but migratory covers in good condition work well, too. Even a piece of plywood, in a pinch, will work.

FEEDING Swarms are like packages of bees. They need food, and if they are fed sugar syrup, they will turn their energies into collecting pollen. As a result, they will grow more young bees earlier than if they are forced to forage for both pollen and nectar. Feeding spring swarms 20 to 30 pounds of sugar syrup like a package, is good management and will pay dividends by the end of the summer.

HIGH FLYERS Not all swarms will settle on a branch close to the ground. When you see a swarm of bees clustered more than 12 to 15 feet above ground, I think it is best to forget about capturing it. There are those who disagree. Beekeepers have, however, designed wire and wooden baskets that rest on top of 12- to 15-foot-long poles to capture swarms hanging high in the air. These may be thrust up under a swarm on a high branch in hopes that the bees and the queen will be caught in the basket. However, it is difficult to capture the queen, and too often I have seen the swarm reform on the same high branch. I've also watched beekeepers try two or more times to capture a high swarm in this manner, and sometimes they are successful. However, it is not an easy task. Commercially available or homemade vacuum collectors are often used for these high swarms, too. Using an extender wand and flexible tubing they can reach high swarms without you leaving the ground. The commercial collectors, and good homemade devices have a well ventilated and padded collection box, often a super. The size of the motor is important to create enough pull, as is the diameter of the flexible hose to avoid clogging. For the casual swarm collector (one or two/season at most) these may be more than needed. But if collecting swarms is a serious side of your business one should be considered.

SO SOON? Sometimes a swarm shaken into a hive with combs will abscond within an hour or two, leaving behind what you think would have made a perfect home. The problem appears to be sunlight. This is interesting because you should try to place colonies in sunny areas to warm the hives in the morning and to keep them dry. However, the fact, is that given a choice, experiments show that bees prefer a nest in a shaded area over one exposed to sunlight. It's not fully understood why this is true, but apparently overheating is a greater problem than chilling.

Continued on Next Page

When everything goes right, a swarm will march right into their new home.

GOTCHA! ... Cont. From Pg. 215

Thus, when a swarm is placed into a hive, immediately put it in an area where it will be shaded the rest of that day. If there is no other colony within several hundred feet, the stray bees will find their new home even if it is as much as 50 feet away from the site where the swarm was shaken. That night you can move the colony to it's permanent location. Absconding can usually be prevented by waiting until evening to hive the swarm. Of course if you wait too long, bees may move on to another location.

It is also true that swarms may sometimes leave a new hive because of bad odors, such as those caused by mold, fermentation or rot. It may also be the mold, fermentation or rot itself they don't like. The best combination would be a super with old combs that has been on another hive for a week or two that has been thoroughly bee-cleaned. The combs need not contain any honey or pollen.

ADDING BROOD One trick to make certain a swarm does not abscond from a new home is to give it some brood from another colony. Only a small amount of brood is necessary – a comb one-quarter to half-full of brood, especially if it is of mixed ages, works well. The bees in a swarm will have no trouble feeding the brood, since a swarm contains bees of all ages, many of which have well-developed head glands to provide young brood with the royal jelly they need.

DRY SWARMS A dry swarm is one in which the bees have used all the food they brought with them when they left. Bees in a dry swarm can be vicious and will attack quickly and in large numbers. I have seen as many as 50 to 75 bees in a dry swarm attack for what appeared to be no reason at all. A swarm never leaves its parent colony unless about 80% of the bees are fully engorged with honey, but they do not carry pollen except for that which is mixed with that honey. However, if there is rain or cool weather for a few days, the bees may use up all of their food and become what we call 'dry. Bees in a resting swarm will forage if they need food and the weather is suitable. If you know what the weather was like the day before you find a swarm, you can usually predict if it will be dry or not, since if conditions were suitable for foraging the bees will usually be engorged. You won't find dry swarms too often, but when you do, you'll learn caution, in a hurry! This is the one exception you need to keep in mind when collecting a swarm and you have an 'audience' of the public. Too often beekeepers display a cavelier attitude (no veil or suit or smoker) demonstrating the 'gentleness' of honey bees, and, perhaps, their own bravado.

DISEASE? Most of the older beekeeping books advise installing a newly captured swarm on foundation. This is done so that the bees will be forced to use any honey they are carrying, which might contain disease spores, to make new wax and to draw out the new comb. If the bees are given old comb, they will deposit any honey they are carrying in the comb's cells. This is not a bad idea, but I don't think that disease-carrying swarms are a big worry. Unhealthy colonies are usually not strong enough to swarm.

Now that both tracheal and *Varroa* mites are more or less endemic in this country you can be fairly certain that a swarm will have low levels of both. Although a colony heavily infested by either mite, like any diseased colony will probably not swarm, colonies lightly infested, or having some degree of resistance or tolerance will likely swarm if the biological situation is right.

Precautions should be taken, certainly. Checking for *Varroa* (ether roll, etc.) and treating with Apistan if needed is recommended. Placing a grease pattie to combat tracheal mites is also sound advice. However, other treatments (menthol) should be undertaken only if diagnosis shows high infestation (20% or so), and according to label directions.

AUTUMN ARRIVALS In many areas where there is a fall honey flow, there may be fall swarming. In the Ithaca, NY area where I live, for example, about 20% of swarming takes place in the fall. Our experience is that it is almost impossible to feed a fall swarm (one that occurs after about August 15) a sufficient amount of food so that it will survive the winter. More important, fall swarms do not have the time to rear the large number of young bees needed for wintering. Of course, one may add brood and combs of honey to a fall swarm but even then our experience is not good as the bees do not have the time necessary to arrange the fall nest. Combining with other colonies, and adding enough food may work. It's tricky.

CONCLUSIONS Capturing swarms close to the ground can be fun, a good opportunity for public relations and a simple and inexpensive means of increasing the number of colonies you own. Several precautions must be taken, and success is not guaranteed. As the search for disease resistant stock continues, it is possible swarms from feral, chemically untreated colonies may be a good resource and worth capturing for that reason. BC

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SPRING INSPECTION

What do you look for when you open your hive?

chris cripps

Is it normal or abnormal? That is the first question you need to answer when inspecting your bees this spring. Sure, a knowledge of the classic signs of bee diseases may help you make a speedy diagnosis, but bees are not like car accident victims in the emergency room, where seconds make the difference between life and death. If you find something abnormal in your hive, you usually have time to contact your bee inspector and then to do some research on your own to help diagnose the problem.

There is no special equipment needed to inspect your hives. The most important tool is your skill at observation. You need the normal stuff, though – veil, smoker, hive tool, gloves and a notebook and pencil to write down your observations. If you find something abnormal and need to take a sample, though, some additional equipment will come in handy. You may need a wide-mouth jar. And some starting fluid, rubbing alcohol, a small plastic bottle, a four-square-inch piece of aluminum foil or a piece of newspaper or a brown paper lunch bag may come in handy, too. All these should be in your 'kit' anyway everytime you check colonies.

The first step when inspecting a hive is to observe the front door before smoking it. Normally, there is a fair amount of activity as bees come and go. The bottom board should be free of debris and dead bees. Some things that are abnormal are piles of dead bees, heavy staining of the hive with feces or no bees coming or going. If your hive has even a light infection of chalkbrood you might see those white, gray or black mummies lying on the bottom board. In areas where skunks, coons or 'possoms are a problem, look for prints in front of or on the hive. Once you have observed the front of the hive, smoke all of the holes in the hive. While giving the smoke some time to work, write down your observations.

Next, take the telescoping lid off and set it upside down *behind* the hive so there is a place to pile the supers. Look for ants on the inner cover. Ants move into any part of a hive the bees do not patrol. If there is an ant nest between the covers, fix it so the bees can get between them. Fixing the covers may involve making a hole in the inner cover or placing a block between the two covers so they do not touch.

Next, remove the inner cover and set it *in front* of the hive. Alternatively, remove the top honey super and inner cover together. There are no diseases to be found in the honey supers, so remove all of these until you get to the brood. Some diseases, such as American foulbrood (AFB), can be spread from one hive to another in honey. However, it is impossible to tell if honey contains AFB just by looking at it. Unlike AFB, mites do not contaminate honey. You can use honey from a hive killed by mites to feed other hives without worry, provided the dead colony was free of other diseases.

When removing the first frame from that brood super, start at one side or the other. If you take the first frame from the middle you risk rolling and killing the queen as you remove the frame. Once out, hold the frame up so you can see the brood

First thing – look at the entrance for dead bees, activity, chalkbrood mummies and paw prints.

The first frame removed should be at one side or the other, not *the middle.*

Look for brood pattern, amount of brood, brood color, cappings and inside capped brood.

Be sure to hold the frame so the light shines down into the bottoms of the cells. Be sure to look at both sides of the frame.

pattern. If the frame is covered with bees, use one quick shake over the center of the super to knock them off the frame. Next, turn the frame so you can see down into the cells. Normal brood is white and glistens in the sunlight. It lies coiled, c-shaped, in the bottom of the cell. Normal brood cappings are light to reddish brown and slightly domed. Holes can be found in normal brood cappings when the bees are in the process of covering a cell. These holes are symmetrical and centered in the cell. The brood pattern should be fairly solid, meaning the queen has not missed many cells when laying eggs. Normally, the walls of the brood cells will shine when held in the sun.

Abnormal or diseased brood is generally off-color (yellow to brown) and often lies on the side of the cell instead of coiled at the bottom. Abnormal brood may also smell bad. Remember that smells do not tell you what disease the bees have, but putrid odors are abnormal. Diseased brood may also have irregular, off-center holes in the cappings, which may also be sunken instead of being domed up. The brood pattern may be spotty, meaning there are many empty cells between the cells that contain brood. In the empty cells, you might see scales or "melts" where the pupae or larvae are dead and are rotting down to a thin layer. Or, there may be nothing at all – only empty cells.

If you find what you think is abnormal brood, you can take samples in either of two ways. First, you can remove some diseased brood with the edge of your hive tool, a matchstick or a stiff grass stem and smear it in the center of that piece of aluminum foil you brought. Fold the aluminum foil so the sample will not ooze out. While removing the brood, look to see if it is watery or stringy. Stringy brood is a classic sign of American foulbrood. Alternatively, you can cut out a four-inch-square piece of your abnormal comb using a pocket knife and wrap it in newspaper or a brown paper lunch bag. *Do not* use aluminum foil or plastic wrap for this because the comb will mold and be useless for detection. Either of these samples can be tested for brood diseases by a lab.

Inspect at least two frames full of brood to get a good idea of what is going on in the hive. You can inspect all of the frames in the hive to insure that you find any early diseases, but if you have to inspect a lot of hives, looking at every frame takes too much time.

When you've finished with the brood examine the adult bees. If the hive is infested with *Varroa* mites, you may see some mites attached to the backs of the bees. With luck, you may also see mites running free on the comb. Their motion will draw your eyes. If you do not see any *Varroa* on the bees, comb or top bars, the next place to look is in the sealed drone brood. *Varroa* mites prefer drone brood as a place to reproduce, however, they may also be in worker cells. The mites feed on brood, so bees may emerge with "birth defects" such as tattered wings or short bodies. Remove several brood cappings with

CHECKLIST

- Front of Hive
  - dead bees
  - staining
  - pawprints
  - chalkbrood
- Between Covers
  - ant nests
- Brood Chamber
  - brood pattern
    - solid
    - spotty
  - brood color
    - white
    - yellow
    - brown
  - cappings
    - color - brown, black
    - domed
    - sunken
  - holes - symmetric, jagged
  - brood consistency
    - stringy
    - watery
    - grainy
  - capped brood
  - *Varroa* mites
- Adult Bees
  - *Varroa* mites on bees
  - wings together or disjointed
  - small, misshapen bees
- Samples
  - abnormal Brood
    - individuals in aluminum foil
  - comb in paper bag
  - adult bees in jar

Varroa *mites are easy to see on glistening white pupa, but not so easy on adults.*

INSPECTION ... Cont. From Pg. 219

your hive tool or with a capping scratcher. The mites appear as reddish-brown spots on the white pupae. Look in the bottom of the cell as well because the mites will not always be attached to the pupae. Sometimes, you will find white mites in the cell. These are immature mites. With normal vision, you should have no trouble seeing *Varroa* mites on brood. When first shown a *Varroa* mite, beekeepers often respond, "Boy, they're a lot bigger than I thought they were."

