APR 1998

BeeCulture

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Bee Culture

THE MAGAZINE OF AMERICAN BEEKEEPING

APRIL 1998 VOLUME 126 NUMBER 4

FEATURES

COVER

Wild blueberries are a delight to eat, and a profitable crop to pollinate for beekeepers. We visited one of the largest wild blueberry growers last spring, to see all that we could see. From bear fences to irrigation systems to thousands of colonies ready for action. Come along for the ride.

photo by Kim Flottum

1998 WHO'S WHO IN APICULTURE

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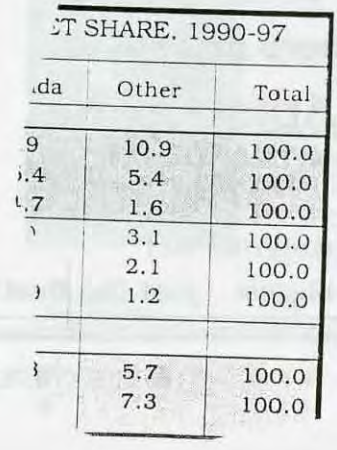

T SHARE, 1990-97

da	Other	Total
9	10.9	100.0
.4	5.4	100.0
.7	1.6	100.0
	3.1	100.0
	2.1	100.0
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	5.7	100.0
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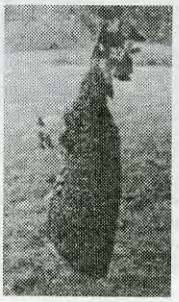

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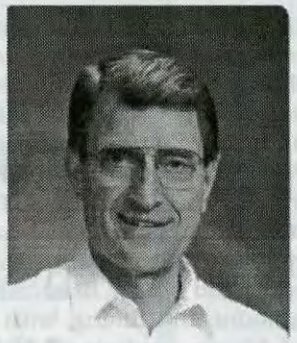
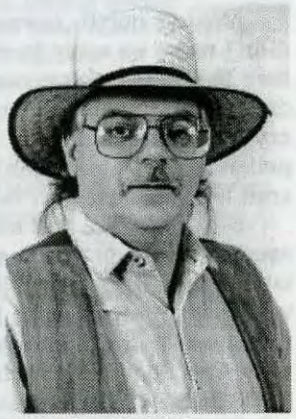


JOHN ROOT
Publisher



KIM FLOTTUM
Editor

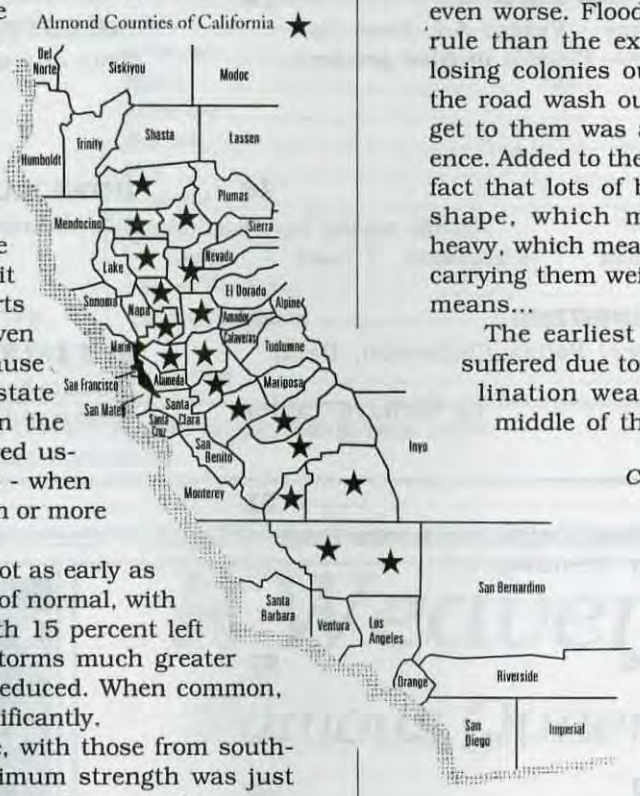
Bee Culture is Printed on Recycled Paper

INNER COVER

El Niño, The Test, and 500+

A month ago California was in the throes of almond passion, with a half million colonies, about 120,000,000,000 (that's one hundred twenty **B**illion) pollination-mad honey bees and a supporting cast of hundreds, maybe thousands of beekeepers all trying to get their respective jobs done, on time, and at a profit.

At about the same time the news shows, farm magazines and weather programs were all aflutter about El Niño, ruined crops, destitute farmers, flooded homeowners and rising prices. From a distant and objective watcher's point of view it was great drama, but for those hip deep in the weather of the moment it was far less entertaining. So I called, in early March, some of those in El Niño's grasp to see what became of all those bees, beekeepers and almond blossoms.



I started in the Southern end of the valley, where the soil tends to be a bit sandy, and drains a little better than parts north. There had been some flooding, even still, and there had been lots of rain to cause it. Colonies on pallets (mostly out of state beekeepers) fared better than those on the ground - lots of California bees are moved using boom loaders, and sit on the ground - when the water came across an orchard an inch or more deep.

The bloom was early this year, but not as early as last year - maybe four to six days ahead of normal, with about 85 percent of the bloom done, with 15 percent left on March first. With the frequency of storms much greater than usual the typical fog pattern was reduced. When common, fog can delay bloom and pollination significantly.

Overall the bees were in good shape, with those from southern California seemingly the best. Minimum strength was just that, minimum, with most colonies stronger than usual.

Prices varied from grower to grower, on the number of bees rented and on colony strength, but ranged from $43.00 to $48.00 on average, with some at $50.00. Brokers, really big outfits, strong or weaker colonies and the weather all played a role in price setting.

Moving north, toward the central part of the growing region, didn't move us away from the wet and the rain and the mud. Moisture is a third above normal so far, and that hurt the bees early on, with lousy looking colonies early in the season. Late in February the weather broke, some honey plants began blooming and pollen became abundant. The bees responded rapidly and recovered for the most part by early March.

Stuck trucks, and tractors and cars and bobcats and whatever seemed the rule, at least for those first colonies moving in. But later moves seemed a bit easier, and a little drier. Almond bloom was just about average for amount and timing, with peak occurring just at the beginning of March, trailing off fairly fast after that. Early bad weather had the growers worried, but they made up for it later, and seem satisfied.

Further north it was still a bit different. Lots and lots and lots of rain just prior to full-tilt bloom meant a lot of machine trouble, and a lot of extra labor to make it work. One beekeeper told me that normally two people on one truck could deliver 120 colonies, no problem. This year it was two trucks, four beekeepers, and twice as long to do the job. Making money this year was a tad more difficult.

But other beekeepers had it even worse. Flooding was more the rule than the exception here and losing colonies outright, or having the road wash out so you couldn't get to them was a common experience. Added to the problems was the fact that lots of bees were in good shape, which means they were heavy, which means that the trucks carrying them weighed more, which means...

The earliest bloom may have suffered due to a shortage of pollination weather, but by the middle of the bloom, say late

Continued on Page 44

Reader Assistance

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Bee Culture

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MAILBOX

Takes Issue With The Future

Contemplating some of the grandiloquence in "Preparing for the 21st Century (*Bee Culture*, Feb. 1998) I vacillated between hope and despair. Frankly, I was angry with some of the insinuations that we have had, and continue to have, in the words of the author, "Paradigm Paralysis." I dispute some of the author's conclusions while laudatory in respect to others. I think some of his statements may reflect distortions of reality.

I applaud his views of electronic technology, on the changing demographics of the 21st century and his inspirational words about the need for and a willingness to accept changes in our mode of doing business in the future.

I cannot accept his prophesy that advancements in human betterment will be vested in the explosive populations of "developing" countries. Having 90% of the world's increase in population does not result in compounded advances in well being of the individuals. Will the greater multitudes (8, 9 or 10% growth) necessarily lead to a "real growth economy" as the author suggests? Hardly.

The author predicts that by the year 2005 only 5% of Americans will earn their living in "low tech, blue collar jobs." From this are we to believe that 95% of Americans will be engaged in jobs that demand highly developed technical skills or advanced academic requirements? If scholastic test scores among the future 95 percenters is any indication I think the author should revise his forecast as unsupportable.

Regarding the author's opinion that "small companies can react, can change rapidly and are not isolated from consumers," whereas large corporations don't do so and are more moribund in their production and marketing than small concerns is, in my opinion, prejudicial judgment. The capability of each entity should be the criteria for making a judgement.

Judging by current economic indicators the author's prediction that "By 2020, seven of the 10 growth economies will be in Asia-pacific Region" lends suspicion to his opinions.

Yes, we must "seed, even strive" to meet future demands. But, we may rather be "striving" to maintain the status quo, not attempting to throw aside every proven strategy that has advanced our culture throughout history. "Shorter life cycles for the products and services we deal with" an idea advanced by the author, if followed, may be our ruination, not our salvation. Our resources, human and natural, are not infinite.

I suggest the author confine certain of his oratory to stimulating classroom discussion, not directing his exhortations to beekeepers who have a hard enough time coping with the real problems of today's business world.

Larry Goltz
Redding, CA

Just Starting

Do you consider photographs taken by amateurs for publication in *Bee Culture*? Even if you don't, you might enjoy the photo I've enclosed. This is my dad's beehive in a four acre buckwheat field in the Summer of 1996. We didn't get one drop of buckwheat honey, though. The bees liked the white clover a mile up the road better.

My dad has around 18 hives, but a couple are suspected to have died over the Winter. He hopes to increase to 25 or 30 for apple pollination. I help my dad and learn about bees at the same time. I have a hive of my own, but don't do much with it because I'm only 15 and can't lift a full deep to look in the brood chamber. This Spring we're going to put the brood chamber into three honey supers so maybe I can manage the hive by myself. I pollinated the Medina (NY) FFA chapter's apple orchard last year and hope to do it again this Spring. I usually get one or two full honey supers of honey per season. I sell it to my dad for an extra low price since he's the one with the extractor and other equipment, and I couldn't do anything with it by myself.

I hope you enjoy the photo.

My parents visited *Bee Culture* in October of 1996 and spoke with you. I wish I could have come, but they were on their second honeymoon (paid for by honey profits!).

Karie Myers
Medina, NY

Legislation Opposition

I am in the process of trying to mobilize opposition to the proposed expansion and reorganization of the NHB.

Consequently, I think it would be useful for me to assemble a mailing list of concerned, Honey-Board-assessment-paying beekeepers. The N.H.B. and U.S.D.A. refused to provide me with their list of assessed beekeepers. Therefore I am asking all beekeepers who are eligible referendum voters to provide me with their postal and (if applicable) e-mail address. I promise that your address will *not* be sold, used in a marketing scheme, or provided to other parties for any reason whatsoever.

Continued on Page 11

MAILBOX

Please include the approximate number of colonies you manage and which parts of the Bill you a) like and b) dislike. This poll could serve as a reality check for the industry. Also, could you tell me if you are willing to participate in a telephone-tree or chain-letter if/when we need to act together quickly – i.e. to contact a particular member of Congress with our views. I welcome any other comments you have and am open to suggestions as to how to proceed from here. It bears noting that most beekeepers, (myself included), are not members of either national organization.

Joe Rowland
Owego, NY

Honey Prices?

I have a few questions and comments about your honey price report. I have been a subscriber for many years.

I find the prices reported are above the prices that are actually available to the local beekeeper.

What good is your honey price report when you do not tell the location of the packers and buyers that are paying those prices?

I suggest that you print a list of packers and buyers of one region each month. You may say that is free advertising but I feel that it would make your magazine more valuable.

The February issue states that 60 pounds of amber honey at $64 and a 55 gallon drum of amber at 81 cents. The best I can find is 65 cents and $59 for the 60 pound container.

James F. McNeeley
Troy, OH

Editor's Note: *I doubt you will ever see an actual honey price in our report. The numbers are generated by contacting dozens of small, medium and large producers, producer/packers and packers in a region and collecting their price data. Then, the numbers for each region are averaged. And averages are only that – a representation of the actual data.*

The value of this report, however, is not in the exact numbers, but the 'trend' these numbers are following – compared to other regions, the U.S. as a whole, to last month, the last several months or last year. Our prices very accurately reflect the trends of honey product prices, rather than the price of a product.

Yes, they are sometimes high, or low compared to what you can find, but using the information will aid you when negotiating a price with a buyer, or seller.

Do You Know?

In your February edition of *Bee Culture* I have to question one of the answers Clarence Collison gave in his article, "Do You Know?" [The question was "The sugar composition of honey changes while it is in storage. True or False" Dr. Collison said True.] The answer to question 11 is true that honey composition changes during storage at temperatures above 83°F. But do the simple sugars convert to more complex forms?

From all my knowledge of chemistry, I have found that acids and enzymes break down sugars and starch into simple forms. Glucose will eventually convert to carbon and water, thus causing honey to darken in color with age.

Fred Thompson
Grand Island, NY

Unsprayed Cotton

Ray Nabors' article on cotton in February (pages 20-22) reminded me of my extraordinary experience working on cotton pollination with S.E. McGregor in 1956. There were 212 colonies of honey bees placed throughout the 80 acre field, but counts of visits by bees to blooms quickly plummeted to zero. We did not determine what the bees found more attractive.

To avoid poisoning the bees, the cotton was not sprayed with pesticides. The apprehensive farmer checked regularly, but found few boll weevil larvae. However, the population explosion of other insects, including predatory species such as wasps, was spectacular. This unique opportunity to study a pesticide-free field was frustrated when the collection of samples of the population was not permitted as it was not included in the experimental design.

As the visits by honey bees decreased to zero, those by the solitary bee *Mellissodes* increased. They plunged into the midst of the anthers to become covered with pollen grains. Honey bees learn to alight on the petals, and walk down to the nectar glands at the bottom of the flower without touching the sticky pollen. When they do get some on themselves they carefully remove it.

This field had a higher yield of cotton than ever, and even more profitable without the expense of spraying. An experiment in a California orchard 30 years later had similar results (*Mother Earth News*, November 1986).

Toge S.K. Johansson
East Berne, NY

Wasp Problems

I am writing in regard to Joe Pruitt's letter 'Ants and Things' in the January issue. Mr. Pruitt suggests using Sevin® to deal with the problem he is having with wasps. He describes this solution as ". . . a little bit drastic maybe . . .", a statement which I strongly agree with. He also suggests using a gallon of gasoline – this is a fire hazard, contaminates the soil, and prevents growth of vegetation for some time – not a good idea.

In IPM* FOR SCHOOLS: A HOW TO MANUAL, published by the EPA in 1997 and available from that agency free of charge, a number of methods are described to deal with wasps. If as a last resort a pesticide must be used, the manual recommends using pyrethrin, which is a plant derived chemical that is relatively harmless to humans and other animals, and which breaks down fairly quickly in the environment. For a more detailed explanation of how to use the pyrethrin, see the manual, or e-mail me (dspoor@linknet.kitsap.lib.wa.us).

Using pyrethrin may be a little more difficult and time consuming, but it's use instead of a powerful chemical like Sevin will help reduce the long-term effects of the accumulation of pesticides in our environment. In addition beekeepers have long known that bees are

Continued on Page 13

MAILBOX

sensitive to a variety of pesticides, so it behooves us to do what we can to reduce the use of these chemicals. For our own benefit, as well as that of our fellow beekeepers and other animals on this fragile planet, we should set an example by using the least toxic method to deal with the pests that plague us.

Dale Spoor
Bainbridge Is, WA

P.O.'ed at the Post Office?

Receiving your mail in a timely manner?

On December 1997 the Postal Service gave out $193 million in bonuses to management staff.

From P.M.G. Runyon on down to the lowest level supervisor. No hourly people were given a bonus for their hard work.

How is the Postal Service doing? $1.77 billion in 1995, $1.57 billion in 1996 and $1.26 billion in 1997. Not bad for a non-profit company, who now wants a raise in first-class mail and a 220% raise for Special Handling (bees). They were given a 200% raise two years ago.

On yes, Mr. Michael J. Riley, chief financial officer is entitled to a $47,000 bonus, but his pay was capped out at $148,000 (from the Postal records Feb. 1998)

Do you think you should get in touch with your rep in Washington?

Bill Sirr
MI

Be Careful What You Ask For . . .

This is in response to Bobby Robertson's letter in the February '98 issue of *Bee Culture* regarding asking for endangered species label for honey bees. I indeed feel that the public needs education on the importance of the honey bee for pollination, however, I would be very wary of asking for any designation of scarcity in any form.

When the idea of setting up standards for "Organic Honey" was proposed, the standards were prepared by organic folks who had farming experience but no honey bee management experience. Hence requirements for keeping a separate 'sick ward' yard, so to speak, to keep sick bees quarantined from healthy stock, etc. We don't want a similar approach from the endangered species folks on our management practices.

If we get the label, would you be able to "catch and remove" a swarm from a location? Would you be able to kill a producing queen in order to improve your stock? What would be the impact on moving colonies for pollination, especially migratory beekeeping? These issues would have to be considered before we ask for help because we might not like their answers to us!

Gerald P. Worrell
Dunkirk, MD

Driveway Decorations

Being a long time subscriber to *Bee Culture*, I thought that I would send the enclosed.

At the end of my driveway, I had cut down a black walnut tree. I had to cut it up high, with thought of cutting it closer to the ground later. But in the mean time I thought it would be nice if I had someone carve name and house number on the front. Also adding a bee skep carved out of wood, also with hexagon shapes carved around the stump. It has gotten attention of people driving by.

Harold Cary
Mason City, IA

Look What's New!

The World Of Bees 62 minute video. $24.95, plus $2.95 p/h in the US. Credit card orders call 800.898.1490. Or send check or money order to Little Blossom Enterprises, P.O. Box 5028-1C, Minneapolis, MN 55045.

If the photo on the cover of this video looks vaguely familiar you have obviously been a subscriber for several years. This exact photo graced our cover a few years ago. Another, a close up of a honey bee on an alsike clover blossom shot by the creator this video was on another of our covers not long afterward. Charles Hoffman, a commercial beekeeper from Minnesota is, in my opinion, one of the best photographers this industry has produced. Not because his photos are stunning, which they are, but because he knows bees, beekeepers and how to capture them both on film. Others have produced and published great photos, but none I know of have the same quality, the same sense of knowing the outside, and the inside of the subjects – both bees and beekeepers.

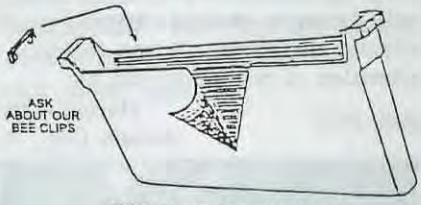
Now, Hoffman and his graphic desinger son have taken the best of this lifetime collection and put them on video, and reconstructed the slide presentation he has honed over many years of working with children, garden clubs and the like. Each scene is one of Hoffman's exquisite photos, with this gentle man telling you what this is, what he sees. This is not a fundamental how-to video, it is much, much different than that. It is rich with information, fascinating details and exquisite images though. And Charles has a natural ability to tell each story, for each photo is a story, with humor, with enough detail to inform, but not so much to overload, and all with a sense of wonder.

You will learn of beekeeping here though, and the ways of bees and flowers and beekeepers how they all work together. And you will watch this video again, and again, and learn something new each time, see something different each time.

Kim Hoffum

A.I. Root Company Historical Video 10 minute video. $14.95, post paid in U.S. Cat. No. X226V. The A.I. Root Co., 623 W. Liberty St., Medina OH 44256 800.289.7668. ex 3219

In 1919 a film company from Cleveland, Ohio came to the Root Company to film the business, and to show how beekeeping equipment was produced in what was then a state of the art factory. The film was used by the film company, shown in a few theaters and pretty soon forgotten. A copy was unearthed recently and put on video. This short video shows the Root factory, the warehouse, machines and equipment in action, the offices, people of the time including A.I. himself, and the way things were in Medina almost 80 years ago. Fascinating, and invaluable from a historical perspective, it is truly one of a kind.



BOTH DEEP AND SHALLOW

Plastic In-hive feeders. Mother Lode Plastics, 20833 Mechanical Drive, Sonora, CA 95370. 800.345.7885.

These black plastic in-hive feeders come in deep (9-5/8" super) and shallow (6-5/8" super) sizes. The deep takes the space of 1 frame, the shallow 2 frames. They both hold a gallon of feed. Clips are available to hold deep feeder's shape, lugs are reinforced and the insides are etched for good footing for feeding bees.

?DO YOU KNOW?

Pesticides & Bees

Clarence Collison
Mississippi State University

Just as pesticides are important to the production of many agricultural crops, they have become increasing important to beekeepers in the control of the parasitic mites and wax moths. Not too many years ago pesticides were devastating to the beekeeping industry and many beekeepers were fighting to have several of them banned from use in order to save their livelihood. Newer, less toxic pesticides are available now along with improved application techniques and stricter regulations control their use. While there are still some cropping systems that rely heavily on pesticides, and beekeepers try to avoid these situations if possible, newer integrated pest management (IPM) strategies and improved educational efforts have greatly helped resolve many of the bee/pesticide conflicts.

Please take a few minutes and answer the following questions to find out how familiar you are with this important topic.