The last step in examining the hive for disease is to collect a sample of bees. This sample can be tested for *Varroa* mites, tracheal mites and nosema. To collect a sample, get a wide-mouth jar with a one-piece cover, such as a commercial jelly jar. Closely examine the frame for the queen. If you see her on the frame, place her in the hive before taking the sample. Rest one end of the frame on the edge of the hive while holding the other end of the frame with your off-hand. The frame can be held vertical or slightly tipped out. Grasp the jar with your free hand and remove the cover with the hand holding the frame. You now have an open jar in one hand with the frame and the jar cover in the other hand. Scrape a few hundred bees (one to two cups) into the jar and replace the cover. You may be surprised because the bees do not fly out immediately unless they are severely agitated. Set the bee sample aside and close the hive. If you have multiple hives in one area, you can combine small samples from each hive to make one sample of 300 or so bees. If one hive has mites, you can assume that all of the hives in the apiary are infested.

Now that you have looked at the brood and the bees, and the hive is closed, sit down and record your observations. The most important part of the inspection process is to write down your findings. As somebody famous once said, "The weakest ink is stronger than the best memory."

The first test I do with the sample of bees is the ether roll for *Varroa* mites. Conduct this test away from the hives because the ether agitates the bees. Open the cover of the jar slightly and spray a one-second blast of starting fluid into the jar. The ether in the fluid makes the bees regurgitate as they die. The stomach contents then line the jar, making the sides sticky. Shake the jar vigorously for at least a minute. *Varroa* mites fall off the bees and get stuck on the side of the jar. They are easy to spot, but don't be fooled by stings that fall off the bees – they can look like mites, but mites have legs sticking out in front of them. Sometimes when you do this test, small white scales appear on the side of the jar. These are wax scales off the abdomens of the bees and should not worry you. A wax scale is almost twice the size of a *Varroa* mite. After the ether roll, the dead bees can be placed in alcohol to preserve them for tracheal mite and/or nosema tests, or the dead bees can be discarded.

For the tracheal mite test, the tracheas of the bees are removed and examined under a microscope. The gut contents of the bees can also be examined under the microscope for nosema spores. If you have access to a microscope, you can do this yourself. If you hate microscopes and the memories of high school science class that comes with them, check with your local or state bee inspector to get the samples examined. If the inspector cannot examine the samples, they can be sent to the USDA lab in Beltsville, MD.

Once the hive is closed and your sample transferred to a leak-proof, *nonbreakable* jar for transport, clean up. Keeping all of your tools clean, including the bellows of your smoker, will help you prevent the spread of any disease. Even if you did not find anything abnormal, clean up! At the very least, staying clean keeps the honey and propolis off your car door handle, keys, steering wheel, gear shift, seat belts and whatever else you touch as you drive away from the site. If a disease was missed, however, staying clean could help prevent spreading it to other hives.

At home, armed with your notebook full of observations, you can look in nearly any of the beekeeping books to find out what diseases lurk in your hives. Popular journals often have articles about diseases that can help you diagnose your problems. You can talk to other beekeepers, your local, or state inspector. There is a list in every April issue of *Bee Culture* (see the back of this month's issue) of people in your state who can help you. The key to diagnosing and treating diseases successfully is to observe the hive carefully and to write down your observations.

Your local or state bee inspector may only be able to inspect your hives once a year, if at all. Therefore, it is important that you take the initiative to inspect your own hives as well. Taking the time to observe what is normal and abnormal in your hive and then diagnosing and treating the abnormal may make the difference between life and death for your bees. BC

Chris Cripps has been keeping bees for nine years, two of which he has served as a county inspector in Central Ohio.

OBSERVATION HIVES

thomas webster

Part IV

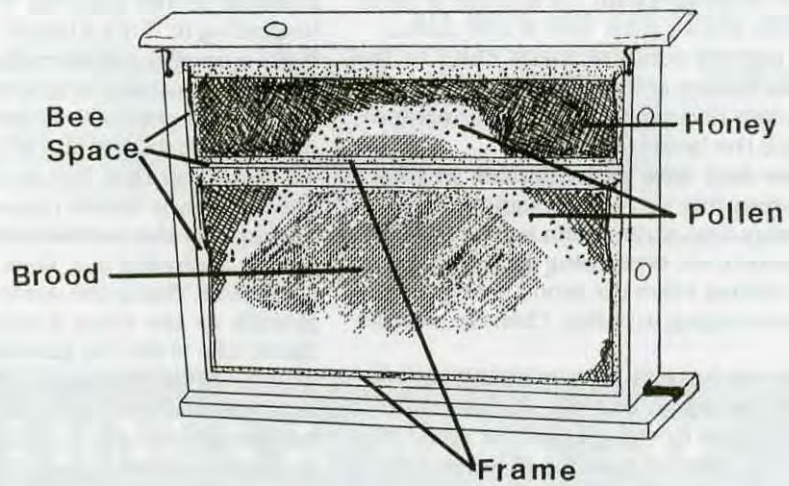
dewey caron

COLONY GROWTH

This part of the observation hive series is focused on two of the activities in the hive that are most important in the spring – brood rearing and the behavior of the queen.

The bee colony thrives when it successfully rears a large amount of brood, the source of new, young bees. But brood rearing taxes the resources of the colony because each larva is a hungry mouth demanding food on a frequent basis. And the whole brood nest must be kept warm by the bodies of the worker bees. It's clear that brood rearing progresses most rapidly in a colony with a large population of well-fed worker bees.

Like many other insects, a honey bee passes through four distinct life stages – egg, larva, pupa and adult. To observe the eggs and larvae, you probably will need a flashlight or other strong source of illumination. Often the bees will be blocking your view of the brood. If so, you may need to hunt a little to find the cells that are not covered with bees.



The eggs mature over about a three-day period after they are laid by the queen. You can see them way back inside the cells. Use a hand-held magnifying glass if needed. They look like little white hot dogs, each sticking by one end to the base of its cell. As the queen lays an egg, she covers it with a glue-like material that secures it to the wax. When the egg hatches, it doesn't break open like a bird's egg. Instead, the surface melts away, leaving a tiny white larva.

The little larva grows to a relatively much larger larva over the next six days. As you can imagine, its main activity is eating! For this to happen, each larva needs considerable attention from a select group of workers called nurse bees. The nurses have glands in their heads that produce "brood food" for the larva. Honey is added for the larva also, depending on its age. Larvae in a healthy hive will be surrounded with a little of this food. You may see some worker bees headfirst, inside brood cells. Most are nurse bees, adding brood food from their glands into the cells.

When the larva is large enough to fill nearly the entire cell, the workers cover the cell with a capping. Then the larva will stretch out the length of the cell and go through the process of turning into an adult bee. In this transition process, the bee goes through its third stage as a pupa, much like a butterfly's cocoon. After capping, about 12 days pass before the adult bee is completely formed. Then it starts to wiggle a little and soon chews its way out of the cell. You may be able to see a young bee emerge from its cell, slowly and awkwardly. To see this, search for the oldest capped brood in the brood pattern. (Mark brood with caping date using your clear plastic sheet and wax pencil.) Look very closely to see if a cell is starting to open. Only the antennae and mandibles of the bee can be seen at first. After the bee pulls herself out of the cell (with no help from her nestmates), she will wobble around and search for food. Like other newly emerged bees, she is comparatively fuzzy.

Notice how the brood cells make a large, oval pattern across the frame. The brood is usually in concentric rings – a ring of eggs and young larvae, then the older larvae, and then the capped brood. Why is this so? It comes down to the behavior of the queen. She likes to lay eggs first in the middle of the frame, then work outward. Over time, she produces a pattern in which the oldest brood is in the middle where she began her work. When the middle of the brood nest ma-

REQUEENING

When a hive is requeened, how long does it take for bees from the new queen to replace those from the original queen? You can observe this for yourself. Start with bees and a queen from a lighter-colored stock. Replace the queen with a queen from a dark-colored line. You will see no change in the color of the bees for about three weeks – the time it takes for new eggs to mature all the way to the adult stage. Then, watch daily as more and more young, dark bees appear. What are these young bees doing? Generally, the youngest bees will be cleaning cells and feeding larvae. After a week or so, quite a few will be foraging, the job of the older bees. Watch the light-colored bees, the older members of the hive. In time, the last of the lighter bees will do some foraging and then disappear. On what day was the queen replaced? And on what day did the last of the old queen's offspring disappear? This will give you a good idea of what happens when you requeen a colony, and how long it takes for the worker force to be replaced.

tures, and the bees emerge, the queen returns to those middle cells to lay more eggs.

In some hives, the brood will fill all the cells in the brood nest area before some of it matures. The queen will then have no empty cells for eggs, at least for a while. This is really not a problem. In fact, it is a sign that the hive is healthy and strong. The size of the observation hive will always limit the amount of brood rearing.

The brood pattern contains many clues to the health and recent history of the hive. This can be seen in standard outdoor hives too. Weather, for instance, leaves a record in the brood pattern.

How do bees deal with unpredictable weather? Spring is both promising and troublesome to all creatures. Warm, sunny days arrive, then suddenly a cold, rainy period seems to set everything back. This really can hurt brood rearing when the brood nest gets cold and the bees stop bringing in pollen. Then the weather is great again.

One way to watch the bees' remarkable survival skills is to use the technique described in last month's section, part III. Follow the progress of the brood, day by day, with a clear plastic sheet taped to the side of the hive. Trace the brood area and check it several days or weeks later. Do this when the weather has been pretty good for a while, and keep it up until a stretch of bad weather comes. What happens? Usually, the hive will destroy a good portion of the brood. In doing so, the colony defends itself against starvation by eliminating many hungry mouths. Which disappeared – the eggs and youngest larvae, or the older larvae? Usually the colony will keep the older larvae alive and sacrifice the younger portion of the brood.

When the weather improves, the queen quickly lays eggs in the empty brood cells. And the brood pattern is established again. But notice what the interruption of brood rearing has done! You will soon see a lot of eggs and young larvae, few or no older larvae and then a lot of capped brood. This is often a record of bad weather that occurred several days earlier. I like to compare the rings of a honey bee brood pattern to the rings of a tree that are visible when the tree is cut down. The brood pattern shows evidence of conditions over the past few days, much as the tree rings show growing conditions over the life of the tree.

Find the queen! The queen is the center of the life of the colony. One of the first things a person visiting your hive will want to do is see the queen. It's remarkable that children are often very quick at finding her without any help from the owner of the hive. You can give a few hints to your visitor, who may know nothing about bees. She's a little bigger, often surrounded by a "retinue" of workers, and usually over the brood nest searching for an empty cell in which to lay an egg.

The egg laying process is intriguing. Watch the queen in a hive when brood rearing is underway, and she has empty cells available for eggs. First, she inspects a cell by poking her head down in it. Is it clean and unoccupied? If so, she then turns around to insert her abdomen. A moment later, she is out of the cell, leaving a new egg. Count the number of eggs laid in five or 10 minutes. Consider how many she might lay in a large hive every day, assuming plenty of empty cells are available!

Observation hives usually have no drone brood because they contain relatively small colonies. In a larger hive, the queen will lay in drone cells as well as in worker cells. How does she know which type of egg to lay in each cell? In fact, she measures the internal diameter of the cell with her first pair of legs while inspecting it. If it's a bigger cell, she lays a drone egg. If it's a smaller worker cell, out comes a worker egg. The queen's ability to control the sex of the eggs she lays (and to put them in the right cells!) is one of the many astonishing traits of the honey bee colony.

Note also that five to 10 workers surround the queen. In early times, this was thought to be proof of her royalty. Her servants (the worker bees) were obediently attending her. Look closely with your magnifying glass. Watch the queen put her tongue out occasionally as she takes a meal from one of her attendants. She is fed the glandular food and is nourished by it in much the same way as larvae in the brood cells are reared on this nutrient-rich food. Imagine how the queen's ability to lay many eggs must depend on copious quantities of this food. It is much better for the queens than a diet of pollen, which consists of a lot of undigestible material.