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

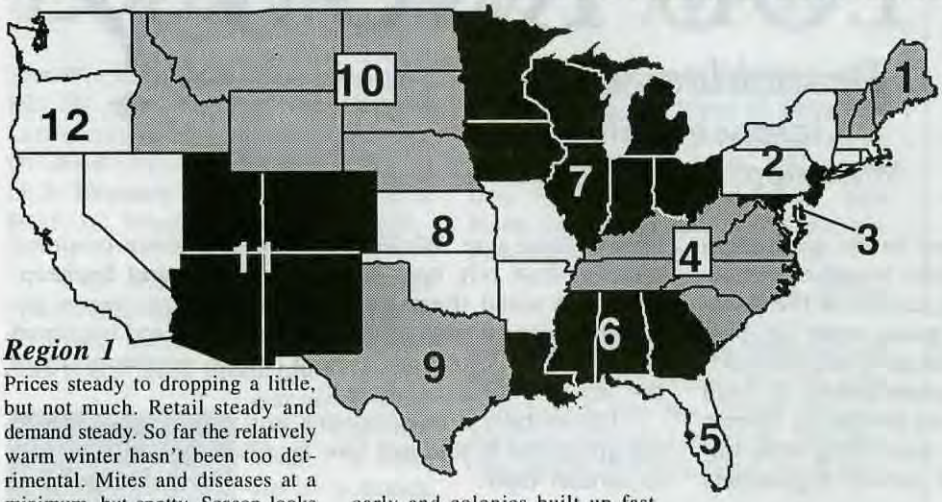
1. ___ Most pesticides are not hazardous to honey bees.
2. ___ Pesticides applied as dusts are normally more dangerous to bees than those applied as sprays.
3. ___ Pesticide applications applied by ground equipment are usually more hazardous to bees than those applied by aircraft.
4. ___ Insecticide applications made during late evening, night or in the early morning are most effective in reducing bee kills.
5. ___ Weak colonies are more susceptible to pesticide kills than strong colonies.
6. ___ Cold temperatures following late evening or night insecticide applications increases the hazard to bees.
7. ___ Most fungicides and herbicides are moderately toxic to honey bees.
8. ___ Susceptibility to poisoning is greater for small species of wild bees than the larger species.
9. ___ Honey bee mortality is normally inversely proportional to the distance that colonies are located from treated areas.

Multiple Choice Questions (1 point each).

10. ___ Which group of bees within the colony population are most likely to be impacted by toxic pesticides being applied in the vicinity of the hive?
    A. Nurse Bees
    B. Guard Bees
    C. Larvae
    D. Field Bees
    E. House Bees Handling Nectar and Pollen
11. ___ Which class of pesticide would be most dangerous to honey bees?
    A. Fungicides
    B. Insecticides
    C. Acaricides
    D. Herbicides
    E. Nematicides
12. ___ In strong colonies, natural mortality of up to ____ dead adult bees per day is a normal die-off rate.
    A. 500
    B. 800
    C. 1,000
    D. 100
    E. 1,500
13. ___ Fluvalinate, the active ingredient in Apistan Strips, is an example of a(n) _____ insecticide.
    A. Pyrethroid
    B. Carbamate
    C. Organophosphate
    D. Chlorinated Hydrocarbon
    E. Botanical
14. What is the first and most obvious symptom that a colony is suffering from pesticide poisoning? (1 point).
15. Name the three distinct avenues by which pesticides (modes of action) impact or kill honey bees. (3 points).
16. If an area is going to be repeatedly treated with a highly toxic insecticide having long residual properties, what is the best action for a beekeeper to take? (1 point)
17. Please explain why there is little danger of honey in a colony containing toxic insecticides. (2 points).
18. Once tree fruit bloom has passed, colonies can be safely kept near an orchard provided the grower/spray applicator does what two things? (2 points).
19. Explain how you would protect your colonies when the area is going to be treated with a short residual insecticide. (3 points).

ANSWERS ON PAGE 50

APRIL – REGIONAL HONEY PRICE REPORT



Region 1

Prices steady to dropping a little, but not much. Retail steady and demand steady. So far the relatively warm winter hasn't been too detrimental. Mites and diseases at a minimum, but spotty. Season looks good.

Region 2

Prices steady at wholesale and increasing at retail. No surprises. Generally optimistic about colony conditions and potential for this season. Early season was gentle allowing most to get an early start.

Region 3

Like most places, prices down for wholesale and up at retail. Very early spring may be a problem for food and brood. Bees in great shape and early work on schedule.

Region 4

Wholesale prices steady but retail leveling off to rising a bit. Colonies in great shape in early March, easy winter, but wet. Spring feed early and colonies built up fast. Mites present, but easy to treat early so shouldn't be a problem. Optimistic beekeepers, generally.

Region 5

Prices still steady this month, for both retail and wholesale. Spring flows of citrus an unknown so far because of cool wet weather. Beekeepers hope it doesn't go too fast. Palmetto should wait. Easy spring so far, bears and mites a problem. Mites more so for some.

Region 6

Prices stable across the board this month. Mild, but very wet weather has hindered some early spring work, but overall optimistic about the coming season. Cool snap may hurt some crops, and slow queen and package production. Mites, when treated no problem.

Region 7

Prices down at wholesale and beginning to drop just a bit at retail, finally. Sales only steady. For the region overall it has been a mild winter and easy spring. Exceptions exist, of course. But strong colonies will need watching for feed. Mites bad if not treated.

Region 8

Prices steady in the heartland, with both retail and wholesale finally leveling off. Promises of prices still dropping and sales slipping exist from those in the know, time will tell. Mild, mild winter has reduced pressures on bees. Untreated colonies a problem, but treated doing fine. Lots of moisture now promises good crops this summer.

Region 9

Prices steady, but not increasing at either wholesale or retail. Sales almost nonexistent at wholesale, but retail fair to brisk, depending on market. Warm, wet winter has helped bees and plant development and promises of great summer crops are being heard.

Region 10

Prices and demand down at wholesale. Prices steady but demand up at retail. Typical to just a tad mild winter, but very typical spring means not early, but not bad. Soil moisture average to good, so summer crops should be good.

Region 11

Prices steady to rising just a bit at both wholesale and retail. But just a bit, and mostly for smaller lots. Pretty average winter and spring, but a bit wetter than normal promises good summer crops. On time spring has helped.

Region 12

Prices down across the board, both retail and wholesale. Sales steady for smaller suppliers, falling off for wholesale and bulk suppliers. North has had wet and mild winter and wet spring. Mites, if treated not a problem, in not, colonies are dead. In south wet, wet and more wet promises good summer crops, but hard to work bees now.

	Reporting Regions												Summary		History	
	1	2	3	4	5	6	7	8	9	10	11	12			Last	Last
Extracted honey sold bulk to Packers or Processors													Range	Avg.	Month	Yr.
Wholesale Bulk																
60# Light	61.36	69.00	48.00	69.80	64.50	57.00	53.40	78.00	54.00	70.50	71.33	57.45	42.00-81.00	63.15	63.18	70.48
60# Amber	57.87	62.43	50.40	62.92	60.00	53.00	51.72	62.20	52.00	63.00	66.67	56.00	40.00-80.00	59.29	62.07	66.08
55 gal. Light	0.80	0.79	0.72	0.74	0.70	0.71	0.78	0.80	0.85	0.78	0.82	0.80	0.65-1.25	0.84	0.78	1.00
55 gal. Amber	0.78	0.71	0.67	0.70	0.64	0.69	0.75	0.78	0.79	0.73	0.77	0.76	0.62-1.25	0.79	0.74	0.93
Wholesale - Case Lots																
1/2# 24's	28.46	28.31	29.40	31.71	29.40	29.67	27.51	29.40	30.00	29.40	30.25	26.30	24.00-34.80	29.41	29.98	31.00
1# 24's	42.90	43.53	43.20	43.51	40.80	42.50	42.57	41.27	48.00	44.00	47.53	43.72	32.40-60.00	43.64	44.18	43.28
2# 12's	38.67	39.39	40.20	41.61	36.00	38.30	37.76	40.26	40.00	41.00	39.80	38.75	29.40-52.58	39.49	41.61	38.64
12 oz. Plas. 24's	36.23	37.66	42.00	37.61	36.00	27.45	35.95	35.66	38.00	40.80	43.13	34.36	16.90-50.00	37.09	36.98	35.29
5# 6's	41.19	43.99	46.50	47.00	39.00	41.00	37.99	41.50	45.00	41.25	40.78	36.38	30.50-67.56	41.90	**44.02**	**40.60**
Retail Honey Prices																
1/2#	1.81	1.64	2.83	2.17	1.29	1.86	1.78	1.82	2.95	2.83	2.53	1.70	1.29-3.20	1.84	1.81	1.88
12 oz. Plastic	2.18	2.21	2.25	2.30	2.15	2.25	2.04	2.28	2.72	2.25	2.70	2.10	1.25-3.00	2.23	2.25	2.23
1 lb. Glass	2.65	2.70	2.50	2.72	2.00	2.79	2.47	2.67	2.96	2.37	3.48	2.72	1.99-4.29	2.68	2.65	2.71
2 lb. Glass	4.46	4.76	4.50	4.84	4.02	4.74	4.11	4.44	4.42	4.62	4.98	4.45	3.59-6.25	4.53	4.49	4.57
3 lb. Glass	6.19	7.36	6.50	6.37	5.15	6.10	6.20	6.11	6.25	5.49	6.88	5.88	4.79-9.00	6.32	6.30	6.19
4 lb. Glass	7.35	7.55	7.97	8.00	7.50	6.63	8.55	6.99	7.65	8.50	7.97	6.00	5.73-10.50	7.68	8.40	7.56
5 lb. Glass	9.33	10.40	9.75	9.40	8.50	8.00	8.91	9.53	9.95	8.60	9.71	9.17	7.00-15.00	9.48	9.00	9.87
1# Cream	3.20	3.38	3.75	3.59	3.75	3.48	2.56	3.02	5.75	2.76	3.49	3.27	2.25-5.75	3.24	3.27	3.45
1# Comb	4.03	4.21	4.03	4.14	4.03	4.00	3.76	3.80	6.00	4.03	4.88	4.35	1.95-6.00	4.15	4.10	4.12
Round Plastic	3.44	3.11	3.50	3.81	3.20	4.00	2.77	3.41	6.00	3.20	4.25	4.25	0.00-6.00	3.59	3.80	3.77
Wax (Light)	2.59	3.52	2.50	1.58	2.25	1.90	2.00	3.63	4.25	3.53	3.00	2.45	1.00-7.00	2.58	2.59	3.07
Wax (Dark)	2.24	3.10	2.50	1.37	2.00	1.68	2.08	3.06	3.50	3.06	2.38	2.15	0.95-6.00	2.23	2.56	2.22
Poll. Fee/Col.	36.64	40.29	30.00	39.17	25.00	38.50	37.69	36.75	15.00	37.51	50.00	35.83	15.00-60.00	37.54	36.80	37.21

Honey Imports Still A Cloudy Picture

John B. Parker

Total U.S. honey imports increased one-fifth in fiscal 1997 to 76,733 metric tons. This was a record quantity for U.S. imports. The value for honey imports increased 27.5 percent to $125.7 million during the same period. High domestic prices caused importers to search for good sources of imported honey. Apparently some importers found what they were looking for among suppliers in Argentina. The average price for U.S. honey imports increased 6.2 percent in the 1992-94 average price of $869 per ton. The price climb which began with the dwindling arrivals of honey from China may turn into a high price plateau in 1998. The reason for possible calming of price hikes in 1998 is not a resurgence for deliveries from China, but the newfound favorite for honey importers. The most recent bonanza exporter of honey was Argentina.

Argentina Rising

Argentina has made dramatic gains in providing American importers with more honey. U.S. imports of honey from Argentina soared 55 percent in fiscal 1997 to a record 42,132 metric tons, valued at $68.3 million. The value for imports of Argentine honey in 1997 was far greater than it had been for honey imported from China during its peak deliveries of the early 1990s. The average price for honey imported from Argentina decreased 0.3 percent to $1,583.26 per metric ton in fiscal 1997, following sharp hikes during earlier years. The small price concessions provided by Argentine honey exporters were accompanied by a cordial reception of the wishes of American importers to receive honey with certain quality and container specifications.

Argentina provided 56.2 percent of U.S. honey imports in fiscal 1997, compared with 43.6 percent in 1996. The Argentine share of U.S. honey imports rose from 22.2 percent in 1991 to 27 percent in 1993. After the anti-dumping negotiations with China, the Argentine share rose to 32.9 percent in 1994, and 39.2 percent in 1995. It is ironic that the concern about how low honey prices would go because of inexpensive deliveries from China in the early 1990s has changed. In 1997 the concern was how high honey prices would go because of China's honey situation. A moderating influence on world honey prices is now coming from Argentina's export gains.

The chance to buy high-quality honey in barrels has been a major reason the price escalation has now turned into a high price plateau. Without the rising imports from Argentina, the situation in China and

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UNITED STATES: IMPORTS OF HONEY, BY QUANTITY, VALUE, AND AVERAGE PRICE DURING FISCAL 1996 AND 1997 (OCTOBER-SEPTEMBER)

	Metric Tons		Value x $1,000		Avg. Price, $/Ton	
Country	1996	1997	1996	1997	1996	1997
Argentina	27847	43132	44206	68289	1587.46	1583.26
China	19559	15351	25333	24879	1295.21	1620.68
Mexico	4045	7920	6352	11884	1570.33	1500.51
Canada	8794	4734	16684	10989	1897.20	2321.29
Australia	1082	1082	1821	1898	1682.99	1754.16
India	605	1593	770	2436	1272.73	1529.19
Vietnam	482	1066	599	1432	1242.74	1343.34
New Zealand	136	290	240	532	1764.71	1834.48
Bulgaria	0	429	0	677	NA	1578.09
Uruguay	337	326	571	538	1694.36	1650.31
Germany	83	115	233	346	2807.23	3008.70
Panama	136	290	240	532	1764.71	1834.48
Greece	15	22	91	142	6066.67	6454.55
Switzerland	36	40	205	218	5694.44	5450.00
Other	744	343	1260	890	1693.55	2594.75
Total	**63901**	**76733**	**98605**	**125682**	**1543.09**	**1637.91**

Source: Bureau of Census

IMPORTS ... Cont. From Pg. 19

Mexico would mean even higher honey prices in 1998. Argentina has had very wet weather recently, and its honey output for export is now a major factor in the price movements in world markets.

Traders already have an opinion about the role of China in world honey prices. They are concerned that this formerly large exporter seems to have fizzled to some extent as a honey exporter. U.S. honey imports from China declined 22 percent to 15,351 metric tons in fiscal 1997. This was less than half the 34,826 tons of honey imported from China in 1993. While imports in 1996 were near the quota for honey imports from China, arrivals in 1997 were about one-fourth less than what the quota would have allowed. It appears that China lacked adequate supplies of extra honey for export to fill the quota. This situation would have caused higher U.S. honey prices without the roaring growth for imports from Argentina.

China's Star Is Falling

China's share of U.S. honey imports dropped from a peak of 57.5 percent in 1993 to only 20 percent in fiscal 1997. The price for honey from China soared from $1,295 per ton in fiscal 1996 to $1,621 in fiscal 1997. The 1997 price was double the 1992-94 average. High prices for China's honey are likely to remain in 1998. This is because of smaller production, greater domestic demand and good opportunities for China's honey exporters in other world import markets.

When looking back at the flow of honey from China to U.S. importers, it may be possible to think that the efforts to get the anti-dumping agreement were in vain. In 1993, it appeared that China would continue to dominate U.S. honey imports and further drive down American honey prices. Several dark clouds were on the horizon even in 1993, which meant that the China push for honey sales to Americans would decline sharply. China scheduled an end to the 13 percent export bonus for agricultural commodities on July 1, 1995. Even before that, payments for some honey exports had not been prompt. Also, changes in the economy of China with many opportunities paying more than honey output meant a decline for honey production after the export bonus was removed. China's honey output had been on a peak plateau during 1990-'93, and it appeared that this high level would last a long time. It did not. By 1997, China's honey production was down to 146,000 tons. To top it all off, China's consumers became more prosperous in coastal cities and eagerly purchased a rising share of the honey supply.

Mexican Honey Deliveries Jump

Mexico's share of U.S. honey imports dropped from 21 percent in 1990 to only 4.2 percent by 1992, and bottomed out at 3.6 percent in 1993. When it appeared that China was the dominant supplier of American honey imports in 1993, it would have been difficult to imagine a rebound for Mexico's honey sales to U.S. importers. However, in fiscal 1997 Mexico experienced a rebound to 10.3 percent of the market. U.S. imports of honey from Mexico nearly doubled in fiscal 1997, reaching 7,920 tons, valued at $11.9 million.

Canadian Deliveries Expensive

Canada is one of the few countries where any traders comment about surplus supplies of honey. In China, it is about how high the export price will go. U.S. imports of honey from Canada declined 46 percent to 4,734 tons in fiscal 1997. The average price for U.S. imports of Canadian honey increased 22.3 percent to a peak of $2,321.29 per ton during that time. A greater share of the honey from Canada arrives in consumer-ready jars or containers. This means a higher average price than that for honey in barrels from Argentina. For American honey distributors, imports from Argentina provide a chance to expand operations despite difficulty in obtaining adequate supplies of domestic honey at a price the firm would like.

New Suppliers Score Good Gains

The high prices for honey have intensified the search for new suppliers. The search has not yielded any great finds so far. In fiscal 1997, U.S. imports of honey from India nearly tripled, reaching 1,593 tons. Honey imports from Vietnam doubled in fiscal 1997, reaching 1,066 tons for an average price of $1,343 per ton. The new suppliers are providing honey at prices which are not much below those for Argentine suppliers. This may be a reason why American importers will concentrate on buying more Argentine honey. Some European importers will be excluded from opportunities to buy all the honey they would like in Argentina. Because the Argentine currency, the astral, is tied to the U.S. dollar, banking is simple for both the Argentine exporters and American importers, compared with some sales to buyers paying with European currencies. The new Euro currency scheduled for 1999 may give European importers a chance to simplify banking in competing for scarce raw materials in a place like Argentina.

Imports of Australian honey were steady at 1,082 tons in 1997. Bulgaria was a new supplier last year, providing 429 tons of honey for $1,578 per ton. Imports of honey from Uruguay remained steady at 337 tons in fiscal 1997 for an average

THE UNITED STATES: HONEY IMPORT MARKET SHARE, 1990-97

Year	Argentina	China	Mexico	Canada	Other	Total
Calendar						
1990	25.2	33.0	21.0	9.9	10.9	100.0
1991	22.2	48.6	8.5	15.4	5.4	100.0
1992	27.2	52.4	4.2	14.7	1.6	100.0
1993	27.0	57.5	3.6	9.0	3.1	100.0
1994	32.9	52.5	4.3	8.3	2.1	100.0
1995	39.2	30.3	7.4	21.9	1.2	100.0
Fiscal						
1996	43.6	30.6	6.3	13.8	5.7	100.0
1997	56.2	20.0	10.3	6.2	7.3	100.0

Source: Calculations from Bureau of the Census data.

value of $1,650 per ton. Uruguay has expanded exports of honey to eager customers in Brazil and Europe.

U.S. imports of honey from Germany increased 39 percent to 116 tons in fiscal 1997. The dominance of consumer-ready jars for German deliveries meant an average price of $3,009 per ton. The most expensive honey imports come in attractive containers provided by Greek and Swiss exporters. Greece shipped 22 tons of honey to U.S. importers in 1997 for an average price of $6,454 per ton. U.S. honey imports from Switzerland rose to 40 tons, for an average price of $5,450 per ton.

The import market appears to remain volatile for U.S. importers and packers. U.S. producers must be aware of availability, of price and of the 'flow' packer contracts require to remain competitive in a variety of markets. BC

John Parker is a retired commodity statistician and researcher. He supplies us with exclusive annual updates on the global honey market.

Roger Morse

Research Review

"Water - a necessary commodity in a beehive."

Honey bees do not store water in a hive. Rather, they collect it as it is needed to dilute honey fed to larvae, to dissolve sugar crystals in honey, to cool the hive on hot days, and of course, for their own body needs. These facts have been known, probably for a century or more. However, how bees control water collection has not been clear.

The study reviewed here was made to determine how the bees that collect the water know when to continue and when to stop collecting water. It has been understood for some time that water collectors, like nectar foragers, do not deposit their loads in the hive. Rather, they give what they have collected to receiver bees that wait near the entrance to take it. This is the key factor.

To force the bees in an experimental colony to collect water, the researchers applied heat to the brood nest area of an observation hive. This was done by placing two 100-watt incandescent light bulbs about four to eight inches from and on each side of the glass walls of the hive. The temperature inside the hive was measured using thermocouples placed in the combs in the hive. When the lamps were turned on the temperature in the hive increased from 33.5 to 42.5°C (92 to 112°F) within about 30 minutes. After this time the brood nest temperature fell as the bees collected water, spread it around the hive and then ventilated the hive, thus evaporating the water, which has a cooling effect.

In this study, newly emerged, less than one day old bees were marked with round, colored, numbered discs that were glued to the top of their thorax. Fifty bees marked in this manner were added to the observation hive every three days over a period of several weeks. The observation hives that were used each contained about 4,000 bees. When the marking was finished, the researchers could follow the activities of the marked bees and determine what tasks they were doing.

This paper also asks, who are the water receivers? It was observed that 90 percent of the water receivers, at least in these tests, are more than 10 days old. They are older than the bees that feed the queen and the brood but younger than the nectar foragers, which in these experiments were mostly more than 25 days old. Water receivers are bees that are somehow recruited from other tasks when they are needed. It was found that some of these bees are normally nectar receivers but others do other tasks as well. The question of how they came to be water receivers was not studied in these experiments.

How do bees use water to cool a hive, and what do water receivers do? The researchers followed 13 water receivers, one at a time, as they took water from the collectors. This was done just inside the entrance to the hive. Receivers took an average of 22 seconds to take the water from a collector and six minutes disposing of it in one of three ways: Some receivers entered cells, where they remained for an average of nine seconds. These bees smeared some of the water on the ceiling of the cells. The water was seen by peering into the cells with the aid of a flashlight. It is this water that serves to cool the hive as it evaporates. A second group of water receivers gave their water to other bees. The experimenters could see the water flowing from one bee to another. The third group of bees did both. Only one of the 13 bees was seen wing-fanning. It appears that the evaporation of the water through wing-fanning was done by other bees.