The worker bees around the queen also acquire some of her pheromone as they groom her. Those workers will then pass a bit of queen pheromone to other workers, which in turn pass it on to other nestmates. In this way, all the workers in the hive are informed of the queen's presence, even the bees that never contact her directly. If the queen dies or is removed by the beekeeper, all of the workers sense the lack of queen pheromone within a few hours. BC

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SAVE THOSE BEES!

edward southwick

If you are in the north country like I am, where it's been cold and blowing outside for months, your thoughts have already turned to bee supply catalogs and plans for ordering package bees from the warm southlands for your spring buildup. Right now, it is hard to imagine how the bees stayed healthy inside their hives all winter, but they usually do. They won't stay healthy, though, unless they have proper ventilation and plenty of food. It is rarely the cold winter temperatures that cause the demise of bees in a hive. Instead, the likely culprits are the buildup of moisture or Nosema disease. In recent times, trachael mites have also become a contributing factor to winter loss.

Another problem that can develop during winter is the worker bees comprising the outer layers of the cluster may be unable to move over on the comb to reach stored food. In that case the bees chill and become immovable in a comatose state, or "chill coma." Unless the weather warms up, bees in chill-coma could die from starvation themselves and prevent other bees more centrally located in the cluster from obtaining food. The colony dies, even with honey stores a few centimeters away.

But now it's April, and things are getting started in the bee yard. You may need to get more bees soon to replace some of those winter losses. One reliable source has always been those bee producers in warm climates in the southern parts of the U.S. (including Hawaii). Up here in NY state, we often order packages of bees from LA, TX or GA to arrive in by late April or early May. However, we had five inches of snow on May 5 a couple of years ago. So what happens to the package bees then? There is no forage available, and the weather is still cold. In fact, we order packages to arrive through April and May. Packages installed later in the spring and summer have a reduced chance of building up sufficiently to produce any crop but may show enough strength to make it through the next winter. Essentially, a package of bees is just like a swarm. The old saying still rings true for packages in the North:

A swarm in May is worth a load of hay.
A swarm in June is worth a silver spoon.
A swarm in July isn't worth a fly!

There is also a question about the bees' health during shipment as they sit at one post office or another consuming the sugar water supply sent with them. Actually, the U.S. Postal Service does a pretty good job with package bees. It usually takes only a few days for packages to reach their destinations from the suppliers. Beekeepers should make arrangements to have someone from their local post office telephone them when the packages arrive. This prevents longer storage and periods of stress for the bees, and the post office people. When first examining a package, you'll notice a few dead bees lying on the bottom of the container. If the bottom is covered with dead bees, up to a centimeter or so (three bees deep), there is little cause for alarm. The bees in the package should be fed a sugar-water solution right away, by spraying with a clean plant mister on the side screens. The mixture should be thin, with one part sugar to one part water (by weight or volume). The best time to place the package bees in their new home is in the late afternoon when they are unlikely to fly off in search of food and become lost. Overnight, they become familiar with their new home, and the next morning they can begin their orientation flights.

The biggest problems during shipping of bees are probably lack of proper ventilation and allowing the packages to be stored in places that are kept too warm, rather than too cold. When the bees are warm, they'll try to ventilate by fanning their wings. If the air cannot move (because the package of bees is surrounded by other parcel post packages), there is little cooling effect, and the bees consume more of the sugar water supply in the can sent with them. This results in using up their food and possibly starvation.

Last May we ordered and received packages with and without queens. We picked them up at the local post office (where the postal workers know from experience and our harassment to store the bees outside in the shade with plenty of ventilation and to call us as soon as they arrive), but we were disappointed to see that in some of the packages, nearly all the bees were dead and lying in heaps on the bottoms of the shipping containers. Has this happened to you? In each of these screened packages, there was only a small ball of bees clustered around the feeding can. The can itself was empty or nearly so. The bees were suffering from stress because of unusually warm weather during their transport along with a weekend delay at the regional post office before their arrival at our local post office. Pat DeJoy, one of my students, and I took these packages of dead bees to the third-floor laboratory where we intended to make measurements of the group metabolism of the small balls of remaining bees. We rescued the small living clusters and placed them in small wire cages at room temperature with food and water. The others we dumped out the window and watched them float down to the grass lawn three stories below. We promptly forgot about them and went on to our studies in the laboratory. Late in the afternoon, we left for home.

During the night, the outside temperature cooled but did not go below freezing. Late the next morning, Pat went down to look at the dead bees on the campus lawn. The sun had been shining and had warmed the spot where they had landed. Lo and behold, those bees were crawling around, and some were flying! She rushed up to the laboratory, grabbed some containers and collected most of the "thought-to-be-dead" bees. She brought them up to the lab, and we fed them sugar wa-

ter and kept them at room temperature. Nearly all of them survived and resumed normal swarm activities. Later they were placed on the top bars of normal, healthy hives where they were readily accepted.

So, those bees you see on the bottoms of the packages may not, in fact, be dead. In our case, we surmised that they had actually run out of food and had fallen into a starvation coma, not unlike the chill coma seen in individual bees. Bees enter a chill coma when they are exposed to temperatures lower than about 53°F. When they're in chill coma, they cannot revive themselves. They must be warmed from the outside and usually must be fed in order to survive. However, we discovered that they may be kept in chill coma for periods in excess of 12 hours (overnight) and still survive by warming and feeding. We found that workers exposed to cool temperatures, but above 53°F, even in groups, fall into a coma very much like chill coma if they run out of food. This coma, too, would be fatal if they were not fed at a warm temperature. Warm temperature and food were all it took to revive the presumed-dead bees we had dumped from the packages.

Pat subsequently tested the oxygen consumption (metabolism) of groups of these workers in a metabolic chamber we have in the laboratory for that purpose. She could test six clusters of honey bees at the same time. She did several runs, each consisting of six different bee clusters, over a period of at least six hours and up to three days. At cool temperatures (but above 53°F), there was usually one cluster out of the six in each run that showed a falling oxygen consumption until the metabolism was near zero. The groups that showed this response were inevitably found to be in a chill-like coma. In every case where this was seen, the clusters had run out of food. In some cases, they had no food for three days. These bees appeared in every way like those "dead" bees lying on the bottoms of shipped packages. They were lying on the bottom of the test chamber and showed no response to stimulation with a probe. However, when taken out of the chamber and left at room temperature, the bees started moving a little bit, and when fed sugar water, they revived completely.

After you've introduced your packages, however it is you do it

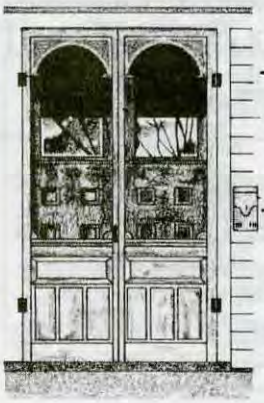
be sure you put those bees at the bottom inside, because they may not be dead.

Then, make sure they get fed, fed, fed.

Subsequently, when we received a package containing a large number of apparently dead bees, we would place these bees on the top bars of a healthy hive. Later examination showed that most of them were readily accepted into the colony. We saw little removal of "dead" bees out the entrance, and by the next day, there were no bees left on the top bars. Such hives showed increased strength compared to other, similar hives without the addition of "dead" package bees. Their buildup was also markedly faster, and they became strong colonies earlier than others without the addition.

The essence of this is to point out the danger of throwing out apparently dead bees found on the bottoms of shipped package containers. Although some of the bees are likely to be dead indeed, most of these bees may not be dead, but rather, they are in a comatose state of starvation and can be completely revived. Do not throw out living bees you presume to be dead in package shipments. It is much better to dump them onto the top bars of healthy hives and let the healthy bees warm them and feed them. They, too, may become a good working resource for your hive in pollination and honey production. BC

Edward Southwick is a Professor of Biology, SUNY, Buckport. He studies, and writes about bees and bee biology.



HOME HARMONY

ann harman

April Fool!

Honey is indeed a popular ingredient in many recipes. However, every once in a while, some surprises are found. This collection of recipes, in honor of April Fool's Day, gives you "something completely different" that you probably were NOT looking for. However, although you might not try these recipes (actually, there is nothing the matter with them), you will find them fun to read.

The history of April Fool's Day is difficult to find, and when some information is found, it is not very revealing. Most sources seem to think that the custom of playing jokes on people on April 1 originated in Great Britain. However, some European countries, particularly France, claim that a trick-playing day is one of their customs. At any rate, the old timeworn tricks of substituting salt for sugar and a "kick me" sign pinned on a person's back seem to be firmly ensconced in April Fool's Day history. Bees and honey play no part in it. However, I must confess to once using honey to stick some papers together so that the recipient would have considerable difficulty separating the pages. This prank was one part of a rather elaborate April Fool's joke. But now to our celebration of April Fool's Day.

Some of the recipes can be prepared now, but others will have to wait until the proper ingredients can be found. Just don't forget where to find the recipe when your garden is producing.

Please read all the way through this recipe before you start pulling flour and honey and other ingredients off your shelves. I was given the book from which the recipe came for Christmas and actually, I highly recommend it, but that's another story.

BEE-OATMEAL COOKIES

3/4 cup soft butter
2 eggs
1 teaspoon vanilla
1-1/4 cups honey (one pound)
1/4 cup water
2-1/2 cups all-purpose flour
1 cup bee flour (see recipe below)
1/2 teaspoon baking powder
1 teaspoon soda
1 teaspoon salt
1 teaspoon cinnamon
1/2 teaspoon cloves
2 cups rolled oats

Cream butter, eggs and vanilla. Add honey and water. In a separate bowl blend flours, baking powder, soda, salt and spices. Stir into butter mixture. Add oats. Stir until well-mixed. Drop rounded teaspoonfuls 2 inches apart on a lightly greased baking sheet. Bake 8 to 10 minutes at 350°F. Makes 6 to 7 dozen cookies.

Basic insect flour: First, dry roast bees by placing them on paper towels on a cookie sheet. Bake at 200°F for 1-2 hours until dry. Check state of dryness by attempting to crush the bees with a spoon. Put dry roasted bees into blender and blend until a delicate flour is produced.

Entertaining With Insects
Ronald Taylor & Barbara J. Carter

Currants are a delicious fruit frequently used for jelly. This recipe will keep you occupied on a hot summer day when the currants ripen.

BAR-LE-DUC PRESERVES

Read this and try it, at least once.

These preserves are believed to be the finest of their kind and have hitherto been imported at extravagant prices. Other fruits besides currants may be treated in this way, as honey is of itself a preservative. It is not necessary that these preserves be kept absolutely airtight.

Take selected red or white currants of large size. One by one carefully make an incision in the skin 1/4 of an inch deep with tiny embroidery scissors. Through this slit remove the seeds with the aid of a sharp needle, preserving the shape of the fruit. Take the weight of the currants in honey, and when this has been heated add the currants. Let it simmer a minute or two, and then seal as for jelly. The currants retain their shape, are of a beautiful color, and melt in the mouth. Care should be exercised not to scorch the honey.

Airline Recipe – A Honey Cookbook
A. I. Root Company

HONEY AND CUCUMBER LOTION

This next recipe will fool you if you don't read the title or the instructions for what to do with the mixture.

1/3 cup first quality honey
1/2 cup cucumber juice
1/2 cup vodka

Add the juice from fresh cucumbers to the vodka and leave sealed in a cool dark place for 8 days. Then strain the liquid and mix it with the honey. Wash the face and neck with tepid water, and apply the lotion with a piece of muslin. Apply once a day, preferably an hour or so before going to bed.

A Book Of Honey
Eva Crane

Now for something to drink, perhaps to help you recover from the tedium of slitting currants.

ATHOLE BROSE

An old Scottish beverage, this version comes from *The Cook And Housewife's Manual*, 1833, by Meg Dods.

"Mix with a cupful of *heather honey, two cupfuls of whisky* (Scotch), alias mountain dew; *brandy* and *rum* can also be used, though the combination they form with honey cannot be called Athole Brose."

A more recent recipe from F. Marian McNeill is as follows:

Beat 1-1/2 cups double cream (whipping cream) to a froth and stir in 1 cup lightly toasted oatmeal and 1/2 cup heather honey. Just before serving, stir in 2 glasses of whisky

Honey
Jill Norman

Continued on Next Page

HOME ... Cont. From Pg. 229

If indeed you did try the above recipe, take note of this information from Eva Crane's *BOOK OF HONEY*:

"...so a treatment that has been recommended for a hangover is honey with lemon juice, say two tablespoons of honey and as much lemon juice as you like."

In case you wish to keep on celebrating throughout the month instead of just one day at the beginning, take note that April is National Fresh Celery Month. So is a recipe to help you honor this vegetable.

It is interesting to note that celery is basically thought of as part of a recipe featuring some other ingredient. Celery deserves better than that. However, keep in mind that the distinctive flavor and texture of celery are essential to soups, appetizers, meat dishes, salads, and vegetable dishes. What would those be without celery? Probably boring.

COLD ZUKE SOUP

This next recipe is so refreshing on a hot day that you may well make it often. Also, it is a wonderful start for a heavy, robust meal. And those of us who grow zucchini will welcome it as "another recipe to use up all those zucchini"!

4-1/2 cups diced zucchini
1-1/2 cups diced cucumbers
1/4 cup honey, mixed with 1/2 cup water
1-1/2 celery stalks, diced
1-1/2 green peppers, diced

If the zucchini and cucumbers have large, tough seeds, remove them. Process zucchini and cucumbers in an electric blender with half the honey-water mixture and blend to a fine puree. Transfer to a bowl. Process celery (remove tough strings), peppers, and the rest of the honey-water mixture in the blender and liquefy. Add cucumber-zucchini mixture and continue processing until a uniform mixture is obtained. Pour into a bowl and chill in the refrigerator at least 2 hours before serving. Yield 6 servings.

Feasting On Raw Foods
ed. Charles Gerras

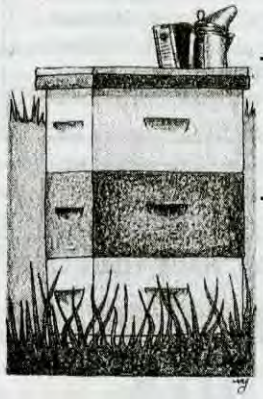
Well, the next time April Fool's Day rolls around, you can participate in a centuries-old tradition. Fortunately, the honey pot is safer than the sugar bowl. BC

?Do You Know? Answers

1. **False** It is almost impossible to requeen a laying worker colony. The laying workers develop a queenlike relationship with the rest of the bees and any introduced queen is normally killed.
2. **True** Both queens and workers have two ovaries each. In the queen an ovary is pear-shaped and consists of 100 to 200 long tubes called ovarioles within which the eggs develop and mature.
3. **True** Pheromones produced by the queen inhibit ovary development in worker honey bees and prevents them from laying eggs. Queen cells will also inhibit the growth of worker bee ovaries just as a live queen will and is believed to be associated with pheromones produced by developing queens.
4. **True** In worker honey bees there are usually two to four and rarely more ovarioles in each ovary.
5. **True** Without beekeeper intervention, a colony with laying workers will eventually die since the worker population is not replaced because laying workers can only lay unfertilized eggs.
6. **True** The sting of the queen is a modified ovipositor. The sting is curved and the curvature closely approximates the curvature of the egg. In the process of laying an egg, the sting of the queen and the sting palpi form a groove. The egg passes down this groove and is thus held in position momentarily against the bottom of the cell.
7. **False** Isolated queens can feed themselves on sugar candy and survive for many weeks, but queens in colonies seldom, if ever, feed themselves.
8. **False** Virgin queens do not become sexually mature until the fifth or sixth day after emergence.
9. **True** Just prior to a queen's mating flight, a group of fanning workers position themselves at the colony entrance, releasing Nassanoff pheromones to assist her in orienting back to the nest.
10. D) 10 to 15 %
11. A) 10 to 30
12. E) Mandibular
13. D) Blue
14. E) 6
15. E) Carbon Dioxide
16. The mauling and possibly killing of a queen by worker honey bees is called "balling behavior" or "balling the queen" This behavior is normally observed when a colony is disturbed soon after a new queen is introduced to the colony.
17. Tooting, Quacking, Piping
18. Swarming
    Supersedure
    Emergency (Queen disappears without any warning: killed, lost, dies)
19. The food supply fed to queen larvae differs from that fed to worker larvae in both quantity and quality. A queen larva is fed a surplus of royal jelly throughout its larval life whereas a worker larva receives royal jelly for only 2 to 2.5 days, then worker jelly and bee bread during the remaining days of feeding. Comparison of royal and worker jelly indicates that queen larvae receive a much higher proportion of mandibular gland secretion than do worker larvae.
20. The ARS-Y-C-1 strain of honey bees that recently became commercially available to beekeepers was developed from Carniolan queens imported from Yugoslavia. Their primary trait that was selected for is resistance to the tracheal mite.

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



BEE TALK

richard taylor

"Requeening a Comb Honey Colony, and supering on time are both vitally important"

In my last article, I discussed swarm control in comb honey production by utilizing the so-called "open brood nest" and requeening, these being the most effective measures to control swarming. Merely giving the bees more room, by adding supers, probably has no effect at all as far as reducing swarming is concerned, especially if they are comb honey supers. You have to give the bees more brood space, and your swarm control will be improved if you also give them a new queen.

A single-story hive works fine for producing comb honey, and I am, in fact, inclined to think it is the best size, provided it is heavy with honey when the bees go into winter. Hive weight is what counts for wintering, not hive size. But how do you requeen a single-story hive?

Well, the old queen is fairly easy to find in a single-story hive. At least you know which story she is in, since there is only one possibility. She'll probably be on one of the central combs, and almost certainly on a comb of brood, unless you have used so much smoke that you have driven her off to the side or into a corner. So if you don't mind killing this beautiful insect in order to replace her with a young queen, then the simplest procedure will be to get rid of her and requeen by the standard method. That is, place the new queen, in her little mailing cage, between a couple of the combs and let the bees chew away the candy plug. I never bother to remove the attendant workers.

There is a surer and slightly more laborious way to requeen, however. Make up a nuc from the hive you want to requeen by taking three combs of brood and bees without the queen, and putting them in a nuc box (or, if you don't have a nuc box, use a regular hive). Place the nuc right on top of the hive to be requeened, facing the opposite way. Meanwhile, replace the three combs you removed from the hive with empty combs or foundation. Introduce the queen to the nuc, and when she has been accepted, that is, when eggs appear in the nuc, combine the nuc with the hive. You do that by removing three combs and replacing them with the three combs and bees, with a new laying queen, from the nuc, making sure you also remove the old queen.

The three combs you remove from the hive and replace with the nuc combs, can, of course, be the same three you put in there just a few days ago. If those three combs were off to the side in the hive, then they will probably have no brood in them, so you will be right back where you started, except that the hive will now have a new laying queen. So you can shake and brush the bees off those combs, back into the hive, meanwhile killing the old queen.

But if the three combs you remove from the hive have brood in them, then you can use them, together with combs of brood from other hives, to make up new colonies, or, you can make up nucs with the combs of brood and adhering bees.

The advantage of requeening by using a requeened nuc, as just described, is that acceptance is almost certain. The young bees of the nuc are much more accepting of a new queen than the older, flying bees of the parent hive. A variation on the foregoing, which I promised last time that I would bring up, is simply to recombine the nuc with the parent hive, without bothering to remove the old queen. This means that you just hope that, when the old and new queens meet and fall into battle, the new one will prevail. She probably will, but you can't be sure of it. If you were requeening a hive of more than one story, then you could introduce the new queen to the top story, as described last time, and the chance of acceptance would be improved.

I think that if you are working with single-story hives, it is worth it to find and remove the old queen. It doesn't take long with a single-story hive. And if you are loathe to murder her, then use her to make up a new nuc, or make up a new colony using combs of brood and queens (plural) from two or three colonies and let the queens fight it out.

All that may sound somewhat complicated, but it really is not when you stop to think that these various methods of requeening, involving splitting a colony temporarily, all rest upon the same principle; namely, that queen acceptance is far more sure when the new queen is introduced to young bees. Once the queen is accepted the combs and bees can all be reunited into a single colony.

I always think of the Fourth of July as the time when I can forget about swarming. From then on, it is just a matter of supering up and harvesting.

So let's say something about supering. I have already stressed the need to get at least one super on the hive early as soon as there is any significant bloom, such as fruit trees and dandelions, and really, the first super should be on before that.

Now, you will be astonished how soon that first super will begin filling up with snow-white honey. I always am. So you must, meanwhile, be get-

ting more supers ready. The second super should go on the hive just as soon as you find the bees working in the first one, that is, when you peer into the super and see that it is pretty well filled with bees. You will see that the sections are getting drawn out fast, and those in the center may already be filled. Now give the hive the second super, placing it *underneath* the one they are already working on.

And that is the pattern to follow. It is all you need to know about the arrangement of the supers on the hive. Just make sure that the one that is most nearly filled is always *on top*. If you don't do that, then the more advanced super, underneath one added later, will fill up first and get travel-stained. Keeping the super that is closest to being filled on top is a very simple principle to remember, and absolutely essential. It is also very easy to do. Just add any new super underneath any already on the hive.

When I find that a super filling up fast and will soon be ready to harvest, I stand the brick that I keep on top of each hive on its end. If it looks like two supers will be ready to harvest, then in addition to standing the brick on end, I also move it toward the front of the hive. That way, when I return to the apiary in a few days to begin the harvest I know at a glance which hives I'll be taking the comb honey from.

I use bee escape boards for harvesting. For decades I used escape boards that consisted partly of heavy eight-mesh screen with a two-way bee escape in the center, and these work fine. But in recent years, simpler escape boards have been invented, one of the most successful being the one consisting of triangular escape paths. The bees, leaving the super, go out through the corners of the triangle but do not have enough sense to return by that route, trying instead to go directly through the screen. Some escape boards using this principle have two triangles, one inside the other, and these work even better. It takes very little time to make up these escape boards. You just cut pieces of plywood to the proper size, tack a rim on both sides and make a good-sized hole in the center. Then tack on the strips to make the triangle and cover this with screen. Heavy eight-mesh screen is by far the best. The bees go down through the hole, walk across the screen to the corners of the triangle, and out. You can purchase these, I believe, from Better Bee, in New York. This is by far the best way to harvest honey. The escape boards do not need to be cleaned out the way the old two-way escapes do. You don't need a bee blower. It is expensive and noisy and messy to use. And you certainly do not need chemical repellants. The bees will usually vacate a super overnight, but I give them two nights. You hope it will not rain while the escape board is on the hive, thus risking moisture in the honey, but this seems to be a groundless fear anyway. I have known it to rain hard all night after I had put on escape boards, but the honey has never been adversely affected, even when there were no bees left in the supers.

Next time I'll say something about cleaning up equipment, dealing with unfinished sections, wax worms and marketing. BC

Richard Taylor raises bees, and comb honey, writes beekeeping books and sells what he raises and writes from his home near Interlaken, NY.

Questions?

Book Value

Q I picked up an 1883 edition of *ABC OF BEE CULTURE* in excellent condition. Have you any idea what it is worth?

Charles R. Miller
Pekin, IN

A This question comes up often among beekeepers. Beekeeping was flourishing and expanding rapidly at the turn of the century, and *ABC of Bee Culture* was the standard, very widely used encyclopedia. Probably no book on beekeeping has sold as many copies as this one has in its several editions. Hence, copies of old editions are not rare. It is widely but erroneously believed that this 1883 edition is a first edition and hence of great value. Your copy is probably worth at least $50, will be worth twice that in 10 years, and might bring much more even now at a book auction.

Sound Advice?

Q I recently talked to an 85-year-old beekeeper who has been keeping bees for 75 years, 50 of them as a commercial beekeeper, and his advice on management was this: "Keep all your colonies 1-1/2 stories high with a queen excluder between the two stories all year round. When the honey flow starts, add supers above the top story. If you allow the queen more than the one story for egg laying, she will just wear herself out. There is almost no swarming with this system," he said. Some of this is completely contrary to what I have read and been told. What do you think?

Henry Yoder
Wallingford, KY

A It is true that the nine or ten combs of a full-depth hive provide enough room for the queen to lay, provided they do not also become filled with pollen and honey, but I cannot believe that swarming can be controlled by this system. It seems to me guaranteed to produce swarms galore, with no provision for requeening or keeping the brood nest open.

A $5 bill goes this month to Mr. David Zhang for the "Question Of The Month," which is a somewhat unusual question having, we think, fairly widespread interest.

Q I am interested in making pure beeswax foundation. Where can I find the suppliers of foundation-making machines and information on how to make foundation?

David Zhang
Middletown, NY

A Foundation mills for commercial use are very expensive, but there are devices sold in England for use at home to make one sheet at a time. One works like a waffle iron, and another consists of an embossed sheet of plastic that is run between rollers with a sheet of beeswax. I have not seen either, but information can be gotten from Mr. Steve Forrest of the Brushy Mountain Bee Farm, Rt. 1, Box 135, Moravian Falls, NC 28654. It is not economically feasible to try making your own foundation for a sideline beekeeping operation, however, for it can take all day just to get maybe a dozen or so sheets. It is far more practicable to send your wax to a bee supply company and exchange it for foundation at bargain prices. They get the wax that they badly need and you do not need, while you get just the foundation you need.