So how is water collection controlled? It is clear that the water collectors know when to continue and when to stop collecting water because they respond by not collecting water when the heat lamps are turned off. But these experiments also show that the water collectors do not pay any attention to the temperature inside the hive. This is not the way in which they learn if they should collect more water or not. Instead, it is the ease with which the water collectors are able to dispose of their loads to receiver bees that dictates whether they collect more water or not. Earlier experiments have shown that nectar collectors behave in the same manner. They continue to collect nectar only if they can find bees in the hive, again near the entrance, to take and process their loads. In the case of nectar receivers, for example, they stop taking nectar, and thus shut down the forging process, if there is no more empty comb in which to store the honey.

The research I review here is part of ongoing studies to determine "the inner workings of social insect colonies." There are two concerns. The first is how the collection and consumption of food and materials like water and propolis are controlled. The second question 'concerns the importance of labor reserves to the functioning' of colonies. In these tests, about half of the water receivers came from the ranks of those that normally take nectar from foragers. However, the other half came from other ranks.

It is not known what these bees

from other ranks were doing prior to becoming receivers. They could have been recruited away from other tasks or they could have been unemployed bees. Many studies have shown that there is usually a large number of worker bees just walking around inside a hive looking for work to be done. Keeping a large supply of unemployed bees that can be recruited as needs arise, such as water reception or nectar reception, may be critical to colony survival. BC

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Mark Winston

Milestones

"Good bee research has been essential to the survival and profitability of beekeeping."

I have a strong bent toward the sentimental and the reflective, especially at life's special moments and milestones, like any event with a "zero" at the end. I too-easily wax maudlin about life, family, friends or career at the drop of a 40th, 50th, 60th or whatevereth birthday, whether it be mine or someone else's. Before I know it my heart is thumping, my voice is choking, and if I'm lucky I can keep the tears from flowing at least until I get my handkerchief out. And it's not only birthdays; I have the same problem at award banquets, graduations, thesis defenses, retirement parties and anything at all involving my wife or daughter.

This month is special to me for two reasons. First, it's my birthday month. Fortunately, I'm only 48 this year, and even my overreactive syrupy streak doesn't get stimulated without a zero in my age. However, there is a milestone associated with this month that does have that deadly zero quality: I name the computer files for my columns as *beecul1*, *beecul2*, etc. and when I went to name this column I realized that this is *beecul50*, the 50th column that I've written for *Bee Culture*.

I began writing these columns following a phone call I received early in 1994 from Kim Flottum, the *Bee Culture* editor, during which he asked me if I wanted to write a monthly column. Kim somehow reached me in the dead of Winter at a hotel in Fredericton, New Brunswick, where I was attending the annual Canadian Association of Professional Apiculturists and Canadian Honey Council meetings. My first reaction was to think about it, but after I hung up the phone, I noticed that I had jotted down about a dozen column ideas onto a piece of hotel stationery by the phone. I quickly realized that perhaps I did have a few things I might want to say. I called Kim back a few days later to accept, and began writing.

What has surprised me about these columns is how much I've enjoyed writing them, and the diversity of perspectives that there are to draw from when thinking about bees and beekeeping. I also discovered that I had strong feelings about particular issues, with one bedrock belief underlying almost everything I've written: I have confidence that our industry could be much more than it is or has been if we focus on the things we have in common, and work toward common goals. My columns have separated out into a number of recurrent themes, but they all arise from my own optimism and experience concerning what people can do if they work together.

One theme that has predominated in many of these columns has been my belief that research has contributed significantly to the prosperity and even the survival of beekeeping, and that the research community has the potential to do considerably more. My "touchstone" for this belief is the way that Canadian beekeepers and researchers have been able to work together in planning, conducting, implementing, and most significantly, funding useful research. I often attend beekeeping meetings in North America and around the world, and I am concerned when observing beekeepers and researchers appearing to exist in two solitudes, occasionally interacting in question sessions following talks, but otherwise seeming to come from two cultures with different traditions, motivations and lifestyles. Many of my columns have been devoted to bridging the gap between these solitudes, and to encouraging understanding, interaction and respect between the research and beekeeping communities.

Some columns have ventured into the stormy waters of beekeeping politics, particularly with the radical notion that beekeepers should share control and decision-making in research projects. I have suggested often that beekeepers serve on panels to make decisions about research, and that beekeeping organizations develop their own funding sources so that they can exert influence on who does research and on what projects get funded. In Canada, we have developed the Canadian Bee Research Fund, which is administered by the Canadian Honey Council, and in the United States there is a growing interest in a similar fund administered by the National Honey Board, with input from the American Beekeeping Federation and research organizations. While my voice in this development has been only one of many, it nonetheless has been gratifying to see research funding decisions begin to move toward a more balanced partnership between researchers and beekeepers.

I also have been concerned with the role research has played in bee-

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"One theme that has predominated in many of these columns has been my belief that research has contributed significantly to the prosperity and even the survival of beekeeping, and that the research community has the potential to do considerably more."

keeping, and many columns have expressed my admiration for particular projects that have contributed to our industry's health and success, while others have been critical of research that doesn't include an applied component. My concern arises from observing colleagues funded at the public trough who make only token gestures to connect with groups that might benefit from their expertise and experience. Fortunately, most bee researchers have a sincere interest in conducting research useful for beekeeping, but few of us have been trained to communicate well with non-scientific audiences, or to consider applications of our work as a high priority. My goal in writing columns about this issue has been to generate thought on the part of the research community as to where our public obligations may lie, especially for younger researchers still making their career choices.

While I may have expressed concerns about the success of some researchers in serving the beekeeping community, I remain unabashedly enthusiastic about the role that good research and teaching can play in our industry. I have attempted in these columns to profile how scientists work in order to reveal the quirky and idiosyncratic ways by which science and its applications progress. Many of my columns have attempted to profile particular research subjects and perspectives, with the objective of illuminating the paradigms, methods, mind-sets, and styles that can be brought to bear on the research experience. Good bee research has been essential to the survival and profitability of beekeeping, through work that has discovered disease treatments, improved management methods for both beekeeping and crop pollination, and developed the diverse honey, wax, propolis, royal jelly, and other products that have allowed beekeeping to diversify and prosper world-wide.

Underlying all of these themes have been the bees themselves, a rich lode of adaptations that teach us about nature and reflect back to us some of what it is to be human. The social nature of the honey bee makes it a particularly compelling exemplar of broader issues. Bees have led me to consider topics as diverse as religion, nature, human behavior, and the media, all stimulated by the different perspectives that bees offer to those who take the time to think about them.

I began writing these columns with no particular "big picture" in mind, and I fortunately have never operated under the delusion that my musings would change the world in any dramatic way. My motivation in writing these columns was, and remains, a simple one: I enjoy writing, and find deep satisfaction in the pleasure of stringing words together. I write early in the day, beginning about 5:00 AM, and these early hours of solitude have been among the most profoundly fulfilling of my career. During the summer, dawn already has broken, while in the winter I frequently finish writing before the sun comes up, but each season is marked by the passage of thought and time as columns emerge.

I find it perplexing that I, as a writer, have difficulty finding the right words to explain the personal impact of writing. I am a different person than I was before I began writing, certainly more aware of people, issues, emotions, and the world around me. These columns, and other writing I have done, have brought me the pleasure of an occasional clear thought, the satisfaction of coming up with a telling phrase, and the thrill of a new idea that grows and matures from that inexplicable place in the human brain where connections get made. Yet, the fundamental process of writing and the deepest motivations of the writer remain hidden to me, enjoyed but not to be explained.

One thing about writing is clear to me, however, and that is how much I appreciate those of you who read my columns. Writing is done in solitude, but it is done for an audience, and my profoundest thrill as a writer is in discovering that an idea, thought, or feeling of mine has resonated with a reader. I never expect everyone to agree with me, and I view the stimulation of a healthy disagreement as the greatest mark of success in my writing. If I hope for any impact from my columns, it is that they will provoke thought, constructive argument, and discussion, and that is considerably more important to me than having my opinions adopted by readers. To each of you, my deep thanks and gratitude for being readers, and my hope that in some small way these columns have stimulated your own thoughts and reflections about bees, and beyond. BC

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Uneasy Lies The Head That Wears The Crown

Kim Flottum, et al

A hundred bad things can happen toa queen before she wears the crown, and users can prevent almost all of them, if they're careful.

There are certainly hundreds of things that can go wrong when queen producers produce queens. We reviewed many of them last month with the intent that they take stock of what they are doing, and can be doing, to produce the best product possible.

However, far too often queen failure is caused not by the queen producer, not by the delivery service, not by the queen herself, but, unfortunately, by the very person responsible for her well-being. Royal paranoia is justifiable behavior.

So, let's take a look at what can go wrong once you have control of your new charge, and what you can do to make sure she is as well-cared for, and has her environment made as stress-free and safe as possible.

In spite of conventional wisdom, queens do not rule a colony, but rather are ruled by the colony of bees they live with. This simple, but very important fact must be kept in mind at all times by the colony manager. Colonies that are stressed by moving five or 20 times each season, that are subject to pesticides, pathogens, pests, predators and the like will reflect those less-than-ideal situations in how they treat the queen. Therefore, the colony that's kept best, produces best, and the queen goes along for the ride.

In The Beginning

Let's start at the beginning — the queen's arrival. Ideally, you will have planned on the queen, in her envelope or battery box arriving on a particular day. And so you have notified the post office, or United Parcel service that this live and fragile package is arriving and to call you the minute it comes in. The queen producer has included your phone number on the package if he is as concerned as you are. The reason for this is that this queen has been in the mail stream for at least one to three days, depending on shipping procedure, and she will be thirsty — very thirsty. Also, you don't know where in the post office or UPS stream that package will sit until picked up or delivered. By the door in a cold draft? Right next to a radiator, where it's hot? You just don't know. And you just can't take a chance, can you? Some shippers are using UPS now, and although early reports seem satisfactory, battery boxes can sit in cramped quarters, can become overheated, are poorly ventilated and the like. And what happens to these packages if they get left on your door-step because you're not home? I'm not even sure they do, but...

"There are a lot of things you can do to make sure that brand new queen is accepted. Here are the main points."

Once Home

So, get her home ASAP. And give her some water, ASAP. But right here a problem can arise. It's been shown that some things on beekeepers' hands, when mixed in with that water can cause problems. Some hand lotions, nicotine from cigarettes, grease and oil and other materials can be harmful to your new queen. Message: Wash your hands before watering that new queen cage.

Next, remove that Apistan queen tab from inside the cage. Now. Immediately. Don't forget. Do it now. Right away. Have I made myself clear? Good. That tab will begin to have adverse effects on the attendants and on the queen the day they are shipped. After four days that effect becomes deadly. If she is to be installed immediately, fine; if not, if she is to be stored, get that tab out fast.

Where is this newest bee staying while waiting for her new home to be made ready? On the kitchen cupboard? In the office, or the shop, or where? More research has shown that room temperature is the coolest you want her to be. That's 72°, minimum. Eighty isn't bad. But that means more water, more food and more stress. It's a tossup between too good and not good enough. Wherever you keep her, make sure there are no drafts — cool or warm — and no direct sun — from the window or doorway. A warmish, constant temperature is best, with plenty of food and water. Wrapped in a towel on a warm kitchen cupboard isn't bad, even for a few days, as long as she has food and water. But better yet, get her in that colony.

Introduction

There are a hundred techniques for successfully introducing a queen into a colony. They all work, for somebody, somewhere. Probably the best way to introduce a queen is to not

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introduce her at all. By this I mean, start her out in a small nuc, supplied with sealed brood, open brood and nurse bees. Allow her to start there; then, when she is fully accepted there, move the whole shebang into full-sized equipment and let them grow, adding brood, eggs and more nurse bees from other colonies. This, however, is seldom possible.

Introducing a queen into a full-size existing colony of bees can be difficult, at least for the queen. To make it as easy as possible for her, and as successful as possible for you, there are some simple guidelines to follow. First, remove the attendants from the queen cage. Next, get some feed on the colony or nuc. Any group of bees will accept a queen with less hassle if they are being fed, simulating a honey flow. It keeps some of the bees busy gathering food, others busy taking it from them and finding a place to store it, and still others cleaning cells and making ready for even more food. All these busy bees aren't bothering that new queen in the cage, leaving the much less hostile nurse bees to the introduction chores.

Then, remove the cork from the candy end of the cage (if she came in a wooden cage). Next, the books say to punch a hole through the candy to make access into (or out of?) the cage easier and faster. There are several well-thought-of queen people who are beginning to question this practice however. The thought is, increase the time it takes the queen to be released, rather than reduce it. Generally, three days is the cutoff, but four, or even five is beginning to be considered appropriate. The longer she is in the colony, but not in intimate contact with the bees in that colony, the longer the colony bees have to become accustomed to her and her odor. In this way it is more likely there won't be a compatibility problem when she is finally free.

The trade-off for this is that queen cage screening is not perfect. It must be small enough so that colony bees can't get at the queen to do her damage — pull pads off feet, damage antennae, pull hairs off body, pull off entire legs — yet large enough so the bees can feed her. This size screen is very, very difficult to be made perfectly. Thus, some queens are damaged while awaiting release, and others are underfed while awaiting release. Or so the feeling goes. Damaged queens will be superseded, no doubt about it. And that damage may be completely unnoticed by you — until it's too late. The final note here is that quick release is not perfect, but delayed release is not perfect either. Watch for balling behavior around the cage, and make sure there is enough sugar candy to keep her fed for a few days. And keep feeding that colony.

Then Inside

What is the environment this pristine and perfect queen is being released into? One possibility is on brand new foundation, not old and disgusting and dirty and probably slightly toxic comb. Old comb is full of who knows what, and some of that *may* be causing problems with these brand-new queens. New foundation should reduce that to nearly zero. Of course, since you are already feeding, I don't need to mention it again, but drawing new comb requires lots of feed — lots and lots of feed. Twenty, 30, as much as 40 pounds of sugar (not just syrup) will get you going. And since it's Spring, you can make that syrup a bit thinner than last fall — maybe a one to one mix, (sugar:water), rather than a two to one mix. Feed at least until the first major nectar flow. Feeding, remember, helps with queen acceptance, too.

Medications and Food

As with the queen cage, avoid at all costs treating this colony with an Apistan strip until the new queen

has had as least a month of laying time under her belt. Too many beekeepers have had trouble within that time frame to avoid this advice. Your colony will survive a few varroa for that long.

Make sure the colony has enough feed — pollen and nectar — to raise a good amount of brood during this critical time. Reams and reams of data support the fact that good nutrition now is a critical factor in queen acceptance, colony well-being and future success. Don't skimp just because you feel "well, she was accepted, I've done my part."

Feeding a pollen substitute or supplement now can't hurt, at least until a good flow starts. Remember, eliminate stress in that colony at all costs, no matter what.

Now, one of the things you need to double check, and to remember, is that there are, almost guaranteed, nosema spores in the colony you just put that queen into. Any stress on that colony and bingo! Nosema pops up. If the queen doesn't already have it (and she shouldn't from the breeder), she will get it, sure as the sun will rise tomorrow. So, since you are feeding anyway make sure to get Fumidil-B into that sugar syrup. If you don't, losing that queen is almost guaranteed, and with that loss the loss of weeks of production which means honey, money and perhaps survival next Winter.

What about tracheal mites? If your queen comes from the producer clean (and she should), but *your* colony has mites, a brand-new queen is at risk. Although she is probably older than the requisite four days she could still have problems. Either way make sure a grease patty is on the colony to reduce further infestations, reduce stress, and eliminate one more problem.

You did remove the old queen from that colony, right? Not finding her when the time came to remove her because you didn't have time, or it was getting dark, or it was going to rain, or... just doesn't cut it. A colony with a reigning queen will almost always never accept a new queen. It just won't happen. So your investment is wasted, time and productivity are wasted, and at worst, the colony declines to death by Autumn.

Here's a little-known fact discovered by researchers in California. One colony in 50 already has two queens living side by side with no problems. You come in, find one (assuming only one exists), make her go away, and introduce your new queen. What happens? Your new queen is not accepted, and you blame the queen producer because you did everything else exactly right. Right? Expect the unexpected when it comes to queens, and you won't be disappointed.

How early are you getting these queens? The earlier you want delivery, the greater your chances of getting a queen that will have a problem because of fringe weather patterns in the South for mating, less-than-ideal shipping conditions and perhaps rotten weather for installation on your end. If you need to requeen, can you wait until the weather on both ends is better? When using these new queens for splits or nucs this may not be an option this year. But next year, could you make splits late in Summer for the following Spring, or just make those splits available to your customers a couple of weeks or so later?

Inspections

How often do you inspect a colony that has just had a queen introduced? Conventional wisdom, and lots of books, say wait about three or four days to make sure she has been released. That may be stretched a day or so, I think, according to new research. If you haven't pushed that three-day release thing, and purposely delayed her release for four days, or maybe even five days, introduction success will increase. Don't make the candy plug too easy to open (but make sure it is soft and can be eaten, since dried candy will not allow the bees to release her at all, and she will die in the cage). Make sure the bees have access to her so she can be fed, but a five-day period of adjustment isn't bad, considering the alternative.

Then what? How soon do you check? Commercial operators wait, sometimes too long, I suppose, but they tell me seven days is about right for most of them. Less, and the colony isn't quite finished adjusting yet, so any observation will be premature. More, and you've waited too long to make good adjustments and will need to start over, losing at least a week or two of production.

Then how often? Once every two weeks isn't bad, but my personal opinion is once every 10 days, on average, to make sure the queen is doing all right. That means you have to get into the brood nest to examine her behavior, her performance and the bees that are taking care of her, but that's what management's all about, isn't it? Err just on the side of too often, at least for a while, when checking a new introduction rather than "I'll just wait a bit longer before I disturb them again."

Looking For What?

Once you begin examining a colony, what should you be looking for to make sure that your new queen is doing the best job possible? The obvious factors are always in order. Look at the brood pattern she is producing. Is it compact with few if any missing cells? Does it fill a sphere or is it random within the brood box, with some frames more filled than others, especially on the outside, or only on the inside frames, but moving up without moving out? Are drone cells where they belong, along the edges, near the outside of the cluster space, or are there some mixed in with worker brood? Or is there only drone brood, everywhere and anywhere? Are attendants surrounding the queen, taking care of cleaning, feeding and touching her, or is she moving around more or less alone? Is there more than one queen present, or are there queen cells on the bottoms of frames, or worse, on the face of a frame, indicating some serious problem the bees have discovered? This often is a nosema or injured queen symptom, and you missed your chance to nip that one in the bud. Even more fundamental, is the original queen still there (she was marked)? Recently, some commercial honey producers have found two or more queens in the same colony, apparently living in harmony side by side. Production, however, was not what it should be and none of the queens were worth keeping. You won't know if you don't look, though. And you need to look soon enough.

Laying workers can show up now. If this is the case you will find several eggs in a single cell, and the queen is either gone or on the way

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CROWN ... Cont. From Pg. 31

to being gone. This is a problem that should have been caught sooner though, and is difficult to manage.

Another difficult problem to diagnose is the rate of buildup. This is largely determined by the race of bees you have. Some build up faster than others, while some simply start earlier in the season, but by honey flow time they are about even. Probably the only good way to measure this factor is to have more than one colony with similar genetic stock in the same apiary. That way at least you have some yardstick to compare each colony to before making a rash decision.

Once you've seriously considered all the pitfalls a honey bee queen can encounter between her first home and her last, you should be fairly amazed that so many of them are successful. Lousy weather, rough mailing, tough storage, hostile introductions, toxic combs and neglectful beekeepers can, and sometimes do, work together to make sure a queen doesn't stand a chance of proving what she can really do.

It is no wonder that uneasy lies the head that wears the crown. Downright scared is probably a better description. This year, see what you can do to ease the transition of your queens from producer to user. All concerned will be better off. Especially that $15.00 queen. BC

NOT IN ANY BOOK

Things happen to package bees you won't read about in ANY book, ever. Here are some.

James E. Tew

If you've ordered packages for this Spring you probably have more than a passing idea of what to do once they arrive. In reality, the procedure for installing packages is deceptively simple. Spray the packages with thin sugar syrup until mid afternoon. Install the bees as soon as possible toward late afternoon. Have your hive equipment ready. Remove the center four frames and then remove the top cover from the package. Bounce the bees down within the cage. Deftly remove the feeder can, remove the queen cage, and then temporarily replace the cover on the cage. Determine that the queen is alive, and then, by removing the cork, expose the candy plug on the queen cage. (Note: your package may have a plastic queen cage. The instructions for release are similar). Then suspend the queen cage within the colony. Turn your attention back to the package cage. Give the package a second bump and then pour the bees into the space left by removing the four frames. At this point, bees are flying everywhere—but most are in a heap within your brood chamber. Gently replace about three of the frames. Note that the queen cage within the hive will probably require temporarily leaving one frame out. Shake the few remaining bees in front of the colony and watch for them to begin scenting—an indication that they have recognized the colony entrance. Get the empty package away from the colony. Put a feeder on the colony and close it up. It will probably be a good idea to reduce the entrance down to about one inch. At this point, don't do anything for a couple of days except refill the sugar feeder. About three days later, quickly open the colony and release the queen if she is not already out. After releasing the queen, don't do anything for a week or so—except fill the feeder. Be patient. Your package is installed without incident.