Spring Feeding

Q Is there any point in feeding bees in the spring if there is honey in the hive?

Tim Grove
Searsburg, NY

A In general, no. Stimulative feeding when there is honey in the hive only promotes early swarming. An exception is when you want to make splits. Hive population builds up fast from spring feeding, and you can split the colony to prevent swarming.

Treating With Menthol

Q Is it a good idea to use menthol to get rid of tracheal mites?

Pat Morris
Newfield, NY

A I think not, and a lot of good beekeepers agree (at least in some parts of the country). Tracheal mites are proving to be less serious as time goes on and are probably now best dealt with by good management. The main problem with menthol is that it works only in warm weather and cannot be used when there are supers on the hive. By the time you have harvested the supers, it is usually too cool to use menthol at least in the north. However, if problems persist, and treatment seems worthwhile remember the outside temperature requirements and harvest accordingly.

Comb Honey Labels

Q Where can I get the descriptive labels to stick on the back of circular sections?

A I will send a couple to anyone who sends me a self-addressed stamped envelope, and these can be photocopied to make up any quantity. Commercially printed self-adhesive labels are, of course, much better and carry the same message. They can be obtained from R. M. Farms, P.O. Box 684, Dearborn Hts., MI 48127

Requeening Schedule

Q Is it best to requeen every other year or let the bees take care of this through supercedure?

Craig Pullman
Arma, KS

A If you are experienced at queen introduction and have time, then it is a good idea to requeen at least every other year. But if you are inexperienced, you may to get a queenless colony by trying to requeen. If you let the bees take care of requeening by supercedure, they are almost sure to swarm in the process.

Sugar Solutions

Q I have read two different formulas for making sugar syrup. The first is: For winter feeding, mix 2 kilograms of sugar to 1 liter of water and, for spring feeding, mix 1 kilogram of sugar to 1 liter of water. The other formula is to mark the feeder jar at the level of the sugar you want to feed, then add hot water to just that level and stir or, for spring feeding, to mark the jar at one-quarter the depth of the sugar, then make a second mark one quarter higher than the first mark and fill with hot water to that level. Is this correct?

Anas Dughman
Benghazi, Libya

A Few things are of less importance than the proportions for making sugar syrup for bees. Natural nectar varies in sugar concentration, and it is always quite dilute. Bees naturally prefer a thick syrup, but they greedily take down a thinner one. My own way of mixing sugar syrup, which I rarely have to do, is to pour a five-pound bag of sugar into a 1-gallon wide-mouth jar and fill the jar to the top with hot water, stirring with a wooden spoon.

3-Pound Wonder

Q A beekeeper has advised me that a 3-pound package of bees introduced into a mite-killed hive with honey in it will produce a crop the first year. Is this correct?

Robert Lacy
Shade Gap, PA

A Yes. Mite-killed colonies usually do contain honey, sometimes lots of it, and a package installed in such a colony builds up very fast and can produce a very good crop, more than compensating for the cost of the package. It should be installed about the time the dandelions bloom.

Send questions to Richard Taylor, Box 352, Interlaken, NY 14847. For a fast and personal reply, please include a stamped, self-addressed envelope.

Answers!

Richard Taylor

INNER ... Cont. From Pg. 194

Beauchamp gives a couple of speeches listing statistics, facts and figures (and gets some of them right, but many wrong), but then says some incredibly stupid things about loud noises and stinging bees being 'he' (that's probably why his USDA license was revoked), and people having 'anaphylaxis attacks' We don't see him after that. Fortunately.

Local schools then start 'Bee Drills' for kids outside (put a piece of newspaper over your head and run inside, not unlike the Duck & Cover drills of the 50s). People in the "Bee Red Zone" want to sell their homes and escape, (but couldn't get good enough prices because of the bees, so were forced to stay put).

All sorts of silly things happen after that, but it ends up everybody lives happily ever after (except those six people who died in the beginning).

After the movie (which was labeled 'Fiction') the producers did run a short piece with the Technical Director, Dr. Norm Gary, who explained the *real* facts of AHB. He mentioned AHB wouldn't have a significant impact on the average person, and the only problems people would encounter would be when a nest was disturbed. Then all they had to do was simply run, run, run. He also noted that AHB wouldn't be living where there was winter, and that things weren't nearly as bad as some people might think. There was a split-second shot of Dr. Tew when the USDA name was mentioned, and a heavy-duty snow storm when winter was discussed. All for credibility, I guess.

All in all, from a beekeeper's perspective, I'd give it a hearty thumbs down (Siskal & Ebert wouldn't spend time on this, I'm sure, so I'll do it for them). The plot was thin, the acting terrible, the script bounced between people reading statistics reports to typical horror flick hysteria, (lots and lots of screaming and arm waving) and the overall message was that killer bees will, indeed, come storming down main street and kill anyone who gets in their way. "If you can hear them it's already too late" ran the teaser. Enough said.

I suppose any group that has a movie made about what they do tends to feel the same way. What's 'real' isn't necessarily what 'sells, and what sells is what it's all about – movie wise.

I would also guess you've spent some time explaining all this to anyone and everyone who saw it and wondered. I'm not sure if this type of exposure is 'terrible' because it does draw attention to a situation people need to know about. But it certainly isn't 'good, either, because it was so loaded with errors and *outright stupidity.*

You can be sure that the Fox Network got at least one letter complaining about this bit of trash (mine) and probably lots more (yours?). And, they'll get a copy of this issue, too, just to let them know there are some people who do care about accuracy, about truth, and about honey bees, beekeeping and America's beekeepers.

Now, about those sponsors I mentioned

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In light of the above, coupled with the letter from David Morris in the Mailbox, I think it's time this industry actually do something about stupid actions, policies or philosophies relative to honey bees, honey, beekeeping or beekeepers.

For too long, maybe forever, we have shied away from public criticism of jerks, bozos and idiots. The Senator in Morris' letter is a jerk, pure and simple. The killer bee movie just released is stupid, idiotic and dangerous.

We could all write letters to these goons, which are, maybe, considered. But more likely they're filed somewhere out of the way.

We do well by our own though. There are several opportunities for good and great beekeepers to be recognized at local, state and even the national level. But I'm not talking about our own here. I'm talking about citizens (non-beekeepers to you 19th century deadheads out there), who don't as a rule stick their hands in a beehive.

These are the folks not in this industry who have done well by us, who have gone the extra mile to aid and assist the cause simply because they thought it was the right thing to do.

So we have two things here. There are those out there that should probably be hung (in effigy, of course), and those that should be honored. And both should be recognized by this industry in a professional, well promoted manner.

Therefore, I request you readers search and look and find those particularly loathsome, and particularly wonderful examples of bad and good – all in the name of bees, honey, beekeeping and beekeepers.

We'll publish those that deserve special attention right here in an occasional "Cheers & Jeers" column, and, about a year from now, we'll pick the worst, and the best, and present them with a tangible piece of how we feel. And, so everyone knows how bad, or how good these people (or organizations) have been, we'll do a press release blitz at their local, and not so local level proclaiming the Beekeeping Community's disgust, or praise of those chosen.

Send us the best, and the worst you can find. We'll publish them here, and pick the best of the best, and the worst of the worst – and reward them appropriately.

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It seems several people disagreed with the piece on taxes we printed here last month. They are healthy disagreements, certainly, coming from accountants, tax experts, IRS agents, CPAs and others. And they disagreed with nearly every aspect of what the author had to say. We are not an income tax consulting service, although by publishing that article we loaned the credibility of this magazine in that direction. We did, however, urge readers to contact the IRS regarding the information published, and listed the phone numbers of those who could answer questions concerning the information in the article. That is sound advice no matter where legal tax information is sought.

The intent of the article was to give insight to an increasingly difficult situation - using the tax laws to their full advantage, while at the same time not breaking the law. If you feel the information was in error check it out. That was the advice in the article in the first place. If you disagree with the basic premise of the article, that is, taking advantage of existing laws, don't do it. Like beekeeping information, there's always another side to the story.

Kim Flottum

Gleanings

APRIL, 1995 • ALL THE NEWS THAT FITS •

DOC Reaches Decision
CHINESE HONEY BUMPED 141%

The Department of Commerce (DOC) has assessed an average dumping duty of more than 140% on imported honey from China, which was to go into effect in late March.

The details are a bit more complicated. DOC examined in detail data from the four largest exporters (who are responsible for more than 75% of U.S. Chinese imports) and assigned each of them the duty determined by the examination. The duties for the big four will be 145.79%, 127.52%, and 131.86%.

The other companies who participated by responding to the DOC request for information will be assessed a duty of 141.20%, which is the weighted average of the four large companies. Non-cooperative exporters will have a duty of 157.16%, which is calculated on the "best information available" – essentially information as adjusted by DOC.

Starting in late March the respective dumping duty was added to any honey from China clearing U.S. Customs. Importers can post a bond for the preliminary dumping duty or put up a cash deposit. These will be liquidated after the final dumping duty is determined later this year.

What will this mean in the market? Suppose Chinese honey has a cost of 30¢ FOB China. The duty will add about 42¢; to that add the cost of ocean freight and insurance, the normal tariff, Honey Board assessment (which we had calculated as totaling about seven cents), and importer's commissions, etc. The price to U.S. packers would be in the 80¢ range at the port, based on these calculations.

This must pass the DOC final determination and the ITC final, which requires receiving the detailed questionnaire responses to ITC. Success depends on ITC questionnaires; their importance cannot be overstated.

BEE PLANTS MAY PRODUCE RUBBER

Latex gloves and infant pacifiers made from rubber of native U.S. plants may be closer to reality. ARS scientists discovered that the size of a key molecule controls the rate at which plants produce rubber. The discovery boosts ARS technology for genetically engineering guayule, a desert shrub, and annuals like goldenrod and milkweed as domestic sources of natural rubber. Some 40,000 commercial products are made with natural rubber, harvested only from the tropical Brazilian rubber tree, *Hevea brasiliensis*. Over 2,500 other plants also make natural rubber, but in most the amounts are too small to be commercially exploitable. ARS scientists have found that the size of a molecule, called an initiator, controls the rate of rubber production. ARS scientists hope to insert into guayule and other plants new genes that will make more of the large initiator molecules, thus boosting the plants' rubber production and their potential as profitable new crops for U.S. farmers.

POLLEN BEES HAVE A PLACE

An AZ bumblebee is 500 times faster than honey bees in pollinating flowers. Carpenter bees, another U.S. native in AZ, is hardy, surviving desert conditions. These are two native bees that have commercial potential as pollinators. European honey bees annually pollinate U.S. crops worth about $8 billion, but growers may need more help from other bees in the future. Scientists are now matching bees with crops they pollinate best. Pollen bees provide an alternative to honey bees, which face danger on at least two fronts. In parts of the country, mites attack honey bees and clog their breathing tubes. In the southwest, an Africanized strain crossbreeds with the European honey bee. Offspring are more defensive – more likely to sting and more difficult to manage – and less effective pollinators. Non-honey bees are unaffected by mites or Africanized bees.

LEVIN SCHLORSHIP ESTABLISHED

Marshall D. Levin, former director of the Carl Hayden Bee Research Center, Tucson, Arizona, died on October 22, 1994. His career with the U.S. Department of Agriculture's Agricultural Research Service (USDA-ARS) made him a world-renowned scientist, educator and administrator with numerous contributions to the field of apicultural research.

A M.D. Levin scholarship for deserving minority students is being established at the University of Arizona by the Agricultural Research Service and The Carl Hayden Bee Research Center. Those wishing to remember Marshall can donate to this fund: Academic programs Office, College of Agriculture, Forbes Building, Room 201, University of Arizona, Tucson, AZ 85721, c/o Shirley McChesney. Checks can be made payable to U of A/Marshall Levin Awards.

PORK ASSESSMENT VOTED UP

USDA is proposing to increase assessments on live hogs and imported pork and pork products from .35 to .45% of the market value, as recommended by the National Pork Producers Delegate Body. Increasing the rate of assessment would raise funding for the National Research and Promotion Program for pork which was authorized by the 1985 Pork Promotion, Research and Consumer Information Act. The assessments are levied on market value of live hogs when sold, and on imported hogs, pork and pork products. Honey, by comparison is assessed at about 2.0%.