There is one variation that you might want to consider. Rather than pouring the bees from the cage, you can just set the open package in the open space within the colony. The bees should slowly move out of the package. However, sometimes they don't want to leave the shipping package. A couple of days later, you can then remove both cages at once. Either way, it's not difficult. Just get them out of the package one way or the other.

What can go wrong? Well, things that go wrong with package installation can be put into two categories—little wrongs and big wrongs. And they happen: Before installation; During installation; and After installation.

BEFORE INSTALLATION

The Problem The package doesn't arrive. It was never shipped. Candidly, it is becoming increasingly difficult to get packages shipped via mail. There's no denying it—packages of bees in transit require special handling. Sometimes they don't arrive and it's not the postal service's fault. A wet spring with constant rain can cause absolute havoc with shipping schedules. Just a few years ago heavy rains during the spring season very nearly caused the *cancellation* of many orders by frustrated producers. That cold snap back in early March this year may have a similar effect.

Very rarely, packages are not shipped due to unscrupulous overbooking of orders. Obviously if this happens to you, you are not going to buy from that producer again—but there are so many new beekeepers who are vulnerable. This cause for your packages not arriving is very rare, so if you're new at this, ask around for recommendations before selecting a package producer.

The Problem They're dead. A basic thing that can go wrong before installation is that your package is dead upon arrival. It happens. The package gets too hot (or rarely too cold) or it suffocates. Either way it's a sorry mess. Realize immediately that a major factor is now irreversible—your timing. Even if you get the package replaced—and you usually can—it will take time to get another shipped to you. The spring season ticks on. This is one reason for ordering your packages as early as possible.

The Problem They're here—but they're half dead (or half alive). A layer of dead bees up to about ¾" is okay—not great—but okay. All reputable producers put a few more bees in than necessary to offset a difficult trip. However, if half or more of the bees are dead, give the producer

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Try and not drop the queen back in the package.

a call. Their responses may vary, but they will always be concerned.

If the queen is alive, introduce the package as usual. Don't leave all the dead bees in the new hive. If supplemental bees are shipped to you, add these upon their arrival. If you have other colonies or a beekeeper friend, beg a frame having a small patch of capped brood on both sides. This would probably be more helpful than adding adult bees.

The Problem They're here but it's cold and raining. Getting the bees out of the package as quickly as possible is always a good idea—but sometimes the weather (or maybe your work or family schedule) just won't cooperate. Mix up a solution of thin sugar syrup and spray the mixture on the sides of the cage. Store them in a dark room that is around 50-55° or so. Obviously a dark cool basement is a possibility. Spray the packages in the morning and evening and then leave them alone. If you have to hold the bees longer than three days, lay the package on its side and put a feeder can or pail directly on the screen. You have to assume that the shipping feeder can is empty. When you install bees that have been confined for that long, be prepared for yellow rain upon their release.

DURING INSTALLATION

The Problem They didn't stay where I put them. Mr. Dave Heilman, the apiarist at the Ohio State University Wooster Bee Lab, has frequently told the story of his very first package installation. He went out just after lunch—having absolutely no experience and positioned the queen within the awaiting empty brood chamber. He shook the bees out. He said the bees came back out of the box as though they were launched. Thousands of bees were flying all about and very shortly they were gone. He had a queen and a few bees clinking around the cage. Though it was his first time, he correctly suspected something was seriously wrong. None-the-less, there is always that moment of "confused wonderment". Is this how this is supposed to work?? I don't have any idea what Dave did wrong. He followed all the instructions. Sometimes things go wrong. Feed your packages for several hours before installation and feed them again just before releasing them. Install them late in the afternoon. Try to have the package cool and calm before turning them loose. There's not much more to be done.

The Problem Oh no!! I dropped the queen cage into the package! Quick as a snake—get it out. Don't hesitate. The situation is not a crisis, but the longer you wait, the more the bees will cluster around the queen cage. Like someone in quicksand in a Saturday afternoon Tarzan movie, the queen cage will just fade away as the bees surround her. It's not uncommon for the queen cage to slip from your fingers as you try to hold it while removing the feeder can. It's one of those times in life when you need three hands. Yes, there is a chance you will be stung. The bees should be docile and confused. Don't use gloves and don't drop that cage again. After getting the queen cage out of the package, take a few minutes to gather your wits and then get on with installation procedure.

The Problem The queen's dead. Occasionally, upon removing the feeder can, then removing the queen cage, you may find that the queen has died. Though of academic interest, the reasons for her death are irrelevant at this time. You're about half way through the installation procedure and you don't have a queen. At this point, you need to make some quick decisions. Do you have other hives or do you have beekeeper friends from whom you could get a frame of open brood. It won't take much. If so, put the frame of brood in, then position the queen cage as though she were alive. Her residual queen odors are better than no queen odors at all. If you don't have access to an open brood frame, continue with the installation. Either way, you have no choice, but to really push your package producer for a replacement. You need to be aware, however, that installing a package of bees having no queen, and on nothing more than foundation, is going to be considerably more difficult when compared to installing them under normal conditions. This queenless package having no comb, no brood, and no queen will readily drift to surrounding colonies.

AFTER INSTALLATION

The installation often goes without a hitch, but then, sometimes, things become unglued.

The Problem All of the bees seemed to have drifted together to form one big hive and several small ones. If you're installing more than one package, occasionally bees do drift to one colony at the expense of the remaining colonies. Equalizing colony strength is an art and cannot be specifically defined. Your options are: (1) attempt to correct the situation immediately; (2) attempt to correct the situation after the bees have settled a few days (or weeks) later; or (3) make some changes now and some changes later. You have to decide. Your decision must be based on how many bees are left in the weak colonies. If the populations are very small, you don't have the option of waiting until later. All comprehensive bee texts have sections on equalizing colonies. Refer to those for a more complete discussion. However, some of the common options are: (1) to gently move frames of bees, using minimal amounts of smoke, from stronger colonies to weaker colonies; (2) if there is abundant flight, exchange colony locations so that the weaker colony gets the stronger colony's field force; or (3) a combination of one and two. It would be a good idea to replace the corks in the queen

cages to be certain new queens don't emerge in the middle of your adjustment-making procedure. It may take several procedures to get the populations equalized. Colonies usually settle down once open brood is present. If possible, installing your packages far apart (more than 10 feet) would eliminate most drifting.

The problem I waited several weeks to get back to remove the queen cage and now there's burr comb everywhere. You screwed up. Leaving the spacing between frames disrupted due to the temporary placement of the queen cage cannot be ignored. Now, all you can do is tear down the burr comb and position the frames correctly. It's unfortunate because most of the first brood the bees produce will be in the comb you had to destroy. It will be a setback for your colony.

The problem Is that a supersedure cell? So you think you're home free. The bees are out, the queen's out, comb is being built and all looks well. However, upon a perfunctory colony examination a few weeks later, you notice a spotty pattern of brood and several supersedure cells. How can that be? She's a brand new queen. No one currently has a good answer. In order to keep prices as low as possible, queens that are sent in packages are untested. Producers do their best to produce quality queens but sometimes a bum queen gets by. Also, the shipping procedure is hard on confined queens. Finally, in order to control *Varroa* mites, queens are exposed to minute amounts of fluvalinate (Apistan). Though it's still questionable whether or not Apistan has a negative effect on queens, the queen's health needs to be monitored after exposure to pesticides. If there is still some of the Spring season left, order a new queen. If the season is late, it might be better to simply combine the weak package with another colony. In all honesty, it's difficult to tell who is at fault—you, the queen producer, or the queen herself. Note that few people choose to blame themselves.

The Problem The queen just flew away. It often happens that the queen is not released from the cage as she should be. Some common reasons are that the cage exit gets blocked by dead bees or a hard sugar lump, or you neglected to remove the cork covering from the candy plug. Another reason is that, due to population equalization procedures, the cork plug was intentionally left in place. It could even be that the bees just didn't eat the candy plug out. (This can occasionally happen during a strong nectar flow.) Regardless, you are confronted with a situation in which you want to release the queen directly into the colony. Several times in my beekeeping life upon releasing the queen at a time like this, rather than her moving down onto the comb, she just abruptly flew away. It always causes a gasp and some unseeming language. What to do? Well, there's not much you can do. You can jump around trying to catch her (looking much like a baboon chasing a locust). More logically, you can leave the hive open with frames somewhat scattered. This will encourage the bees to set up a scent pattern. Your hope is that the lost queen, flying aimlessly about, will come back to the hive upon perceiving the hive odor. I suppose my experience would be that she comes back 50% of the time. After leaving the hive open for an hour or so (watch for robbing if other colonies are in the area). Quickly and gently close it up and leave it alone. The next day, go in quickly, with a minimum of smoke. If the bees fan and buzz all about — you lost her. If you're lucky enough to see her, things went your way on that particular day. If she didn't come back, put a frame of open brood (eggs & larvae) in the colony and order another queen. If you don't have access to open brood, order a queen and get her in the colony as quickly as possible, but you should know that this package's chances for success are diminished.

Some dump a cup or so of bees right on the queen before emptying the rest in a box.

The (last) Problem The bees all left. When all the bees leave a colony—whether it's a new colony or one that has been established for a while the event is called "absconding". Sometimes the reasons are obvious such as the presence of pests or indications of starvation. Yet at other times there are no clear reasons to explain why the entire colony left. Again open brood seems to help stabilize the situation. If you can recapture the absconded swarm, hive it as you would any other swarm. Make the unruly swarm as happy as possible by giving it drawn comb, honey, or open brood. Do as much as you can to make this flighty bunch of bees feel at home.

In summary, sometimes things go wrong—sometimes they go really wrong. Do what you can to correct the situation, then chalk it up to experience. At least you'll have something to talk about at the next bee meeting. BC

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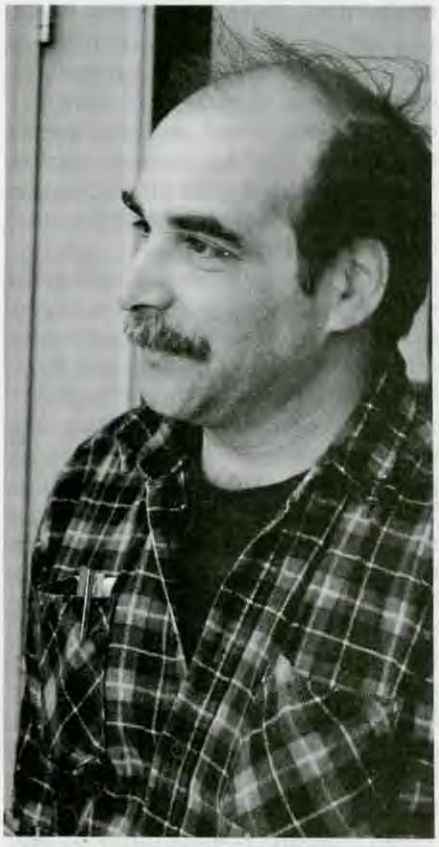
WILD BLUEBERRIES

Kim Flottum

Few things in life are better than homemade wild blueberry muffins, hot from the oven, melted butter dripping off the edges, running down your fingers...hot, juicy and oh, so wild blue, blueberry.

Homemade muffins are always the best, but mixes exist in cardboard boxes and just add water, and fresh are better than frozen (where most end up), which are better than canned, but they're all pretty good, really.



Brian Vasquez, Farm Manager for Cherryfield Foods.

Wild blueberries are big business in the northern parts of New England and Maritime Canada, and getting bigger every year. Growing naturally, a native of the stony, rolling and hostile Maine and Maritime landscape, wild blueberries have been a dietary staple of Native Americans, Colonists and everyone and anyone who has lived on the land.

When the Europeans arrived and cleared forests for farmland, blueberry growth expanded to take advantage of the increased light, but was still less important than staple crops. Over the years, as the land was abandoned for more fertile fields further west, these once-cleared glens and glades gradually returned to forest and scrub, and blueberries receded in the shade that again dominated the landscape.

But those who grow, harvest and market wild blueberries are as stubborn and as tough as the plants that produce these midnight-blue morsels, and as a crop wild blueberries never disappeared. Now, enter big business, modern agriculture, and corporate farming.

Bigger money saw the potential in this crop and not unlike the almond growers in California, realized they could build, and then corner a lucrative market with a fixed production location.

So big money, small money, government money, and the University joined together and formed the Wild Blueberry Commission Of Maine, an independent agency of the state government. With combined resources from a penny-a-pound assessment (half from growers, half from processors), they fund research, advertising, promotions, public relations, export market development, industry contacts and favorable government regulations.

David Bell, Executive Director of the Commission, explained that, "Besides honey bee pollination research, this group funds projects on alternate pollinators, food science, health benefits, insect control, IPM programs, weed control, fertility and generally, how to grow more and sell more...blueberries. Research proposals are first run through the Wild Blueberry Advisory Committee, which decides the projects and direction for us to go", explained Bell.

"We are also constantly looking for new markets, like Europe and pacific rim outlets, and new ways to use wild blueberries domestically," he explained, "like muffin mixes, yogurt, and other projects.

"And, our Commission is part of the larger Wild Blueberry Association Of North America, which includes other states and Canadian Provinces," he added.

There are about 500 growers in Maine that in 1997 produced 77.9 million pounds of wild blueberries on 30,000 acres of land. That averages out to about 2600 pounds per acre — a whole lot of blueberry muffins. Generally though, you can expect to produce about a ton of blueberries on an acre of land. This 1997 total, however, amounted to 23 percent of all blueberries (wild and cultivated) produced in North America.

Seven companies dominate the scene in Maine, and of these only three are really big. These three growers are also fruit processors and handle the harvest of many, many smaller growers. Much like a producer/packer in the honey business.

Cherryfield Foods, Wymans and Allens Blueberry Freezer are the big three in Maine and handle over 50 percent of the state's crop. They are followed by a few smaller family owned operations - Merrills, G.M. Allens & Sons, Agfest, and Guptill Farms - which handle much of the rest.

One early research discovery, even before the founding of the Commission, was that honey bee pollination increased yields, significantly. Honey bees, then, have been used for decades to enhance wild blueberry production. For years, however, there were enough colonies in Maine to supply the demand, which was not incredibly strong. But with the formation of the marketing board demand grew. At the same time home grown honey bee (and beekeeper) populations declined. As a

Bees arrive on all manner of trucks.

result migratory beekeeping, and beekeepers became a way of life for the expanding blueberry production companies.

Which is why we visited Cherryfield Foods last May. First, to learn more about how wild blueberries are produced, and second, how blueberry growers and beekeepers interact to make sure each profits from the enterprise.

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Blueberry season begins for Brian Vasquez just as soon as Spring weather permits. Brian is the Field Manager for Cherryfield Foods, one of the largest wild blueberry producers and processors in Maine. Brian moved to Maine about 18 years ago. He worked several years for another blueberry grower in the state, and about seven years ago came to Cherryfield Farms, where he started as an hourly employee. He gradually moved up the ranks and has been field manager long enough to realize the full potential of the job. He is married, has two kids and absolutely loves Maine.

Located on the 'downeast' side of the state, Cherryfield Farms owns about 42,000 acres of what are called locally 'The Barrens'. Land that is hilly, sandy, rocky, exposed and good for little more than raising billions of 'downeast black flies' and millions of pounds of wild blueberries. Ten thousand of these acres are in actual wild blueberry production, the rest in as-yet uncleared woods, swamp and unused land, though a thousand acre chunk is slated to become a cranberry bog later this year. The native acid soil favors the growth of both blueberries and cranberries, and the availability of irrigation equipment and natural ponds helps both crops also.

Of Cherryfield's 10,000 acres in blueberry production, about half are harvested each year. The other half is in the regeneration stage and does not produce. Cherryfield has a program underway to open up the land that was once farmed, removing the trees, logs and stones by burning, stacking or otherwise getting out of the way these obstacles to large machinery.

Owners of small lots — one to 10 acres or so - generally keep their harvestable land open, and usually burn half their holdings each year, killing off non-blooming plant parts and reducing insects and diseases. But this inhospitable land is against mechanization and most of these small-holder tasks are hand work — or rather backbreaking work.

In the past, burning was the only way to control some of the problems wild blueberries had — blossom blight, weed control, span worms, flea beetles and fireworms, to name the best known. But by clearing the land of most of the stumps, logs and rocks, Cherryfield and other large, progressive growers can now bring in tractors with flail mowers, fertilizer and herbicide applicators and even some mechanized harvesting equipment. Building roads across their holdings has made placing bees and camps for picking crews and moving irrigation equipment easier for all concerned, reducing labor and production costs.

Cherryfield Foods is not alone in this modernization move of course, since the only way for U.S. growers to compete is to stay lean and mean. Canada, for instance still has subsidy programs in place for the blueberry growers there. Some U.S. growers have expressed concern that this is an unfair competitive advantage in the global marketplace, but for the moment Canada has not changed their policy. Thus, U.S. growers must continue to increase production and cut costs as much as possible. Not, you may feel, unlike honey production.

One area where the most advanced growers have not cut costs is in how they handle crop pollina-

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Some bees are immediately placed on trailers...

...and some go right into bear fences.

BLUEBERRIES ... Cont. From Pg. 37

tion. In 1997 Cherryfield Foods paid a $50.00 flat fee for a colony of bees for pollination. These colonies had a minimum of six frames of bees and brood, and three percent of the delivered bees are inspected to make sure of strength. If eight or more frames are present Cherryfield pays more - fully 20 percent above the base for those frames above the six minimum. However, if the average falls between three and six frames, Cherryfield pays 20 percent less. If there are fewer than three frames they don't pay. Forty to 60 percent of the colonies they rented last year were above the six frame minimum, and of the smaller operators they worked with, 80 percent were above the minimum.

Cherryfield hires Apiary Associates, a company from Massachusetts that specializes in colony inspections to check the bees and to keep an objective eye on the whole situation. Payment to the beekeeper is made a third on delivery, a third two weeks after departure and the remaining third, which is adjusted for colony strength (increase or decrease, depending on frames) 30 days after the second payment, which works out to about 60 days from delivery. This arrangement is agreeable to both sides and seems to work well. Twelve beekeepers supplied 17,000 colonies in 1997 for the 4000 acres of wild blueberries under cultivation at Cherryfield Farms. And this is only one grower in Maine. All told in 1997, Maine's 30,000 acres of harvested wild blueberries, accounted for about 43,000 colonies of bees (with permits) heading to New England for the Memorial day bloom date. Others were resident colonies, and many smaller growers do not hire bees because they are not available, affordable, or needed. Brian estimated that 16 beekeepers would supply 20,000 colonies of bees for about 6000 Cherryfield acres this year, working on the same pay schedule and timetable.

Bees entering Maine are required to have an entry permit from the state sending them. This permit, and some percentage of the colonies delivered, are inspected by Maine's Apiary Inspector, Tony Jadczak. Getting bees into Maine during the past several years of mite infestations has been a challenge for the blueberry growers, for the inspector, for beekeepers and for anyone in a regulatory role caught in the middle. It settled down a bit in recent years, but promises to get interesting again now that resistant mites are roaming the highways and the number of colonies required in Maine continues to increase.

Tony and his crew (often a crew of one) inspect three to 10 percent of the colonies, but that percent, and the total number inspected is declining each year due to decreasing funds, time, and interest on the part of the beekeeping and blueberry industries. Tony still tests for tracheal mites and measures wing length of samples he takes, and gives the report to the beekeeper.

But there's more to renting bees for this crop than most people are aware of, and Brian took time from his busy spring schedule to drive me, Roger Morse and John Root through his fields last spring, while he filled us in on how this operation works, from both a grower's and beekeeper's perspective.

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Initially a beekeeper makes arrangements with Cherryfield to supply a known number of colonies to arrive on or about a certain date. This usually takes place on the phone. However, Brian attends local, regional and national beekeeping meetings on a regular basis. He does this for the express purpose of getting to know beekeepers and staying in touch with what is occurring in the industry. And, he often gets to meet with beekeepers in person beforehand. He does not like surprises, and this interaction keeps him in touch with what may, or may not happen come spring. Shipping dates, bloom dates and the like are agreed upon, with exceptions due to weather certainly, and Brian and crew wait for spring, and blueberry bloom.

In early to mid-May the trucks begin arriving. Some bees, those that arrive early, may be staged in areas nearby so they are out of the way of the blueberry crews, yet near enough to retrieve easily. But generally colonies arrive and are directed to the spot where they will sit in the blueberry fields or are placed on the company's tractor-pulled trailers.

Bee trucks are scheduled to arrive in the evening and a night crew at Cherryfield is on hand and ready to help. Drivers get a map of the production fields and told where to unload (in the dark) in areas already marked with flags and usually already-erected bear fences. Crews are around all night helping drivers, checking bear fences and making life easier, and safer for everyone involved.

Cherryfield provides bear fences in every area that needs one, and a fence is put up the night colonies arrive, usually before the colonies get there.

"We do not even want them (the bear) to get the idea that lunch has arrived," Brian said, "and those fences make sure nothing gets in".

The fences are not much to look at. A minimum number of flimsy fiberglass poles hold up an even flimsier electrified net fence. It appears as if it would blow over in the mildest Maine breeze. However, the four D-cell batteries that power the fence produce 8,400 - 9,600 volts — more than enough to deter all but the most determined (and probably not very wise) bear. In problem areas, those near woods or undergrowth that serve as cover, bacon is fastened to the fence to assist deterrence. Because the soil is sandy and dry the grounding capability of the fence is not very good. To compensate, another fence is laid on the ground and attached to the vertical fence, thus enlarging the charged area, and insuring a good ground. Cherryfield also compensates beekeepers who lose colonies to bear damage up to $35.00 for each colony. This plan, immediate and secure fencing and constant nightly patrols resulted in only 10 colonies damaged last year.

Colonies aren't placed uniformly around the growing area, as you might first suspect, but are concentrated in areas where bloom is heaviest, and spread thinner in new

A broad view of a small part of the Barrens, showing the young evergreens and the irrigation pipe installation.

areas or where plants are less dense. On average, there are three and a half colonies per acre, but that ranges from 10 per acre to as few as one and a half per acre. Some colonies are placed on those tractor-pulled trailers mentioned earlier so they can go to areas that need an increased population of bees for higher yields. Trailers are moved every three to four pollination days - a pollination day is one where the temperature reaches 70°, it is sunny and there is only a light breeze. Otherwise, colonies sit in the same location for about three weeks until bloom is complete. After the three week bloom period beekeepers get out of the way, with most going to other pollination jobs. Many head south to cranberry fields in Massachusetts or other fruit crops on their way to more permanent locations for honey production.

The trailers used to haul bees early in the season play a multitude of roles for Cherryfield the rest of the year. They haul irrigation pipe all summer, and are the platforms for tents for the pickers in the fall.

Irrigation is important in the success of the crop since blueberries are dependent on a good supply of moisture and the soil is sandy, (rocky actually) and holds little water. Cherryfield Farms has about 3000 acres under irrigation, using big guns (essentially a very large sprinkler head) to distribute the water. Crews spend time moving sprinkler heads and the pipe to connect the heads to the main laterals buried in a network across the fields. Because of this ability much of the crop can be irrigated, as long as there is enough pipe and water to pump. One other trick that has been employed is that rows of evergreen tree windbreaks have been planted. These, though still small, help break the wind, reduce plant transpiration, capture snow and provide wildlife cover. Eventually, these will also help stabilize the soil and reduce erosion, too.

To make all this happen - night crews, irrigation crews, rock picking, road building, land clearing, tree planting, burning, cutting, treating and fixing everything that gets busted doing all the rest - Cherryfield has a crew of about 70 full-time people during the active season. About 1500 migrant laborers come on to the scene during harvest, which starts about August first and lasts the month.

Harvest is picking. And picking. And picking some more. Some areas of Cherryfield's fields are picked mechanically, but most are still hand-picked, using a large rake-like picker. Berries are delivered to the main processing facility down the road a couple of miles from the main offices, washed and flash frozen. Fully ninety-nine percent of all wild blueberries are frozen, with the remaining one percent sold as canned, fresh or dried. Frozen berries have the advantage of a long shelf life, and can be stored to be used later in a variety of foods.

When harvest is over the mowing takes place, or burning if the land is still too rough for machines. The plants that produced this year are cut back to force rejuvenation of floral buds, and to force the roots to produce new plants, which increases plant density, thus production. For years cutting was out of the question for many of the fields due to rocks, and the plants were burned. Growers used huge dragon-like kerosene-fueled flame throwers to accomplish this. However, the downside was that little mulch was left on the ground, it killed other plants in places that had no blueberry plants, and was, as Brian put it "environmentally unfriendly".

Mowing, using a large flail mower is easier on the plants and the land, faster and less labor intensive (except for the blade replacement because all the rocks aren't gone yet). It is the goal to have all fields mower accessible eventually.

Work outside slows when harvest is over and the snow flies and concentrates on repairing and rebuilding and remaking the equipment used earlier in the season. Fifteen to 20 mechanics spend their time on these tasks.

Of course much goes on during the growing season besides pollination to make sure there are berries to harvest. Beginning in early spring, Cherryfield implements their IPM program for weed, disease, insect and soil fertility management. Weed control is primarily mowing where possible, and using a very selective herbicide where necessary.

Insect control in minimal, relying primarily on foliage removal in the fall and some spraying midseason. Fungicides are used to control blossom blight and some minor leaf problems, but are a non-problem for bees. Soil fertility is maintained through timely applications of fertilizer, spread mechanically in the spring.

This past season was exceptional for wild blueberries in Maine, and elsewhere, and especially so for Cherryfield Foods.

"We did well, real well in 1997 because it all fell together this year," Brian told me this winter.

"We were able to get blossom blight controls on at exactly the right time, we had lots of rain in 1996 for the developing plant's pre-bloom growth, we had enough bees in the right places at the right time, and even though it was dry, our irrigation system was in place (finally) and working exactly the way we planned.

"We didn't have a big insect problem because our IPM program was in place and well timed, and we didn't have hail at the wrong time, our blossoms didn't freeze, we had enough help...yes, everything went right", he said, and smiled.

Right is the right word for

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The old flame thrower, used to burn off plants. It is seldom used now.

Cherryfield's yield in 1997. They produced 18 million pounds of wild blueberries on barely four thousand acres of production land, three thousand under irrigation. It was a very good year — for Brian, for Cherryfield Farms, for the Wild blueberry Growers Commission, and for the beekeepers that helped make it all happen.

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In the scheme of things wild blueberries are only a blip on the crop pollination radar screen. Ten times the number of colonies go to California for almonds, and if you add up all the colonies used for apples in this country they would surely dwarf the number that make wild blueberries so successful.

But, like almonds, wild blueberries only grow in very special places and bloom for a short, specific time. They are the pollination crop out east because The Barrens are concentrated, the growers pay well for the most part, there isn't a pesticide problem and bloom is timed to fit well with other pollination crops and honey production later in the season. Moreover, you can almost every year make a small to medium honey crop here — and blueberry honey commands a premium price if marketed correctly.

You can implement all the IPM techniques you want to control insects, diseases and weeds on this crop. And you can institute marketing programs, install irrigation, and even clear more and more land for this crop. But as growers know, without honey bees and beekeepers and good people like Brian Vasquez, wild blueberries would still be a minor crop in a cold, hilly and hostile place called the Blueberry Barrens of Maine.

Information for this article was obtained from Brian Vasquez, Field Manager for Cherryfield Farms; Craig TenBroeck, Maine Dept. of Agriculture; The University Of Maine Cooperative Extension Service; Tony Jadczak, State Apiary Inspector; and David Bell, Executive Director, Wild Blueberry Commission Of Maine.

Year	Migratory Colonies	Blueberry Crop (million lbs.)
1981	9,454	21.7
1982	11,332	35.9
1983	11,424	37.9
1984	12,472	24.6
1985	15,088	43.7
1986	17,055	40.5
1987	20,378	37.3
1988	27,606	52.6
1989	29,007	27
1990	28,321	75.3
1991	29,276	39.4 (freeze)
1992	32,760	84.5
1993	33,144	65 (drought)
1994	36,731	60
1995	38,337	66 (drought)
1996	31,337	59.2
1997	43,932	77.9

SWARMING

Part One

Richard Taylor

We offer a rare treat this month, an invited article by Richard Taylor, on a subject near and dear to everyone who keeps bees.

Every beekeeper knows the feeling: It's a warm Spring day, you're in the apiary, the bees are pouring in and out of the hives fetching nectar and pollen, honey has started to appear in the supers, some of them half-full already, your spirits are high – then suddenly you realize that a swarm is in the air, maybe even two! Now your spirits sink as you watch the bees tumble from the swarming hive, fill the air, then slowly condense onto a branch, very likely one far out of reach. The supers of that hive, which yesterday were filled with bees and fast filling with honey, are almost empty now, and you see the honey crop from that once powerful colony taking flight with the bees. Added to your dismay is a feeling of incompetence, because good beekeepers, you think, do not let their colonies swarm.

There is another side to this, however. What you are seeing is one of the most remarkable spectacles in the whole of creation, and you should pause to contemplate this wondrousness.

For example, some of the bees on that cluster have pollen pellets on their legs, so they had no expectation a short time ago that they were going to join a swarm. The whole complex operation is evidently under the guidance and control of relatively few bees. It is these bees that eventually give the signal for the swarm to take off, for that is no haphazard event. At one moment the swarm is hanging almost motionless, so inconspicuous that you might be completely unaware of it, even when it is but a few feet away. Then at the next moment, having gotten the signal, the cluster disintegrates, and is suddenly in the air. The control bees, having decided that it is time to go, make this known by dashing around and through the cluster. Now the swarm is in the air, individual bees circling, making sure the queen is with them, then it moves out as a great cloud, guided by the bees that

know where their new home will be. The cloud of bees moves slowly at first, sometimes awesome in its size, but it soon gathers speed and seems to disappear into thin air, leaving behind a vast silence.

Scout bees, if the weather has been nice, were already searching the countryside for a new nesting site even before the swarm emerged, and this search continues until something acceptable has been found. Several potential sites will be chosen and, while the bees hang clustered, they will actually be compared. Scouts return and, by means of their complex and astonishing dance behavior, tell other scouts what they have found; these then go check them out. In time – sometimes a day or two, sometimes less – a consensus is arrived at, and that is when the swarm takes wing. Arriving at the new site, perhaps miles away, the bees pour into it and, within an hour or less, new combs are under construction and foraging bees start coming and going, precisely as they were doing at the parent hive that they have left so far behind.

What is astonishing in all this, and wonderful almost beyond belief, is in the details, some of which have only recently come to light. I cannot go into all of these for want of space, but let us note a few of them.

For example, that new nesting site is the original discovery of a single worker bee, apparently no different from her thousands of sisters. We think of bees as mechanical, guided by rigid instinct, incapable of learning and drastically altering their behavior to deal with new circumstances or to fulfill new and more comprehensive purposes. But this one bee, who until now has followed the age-old pattern of all the others, suddenly embraces a new goal altogether and goes off searching for a new home. Now, suddenly, the destiny of the entire colony, for generations to come, rests with her. Finally finding what might be a promising new nesting site – a hollow tree, perhaps – this solitary bee begins to assess it in detail. First of all, she measures its capacity. It has to be not too large and not too small;

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the tolerance is quite fixed. She measures it by walking around inside, pacing off the distance as it were, much as you and I might pace off a garden plot for size, her pacing interrupted from time to time by brief flights within the cavity. She notes the size of the opening, its height from the ground, and so on. Having finally satisfied herself that she has found something worthwhile this bee, if evening is approaching, places herself at the entrance and *guards* it, ready to attack any bee not from her colony that might want to come and take over. Then, when she gets a chance, she will return to the swarm cluster and summon other scouts to come and check out her find. The same, meanwhile, is going on at other possible sites, with other scouts, until finally the decision is made. The less favorable sites are rejected in favor of this one.

That is what actually happens; interpret it as you will, and I, at least, find it wondrous almost beyond belief. So the next time you see your bees taking wing as a swarm, set aside for the moment your sense of frustration, reflect on the deeper significance of what you are seeing, and rejoice as a part of this great creation that you share with the bees.

What causes swarming? A widespread belief among beekeepers is that it is "overcrowding." That is, the population of the colony reaches such a level that there is no longer room for it in the hive, so a large fraction of that population leaves. But this is so overly-simple that it is basically false. Giving the bees more room by simply piling empty supers on the hive has no significant effect. Sometimes, moreover, in late Summer, the hives become so populous that bees hang out on the front in large clusters, for sheer lack of room inside, but this does not precipitate swarming. Although late Summer or early Fall swarming does sometimes occur, swarming is nevertheless basically seasonal, starting in late May or June in this northern latitude, and as early as March in the South, and being pretty well over by early July.

Swarming is essentially the means of colony reproduction, so to ask what "causes" it is somewhat like asking what causes birds to nest and lay eggs. It contributes nothing to the survival of the species for a colony living in a hollow tree, for example – to become ever larger, for that tree is vulnerable to a forest fire or to the woodsman's ax. New colonies must be established from time to time or there would in time be no honey bees at all.

There are, however, factors that contribute to swarming, and these are to some extent within the beekeeper's control. Colonies with old queens are likely to swarm. Some beekeepers, accordingly, replace queens every couple of years, or even every year. But the main contributing factor is congestion of the brood nest. When the combs become so filled with brood and stores that the queen cannot find room to lay, then queen cells begin to appear.

Effective swarm prevention measures, therefore, always involve opening up the brood nest. More often than not this involves splitting the colony.

One simple and fairly effective method of discouraging swarming, if not actually preventing it, is to reverse hive bodies. This, of course, presupposes that your colonies are in two-story hives, which they usually are, unless you happen to be producing comb honey. Reversing, then, consists simply of putting the top story on the bottom and the bottom story on top. The result is that the honey stores are suddenly down below, and the brood nest is broken right in two, with room above, usually, for continued egg laying.

That is a temporary step, however, for the combs soon fill up again with brood and stores and, if the swarming season is not yet over, swarm preparations will begin again.

Another simple and fairly effective measure is to just move two or three combs of brood from the center of the bottom story into the top story, replacing them with empty combs. If there are no empty or near-empty combs in the top story, then give the colony a third story, taking the needed empty combs from there. Here you must be careful, however, not to spread brood too thin through the hive. Keep all or most of it in the bottom two stories. Spreading the brood too far in the hive puts the colony under a certain stress and can, according to the opinion of

SWARM
by Edward Baranosky

"I have heard the footfall of the flower spring."
Sappho

The old cat carefully
Jogged along at my side,
Fluidity never flinching,
Out for a cheerful romp.

At a discreet distance
He smiled encouragement
As I walked into the vast cloud
Of thousands of excited honey bees.

I turned to my smoke-gun,
A tiny weapon against
Such a huge conflagration...

Pledged to defend the queen,
I wore the gauntlet and the veil
To keep them out or me in –
But the veil was torn.

In the brood chambers,
A miracle of transfiguration,
Fed by the ambrosia of last year's sun,
Unfurled new wings of May.

The old queen had abdicated the throne
and departed with her entourage;
The ancient court politics,
A queen in exile and virgin princesses,
Thorax to stinger, in a fight to the death
In the palace brood cells

Thus the realm was in dismay.

The drones were of no use,
But kept to themselves
Waiting for the sun's progression
To fly with the victor.

She'd show no real preference;
Having killed her sisters,
She'd fly aloft to shake the sticky
Memory of death so close to birth.

The drones following after
In jolly camaraderie,
Would jostle for her attentions,
Their one essential duty.

I found the old queen
In conference with her scouts,
Dancing messages of new lands;
Soon they'd follow the signal,

So I took advantage of the lull
To trap her majesty and draw the swarm
Into a living cluster over my arm.

And as I released her into an empty castle,
Baited with a sweet frame
Of last year's vintage,
Fit for a tired monarch,

The cloud of her children
Settled faithfully
Leaving silence behind.

My old cat sat quietly next to me,
Calmly licking his whiskers.

some beekeepers I respect, render it more vulnerable to foulbrood, or other problems.

Still another way of opening up the brood nest is to make up nucs. That is, you just take combs of brood and bees, usually three, from the colonies you consider most likely to swarm, place them in nuc boxes with new queens, and replace the combs in the parent hives with empty combs. This system works fairly well for comb honey beekeepers, whose colonies are usually in single-story or one-and-a-half story hives. The big problem here, however, is that the bees are apt to just fill those empty combs with honey, sometimes very quickly, so that the queen still has no place to lay eggs. This problem is exacerbated by the fact that those empty combs are much more inviting to the bees, for honey storage, than the comb honey supers up above. Which is one more reason why swarm control is so much harder for comb honey beekeepers than for those who produce strained honey. Indeed, C.C. Miller, the most famous of comb honey beekeepers, admitted after a lifetime of beekeeping that he had never found a solution to the swarming problem. But here it should be added that, while the work of the comb honey beekeeper is easy at harvest time, that is just when the heavy toil begins for all the others.

Since the most effective methods of swarm prevention involve splitting colonies in one way or another, then you can accomplish two things at once in case you have suffered much Winter loss or for any other reason want to expand your apiary. Simply split your strongest colonies into two, by setting one story off onto a new hive stand. The story that remains on the original hive stand should be the one with the most honey, which is invariably the upper story, and this is where you want the queen to be, too. This will eliminate the possibility of robbing, and the moved story will almost certainly accept the new queen you give it, since all the older bees, the ones most hostile to a new queen, will have returned to the original hive stand. It is not essential that you supply a new queen, of course, since whichever part is rendered queenless by this operation will raise a new queen, if you make sure eggs are present, but it will be another three weeks or so before that new queen gets mated and starts laying. You'll be ahead by giving it a new queen or at least, if you have one, a ripe queen cell.

Those are, to my mind, the simplest methods of controlling swarming. Other methods exist, and volumes have been written about them, but most of them are, I think, either too complex and laborious or, sometimes, just not effective. I'll touch on these next time, and then devote some discussion to the best use of swarms. Meanwhile, I shall be very glad to hear from beekeepers who have their own favorite systems that they think should be more widely known. BC

INNER ... Cont. From Pg. 6

February, it cleared up and actually worked to the growers advantage. Colonies, too, were a bit rough early - short of pollen and nectar, but by March first were filling up fast.

A bit behind their southern kin, the trees were only 60 percent done, with about 40 percent left to finish, but still at peak.

There seemed to be enough bees this year, with those marginal colonies (two to four frames) not getting any takers, at any price - as it should be. Lots of new people in the almond pollination business this year, too, and they took their share of lumps, with some losing everything to bad weather, bad management or bad judgment. One beekeeper actually blamed idealistic journalism on his troubles, because he had read an article printed here about the future being in California, and he wanted a part of it. This golden state is the future, but the future isn't all that golden for some at the moment. They'll learn this year, or not, and come back next year stronger, smarter and better prepared. Or not.

Average price was $40.00 flat rate, with stronger colonies bringing in more. Overall, about $45.00 was the per colony price.

By now all those bees are gone, up north to Oregon or Washington for more pollination, or heading east to Idaho, Montana or the Dakotas for honey. Some are heading back east or south, home to Arizona, Texas, Oklahoma or even as far away as Florida.

But once a year for about a month, the greatest beekeeping adventure on this planet happens in the passionate almond groves of that big California valley.

It is a wonder to behold. And even a wonder to wonder about.

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Imagine this, next year.

You have, out in the warehouse, about 170 barrels of 1998 crop honey. This is, you guesstimate, just over half the crop, and you haven't had a packer bite, at any price, in over a month. Nobody's buying. In fact, nobody's even talking. No calls. No returned calls. Nothing.

A week later the phone rings. A returned call from that packer you called over a month ago. It goes like this...

"Hey Bill, I hear you're looking to move some barrels of ELA?" Not, "Hi Bill, how's the family,", or, "How did almonds go?", or, "Run into any of them Super Mites yet". Just... "Got Honey?"

Well, of course you've got some. And payroll's coming up, the banker called, both last week and yesterday about the note, and you need sugar syrup, bad. And everybody wants cash, because, well, there's no credit left.

So Packer Slim says, "I'm paying (way not nearly enough), and I've got a truck out your way a week Monday, and the driver'll do the test, waddaya say?"

"Test?", you ask.

"Ya, you know that new kit test I use to look for fluvalinate and amitraz in your honey, right out of the barrel", he says back.

"Haven't ya heard of it before now", he adds, and goes on, "it's pretty new, but it's 99 percent accurate, takes only 15 minutes and costs only $10.00, and if you don't pass, I don't buy", he says, with a final flourish.

"What? When did this start? What test? Don't you trust me?", you sort of say, more in shock than not.

But in the back of your mind you recall hearing rumors about those cowboys (out west, out east, up north, down south) who had played fast and loose...

But not you. Nope, nothing to worry about. Right?

But what if you don't pass that test? What if you messed up somewhere, or the test is wrong, or...what to do? What to do?

That test doesn't exist, today. It will pretty soon though. And it will be as easy and inexpensive as Packer Slim says it will.

So if you didn't do things just right, that test will tell. In only 15 minutes. That's 15 minutes ahead of the banker.

Scary, huh?

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If you're a basketball fan you automatically have an image of something when the term 'March Madness' is heard. There is, however, a totally different connotation here in northeast Ohio. For it is in March that surely the largest one-day beekeeper's meeting is held, just down the road from me in Wooster.

Started more than 20 years ago, this event is sponsored by the Tri-County Association, with strong support from the OARDC Bee Lab staff, and has grown each year to reach its current monumental proportions.

Grown too has been the sophistication of the premeeting promotions, registration procedures, and workshop topics and speakers. Success has built-up a sizable trust fund so speaker costs are a nonissue, and registration costs are absolutely minimal.

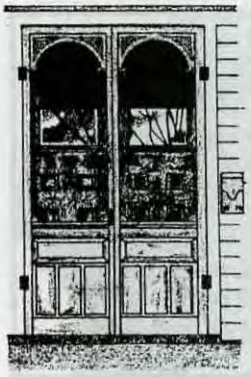
This year over 550 people (that's right, over 550!) showed up for a Saturday filled with Eric Mussen from California, cooking demos, beginner's classes, Jim Tew, how to make splits, preserving equipment demos, queen management, mite control, observation hive how-to, vendors and contests and displays and door prizes and really great weather (I don't think they planned the weather, but I wouldn't be surprised).

Tri-County handles the planning, picks the workshops, speakers and organizes the vendors, the breaks and the lunch. The Bee Lab people assist in all of this, plus handle a lot of the rest, including getting everything mailed on time, the hundreds of phone calls, getting tables set up, rooms organized, projectors in place, and all the other billion details needed to make this happen.

Primary among these people this year, and most years actually, are Dave Heilman and Sherry Ferrell from the Bee Lab, and the officers and committee folks, this year lead by Sue Shipitalo from the Tri-County group. There are more, I know, and have not mentioned all of them, but to me these people stand out admirably.

Having planned lots of meetings in my day, and attended hundreds across the country I appreciate a well run meeting. This is. And the over 500 people who attended this day I think agree.

Kim Flottum



Ann Harman

Home Harmony

Blueberries

Blueberries are a very versatile fruit. A few blueberries sprinkled on a fruit salad add a good flavor. Blueberries on breakfast cereal topped off with a drizzle of honey will start your day off properly. Toss some in the center of a cantaloupe half - then add the drizzle of honey. The flavor of blueberry combines very well with that of lemon. In fact, a squeeze or two of lemon enhances the rich blueberry flavor. Since blueberries are firm, they can be used in muffins, pancakes and waffles. If you have a favorite recipe for raspberries or strawberries, you can usually substitute blueberries, or use a combination of berries.