INSURANCE HAVE'S & HAVE NOTS

What Insurance, Agreements Do Farmers Have?

1. Liability	71.4%
2. Life	71.4%
3. Health	65.1%
4. Hail	46.0%
5. Multiple peril	33.0%
6. Buy/sell agreement	31.7%
7. Disability	30.2%
8. Prenuptial or other marital agreement	9.5%

– Purdue Univ Survey.

Speaking of Insurance .

Lloyds of London has taken on some unusual insurance policies. For example:

- Bruce Springsteen's voice ($1,000,000).
- That Elvis wouldn't be found alive ($1,000,000).
- A comedy troope, against the risk of having members of the audience laugh themselves to death ($1,000,000).
- That the Loch Ness monster wouldn't be captured ($2.2 million).

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- **CTL EASTERN IL BEE ASSOC** — Andy Blum, 1453 Co. Rd. 3600N, Paxton 60957
- **HEART OF IL BEE ASSOC** — Thomas Elston, RR 1, Box 346-D, Bloominton, 61704-9752
- **ILLIANA BEEKEEPERS** — Kathy Wright, P.O. Box 83, Kansas, 61933
- **LAKE COUNTY BEEKEEPERS ASSOC** — Lynne Davis, 42835 N. Crawford Rd., Antioch, 60002
- **LINCOLNLAND BEEKEEPERS** — Ellen Nusbaum, RR 2, Box 154, Riverton 62561
- **LITTLE EGYPT BK ASSN** — Beverly Tanner, RR 2, Box 707, Fairfield, 62837-9164
- **LOWER ILLINOIS VLY BEEKEEPERS** — Joseph Veith, R.R. 1, Mt. Sterling, 62353
- **MISSISSIPPI VALLEY** — Rita Taylor, RR 2, Box 249, Pleasant Plains, 62667
- **NORTHERN IL BEEKEEPERS** — A. Murdock, 570 N. Sharon Dr., Woodstock, 60098
- **ROCK RIVER VALLEY BKPRS** — Ernest Holtz, 305 N. Horace Ave., Rockford, 61101
- **SANGAMON VALLEY BEEKEEPERS** — Leonard Edgecomb, 3170 S. Franklin St. Rd., Decatur, 62521
- **SO ILLINOIS BEEKEEPERS** — Roy Small, 5470 HWY 13 W, Harrisburg, 62946
- **SPOON RIVER VALLEY BEEKEEPERS** — Lyle Lefler, R.2, Cuba, 61427
- **STATELINE BEEKEEPERS ASSN** — Nancy Ingram, 8334 N. Broadway Rd., Apple River, 61001
- **ST CLAIR BEEKEEPERS ASSN** — Joe Frei, 335 Devonshire Court, Highland, 62249
- **WABASH VALLEY BK ASSOC** — Sue Jones, Rt. 2, Box 332, Robinson, 62454
- **WESTERN IL BEEKEEPERS** — Lane McKinley, R.R. 1, Box 330, Viola, 61486

INDIANA

- **MICHIANNA BKPRS ASSOC** — Noah Schrock, P.O. Box 442, Middlebury 46540
- **NW INDIANA BK ASSN** — Lizz Shudick, 727 West 50 North, Valparaiso 46383
- **RIVER VALLEY BEEKEEPERS** — David Maikranz, RR2, Box 64, Oakland City, 47660
- **WHITE RIVER VALLEY BKPRS** — Janet Pfaff, 2734 S. 130 W, Huntingburg, 47542
- **WABASH VALLEY BEEKEEPERS** — Alice Apple, 1224 W. 6th, Jasper, 47546

IOWA

- **SE IOWA BEEKEEPERS** — Ronald Wehr, 2270 Juniper Ave., Keota, 52248
- **CENTRAL IOWA BKPRS** — Maragaret Hala, 1988 Vine Ave., Marshalltown 50158

KANSAS

- **CENTRAL KANSAS BEEKEEPERS** — Anita Mead, Rt. 1, Box 90, Belle Plaine, 67013
- **FLINT HILLS BEEKEEPERS** — E.E. Shaw, 9 South Mechanic St., Emporia, 66801
- **NORTHEASTERN KS BEE ASSN** — Marilyn Fight, 18225 McIntry Rd., Leavenworth, 66048

KENTUCKY

- **BLUE GRASS BKPRS. ASSN** — James Davis, 317 Caney Church Rd., Stamping Ground, 40379-9644
- **DARK HONEY PRODUCERS** — Roy Tincher, 940 SR 2003, McKee, 40447
- **DIX RIVER BKPRS ASSN** — Dennis Rachford, 3035 Skyline Dr., Stanford, 40484
- **ESTILL CO BKPRS ANNS** — Edison Joe Estes, Star Route, Irvine, 40336
- **GREEN VALLEY BK ASSN** — Sherri Coleman, 4523 Sutherland Rd., Owensboro, 42303
- **GREENUP CO BEEKEEPER ASSN** — Carl Crabtree, Argillite, 41121
- **HEART OF KY BK ASSN** — Halcyon Holt, 944 Belvoir Dr., Frankfort, 40601
- **KENTUCKIANA BK ASSN** — Ray Williams, 2725 Sheila Dr., Louisville, 40220
- **LAKE BARKLEY BKPS ASSN** — Charles Humphrey, 435 Lakeview Dr., Paducah, 42003
- **LINCOLN TRAILS BK ASSN** — Joe Perry, 167 Santa Fe Trail, Elizabethtown, 42701
- **NORTHEAST KY BKPRS ASSN** — Thomas Crabtree, 232 W. Greenhill Rd., Ashland, 41102
- **NORTHERN KY BKPR ASSN** — Wilbur Hudson, 1525 Connor Rd., Hebron, 41048
- **OLDHAM CO BKPRS ASSN** — Robert Stevens, 3511 Arrowood Ct., Lagrange, 40031
- **WHITLEY COUNTY BKPRS** — Eddie Wells, P.O. Box 181, Corbin, 40702-0181
- **WILDERNESS RD BKPRS ASSN** — James Patton, Rt. 2, Box 70, East Bernstadt, 40729

LOUISIANA

- **ACADINA BKPRS ASSN** — Ralph Miller, 2318 Ridge Rd., Duson, 70529
- **ARK-LA-TEX BEEKEEPING** — Lee Glegg, 912 Booth Dr., Shreveport, 71107
- **BEEKEEPERS OF SE LA** — John Roberts, 2300 Riverland Dr., Chalmette, 70043
- **CAPITAL AREA BKPRS** — William Reid, 886 East Versailles Dr., Baton Rouge, 70819
- **HILL COUNTRY BKPRS ASSN** — Clarence Morris, 13464 Old Bonita Rd., Bastrop, 71220
- **RIVER REGION BKPRS ASSN** — James Pearson, 653 Grovewood Dr., Gretna, 70056
- **BKPRS OF TANGITAMMINGTON** — Peter Finger, P.O. Box 482, Pearl River, 70452

MARYLAND

- **ALLEGHENY MOUNTAIN BKPRS** — Edmund McCreary, RD 2, Box 74, Bedford 15522
- **ANNE ARUNDEL CO BEEKEEPERS** — Jon Clulow, 871 Swift Rd., Pasadena, 21122
- **ASSN OF SOUTHERN MD** — Greg Ferris, Rt. 1, Box 460 H, Indian Head, 20640
- **BOWIE-UPPER MARLBORO BKPRS** — Paul G. Graninger, USDA BARC-East, Bldg. 177C, Beltsville, 20705
- **CARROLL CO BKPRS** Stephen McDaniel, 4964 Wentz Rd., Manchester 21102
- **CTL MARYLAND BEEKEEPERS** — Marcia McCutcheon, P.O. Box 276, Phoenix 21131
- **HAGERSTOWN VALLEY APIAN SOC** — Frank Kovac, 10901 Easterday, 21773
- **MONTGOMERY CO BKPRS** — George W. Imire, Jr. 12705 Circle Dr., Rockville, 20850
- **SUSQUEHANNA BEEKEEPERS** — Jim Zink, 4316 Federal Hill Rd., Street 21154

MAINE

- **CENTRAL MAINE BK ASSN** — Ed Branagan, RFD 1, Box 2620, E. Corinth 04427
- **CUMBERLAND CO BK ASSN** — Sherry Dobson, 382 Co. Rd., Scarborough 04074
- **FRANKLIN COUNTY BK ASSN** — Bruce Clark, RR 1, Box 1600, New Vineyard 04956
- **SAGADAHOC CO BK ASSN** — Ron Riendeau, 9 North Street, Topsham 04086
- **TRI-COUNTY BKPRS** — Roger Snow, Maple Street, Box 627, Stockton Springs 04981
- **WESTERN ME BK ASSN** — Bruce Clark, RR 1, Box 1600, New Vineyard, 04956

SACHUSETTS

- **BARNSTABLE CO BEEKEEPERS** — Jean Kennedy, 575 Willow St., West Barnstable, 02668
- **BRISTOL CO BEEKEEPERS** — Frederic Magee, 148 Turnpike St., West Bridgewater, 02379
- **ESSEX CO BEEKEEPERS ASSN** — Treasurer, P.O. Box 10, Topsfield, 01983-0010
- **FRANKLIN CO ASSN** — Ralph Whiteman, Martindale Rd., Bernardston, 01337
- **HAMPDEN CO BKPRS** — Robert Cosby, 375 Kings Highway, West Springfield 01089
- **HAMPSHIRE CO BKPRS** — Susan Godard, 592 Sylvester Rd., Northampton 01060
- **MA FED OF BKPRS** — Theodore Shylovsky, 192 Boston Post Rd., Sudbury, 01776-3102
- **MIDDLESEX CO BKPRS** — Theodore Shylovsky, 192 Boston Post Rd., Sudbury, 01776-3102
- **NORFOLK CO BEEKEEPERS** — Ellis Hayden, Jr., 62 Main St., Norfolk, 02056
- **NORTHERN BERK BKPRS** — Dennis Austin, P.O. Box 2, North Adams 01247-0002
- **PLYMOUTH CO BKPRS** — Frederic Magee, 148 Turnpike St., West Bridgewater, 02379
- **WORCHESTER CO BEEKEEPERS** — Jamina Antos, 124 Dudley-So Bridge, Dudley, 01571

MICHIGAN

- **CRANBROOK BEE CLUB** — William Sirr, 1010 Columbia, Berkley, 48072
- **HOLLAND AREA BEEKEEPERS** — John Kleis, 5914 Old Allegan Rd., Hamilton, 49419
- **JACKSON CO BEEKEEPER ASSN** — Kenneth Losey, 6962 Folks Rd., Horton, 49246
- **MACOMB CO BEEKEEPERS ASSN** — Ms. Kurt Ciper, 37477 Union Lake Rd., Rt. 4, Mount Clemens, 48043
- **SAGINAW BAY BEEKEEPERS** — John Kern 12740 E. Curtis, Frankenmuth, 48134
- **SOUTHEASTERN MI BEE ASSOC** — Ann Kerwin, 17516 Birchcrest, Detroit 48221
- **SOUTHWEST MI BEEKEEPERS** — Don Hiatt, 123 Drum, Miles, 49120
- **SUPERIOR BEEKEEPERS ASSN** — Robert M. Slee, Box 23, Goetzville, 49736

MINNESOTA

- **CENTRAL MN BEEKEEPERS ASSN** — Rt. 1, Box 45, Ponsford, 56575
- **LAKES REGION BEEKEEPERS,** — Russell Hofman, Richville 56576
- **MN HOBBY BEEKEEPERS ASSOC** — Gary Reuter, 4 Langford Park, St. Paul, 55108
- **MN HONEY PRODUCERS** — Fred Holte, R1 4348 Andee, Harris, 55032
- **NO CENTRAL BEEKEEPERS ASSN** — P.O. Box 294, Brainerd, 56401
- **SE MN BEEKEEPERS** — Ernest Vickla, 507-334-4824

MISSISSIPPI

- **CENTRAL MS BKPRS ASSN** — Del Sparks, 173 Plummer Circle, Jackson, 39212
- **GULF COAST BKPRS ASSN** — David Kilbern, 2910 Duncan Ave., Pascagoula, 39581
- **MS DELTA BKPRS ASSN** — Huburt Tubbs, P.O. Box 3, Webb, 38966
- **SOUTHEAST MS BKPRS ASSN** — Don Rushton, 37 Northeast, Laurel, 39440