The blueberry is native to North America. The Native Americans called the wild berries "star berries" because of the star shape at the blossom end. Look for the star the next time you meet a blueberry. Today the blueberry, along with another native fruit, the cranberry, has been found to have bacteria-fighting attributes. Medicines can really taste good!

MELON & BERRY WINE BOWL

Although this recipe is best with fresh fruits, it makes a delicious dessert for a hearty meal any day of the year.

1/2 watermelon
1 honeydew melon
2 cantaloupe
2 cups blueberries (or a combination of berries)
1-2/3 cups Chablis or other dry white wine
2 tablespoons orange liqueur or 1 tablespoon undiluted frozen orange juice
3 tablespoons honey
mint sprigs

Halve melons, scoop out seeds and use a melon ball cutter to scoop out balls of fruit. Place in a large bowl. If you have a glass bowl, put fruit in layers. Add berries on top. Combine wine, liqueur and honey. Pour over fruit. Cover and chill at least 2 hours. Serve in bowls (looks wonderful in glass bowls). Garnish with mint sprigs. Serves 10 to 12.

When The Good Cook Gardens
Ed. Ortho Books

HONEY-BLUEBERRY MUFFINS

Although you can add blueberries to your favorite muffin recipe, here is one that uses whole wheat flour. Always serve muffins fresh and warm with a drizzle of honey.

2 cups whole wheat flour
1 teaspoon salt
3 teaspoons baking powder
1/2 cup fresh blueberries
1 cup milk
4 tablespoons honey
1 egg, beaten
1/4 cup melted butter or shortening

Grease the bottoms of 12 muffin cups. Combine dry ingredients. Add blueberries and stir gently. Mix milk, honey, egg and melted butter or shortening. Add to dry mixture. Stir quickly, just enough to moisten dry ingredients. Fill muffin cups 2/3 full. Bake at 400° for 25-30 minutes or until delicately browned.

The Healthy Taste Of Honey
Larry J. M. Lonik

BLUE MOON

Here is a drink recipe that is refreshing. It can be used as a breakfast drink or to revive you on a hot summer afternoon. Since it can be made with fresh or frozen fruits, you can enjoy this any day of the year.

1/2 cup orange juice
1/2 cup fresh or frozen blueberries
1/2 cup chopped fresh, frozen or canned peaches
1 scoop vanilla ice cream
1 scoop orange sherbet
2 tablespoons honey
1 cup crushed ice
lime and/or orange cartwheel slices

In blender, combine all ingredients except citrus slices. Blend until smooth. Garnish with citrus slices. Makes 3 cups (two 12-oz or three 8-oz servings)

Sunkist Mock Cocktails

BLUEBERRY RHUBARB TART

Rhubarb has a pleasantly tart taste that blends very well with blueberries. Here again, you don't have to wait for summer to enjoy this.

one single 9-inch pie crust
1/2 cup honey
3 tablespoons cornstarch
2 cups sliced 1/4-inch fresh or frozen rhubarb
2/3 cup apple juice
1 cup fresh or frozen blueberries

Prepare pie crust and bake at 375(for 10 minutes. Meanwhile, in 2-quart saucepan combine apple juice, honey and cornstarch. Gradually stir in rhubarb. Cook over medium heat, stirring constantly, until thickened, about 5 to 7 minutes. Remove from heat; stir in blueberries. Pour into crust. Bake for 40 to 50 minutes at 375(or until center is bubbly. Cool completely. Top can be decorated with whipped cream to form a lattice, if desired.

Land O' Lakes Best Loved Recipes

BLUEBERRY/APPLE CONSERVE

Blueberries can be made into jam, but for a change try this conserve with apples.

1 quart blueberries
4 medium tart apples (about 1 quart, chopped)
1/2 cup raisins
3 cups honey
1/4 cup lemon juice
1/4 cup chopped nuts

Core and chop the apples. Combine all ingredients except the nuts. Cook rapidly for about 20 minutes or until thick. Stir frequently as mixture thickens. Add the nuts during the last 5 minutes of cooking. Spoon into hot sterilized jars to within 1/2-inch from top. Complete seals and process in a boiling-water bath for 10 minutes.

Putting It Up With Honey
Susan Geiskopf

We may be inspired to cook with blueberries but one of America's poets was inspired to write about them:

Blueberries as big as the end of your thumb,
Real sky-blue, and heavy, and ready to drum
In the cavernous pail of the first one to come!
And all ripe together, not some of them green
And some of them ripe! You ought to have seen!

Robert Frost Blueberries

Richard Taylor

Bee Talk

"My experience with honey plants and honey flows has taught me alot, and most of it has been negative."

When I go off somewhere to talk to beekeepers someone invariably asks me about honey plants. Usually they want to plant something, either around the house or maybe in some field nearby, that will enhance their honey crop.

Well, we know that bees visit all kinds of flowers, but the fact is that there are rather few, in any given area, that produce significant honey flows. In some areas beekeepers have to rely on only one or maybe two plants for their crops, any others, called "minor sources," serving only to sustain the colony itself. Sometimes, however, that single source will result, year in and year out, in an enormous crop. Indeed, every really good beekeeping territory that I am familiar with is characterized by just one or two good honey flows, each from a single source. Areas where bees make big crops from a wide variety of sources are very few.

Lay people and sometimes beginning beekeepers, occasionally assume that the best beekeeping areas must be in the warmer climates, where the blooming season is longer and the variety of nectar-yielding plants greatest. But that, with few exceptions, is not so. One of the best, if not the best, beekeeping territories on this continent is the Peace River area in Canada where the season is very short and the honey flow, I believe, comes from a single source. Honey from tropical regions is often dark and strong-flavored – but again, with some exceptions. Tupelo honey, which is perhaps the nicest honey available anywhere, comes mostly from Florida, and sourwood honey, another favorite, is also from southern sources.

There is rarely much point in planting just for the bees. The ornamental flowers you grow around your house will make very little difference to your honey crop, even if you have only one hive. Indeed, they will probably make no discernible difference at all. If what you plant is a tree – an Evodia, for example – then there might be a difference, but even here I think you would need a grove of a dozen or so trees to see any real difference. A.I. Root once got interested in this question of planting just for the bees, and he decided that the most promising thing to plant would be a grove of basswood trees. I think he actually went ahead and did this. He planted them in an unfavorable location and they produced little. A reader recently wrote to me that he had three apiaries, only one of which was near a grove of Evodias, and he got a good crop of especially nice honey from that one. But that was a grove of trees, not just one or two.

My experience with honey plants and honey flows has taught me a lot, mostly of a negative nature. About 40 years ago, when I was living in Rhode Island, I thought I would improve the bee pasture by sowing sweet clover seed in waste areas. I remembered how, as a kid in Michigan, I had gotten beautiful honey from this source, which grew everywhere. The seed never germinated, or if it did, the seedlings died off. Thus I learned the obvious: that some plants require special soil conditions. New England soils are mostly acid and clovers require alkaline soil. And that is the basis for the observation that beekeeping thrives in dairy country. Dairying is mostly done where clovers abound.

My efforts to catch honey flows by moving bees into special areas have always failed, even when it seemed like a sure thing. Three times I have loaded bees onto a trailer and carted them to buckwheat fields, ahead of the bloom, and not once have I gotten any Buckwheat honey for my efforts. Maybe the bees did not have time to get oriented in time for the bloom. That would not, however, explain my experience with the Sunflowers. One Summer I found acres and acres of sunflowers in the fields surrounding one of my established apiaries. The bees had been right there for two or three years. I expected lots of supers filled to the last cell with sunflower honey. What happened? There was not a drop of Sunflower honey in any of the supers.

What I've concluded is that, like so many things about bees, where they gather their nectar is often a total mystery. I get Basswood honey some years when I can find no Basswoods in bloom. I find alfalfa fields in bloom, sometimes with the air above them filled with bees, and sometimes not a bee in sight, even

Continued on Next Page

BEE TALK ... Cont. From Pg. 47

on a hot day. So, as far as getting honey is concerned, perhaps the best thing to do is just cross your fingers and hope for a good year. If you are in a good area then you'll get good crops, most of the time, and if you are in a marginal area you will usually get small crops, even though there may be all kinds of flowers around.

Is there, then, no point in planting for bees? I think that, bearing all these things in mind, it is sometimes worth it. I treasure the Evodia tree in my backyard, just for the joy of seeing all the bees in it, and it stands to reason that this tree has got to be making a difference in the hives even if I can't measure it. Besides this, there are some plants that are very worthwhile for reasons other than nectar. When beekeepers ask me what would be best to plant for the bees, I suggest such things as squash, cucumbers and the like. These crops yield nectar, *and* you have the pleasure of watching the bees working the blossoms. Also, for whatever it may be worth, you will get a valuable food. So you win both ways. BC

Richard Taylor is a philosopher and lifelong beekeeper who lives in the Finger Lakes region of New York.

Questions?

Pollen Substitutes?

Are pollen substitutes for building colony strength in the Spring worth the cost?

Mitchell Drinnon
Sneedville, TN

It depends on how abundant natural pollen sources are in your area. I do not use them because here the bees find plenty of early pollen. Years ago I tried a soy flour mix but the bees would not touch it. I also, years ago, tried the pollen patties sold for this purpose, and the bees left them only half consumed. Really the best way, I think, to get colonies to build up in the Spring is just to give them sugar syrup, rather slowly – just a few holes in the feeder jar. This greatly stimulates brood rearing. But it also stimulates early swarming.

Shake Bees Off First

Is it possible to take combs of brood and bees from a hive and combine them with another colony in the same apiary without first shaking the bees off?

Filmore Emerson
Foresthill, CA

This usually works. It is a method of boosting weak colonies. The older bees that find themselves in a new hive fly back to their own hive and fighting seldom breaks out against the younger bees that remain, although it sometimes does. It is always safer to add combs of mostly sealed brood with most of the bees brushed off. There is also less danger of inadvertently bringing two queens into fatal contact with each other.

Pollen Collection

I would like to collect pollen for commercial sale. What is the best device, and how does one clean the pollen for sale?

Peggy Littlejohn
Mancos, CO

The best pollen trap, in my opinion, is the one that hangs on the front of the hive between the first and second stories, but there are several good models on the market designed for different purposes. To prepare pollen for packaging, you first remove any dead bees, wings, legs and whatnot that may be in it, by picking, blowing and straining. Then dry it in a warm, dry room or attic space, then freeze it in tight containers for storage.

Enough Ventilation?

Do pollen traps create a ventilation problem in a hive? The ones I have require that the regular hive entrance be closed and the bees go in and out through the trap one story higher. Can the bees ventilate the hive and carry on housekeeping activities under those conditions?

David Boyd
Williamsburg, KY

I think pollen traps should not be left on the hive very long, perhaps a week or two at a time. Some models, however, can be made to be 'active' that is they will scrape pollen off, or 'inactive' – not removing pollen. If you are concerned about ventilation you can make an opening at the back of the hive, or the top, or stagger the supers, after the bees have begun going through the pollen trap, and most of them will continue going through the trap rather than start using these new openings as entrances. Use pollen traps only when there is an abundance of wild pollen sources in fields, and empty them frequently – even daily – so that the pollen will not become damp.

Starlines or Buckfast?

I have about 100 hives and last year I tried Starline queens for the first time. They seemed to produce about the same average as Italians. What is your opinion of hybrid strains? Would it be possible for me to raise my own Starlines or Buckfasts? I have noticed there are different strains of Italians. Which is better?

Randy Hamill
Wichita, KS

Opinions differ with respect to the value of hybrids, but people I know who have tried the ones you mention, Starlines and Buckfast, have all liked them, the Buckfast because they seem to have some resistance to tracheal mites. Starlines are generally superb honey producers, when in a honey-producing area. Developing hybrid strains involves artificial insemination so it is not practicable for most beekeepers. You would not be able to produce queens on a small scale and retain purity of strain, for you could not control mating. I do not consider the race or strain of bees to be as important as management of colonies.

Apistan vs. Egg Laying

I have heard that when Apistan strips are in a hive the queen cuts back on egg laying. Is this true?

Arthur Holmwood
Greenyield Center, NY

I have never heard this, nor do I see any reason to think it is true. I will welcome information from any reader with evidence to the contrary.

Dead Attendants

I bought four packages of bees and in three of them the attendant bees in the queen cage were all dead, although the queens were alive. The package itself was healthy, with not many dead bees in the bottom. What happened to the attendants?

Bill Sawhon
Columbus, OH

It is impossible to say, but it is uncommon for such attendant bees to be dead even though the queen is alive and apparently okay. The loss of the attendant workers does not seem to adversely affect the queen introduction. For some reason the queen is usually the last to perish when the bees are under some kind of stress.

Questions are eagerly solicited. Send them to Dr. Richard Taylor, Box 352, Interlaken, New York 14847 (not Medina) and enclose a stamped envelope for direct response.

Answers!

Richard Taylor

?Do You Know? Answers

1. **True** Even though some pesticides are extremely toxic to honey bees and have caused extensive bee kills, the majority of pesticides are not hazardous to honey bees. In a recent table listing the toxicity of 399 pesticides to honey bees, 20% are highly toxic and 15% are moderately toxic whereas 65% are relatively nontoxic to honey bees.
2. **True** Dust applications of insecticides are usually more hazardous to bees than sprays. The dust particles readily adhere to the bee's body hairs and are easily incorporated in the pollen as it is collected and packed.
3. **False** Pesticide applications by aircraft usually are more hazardous to bees than applications by ground equipment, due to increased drift.
4. **True** The single largest reduction in colony losses from pesticides is due to the application of pesticides in the evening, night or early morning when the bees are not actively foraging in the area to be treated.
5. **False** Strong colonies usually suffer greater losses than weak colonies, because more foragers are exposed to the insecticidal residues.
6. **True** The rate in which insecticide residues degrade in the environment is strongly influenced by temperature. Thus, cool temperatures increase the persistence of spray residues and increase the hazard to honey bees.
7. **False** Most herbicides and fungicides have proven to be relatively nontoxic to honey bees and can be used around them with a minimum of injury. Herbicides indirectly effect honey bees by reducing the acreages of attractive plants for the bees to forage on for pollen and/or nectar.
8. **True** Typically, susceptibility to pesticide poisoning is greatest for small species of bees. The surface/volume ratio is increased for small bees and this ratio is the critical factor in determining lethal exposure. A small bee can much more quickly accumulate a killing dose per body weight than can a large bee.
9. **True** Severity of honey bee kills is usually inversely proportional to the distance colonies are located from treated fields. Field studies have shown that distance affords protection. Most colonies are safe when located one mile or more from a treated area.
10. D) Field Bees
11. B) Insecticides
12. D) 100
13. A) Pyrethroid
14. Large numbers of dead or dying bees at the colony entrance.
15. Contact- absorbed through the integument.
    Stomach poison-absorbed through the alimentary canal when taken internally through feeding.
    Fumigation- absorbed through spiracles or respiratory system.
16. Move colonies away from the area to be treated.
17. There is little chance of honey containing toxic pesticides within the colony since the nectar is transported back to the hive internally within the honey stomach. Thus, nectar foragers rapidly absorb the toxic chemicals which alters their normal behavior. Workers quickly lose their sense of orientation and/or their ability to fly and usually die away from the hive. Should bees return to the colony with a load of poisoned nectar, there are further natural provisions against a general contamination of the honey. Foraging bees which become incapacitated at the hive are usually removed from the hive without expelling their load of nectar. When foraging bees regurgitate their load of food, the hive bees process the nectar during the honey ripening process and thus are exposed to any toxic substance it may contain for a considerable period of time. Hive bees tend to retain the food in their honey stomachs when they become affected by a poison and are removed from the hive by other bees. Guard bees also resist abnormal bees or bees which return with offensive odors and remove them from the hive.
18. Control the blooming weeds on the orchard floor and minimize pesticide drift so that adjacent blooming crops and weeds do not receive toxic residues.
19. The evening before short residual insecticide applications are to be made, the colony entrances would be screened shut. The following morning the colonies are covered with wet burlap or plastic while the spray applications are being made. Wet burlap is preferred since the water helps to lower the temperature of the hive and the bees need water to regulate hive temperature. If colonies are to be confined for several hours they should receive water inside of the hive and an additional super so they have increased clustering space.

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

Clarence Collison is a Professor of Entomology and Head of the Department of Entomology and Plant Pathology at Mississippi State University, Mississippi State, MS.

Gleanings

APRIL, 1998 • ALL THE NEWS THAT FITS

Florida Honey Plant Doomed

NEW MELALEUCA PESTS IMPORTED

A quarter-inch-long weevil now chomping on weedy melaleuca trees in Florida's Everglades may be joined in the future by other helpful insects. About 1,600 of the *Oxyops vitiosa* weevils, native to Australia, were turned loose in 1997 at 11 melaleuca-infested sites in Florida. Recruitment of the weevil for the biological control battle resulted from more than a decade of scrutiny by ARS scientists who proved that this beneficial insect will voraciously eat melaleuca – and only melaleuca. Potential new recruits now undergoing testing include four additional insect species from the tree's native Australia – a leaf-damaging moth and fly, a sap-sucking psyllid, and a gall-forming fly. Tests from a Brisbane, Australia, laboratory run by ARS and the Australian government led to permission from U.S. authorities to import some of these candidate species into Florida for indoors-only tests. Melaleuca, a relative of the familiar bottle-brush plant, invades an average of 14 to 15 acres per day in central and southern Florida.

DROUGHT STOPS NEW ZEALAND HONEY

New Zealand beekeepers are predicting the lowest national honey crop on record because of an El Niño-induced drought and below average temperatures. The national average annual crop is 8,943 tons – 67 pounds a hive.

The worst affected areas are North Canterbury – the country's largest honey producer, Southland, Waikato, Hawke's Bay and Wairarapa. They are all major pasture areas and the result is pasture-based honeys are forecast to be in short supply.

HONEY BOARD NEWS

Research Dimensions

Research Dimensions' packer tracking study, based on data from 15 honey packers representing approximately 50 percent of all honey sold, reported that total honey sales in December were up 8.26 percent over December of last year. The following are changes by segment:

Export	-45.9%
Retail	+4.01%
Foodservice	+7.17%
Bulk	+14.64%

Argentina

According to agricultural sources in Argentina, as well as honey traders and exporters, there are 18,000 beekeepers in Argentina keeping 1,650,000 beehives. Of those beekeepers, approximately 50 percent have fewer than 50 hives. Argentina's largest beekeeper runs almost 1,000 hives. The average annual production is 70,000 tons. The 1997 Argentine honey crop was below the annual average but better than 1996's crop. Some areas report steady rain over the last several weeks which may affect the 1998 honey crop.

El Niño Affects

CALIFORNIA LOSES LOTS

El Niño has cost California agriculture an estimated $57.4 million, reports Walt Shaw (KHTK, Sacramento, CA). Hardest hit areas are southern California and the central coast. Damage to strawberries alone totals $7 million. Farmers have not been able to plant lettuce, celery, broccoli, cauliflower and cabbage in Santa Barbara, Ventura, and San Luis Obispo. Vegetable planting in Salinas and Monterey has been delayed because of soggy fields. Delays will begin to affect produce prices at the grocery store. Artichokes, broccoli, winter wheat, oats, barley, alfalfa, asparagus and sugar beets around Sacramento have been affected. Aerial applications have been putting down fungicides and herbicides because of flooded fields. Fast-ripening chemicals will likely be needed this year with the many late plantings caused by El Niño. A big concern remains that warm rains in April will accelerate snow melt and cause major flooding.

Cotton Crop Still A Problem For Bees

APPLY PESTICIDES DURING DAY ADVISED

Applying pesticides to cotton after sunrise reduces beet armyworm populations by 96 percent. This finding from ARS field tests is significant because the beet armyworm costs U.S. cotton growers tens of millions of dollars in crop losses and pesticide expenses each year. Beet armyworm larvae generally prefer cotton leaves. And as larval numbers rise, older ones tend to enter the flowers. But traditional predawn pesticide applications kill only about 12 percent of the larvae in flowers. That's because the flowers are still closed, shielding the pests. Once the sun rises and the flowers open, the pests are more vulnerable. On the other hand, growers have two good reasons for applying chemicals before sunrise. First, winds are lighter, so there's less risk that pesticide spray will drift. Second, bees critical for pollination are still safely inside their hives. The scientists advise growers to coordinate after-sunrise pesticide applications with nearby beekeepers to ensure that hives are temporarily moved to safer locations.

OBITUARIES

Friedrich Ruttner

Professor Friedrich Ruttner passed away February 3, 1998. Professor Ruttner was born in Eger, Austria. He grew up following the tracks of his father, a renown limnologist (fresh water biologist) in the biological research station of Lunz-am-See in Austria with a special interest for bees and beekeeping. He became a medical doctor at the university of Innsbruck where he worked for some time in the department of neurology.

As a consequence of a heavy polyarthritis, he had to leave his medical occupation in 1948 and set up a honey bee breeding station in Lunz-am-See with the support of the Austrian beekeeper's association. He continued his studies at the University of Vienna where he obtained his Ph.D. in biology. In 1965 he became professor of zoology at the University of Frankfurt and director of the Bee Research Institute at Oberursel, where he produced a remarkable scientific work in the field of genetics, breeding, artificial insemination, taxonomy, mating behavior and bee botanics. In this period he founded the scientific journal "Apidologie," in collaboration with Louveaux. After the first occurrence of varroatosis in Germany, the institute has put most of its energy in the control of this important bee pest.