MISSOURI

- **BOONE REGIONAL BKPRS** — Doris Lyons, 8209 Dusty Rhodes Ln., Columbia 65202
- **BUSHWACKERS BKPRS** — George Reeves, Rt. 4, Box 226-A, El Dorado Springs 64744
- **DALLAS CO BEEKEEPERS** — Inge Foster, Rt. 1, Box 105, Urbana, 65767
- **EASTERN MO BKPR ASSN** — Ken Corbin, 1776 Golden Lake Ct., Chesterfield, 63017
- **JEFFERSON CO BKPRS** — Jean Davis, 7320 Brugess Ford Rd., Cedar Hill, 63016
- **MID-MO BEEKEEPERS** — David James, Rt.1, Jadwin, 65501
- **MIDWESTERN BKPR ASSN** — Ryan Cooper, 104 London Way, Belton 64083
- **MISSOURI VALLEY BKPRS** — Gorden Davis, 2151 Golfview, Wentzville, 63385
- **OZARK BKPRS ASSOC** — Mary Jane Kelly, Rt. 6, Box 610-I, Springfield, 65803
- **OZARK MOUNTAIN BKPRS** — Eddie Rosencrans, 212 Newbury Rd., Reeds Spring, 65737
- **SEMO HONEY PRODUCERS** — Ray Batton, 3032 N. 14th, Poplar Bluff, 63901
- **SO CENT BEEKEEPERS** — Marge Kilton, RR 2, Box 2746, Alton, 65606
- **SOUTHWEST MO BEE ASSOC** — Marilyn Spencer, Rt.1, Box 254-A, Rocky Comfort, 64861
- **TWO RIVERS BKPRS ASSN** — Gerry Lee, 9637 Ridge Ave., Overland, 63114
- **WEBSTER CO BKPRS ASSN** — Keith Nutting, Rt.1, Box 588, Fair Grove, 65648

MONTANA

- **EASTERN MT BEEKEEPERS** — Gorvan Leduc, 2026 Wilkins Rd., Laurel, 59044

NEBRASKA

- **EASTERN NE HONEY PRODUCERS** — Inara Kesang, 8910 Monroe Rd., Beaver Lake, 68048
- **NE BKPRS ASSN** — Marvin Doole, 311 W. 28th Ave., Bellevue, 68005-5323
- **NORTHEAST NE BKPRS** — Jerry Bishop, 311 Wst 28th Ave., Bellevue, 68005-5323

NEW HAMPSHIRE

- **KEARSARGE BEE ASSOC** — Paula A. Morse, 38 Water St., Bradford 03221-9123
- **MERRIMACK VLY BEEKEEPERS** — Robert Salvage, 3 Birchwood Rd., Windham, 03087
- **PAWTUCKAWA[illegible]PRS** — Ron Pannetton, RR 1, Box 795 Mountain Rd., Pittsfield 03263
- **SEACOAST BKPRS** — John Hadwen, 263 Diamond Hill Rd., Berwick, ME 03901

NEW JERSEY

- **CENTRAL JERSEY BKPRS** — Liz Rodrigues, 157 Five Point Rd., Colts Neck, 07722
- **ESSEX CO BKPRS** — Marian E. Chandler, 85 Deerfield Rd., W. Caldwell, 07006
- **MORRIS CO BEEKEEPERS** — Roha Duve, R.D. 1, Box 258-B, Washington, 07862
- **NE BEEKEEPERS ASSOC, NJ** — Alfred E. Cundall, 390 Jackson Ave., Township of Washington, 07675
- **SOUTH JERSEY BKPRS** — Patricia C. Schuler, P.O. Box 228, Richland 08350
- **SUSSEX CO BKPRS SOC** — Marilyn Cosh, 175 Sally Harden Rd., Wantago, 07461

NEW YORK

- **CHAMPLAIN VALLEY BKPRS** — Loreta Surprenant, Box 300A Co Home Rd, Essex, 12936
- **CHAUTAUQUA CO BEEKEEPERS** — Ken Waite, Rt. 3, Box 356, Jamestown, 14701
- **FINGERLAKES BK ASSN** — Richard Taylor, Box 352, Interlaken 14847
- **LONG ISLAND BKPRS** — Richard Blohm, 30 Cherry Lane, Huntington, 11743-2945
- **S ADIRONDACK BEEKEEPERS** — Rick Green, 15 Gretel Terrace, Ballston Lake, 12019-9108
- **SOUTHEASTERN BEEKEEPERS CLUB** — Kathleen Smith, 239 Wisner Ave., Middletown, 10940
- **SOUTHERN TIER BKPRS** — Carl L. Riechers, 1209 Laurelton Dr., Enidcott, 13760
- **WESTERN NY HONEY PRODUCERS** — Robert Y. Harbison, 2493 Sweet Home Rd., Amherst, 14228

NORTH CAROLINA

- **ALAMANCE CO BEEKEEPERS** — Donald Moore, 3634 Stoney Crk Church Rd., Elon College, 27244
- **ALBERMARLE REGIONAL BEE CLUB** — Wink Munden, 506 Hemlock Ave., Elizabeth City, 27909
- **ANSON CO BKPRS ASSN** — John Hoffman, Rt. 2, Box 176C, Polkton, 28135
- **BUNCOMBE CO BEEKEEPERS** — Greg Rogers, 15 Graham Rd., Ashville, 28805
- **BURKE CO BKPRS ASSN** — N. Christine Bec, Rt. 10, Box 576, Morganton 28655
- **CARBBARRUS CO BKPRS ASSN** — Robert Safrit, 737 Irish Potato Rd., Concord, 28025
- **CARTERET CO BEEKEEPERS** — Harry Lockey, Jr., Rt. 2, Box 226, Newport, 28570
- **CASWELL CO BEEKEEPER ASSN** — Paul Myers, Rt.1, Box 133, Bianch, 27212
- **CATAWBA VALLEY BEEKEEPERS** — Bobby Glenn, 303 Travis Dr., Newton, 28658
- **CHATHAM CO BKPR ASSN** — Aurelia Kirkman, Rt. 1, Box 1141, Moncure, 27559
- **CHOANOKE BEEKEEPERS ASSOC** — Frank Stevenson, 301 E. Broad St., Murfreesboro, 27855
- **COASTAL PLAIN BKPRS ASSN** — Hazel Anderson, Rt. 1, Box 380, Macclesfield, 27852
- **COLUMBUS-BRUNSWICK BKPRS** — Sylvia Martin, Rt. 2, Box 306, Chadbourn, 28431
- **CUMBERLAND CO BKPRS ASSN** — James Thagard, Rt. 5, Box 358A, Fayetteville, 28301
- **DAVIDSON CO BKPRS ASSN** — Paul Wright, 607 East 1st Street, Lexington, 27292
- **DAVIE CO BEEKEEPERS ASSN** — Gary Harsk, Rt. 3, Box 318, Mocksville, 27028
- **DURHAM CO BEE CLUB** — Ellis Selph, 2502 Winton Rd., Durham, 27707
- **EDGECOMBE CO BKPRS** — Peggy Weatherford, Rt. 2, Box 162, Battleboro, 27809
- **FORSYTH CO BEEKEEPERS ASSN** — Jim Barnes, 5125 Robin Hood Rd., Winston-Salem, 27106
- **GASTON CO BKPRS ASSN** — L.E. Mullins, 4715 S New Hope Rd., Belmont, 28012
- **GREENSBORO BEEKEEPERS** — Henry Moon, 2416 Wright Ave., Greensboro, 27403
- **GUILFORD CO BKPRS** — John Godfrey, 6304 Sable Lane, Greensboro, 27406
- **HAYWOOD CO BEEKEEPERS** — Cormell Hollingworth, 1322 Allens Creek, Waynesville, 28786
- **HENDERSON CO BKPR** — C. Worsham, 2134 W. Main St., Hendersonville, 28792
- **HOKE CO BEEKEEPERS ASSOC** — Betty Freeman, Rt. 2, Box 527, Raeford, 28376
- **IREDELL CO BKPRS** — Bobby Davidson, Rt. 9, Box 374-A, Statesville, 28677
- **JACKSON CO BKPRS ASSN** — J. Edward Nellis, Rt. 2, Box 168, Highlands, 28741
- **JOHNSTON CO BKPRS ASSN** — Lloyd Reynolds, Rt. 2, Box 112-B, Smithfield, 27577
- **LEE CO BKPRS ASSOC** — W. Lynn Spivey, 120 E. Weatherspoon St., Sanford, 27330
- **LINCOLN CO BKPRS ASSN** — David Noles, P.O. Box 186, Lincolnton, 28092
- **MACKLENBURG CO BEEKEEPERS** — William Skelton, 2040 Providence Rd., Charlotte, 28211
- **MACOM CO BKPRS ASSN** — Lon Peden, 436 Sylvia Highway, Franklin, 28734
- **MOORE CO BKPRS ASSN** — Bill Lathan, 902 Pinebluff Lake Rd., Aberdeen, 28315
- **ONSLOW CO BEEKEEPERS** — Maurice Cook, Rt. 4, Box 167, Jacksonville, 28540
- **ORANGE CO BEEKEEPERS ASSOC** — John Wallace, Rt. 4, Box 365ASTRY Duke Un., Durham, 27703
- **PAMLICO CO BKPRS** — Susan Herring, 6789 St. Julian Way, Fayetteville, 28314
- **RANDOLPH CO BEEKEEPERS** — George Byrum, Rt. 2, Box 151, Asheboro, 27203
- **RICHMOND CO BKPRS ASSN** — Sam Yates, Rt. 1, Box 270, Rockingham, 28379
- **ROBESON CO BKPR A[illegible]** — M. Brewington, P.O. Box 2168, Pem[illegible]ke, 28372
- **ROCKINGHAM CO BKPR ASSN** — Bill Timberlake, 323 Anderson Rd., Eden, 27288
- **ROWAN CO BEEKEEPERS ASSN** — Darrell Smith, Rt. 2, Box 704, Salisbury, 28144
- **RUTHERFORD CO BEEKEEPERS** — Arthur Stchley, Rt. 3, Rutherfordton, 28139
- **SAMPSON CO BEEKEEPERS** — Florence Beretich, Rt. 3, Box 14, Clinton, 28328
- **STANLEY CO BKPRS ASSN** — Billy Smith, 20553-A Hwy. 52 South, Albemarle, 28001
- **SURRY CO BEEKEEPERS ASSN** — Roy Thomas, 519 Ridgeway Dr., Mt. Airy, 27030
- **SWAIN CO BEEKEEPING CPTR** — M. G. Sanderson, Rt. 2, Box 608, Bryson City, 28713
- **TRANSYLVANIA CO BKPR** — Rick Queen, 305 Davidson River Rd., Pisgah Forest, 28768
- **TRI-CO BEEKEEPERS ASSOC** — John Beeman, Rt. 65, Box 115, Arapahoe, 28510
- **WAKE CO BKPR ASSN** — Roger Sanders, 2120 Steward Rd., Fuquay Varina, 27526
- **WATAUGA CO BKPRS** — Joe Howser, 117 Highland Park Lane, Boone, 28607
- **WAYNE CO BKPRS ASSN** — David Sasser, 2974 NC 581 Hwy. N, Fremont, 27830
- **WILSON CO BEEKEEPERS ASSN** — Harvey Denton, Rt. 2, Box 50-B, Bailey, 27087