In the International Federation of Beekeepers Association, APIMONDIA, professor Ruttner played an important role as president of the Standing Commission for Bee Biology, where he remained the "past president" until today.

In 1981 Friedrich Ruttner retired and took up again residence in Lunz, where he produced a number of high level scientific publications. Throughout his professional occupation he concerned himself about an efficient collaboration between scientific research and beekeeping practice.

Chase V. Walker

Chase V. Walker, Chairman Emeritus of Los Angeles Honey Company, passed away on January 9, 1998 at the age of 87. A memorial service will be held later in April or May.

Chase was born on a farm near Paris, OH and as a boy helped his father cut a few bee trees and maintain an apiary of up to seven colonies. In 1931 he began hauling for Diamond Match Company in Chico, CA as an independent trucker. In late 1931 and 1932, he made 15 trips over the Old Ridge Route for Diamond carrying bee supplies to their Los Angeles Branch. When the truck business stagnated, he returned to Ohio in December of 1932.

Chase began his career in the beekeeping industry as the Assistant Manager of the Apiary Department of Diamond Match Co. in Chico, CA on Friday the 13th, January 1933 as a result of his former truck dispatcher being promoted to manager. Transferring as the new manager of Diamond's Los Angeles Branch in 1936 he maintained that position for 20 years, until a corporate decision was made to cease apiary operations in Metropolitan L.A. He, along with his wife and brother, was able to start activity in late 1957 as Los Angeles Honey Company – a corporate subsidiary that was purchased from Bryant & Sawyer Co. With a lot of hard work the operation grew from the original crew of three to a high of 15 with the purchase of the Madera mill facility from Superior Honey Co. in 1966.

Marvin Reiger

Marvin Henry Regier was born on March 18, 1937, to Theodore and Anna Voth Regier in Goessel, KS and died on November 18, 1997 at Bethesda Home in Goessell.

In the late 50s he purchased six hives of bees as a hobby. The business grew to over 1200 hives located in at least a dozen Kansas counties as well as a few locations in Oklahoma. He was an active member of the Kansas, the Mid U.S. and the American Honey Producers Associations, serving in various capacities for all of these organizations. He enjoyed traveling to different parts of the country to attend meetings, visiting with fellow beekeepers and encouraging those just starting out in the bee business.

Survivors include his wife Grace, children Vickie Schmidt and husband Emil, and Sherry Unruh and husband Bill, all of Walton.

New EPA Ruling

PESTICIDES UNDER SCRUTINY

The following pesticides are used commonly and have been identified as "at-risk" under the newly implemented federal Food Quality Protection Act. Many are considered important crop protection chemicals, and significant honey bee problem chemicals.

Trade Name	Chemical
Omite	Propargite
Guthion	Azinphos methyl
Imidan	Phosmet
Lorsban	Chlorpyrifos
Supracide	Methidathion
Diazinon	Diazinon
Malathion	Malathion
Dibrom	Naled
Benlate	Benomyl
Sevin	Carbaryl

AAPA STUDENT AWARD

Each year, the American Association of Professional Apiculturalists (AAPA) offers an award for the best student paper presented at the American Bee Research Conference (ABRC). This year's winner was the Pennsylvania state honey queen, Jamie Fisher. Jamie received a certificate from the AAPA and a cash award of $50 for her talk: Effects of Tracheal Mites and Nosema on Commercial U.S. Queens. The research that Jamie described was conducted at the Pennsylvania State University. She and the other researchers involved (K. Cramp, J. Finley and S. Camazine) looked at the incidence of Nosema and tracheal mites in queens from commercial breeders and its effects on queen size.

Honey Rules Not Sweet

ORGANIC REGULATIONS REVIEWED

The public comment period for USDA's proposed regulation establishing national organic standards was extended for an additional 45 days. The comment period was extended because of the complexity and importance of the organic standard proposal and to provide an opportunity for even greater public participation. April 30, 1998, is the new closing date. Comments may be submitted or reviewed via the Internet at http://www.ams.usda.gov/nop or may be submitted in writing to Eileen S. Stommes, Deputy Administrator, Agricultural Marketing Service, USDA, Room 4007-S, Ag Stop 0275, P.O. Box 96456, Washington, DC 20090-6456.

1998 Who's Who In Apiculture

The information contained in this Directory is as current and correct as possible. If you are aware of errors or omissions, please contact us at 800-289-7668, Ext. 3214, or email at kim@airoot.com. We will correct our electronic version on the web, www.airoot.com/bee and include corrections in our next Directory.

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- **BACKYARD BEEKEEPERS** - Ed Weiss, 3 Whipstick Rd., Wilton 06897
- **EASTERN CT BKPRS** - Tim Grilley, P.O. Box 571, E. Lyme, 06333
- **HAMPDEN CO BKPRS** - Linda Canders, 108 S. Water St., Warehouse Point, 06088
- **WESTERN CT BKPRS ASSN** - Virginia Connally, 30 Meeker Hill, W. Redding, 06896

DELAWARE

★ **DE BKPRS ASSN** – John S. Tulloch, P.O. Box 473, Odessa 19730

FLORIDA

★ **FL STATE BKPRS ASSN** – Rebecca Randall, 398 S. Central Ave., Umatilla 32784

- **CENT FL BKPRS** - Luella Bell, 1058 S. Ridgewood Ave., Deland, 32720
- **ESCAROSO BKPRS ASSN**-Sylvia Bullard, 9801 Lyman Dr., Pensacola, 32534
- **N CENTRAL FL BKPRS**- Tom Cutts, 1741, NW 7th Ave., Gainesville, 32601
- **NE FL BEPRS**- Mickel Herrington, 8477 W. Beaver St., Jacksonville, 32220
- **PALM BEACH CO BKPRS** - Leonard Fultz, 146 Martin Ave., Greenacres, 33463
- **POLK CO BKPRS**- David Tschida, 4929 Wales St., Lake Wales, 33853
- **RIDGE BKPRS ASSN** – David Adams, 427 N. Tecumseh Ave., Ft. Meade 33841
- **SO FL BKPRS ASSN** - Charlotte Nichols, 3050 Rustic Ln. NW, N. Ft. Myers, 33917
- **TAMPA BAY BKPR ASSN** - Betty Watson, 3507 Washington Rd., Valrico, 33594
- **TUPELO BKPRS ASSN** – Fred Mellor, Box 397, Fountain 32438
- **W CENT FL BKPRS ASSN** - Ann Murray, 14260 SE 80th Ave., Summerfield, 34491

GEORGIA

★ **GA BKPRS ASSN** – Virginia Stephens, 1967 Sumter St., NW, Atlanta 30318, (404) 350-9500

- **CHATTAHOOCHEE BK ASSN** - Jim Ellis, P.O. Box 4556, Columbus, 31904-0556
- **CHEROKEE CO BEE CLUB** – Terry Ross, 159 Watkins Rd., Canton 30115-7119
- **COASTAL EMPIRE** - Greg Stewert, 221 Larchmont Dr., Savannah, 31419
- **EAST PIEDMONT BKASSN** – P. Shelnutt, 2570 New High Shoals Rd., Bishop, 30621
- **METRO ATLANTA BKPRS** – Cindy Bee, 1041 Wilburn Dr., Marietta 30064
- **NORTHEAST MT. BKPRS ASSN** – Bob Binnie, Rt 1 Box 2064, Lakemont 30552
- **NORTHWEST GA BKPRS** - Bill Slack, 108 W. LaFayette Sq., LaFayette, 30728
- **SOUTHEASTERN GA BKPRS** - Bob Rowell, Rt.1,Box 147, Nahunta, 31553
- **TARA BEEKEEPING** - Bobby Boles, 2855 West Rd., Riverdale, 30296

HAWAII

★ **HI BKPRS ASSN** – Lee Ong Chun, 2115 N. School St., Honolulu 96819, (808) 841-6440

- **BIG ISLAND BKPRS** - Walter Patton, 27-703 Kalele, Papaikou, 96781, hihoney@hawaiihoney.com

IDAHO

★ **ID STATE BKPRS ASSN** – Golden Millet, 1 Box 8 Bee, Marsing 83639

- **IDAHO BKPRS ASSOC** – E. Randall Johnson, 720 Fletcher Dr., Nampa 83686
- **IDAHO HONEY IND. ASSN** - Scott Hamilton, 2522 Southside Blvd., Nampa 83686

ILLINOIS

★ **IL STATE BKPRS ASSN** – Rita Taylor, Rt. 2, Box 249, Pleasant Plains 62677, (217) 626-1319

- **COOK-DUPAGE BKPRS** - Pat Patterson, 1350 Oak St., North Aurora 60542
- **CTL EASTERN IL BEE ASSOC** - Andy Blum, 1453 Co. Rd. 3600N, Paxton 60957
- **HEART OF ILLINOIS** – Carl J. Wenning, 21 Grandview Dr., Normal 61761
- **ILLIANA** – Kathy Wright, P.O. Box 83, Kansas 61933
- **LAKE CO BKPRS ASSN** - Lynne Davis, 42835 N. Crawford Rd., Antioch, 60002
- **LINCOLNLAND** – Ellen Nusbaum, 1500 North Third St., Riverton 62561
- **LITTLE EGYPT** – Beverly Tanner, RR 2 Box 707, Fairfield 62837
- **MISSISSIPPI VALLEY** – Rita Taylor, 4274 Taylor Homestead Rd., Pleasant Plains 62677
- **NORTHERN IL BKPRS** - Lynn & Rob Rosemann, 16504 Kunde Rd., Union, 60180
- **ROCK RIVER VAL BKPR ASSN** - Ernest Holtz, 305 N. Horace Ave., Rockford, 61101
- **SPOON RIVER VALLEY** – Lyle Lefler, RR 2 Box 35, Cuba 61427
- **STATELINE BKPRS ASSN** - Layne Bonvillain, 2001 S. Scout Camp Rd., Stockton, 61085
- **ST. CLAIR** – Udell Meyer, 8844 Trio Lane, Edwardsville 62025
- **WABASH VALLEY** – Sue Jones, RR 2 Box 332, Robinson 52454

INDIANA

★ **INDIANA BKPRS ASSOC** – Dave Laney, 25727 New Rd., North Liberty 46554 (219) 656-8701

★ **INDIANA STATE BKPRS ASSOC** – John Adams, 6834 E 200 S, Bringhurst 46913 (765) 566-3254

- **MICHIANNA BKPRS ASSOC** – Charlotte Wolfe, 21439 Osborne Rd., Lakeville 46536
- **NORTHEAST INDIANA BKPRS ASSN** – J.P. Jones, 3416 Fairfield Ave., Ft. Wayne 46807-1896
- **NW INDIANA BK ASSN** – Ben Blake, 317 W 300 S, Valparaiso 46383
- **SOUTHEAST INDIANA BKPRS ASSOC** – Jerry Brelage, 759 S. Holyberry, Batesville 47006

IOWA

★ **IA STATE BKPRS ASSN** – Dan Sowers, Rt. 1, Box 240, Nevada 50201-9767

- **CENTRAL IOWA BKPRS** - Margaret Hala, 1988 Vine Ave., Marshalltown, 50158
- **DES MOINES BACKYARD BKPRS** – Peter Coyle, 2425 Franklin Ave., Des Moines 50310
- **EAST CENTRAL IA BKPRS. ASSOC.** - Terry Dahms, 3086 Sycamore Trl. NE, Iowa City, 52240
- **INDIAN CREEK NATURE CENTER** – Russell Swenson, 640 29th St. NE, Cedar Rapids 52402
- **IOWA HONEY PRODUCERS** – Patty Stewart, 2956 170th St., South Amana 52334
- **LAPLANDERS HONEY CONFERENCE** – Ann Garber, 300 W. Marion St., Corydon 50060
- **SE IOWA BKPRS** – Ron Wehr, 2270 Juniper Ave., Keota 52248
- **SOUTH WEST IA HONEY PRODUCERS ASSN** – Michael O'Hearn, RR 2 Box 17, Northboro 51647

KANSAS

★ **KS STATE BKPRS ASSN** – Joli Winer, 1455 Winchester, Olathe 66061, (913) 884-5039

- **CENTRAL KANSAS BKPRS** - Anita Mead, Rt. 1, Box 90, Belle Plaine, 67013
- **FLINT HILLS BKPRS** - E.E. Shaw, 9 South Mechanic St., Emporia, 66801
- **NORTHEAST KS BEE ASSN** - Joli Winer, 1465 N. Winchester, Olathe, 66061-5881

KENTUCKY

★ **KY STATE BKPRS ASSN** – James Davis, 371 Caney Church Rd., Stamping Ground 40379-9644, (502) 857-2272

- **BLUE GRASS BKPRS. ASSN** - James Davis, 317 Caney Church Rd., Stamping Ground, 40379-9644
- **DARK HONEY PRODUCERS** – Stanley Bishop, 574 S.R. 290, Mckee, 40447
- **DIX RIVER BKPRS ASSN** - Dennis Rachford, 3035 Skyline Dr., Stanford, 40484
- **ESTILL CO BKPRS** – Edison Joe Estes, Star Route, Irvine 40336
- **GRANT COUNTY BEE CLUB** – Judy Gaida, Rt. 1 Box 126, Demossville 41033
- **GRAYSON COUNTY BKPRS** – Wilbur W. Willoughby, 3769 Post-Tussey Rd., Caneyville 42721
- **GREEN VALLEY BK ASSN** - Sherri Coleman, 4523 Sutherland Rd., Owensboro, 42303
- **GREENUP CO BKPRS 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

★**LA STATE BKPRS ASSN** – Steve Bernard, 1051 Frank Castille, Breaux Bridge, 70517, (318) 228-7535
- **ARK-LA-TEX BEEKEEPING** – Carl H. Greig, 219 Covington, Benton 71006

MAINE

★**ME STATE BKPRS ASSN** – Bill Truesdell, RR 2, Box 26, Bath 04530, (207) 443-1498
- **CENTRAL MAINE BK ASSN** – Mel Johnson, 49 Upper Garland Rd., Garland 04939
- **CUMBERLAND COUNTY** – Robert Nunley, 63 Webb Rd., Windham 04062
- **DOWN EAST CHAPTER** – Jim Reed, RFD #1, Box 2625, Bar Harbor 04609
- **SAGADAHOC CO BKPRS ASSN** – Brant Miller, 67 Post Rd., Bowdoinham 04008
- **TRI-COUNTY BKPRS** - Genevieve Delicata, RR 1, Box 417, Stockton Spn.ngs0498l
- **WESTERN ME BK ASSN** - Bruce Clark, RR 1, Box 1600, New Vineyard, 04956

MARYLAND

★**MD STATE BKPRS ASSN** – David Bernard, 26626 Howard Chapel Dr., Damascus 21502
- **ALLEGHENY MTN. BKPRS ASSN** - Harry Mallow, 11914 Valley Rd NE, Cumberland, 21502
- **ANNE ARUNDEL CO BEEKEEPERS** – Jon Clulow, 871 Swift Rd., Pasadena, 21122
- **ASSN OF SOUTHERN MD** – Tom Williams, 37990 Mohawk Dr., Charlott Hall 20622
- **BOWIE-UPPER MARLBORO BKPRS** – Tim Templon, 6701 Woodland Rd., Morningside 20746
- **CARROLL CO BKPRS** - Peck Bond, 1710 Emory Rd., Reisterstown, 21136
- **CTL MD BKPRS** – Bob Crouse, 5440 Dogwood Rd., Baltimore 21207
- **HAGERSTOWN VAL APIAN SOC** - Dick Roberts, 15 Hebb Rd., Hagerstown, 21740
- **MONTGOMERY CO BKPRS** - George W. Imirie, Jr. 12705 Circle Dr., Rockville, 20850
- **SUSQUEHANNA BKPRS** - Eric Nickerson, 1711 Chateau Court, Fallston, 21047

MASSACHUSETTS

★**MA STATE BKPRS ASSN** – Ted Shylovsky, 192 Boston Post Rd., Sudbury, 01776-3102, (508) 443-7195
- **BARNSTABLE CO BKPRS** –Jean Kennedy, 575 Willow St., West Barnstable 02668
- **BRISTOL CO BKPRS** - Frederic Magee, 148 Turnpike St., West Bridgewater, 02379
- **ESSEX CO BKPRS ASSN** – Dawn Watson, P.O. Box 10, Topsfield, 01983-0010
- **FRANKLIN CO MA ASSN** – Ralph Whiteman, Martindale Rd., Bernardston 01337
- **HAMPDEN CO BKPRS** – Jean Gosselin, 127 Hendon Dr., Feeding Hills 01039
- **HAMPSHIRE CO BKPRS** – Stephen Prajzner, 37 College View Hgts., South Hadley 01075
- **MIDDLESEX CO BKPRS** - Ted Shylovsky, 192 Boston Post Rd., Sudbury, 01776-3102
- **NORFOLK CO BKPRS** - Sharon Courchesne, 230 Park St., Attleboro, 02703-3114
- **NORTHERN BERKSHIRE BKPRS**- David Thayer, 720 Middle St., Clarksburg, 01247
- **PLYMOUTH CO** BKPRS - Frederic Magee, 148 Turnplke St., West Bridgewater, 02379
- **WORCESTER CO BKPRS** - Jania Antos, l24 Dudley So. Bddge, Dudley, 01571

MICHIGAN

★**MI STATE BKPRS ASSN** – John Wrosch, 2411 Hickman Rd., Ann Arbor 48105
- **CRANBROOK BEE CLUB** - Sue Yates, 705 Coolidge, Birmlngham, 48009
- **HOLLAND AREA BKPRS** – Mike Gardner Apiaries, 9305 Ransom, Zeeland 49464
- **SAGINAW BAY BKPRS** - John Kern 12740 E. Curtis, Frankenmuth, 48072
- **SCHOOLCRAFT BKPRS CLUB** – Roger Sutherland, 5488 Warren Rd., Ann Arbor 48105
- **SOUTHEASTERN MI BEE ASSOC** – Eric Goodrich, 3904 Ludwig, Oxford 48371
- **SOUTHWEST MI BEEKEEPERS** - Don Hiatt, 123 Drum, Miles, 49120
- **WESTERN MI BKPRS** – Larry Hasselman, 7390 W. 32nd St., Fremont 49412

MINNESOTA

★**MN STATE BKPRS ASSN** – Fred Holte, Rt. 1 43480 Andee, Harris 55032, (612) 689-1065
- **CENTRAL MN BKPRS ASSN** – T & J Apiaries, Rt. 1, Box 250, Ponsford, 56575
- **LAKES REGION BKPRS** –Wes Hull, (218) 864-0129
- **MN HOBBY BKPRS ASSOC** - Gary Snydock, 6572 N. Stillwater Blvd., Oakdale, 55128
- **MN HONEY PRODUCERS** - Fred Holte, Ri 43480 Andee, Harris, 55032
- **NO CENTRAL BKPRS ASSN** – Donald Jackson, (218) 568-8469

MISSISSIPPI

★**MS STATE BKPRS ASSN** – Harry R. Fulton, P.O. Box 5207, Mississippi State, 39762, (601) 325-3390
- **CENTRAL MS BKPRS ASSN** – Del Sparks, I73 Plummer Clrcle, Jackson, 39212
- **GULF COAST BKPRS ASSN** - D. Kilbern, 2910 Duncan Ave., Pascagoula, 39581
- **MS DELTA BKPRS ASSN** - Huburt Tubbs, P.O. Box 3, Webb, 38966
- **NORTHEAST MS BKPR ASSN** – Jim Archer, 204 Ridgecrest Rd., Booneville 38829
- **SOUTHEAST MS BKPRS ASSN** – Milton Henderson, 8 Bedrock Rd., Ellisville 39437

MISSOURI

★**MO STATE BKPRS ASSN** – Don Moore, 15 Kathryn Dr., St. James 65559, (314) 265-8706
- **BKPRS ASSN OF THE OZARKS** – Mary Jane Kelly, 5938 W. Farm Rd. 94, Springfield 65803
- **BOONE REGIONAL BKPRS** - Arlon Gelder, 6800 Kircher Rd., Columbia, 65202
- **DALLAS CO BKPRS** - Inge Foster, Rt. 1, Box 105, Urbana, 65767
- **EASTERN MO BKPR ASSN** - Ken Corbin, 1776 Golden Lake Ct., Chesterfield, 63017-5138
- **JEFFERSON CO BKPRS** – Marko A. Biscan, 7255 Hwy. 30, Cedar Hill 63016
- **MID-MO BEEKEEPERS** - David James, Rt.1, Jadwin, 65501
- **MIDWESTERN BKPR ASSN** - Ed Fisher, 4005 NE 132nd St., Smithville 84089
- **MISSOURI VALLEY BKPRS** - Gordon Davis, 2151 Golfview, Wentzville, 63385
- **OZARK MTN BKPRS** - Eddie Rosencrans, 212 Newbury Rd., Reeds Spring, 65737
- **SEMO HONEY PROD** - Ray Batton, 3032 N. 14th, Poplar Bluff, 63901
- **SO CENT BEEKEEPERS** - Marge Kilton, RR 2, Box 2746, Alton, 65606
- **SW MO BEE ASSOC** - Marilyn Spencer, Rt., Box 254-A, Rocky Comfort, 64861
- **WEBSTER CO BKPRS ASSN** – Keith Nutting, Rt.1, Box 588, Fair Grove, 65648

MONTANA

★**MT STATE BKPRS** – Jeff LeFore, P.O. Box 88, Rapelje 54067, (406) 663-2101
- **EASTERN MT BKPRS** – Sheri Kisch, 3175 Vista Ln., Laurel 59044

NEBRASKA

- **NE HONEY PROD** – Reed Koeppe, 2301 Ave. B, Kearney 68847
- **NE BKPRS ASSN** – Michelle Stenner, 13401 S 34th St., Bellevue 68123