OHIO

- **ASHTABULA BEEKEEPERS** — Bill Loudon, 86 Stockwell St., Painesville, 44077
- **BUTLER CO BEEKEEPERS** — Alex Zomchek, 14 Carrie Circle, Oxford, 45056
- **CAMBRIDGE-NOBEL BK ASSN** — Roger Seaton, 9488 Liberty Rd., Cambridge 43725-9023
- **CARROLL CO BKPRS** — Jack Leggett, 7190 Roswell Rd., Sherrodsville, 44675
- **CENTRAL OH BKPRS** — David Casdorph, 4111 Maize Rd., Columbus, 43224
- **CLARK CO BKPRS** — Rolland Anderson, 1312 N Lowry Ave, Springfield, 45504
- **COLUMBIANA & MAHONING CO BKPR** — Beverly Converse, 4950 Lower Elkton Rd., Leetonia, 44431
- **COLUMBIANA CO BEEKEEPERS** — Grace Hamilton, Rt. 1, Lisbon, 44432
- **CUYAHOGA COUNTY BEE ASSN** — William Conley, 292 Fowles Rd., Berea, 44017
- **GEAUGA BEEKEEPERS ASSN** — Mary Cluts, 9799 Pekin Rd., Novelty, 44072
- **GREENE CO BEEKEEPERS** — O. K. Simison, Rt. 1, Spring Valley, 45370
- **GUERNSEY CO BEEKEEPERS** — Roger Seaton, 9488 Liberty Rd., Cambridge, 43725
- **HIGHLAND CO BEEKEEPERS** — Jim Higgins, 380 U.S. 50, Hillsboro 45133
- **HOCKING CO BKPRS** — Annette McClain, 20193 St. Rt. 328, New Plymouth, 45654
- **JEFFERSON CO BEEKEEPERS** — Kathryn Grafton, Rt. 2, Box 341, Bloomingdale, 43910
- **KOKOSING VALLEY BEEKEEPERS** — Kenneth Neighbarger, 305 Sychar Rd., Mt. Vernon, 43050

- **KNOX CO BKPR ASSN** — Gertrude Rasor, 500 North Ridge Hts. Dr., Howard 43028
- **LAKE CO BKPRS ASSN** — Mark Rinderman, 116 Hawthorne Dr., Painesville, 44077
- **LAWRENCE CO BKPRS** — Margaret Reid, 15754 St. Rt. 775, Willow Wood, 45696
- **LORAIN CO BKPRS ASSN** — Jean McAudy, 2420 Brownhelm Sta. Rd., Vermilion 44089
- **MARION CO BKPR ASSN** — Henry Perry, 440 Avondale Ave., Marion 43302
- **MEDINA CO BEEKEEPERS** — Kim Flottum, 7011 Spieth Rd., Medina 44256
- **MIAMI CO BEEKEEPERS** — Robert Newmann, 183 S. Dorsett Rd., Troy, 45373
- **MORROW CO AREA BKPRS** — Arthur Korody, 4084 Co. Rd. 115, Mt. Gilead, 43338
- **MUSKINGUM CO BKPRS** — Dennis Moffitt, 185 Homestead Dr., New Concord, 43762
- **NW OHIO BEEKEEPERS ASSN** — Zelma Cox, 1623 W. Wayne, Lima 45805
- **PORTAGE CO BEEKEEPERS** — Peggy Kaminski, 1459 E. Howe Rd., Kent, 44240
- **RICHLAND CO BEEKEEPERS** — Ralph Mitchell, Brokaw Rd., Rt. 2, Butler, 44822
- **ROSS CO BEEKEEPERS ASSN** — Fred Weaver, 27 Courtland Dr., Chillicothe, 45601
- **SOUTH CENT. BK ASSN** — Fred Ginther, 122 Huntington Lane, Chillicothe, 45601
- **SOUTHWESTERN OH BEE ASSN** — Karen Berry, 5186 Batavia Rd., Cincinnati, 45244
- **STARK CO BEEKEEPERS** — Mrs. Fran Muller, 1927 6th St. SW, Canton 44706
- **SUMMIT CO BKPRS** — Cheryl Beyer, 6423 Olde Eight Rd., Peninsula, 44264
- **TRI-COUNTY BEEKEEPERS ASSN** — B.J. Hoffman, 3198 Crater Rd., Wooster, 44691
- **TRUMBULL CO BEEKEEPERS** — Sheila Terrill, 10044 Ridge Rd., Kinsman, 44428
- **WARREN CO BEEKEEPERS** — Oscar Brown, 7154 Hopkins Rd., Maineville, 45039

OKLAHOMA

- **CENTRAL BEEKEEPERS ASSN** — Glenn Gibson, Box 368, Minco, 37059
- **CENTRAL OK BK ASSN** — Robert Wagner, 2928 S. Oak Dr., Midwest City 73130
- **DEEP FORK VALLEY BKPR ASSN** — J.H. Allison, Rt. 1, Box 386 B, Henrietta, 74437
- **EAST CENTRAL BEEKEEPERS ASSN** — Betty Allred, Rt. 7, Box 248, Ada 74820
- **FRONTIER COUNTRY BKPRS ASSN** — Chuddie Smith, P.O. Box 34, Guthrie, 73044
- **GREEN COUNTRY BKPR** — Shirley Wright, Rt. 1, Box 55A7, Locust Grove, 74352
- **INDIAN NATION BEEKEEPERS** — Harold O'Dell, Rt. 2, Box 138A, Muskogee 74403
- **NORTH CENTRAL BEEKEEPERS** — Joe Green, Box 1983, Stillwater, 74076
- **NE OKLAHOMA BEEKEEPERS** — J.D. Harper, 326 W. 62nd St. N, Tulsa, 74126-1468
- **NW BEEKEEPERS ASSN** — Leonard Morris, 905 E. State, Fairview, 73737
- **SE OKLAHOMA BEEKEEPERS** — Dorothy Bragg, Rt. 1, Box 305, Caddo, 74729
- **SW OK BEEKEEPERS ASSN** — Eva Bell Ritter, HC 64, Box 57, Marlow, 73055
- **WESTERN AR/ESTRN OK BK ASSN** — Danny Self, Rt. 1, Box 1325, Arkoma 74901

OREGON

- **CENTRAL OREGON BKPRS** — Bob Morgan, 3800 Benson Rd., The Dalles, 97058
- **COOS CO** — Gordon Star, 503-396-4537
- **EASTERN OR BKPRS** — Dave Lefore, Rt. 3, Box 207E, Milton-Freewater, 97862
- **KLAMATH COUNTY** — Ken Crow, 503-882-1893
- **LANE CO BEEKEEPERS** — James Sheridan, 1885 Norkenzie Rd., Eugene, 97401
- **METROPOLITAN AREA BKPRS** — Chuck Sowers, 4390 Lords Lane, Lake Oswego, 97304
- **NORTH COAST BKPRS ASSN** — Bob Allen, P.O. Box 434, Garibaldi, 97118
- **PORTLAND AREA** — Carol/Scott McConnachle, 503-665-4241
- **SOUTH COAST BKPRS ASSN** — Joann Olstrom, 6134 Maple Court, Reedsport, 97467
- **SOUTHERN OR** — George Steffensen, 1634 Fish Hatchery Rd., Grants Pass, 97527
- **TILLAMOOK COUNTY** — Gregg Cline, 503-842-6323
- **TUALATIN VALLEY** — Lew Wolf, 503-251-5482
- **WILLAMETTE VALLEY** — Don Ames, 25222 Arnold Lane, Elmira, 97437

PENNSLYVANIA

- **2 C'S & A BEE ASSOC** — Joe Bayer, RD. 3, Box 311A, Tyrone, 16686
- **ARMSTRONG-INDIANA BKPR** — Charlie Lyon, 207 Fairground Rd., Ford City, 16226
- **BUCKS CO BEE ASSN** — Josef Ridgway, 2728 Red Gate Drive, Doylestown, 18901
- **CAPITAL AREA BK ASSN** — Maria Contino, 6087 Rockland Dr., Harrisburg, 17112
- **CENTRAL WSTRN PA BEE ASSN** — Nancy Paffenroth, Unionville Rd., Evans City, 16033
- **CHESTER COUNTY BK ASSN** — Tim Sterret, Westown School Box 1799, Westown 19395-1799
- **CLARION CO BEEKEEPER ASSN** — R. W. McHenry, Front St., Box 176, Sligo, 16255
- **FRANKLIN CO BKPR** — Lloyd Benedict, 2183 Anthony Hwy., Chambersburg, 17201
- **LACKAWANNA CO BEEKEEPERS** — Esther Ziegler, Rt. 1, Dalton, 18414
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•American Honey Producers Association. Richard Adee, P. O. Box 368, Bruce, SD 57220, (605) 627-5621.

•Apiary Inspectors of America. Barton Smith, Jr., 50 Harry S. Truman Parkway, Annapolis, MD 21401 (410) 841-5920.

•Eastern Apicultural Society of North America, Inc. Sec. Loretta Surprenant, Box 330A, County Home Rd, Essex, NY 12936, (518) 963-7593.

• Western Apicultural Society of North America. Nancy Stewart, 2400 21st Street, Sacramento, CA 95818 (916) 451-2337

•National Honey Board. Chairman, Bob Smith, 390 Lashley St., Longmont, CO 80501-1421 (303) 776-2337

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•Professional Apiculturists Assn. Marion Ellis, 301 Centennial Mall South, P.O. Box 94756, Lincoln, NE 68509 (402) 471-2394.

•Southern States Beekeepers Federation. Dr. John Ambrose, Dept. of Entomology, Box 7626, Raleigh, NC 27695, (919) 737-3140.

•The Canadian Honey Council. Linda Gane, Box 1566, Nipawin, Sask. S0E 1E0 (306) 862-3844

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

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

•Biosystematics Research Centre. Dr. R. J. T. Trottier, Dir., Rm. B149, K. W. Neatby Bldg, Ottawa, Ontario, Can. K1A OC6. (613) 996-1665.

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A Swarm

richard dalby

Much has been written about swarming. It is the rare beekeeping book that doesn't devote a chapter to swarming, its cause and ways to prevent it. Many beekeepers seem to measure their success, not by how much honey they get, but by how few swarms issue from their hives. Some seem to regard swarming as an apicultural disaster rather than the natural phenomenon it is. But bees are going to swarm now and then, despite our best efforts to stop them, so perhaps it is best to cultivate a philosophical attitude toward the occasional swarm. After all, if caught and hived, a swarm represents another hive of bees. And the parent hive will soon have a new laying queen, so all in all, a swarm has its positive side.

It should be remembered that it was the fortuitous conjunction of A.I. Root with a passing swarm that led to the creation of this magazine, the *ABC & XYZ of Bee Culture*, and the A.I. Root Company itself. It's a charming tale as related in the introduction to the first edition of the *ABC* and many editions thereafter.

Before Langstroth's discovery of the bee space and the consequent popularity of the movable-frame hive, beekeepers welcomed swarms. A swarm was viewed as a replacement for the parent colony, which typically was killed during the honey-taking process.

Most bee books discuss a phenomenon most beekeepers dislike – a colony that decides to abscond. One dictionary defines "abscond" as "to go away hastily and secretly." The word has a formal feel to it, with a hint of scandal and the courtroom about it (Yes, your Honor, those ungrateful bees absconded with all my hopes for honey).

The derivation of the word "swarm" is interesting. Traced back to its Indo-European base *suer-*, the word means "to buzz or hum," which is pretty typical demeanor, after all, for a swarm. 'Swarm' can be used as either a noun or a verb. Both usages are extensively illustrated in the famous *Oxford English Dictionary (OED)*. For "swarm" as a verb, the *OED* definition is "to gather in a compact cluster and leave the hive in a body to found a new colony." As one of its illustrations of the word's usage, the *OED* cites a husbandry manual from the year 1573: "Take heed to thy bees, that are ready to swarm." That advice is as good today as when it was written.

The *OED* defines "swarm" used as a noun in this manner: "A body of bees which at a particular season, leave the hive or main stock, gather in a compact mass or cluster and fly off together in search of a new dwelling place, under the guidance of a queen (or are transferred at once to a new hive).' A 1774 natural history text by Oliver Goldsmith supplies this usage example: "When a hive sends out several swarms in the year, the first is always the best and the most numerous." His observation, too, still holds true.

An old folk belief held that a swarm could be made to land by beating noisily on pots and pans or by ringing bells. Quaint drawings from past times show villagers thus engaged. This practice was known as to "ting" or to "tang" the swarming bees. Both words are probably echoic in origin, imitations of the sound they stand for. The *OED* gives a quote relating to "tinging" a swarm from the year 1495: "Wyth boynge of basynes, tyngynge & tynkynge of tymbres they (bees) ben comforted and callyd to the hyves." Or, with a bit of updating, "With banging of basins, tinging and tinking of bells, the bees are comforted and called to the hives." As late as 1872, Thomas Hardy refers to tinging a swarm in *Under The Greenwood Tree*. By that time the practice had probably all but vanished.

Not so swarms. They are still very much with us. Though no longer do we want our bees to swarm, most of us beekeepers are, or should be, happy when a swarm comes into our possession. A newly hived swarm is, typically, grandly industrious. Swarms often develop into the best of colonies. So, if a swarm issues from one of your hives, you might want to grab a pan and start banging on it. Both you and your bees might find it comforting.