NEVADA

★**NO NV APIARY SOC** – Bill Goff, 14060 Edmands Dr., Reno 89511, (702) 851-1888

NEW HAMPSHIRE

★**NH BKPRS ASSN** – Michael Bayko, 69 Bean Rd., Merrimack 03054, (603) 424-5477
- **KEARSARGE BEE ASSN** – Debby Snelling, 23 Bellic St., Claremont 03743
- **LAKES REGION BKPRS** – Greg Sanderson, 1168 New Hampton Rd., Sanbornton 03269
- **MERRIMACK VLY BKPRS** -Robert Salvage, 3 Birchwood Rd., Windham, 03087
- **PAWTUCKAWAY BKPRS** - Guy Senneville, 177 Smyth Rd., Manchester, 03104
- **SECOAST BKPRS ASSN** – Joe Orr, 354 Rt. 108 Madbury 03820

NEW JERSEY

★**NJ BKPRS ASSN** – Herb Pabst, P.O. Box 1515, West Caldwell 07007-1515, (201) 226-3863
- **CENTRAL JERSEY BKPRS** - Jim Puvel, 2 Smylie Rd., Wrightstown, 08562
- **ESSEX CO BKPRS** - Marian E. Chandler, 85 Deerfield Rd., W. Caldwell, 07006
- **MORRIS CO BKPRS** - Roha Duve, R.D. 1, Box 258-B, Washington, 07862
- **NW JERSEY BKPRS. ASSN.** - Gary L. Bradshaw, 32 Hewitt Rd., Stockton, 08559
- **SOUTH JERSEY BKPRS** – Edward Penny, 1777 Dutch Mill Rd., Franklinville 08322

NEW MEXICO

★**NM STATE BKPRS ASSN** – Patrick M. O'Hearn, #4 County Rd. 5149, Bloomfield, 87413, (505) 634-1417; email: patrick@cyberport.com

NEW YORK

- **ALLEGANY CO BKPRS CLUB** – Deloris Dunham, RD #1, Andover 14806
- **CHAMPLAIN VAL BKPRS** – L. Surprenant, Box 300A Co Home Rd, Essex, 12936
- **CHAUTAUQUA CO BKPRS** - R. Dahlgren, 2902 Stone Rd., Falconer, 14733-9732

★**EMPIRE ST. HONEY PRODUCERS** - Judith Doan, 1263 Redman Rd., Hamlin, 14464
- **FINGERLAKES BK CLUB** – Richard Taylor, RD #3, Trumansburg 14868
- **LONG ISLAND BKPRS** - Richard Blohm, 30 Cherry Lane, Huntington, 11743-2945
- **MID YORK BKPRS ASSN** – Robert Brunelle, 4935 Stonybrook Rd., Vernon 13476
- **SE BKPRS CLUB** - Kathleen Smith, P.O. Box 121, Cuddebackville 12829
- **SO ADIRONDACK BKPRS ASSN** – Diane T. Hagen, 161 Wilton Rd., Greenfield Ctr. 12833
- **SOUTHERN TIER BKPRS** - Hervey W. Heywood, 2804 Ellis Creek Rd., Barton, 13734
- **STEUBEN CO HONEY BEE ASSN** – Jesse H. Slate, 2115 Bulteney Rd., Branchport 14418-9707
- **SULLLIVAN CO BKPRS ASSN** – Muriel Fulton, Box 211B, Cochecton 12726
- **ULSTER CO BKPRS ASSN** – Jane Rowe, 331-343 Clifton Ave., Kingston 12401
- **WESTERN NY HONEY PRODUCERS** – Robert Y. Harbison, 2493 Sweet Home Rd., Amherst, 14228

NORTH CAROLINA

★**NC STATE BKPRS ASSN** – Irvin E. Rackley, 2431 Leggett Rd., Rocky Mtn. 27801, (919) 446-5487
- **ALAMANCE CO BKPRS** - D Moore, 3634 Stoney Crk Church Rd., Elon College, 27244
- **ANSON CO BKPRS ASSN** – Harvey Tucker, 201 Moores Lake Rd., Wadesboro, 28170
- **BUNCOMBE CO BEEKEEPERS** - Sally Ellis, 345 Rockhouse Rd., Marion 28752
- **BURNESVILLE** – George Emerson, RR 3 P.O. Box 938, Green Mountain 28740
- **CABARRUST CO BKPRS ASSN** -Charles Griffin, 5175 HW 6O11 S., Concord 28O25
- **CATAWBA VALLEY BEEKEEPERS** – Bobby Glenn, 1730 Nelson Dr., Newton 28658
- **CHATHAM CO BKPR ASSN** - Richard Bradley, P.O. Box 1172, Pittsboro, 27312
- **COASTAL PLAIN BKPRS ASSN** - Claibome Holtzman, 117 Hubbard Lane, Rocky Mount, 27801

- **CUMBERLAND CO BKPRS ASSN** - Marvin Carlsen, 2616 Wingate Rd., Fayetteville, 28306
- **DAVIDSON CO BKPRS ASSN** – Colen Smith, 228 Bowers Rd., Lexington, 27292
- **DAVIE CO BKPRS ASSN** - William Pheips, 666 Pine Ridge Rd., Mocksville, 27028
- **FORSYTH CO BKPRS ASSN** - M. Weatherman, 5395 Spainhour Mill Rd., Tobaccoville, 27050
- **GASTON CO BKPRS ASSN** - John Hayes, 222 Lakeview Dr., Belmont, 28012
- **GUILFORD CO BKPRS** - John Godfrey, 6304 Sable Lane, Greensboro, 27406
- **HENDERSON CO BKPR** - Lynn Hinkle, P.O. Box 417, Hendersonville, 28793
- **JACKSON CO BKPRS ASSN** - Fred Harris, Box 154, Cullowhee, 28723
- **JOHNSTON CO BKPRS ASSN** - Lloyd Reynolds, 2283 Wilson Mills Rd., Smithfield, 27577
- **LEE CO BKPRS ASSOC** - G.W. Godfrey, 3350 S. Plank Rd., Sanford, 27330
- **LINCOLN CO BKPRS ASSN** - David Noles, P.O. Box 186, Lincolnton, 28092
- **MACON CO BKPRS ASSN** - John Henry, 75 Gregory Rd., Franklin 28734
- **MECKLENBURG CO BKPRS** - James Reep, 4600 Riverdale Dr., Charlotte, 28273
- **MOORE CO BKPRS ASSN** – Bill Lathan, 902 Pinebluff Lake Rd., Aberdeen 28315
- **ORANGE CO BKPRS ASSOC** - Kenneth Medlin, 91 Daisy Lane, Hurdle Mills 27541
- **PERSON CO. BKPRS. ASSN.** - Ed Johnson, 2039 Thee Hester Rd., Roxboro, 27573
- **RANDOLPH CO BKPRS** - George Byrum, 3661 Old Lexignton Rd., Asheboro, 27203
- **RICHMOND CO BKPRS ASSN** - Sam Yates, 299 Rosalyn Rd., Rockingham, 28379
- **ROBESON CO BKPR ASSN** - M. Brewington, P.O. Box 2168, Pembroke, 28372
- **ROCKINGHAM CO BKPRS ASSN** - Fred Small, 2306 Fernwood Dr., Greensboro, 27408
- **ROWAN CO BKPRS ASSN** - Pam Deal, 1025 Lamb Rd., Lexington, 27295
- **STANLEY CO BKPRS ASSN** – Billy Smith, 20553-A Hwy 52 5. Albermarle, 28001
- **SURRY CO BKPRS ASSN** - Cecil Gilley, 108 Knobb Hill Lane, Pilot Mountain, 27041
- **TRANSYLVANIA CO BKPR** - Rick Queen, 305 Davidson River Rd., Pisgah Forest, 28768
- **WAKE CO BKPR ASSN** - J.D. Foust, 609 Lakestone Dr., Raleigh, 27609
- **WATAUGA CO BKPRS** - Joe Howser, 117 Highland Park Lane, Boone, 28607
- **WAYNE CO BKPRS ASSN** - Jimmy Ray Mitchell, 2133 Dobbersville Rd., Mt. Olive, 28365

NORTH DAKOTA

★**ND BKPRS ASSN** – C. Nix, P.O. Box 396, Valley City 58072, (701) 845-5130

OHIO

★**OH STATE BKPRS ASSN** – Jim Walls, 7654 White Chapel Rd., Newark 43056-9310, (614) 323-3681

- **ASHTABULA BKPRS** - 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** – Lisa Bulick, 9383 Hanson Rd., Minerva 44657
- **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** – Jeanette Kulifay, 7965 Struthers Rd., Poland 44514
- **COLUMBIANA CO BKPRS** –Rob Kurtz, 524 Wick Ave., Youngstown 44502
- **CUYAHOGA COUNTY BEE ASSN** - William Conley, 292 Fowles Rd., Berea, 44017
- **GEAUGA BEEKEEPERS ASSN** - Mary Cluts, 9799 Pekin Rd., Novelty, 44072
- **HIGHLAND CO BEEKEEPERS** - Jim Higgins, 3801 U.S. 50, Hillsboro 45133
- **HOCKING CO BKPRS** - Annette McClain, 20193 St. Rt. 328, New Plymouth, 45654
- **JEFFERSON CO BEEKEEPERS** – Susan Kovaleskl, 167 Rosslyn Blvd., Steubenville, 43952
- **KOKOSING VALLEY BEEKEEPERS** - Gertrude Rasor, 500 North Ridge Hts., Dr., Howard, 43028
- **LAKE CO BKPRS ASSN** - Mark Rinderman, 116 Hawthome Dr., Painesville, 44077
- **LAWRENCE CO BKPRS** - Margaret Reid, 15754 St. Rt. 775, Willow Wood, 45696
- **LORAIN CO BKPRS ASSN** – Sharon Garceau, 6873 Root Rd., N. Ridgeville 44039
- **MAUMEE VALLEY BKPRS** - Robert D. Smith, 238 E. 5th St., Perrysburg, 43551
- **MEDINA CO BEEKEEPERS** - Kim Flottum, 7011 Spieth Rd., Medina 44256
- **MIAMI CO BKPRS** - Robert Newmann, 183 S. Dorsett Rd., Troy, 45373
- **MORROW CO AREA BKPRS** – Carol Bartlett, 3486 Co. Rd. 25, Cardington 43315
- **NW OH BKPRS** - Zelma Cox, 1623 W. Wayne, Lima 45805
- **PORTAGE CO BKPRS** - Peggy Kaminskl, 1459 E. Howe Rd., Kent, 44240
- **RICHLAND CO BKPRS** – Ralph Mitchell, 21690 Pealer Mill Rd., Butler 44822
- **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 BKPRS ASSN** – Dave Heilman, 1680 Madison Ave., Wooster 44691
- **WARREN CO BKPRS** - Oscar Brown, 7154 Hopkins Rd., Maineville, 45039

OKLAHOMA

★**OK STATE BKPRS ASSN** – Steve Cashon, P.O. Box 781, Mounds 74047, (918) 321-5140, email: scashon@webzone.net

- **CENTRAL OK BK ASSN** - Robert Wagner, 2928 S. Oak Dr., Midwest City 73130
- **EAST CENTRAL BEEKEEPERS ASSN** – M.L. Lashbrook, Rt. 1 Box 59, Stonewall 74871
- **FRONTIER COUNTRY BKPRS ASSN** - Chuddie Smith, P.O. Box 34, Guthrie, 73044
- **GREEN COUNTRY BKPR** - Shirley Wright, Rt. 1, Box 355, Locust Grove, 74352
- **INDIAN NATION BKPRS ASSN** – James Hines, 1141 N. Main St., Muskogee 74403
- **NE OKLAHOMA BEEKEEPERS** - Dr. James R. Sipes, 7760 E. 24th St., Tulsa, 74129-2402
- **NW BEEKEEPERS ASSN** – Starlene Rauh, Waynoka 73860
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- **COOS CO** – Joann Olstrom, 3164 Maple Court, Reedsport 97467
- **EASTERN OR BKPRS** – Jan Lohman, Rt. 3 Box 3536, Hermiston 97838
- **KLAMATH COUNTY** - Ken Crow, 541-882-1893
- **LANE CO BEEKEEPERS** – Edgar Elder, 23626 Hall Rd., Cheshire 97419
- **METROPOLITAN AREA BKPRS** - Chuck Sowers, 4390 Lords Lane, Lake Oswego, 97304
- **NORTH COAST BKPRS ASSN** – Bob Allen, P.O. Box 434, Garibaldi 97118
- **PORTLAND** - Jim Allison, 503-663-1058
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- **ALLEGHENY MTN. BKPRS. ASSN.** – Audrey McCreary, RD 2 Box 74, Bedford 15522
- **ARMSTRONG-INDIANA BKPR** - Charlie Lyon, 207 Fairground Rd., Ford City, 16226
- **BEAVER VALLEY AREA BKPRS** – William Patsy, 160 Klein Rd., New Brighton 15066
- **BERKS CO BKPRS** – Gary R. Hawkins, 200 Penn St., Reading 19602
- **BUCKS CO BEE ASSN** - Josef Ridgway, 2728 Red Gate Drive, Doylestown, 18901
- **CAPITAL AREA BK ASSN** – Maria Contino, 6087 Rockland Dr., Harrisburg, 17112
- **CENTRAL COUNTIES BKPRS ASSN** - Valerie Lintner, Box 61 A Star Route, Huntingdon, 16652
- **CENTRAL WSTRN PA BEE ASSN** – Robert Travis, 620 S. Market St., New Wilmington 16142
- **CENTRE CO. BKPRS. ASSOC.** - Felix Shuey, I403 Benner Pike, Bellefonte, 16823
- **CHESTER COUNTY BK ASSN** - Richard Huey, Box 553, Valley Forge, 19481
- **CLARION CO BKPR ASSN** - Deanna McGiffin, RD 1, Box 11A, Knox 16232
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- **LANCASTER CO HONEY PRODUCERS** - Loren Sadler, 1235 Red Run Rd., Stevens, 17578
- **LEHIGH VALLEY BKPRS** – Ken Eisenhart, 1565 Kumry Rd., Quakertown 18951
- **LYCOMING CO BKPRS ASSN** - Bruce Frymire, 415 S. Howard St., So. Williamsport, 17701
- **MONROE CO BKPRS** - Sandy Fisher, RD 4, Box 4361, Stroudsburg, 18360
- **MONTGOMERY CO BKPR** - Harold Jenkins, 816 Kenilworth Ave., Lansdale 19446
- **NO LARK CO BKPR** – Douglas Rose, RD 2, Box 171A, New Milford 18834
- **SCHUYKILL CO BKPRS** - Rick Freeman, RD. 2, Box 24A, Aubum, 17922
- **SUSQUEHANNA BKPRS ASSN** - Jerald Ely, RR 6, Box 6215, Montrose, 18801
- **WAYNE CO BEEKEEPERS ASSN** – Francis Motichka, 417 Carroll St., Honesdale 18432
- **WESTMORELAND CO BKPRS** – Ken Karg, 165 Pierson Rd., Belle Vernon 15012
- **YORK CO BKPRS** - Judy Brenneman, RR 7, Box 7553 Spring Grove, 17362

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- **KENT COUNTY** - Kent Cameron, 256 Buttonwoods Ave., Warwick 02886
- **NEWPORT COUNTY** - Ray Barker, 136 Cedar Ave., Portsmouth, 02821
- **PROVIDENCE CO BKPR ASSN** - Claire Desrosier, 275 Pine Orchard Rd., Chepachet, 02814
- **WASHINGTON COUNTY** - Ron Bachand, 33 Jeannette Court, Exeter, 02822

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- **CHEROKEE CO BKPRS ASSN** - David Parker, P.O. Box 700, Gaffney, 29342
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- **EDISTO BEEKEEPERS** – Henry Chassereau, Rt. 1, Box 172A, Ehrhardt 29081

- **GREENWOOD CO BKPRS ASSN** – Kathryn White, P.O. Box 246, Greenwood 29648
- **HORRY CO BKPRS ASSN** - L. W. Rabon, Rt. 3, Box 237, Aynor 29511
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- **MID-STATE BEEKEEPING ASSN** – Jack Morris, 4 Knollwood Ct., Columbia 29209
- **OCONEE CO BKPRS ASSN** – Dean Boggs, 103 Letson Cr., Walhalla 29691
- **PEE DEE BKPRS ASSN** - Ron Moore, 675 Mustang Rd., Pamlico, 29583
- **PICKENS CO BKPRS ASSN** – Winfred Trotter, 926 Breazeale Rd., Liberty 29657
- **PIEDMONT BKPRS ASSN** –Steve Genta, 3450 Fork Shoals Rd., Simpsonville 29680
- **SPARTANBURG CO BKPRS ASSN** - Joe Guthrie, P.O. Box 1010, Spartanburg, 29304
- **SUMTER CO BKPRS ASSN** – F.L. Newman, 1030 State St., Sumter 29150
- **WEST PIEDMONT BKPRS** - Larry Williams, 501 Youth Center Rd., Belton, 29627
- **YORK CO BEEKEEPERS ASSN** –Patrick Lourgan, 1756 Shythe Lane, York 29745

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- **CHEROKEE BKPR ASSN** – Steve Postell, 1211 Mayflower Rd., Sale Creek 37373
- **DAVY CROCKETT BKPRS** – Sarah Ledford, 550 Huff Lane, Midway 37809
- **DUCK RIVER BKPRS ASSN** – Austin DeJarnatt, 336 River Bend Rd., Shelbyville 37160
- **KNOX CO BKPRS** – Joel Parton, 7741 Dyer Rd., Luttrell 37779
- **LOUDON CO BEEKEEPERS** - Jim Goodman, 8633 Hwy. 11E, Lenoir City, 37772
- **MEMPHIS AREA BKPR** – Lloyd Crimmins, 1360 River Rd., Bolivar 38008
- **MONROE CO BKPRS ASSN** - James Hagemeyer, 5337 Hwy. 411, Madisonville, 37354
- **NASHVILLE AREA BKPRS** – Barry Richards, 1020 Carr Cemetery Rd., Cross Plains 37409
- **OVERTON CO BEE ASSN** - Ronald Johnson, 317 Univ. St., Livingston, 38570
- **PUTNAM CO BKPRS** – Walter Hall, 420 Old Qualls Rd., Cookeville 38506
- **ROANE/MORGAN CO BKPRS ASSN** – Geraldine Hendrickson, 794 Dickey Valley Rd., Harriman 37748
- **SEVIER CO BKPR ASSN** - John R. Kelley, 613 Sandy Point Lane, Sevierville, 37876
- **SUMNER CO BEE ASSOC** - Wayne Vantrease, 285 Vantrease Rd., Gallatin 37066

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- **WASHINGTON CO BKPR** - K. Saylor, 207 Paul Saylor Rd., Jonesboro, 37659
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- **WILSON CO BKPR ASSN** – Petra Eggenmüller, 3900 Rock Springs Rd., Watertown 37184

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- **ANGELINA ASSN** - Newton Lemke, Rt. 4, Box 6030, Lufkin, 75901
- **BRAZOS VALLEY ASS'N** - Gordon Brynildsen, 3011 Durango, College Station, 77840
- **CAPITOL AREA BKPR** - Kim Lehman, 1106 Radam Circle, Austin, 78745-3018
- **COASTAL BEND BKPRS ASSN** - J. Bryant, 4526 Carroll Ln, Corpus Christi, 78415-2635
- **COLLIN CO HOBBY BKPR** – John Whitson, 16694 FM 1778
- **CONCHO VALLEY ASSN** - George Engle, P.O. Box 60541, San Angelo, 76906
- **EAST TEXAS BKPR ASSN** - Richard Counts, 16239 Audrey Lane, Arp, 75750
- **EL PASO ASSN** - O.T. Franklin, 10220 Bermuda, El Paso, 79925
- **FORT BEND ASSN** - Elton Reynolds, 3419 Klosterhoff Rd., Rosenberg, 77471
- **GALVESTON CO ASSN** - Margie Coplin, 12230 Marion Lane, Dickinson 77539
- **GOLD TRI ASSN** - Wallace Commander, 2445 Green Ave., Port Arthur, 77642
- **HARRIS CO ASSN** - Herb Barrier, Rt. 3A, Box 3385, Pearland 77581
- **HEART OF TX BEEKEEPERS** – Claude Lester, 900 Evelyn Dr., Lorena 76655
- **HOUSTON BKPRS ASSN** - Herschel D. Womac, 11215 Tyne Court, Houston, 77024
- **JOHNSON CO BKPRS ASSN** - Ray Stephens, 3800 N. Cummings Dr., Alvarado, 76009
- **MONTGOMERY CO BKPRS** – Jane Ivy, P.O. Box 66, Splendora 77372
- **N. HARRIS CO BKPRS ASSN** - J Johnson, 2403 Fawnwood, Spring, 77386-2419
- **PERMIAN BASIN ASSN** - Dean Brittingham, 2312 North Adams, Odessa, 79761
- **RED RIVER VALLEY ASSN** –Bennie J. Watson, 1952-A Hines Blvd., Wichita Falls 76303
- **RIO GRANDE VALLEY ASSN** - Billy Wright, RT. 5, Box 77, Donna, 78537
- **SOUTH PLAINS BEEKEEPERS** -James Colson, P.O. Box 2247, Lubbock, 79408
- **TRINITY VALLEY ASSN** - Robert Hutchinson, 1802 St. Francis Ave., Dallas, 75228
- **TRI-CO AREA BKPRS** - Dean Futch, 904 Chalk St., Copperas Cove, 76522
- **VICTORIA CO BKPRS** - Rex Bennetson, 1208 S. Laurent, Victoria 77901
- **WALKER CO BEEKEEPERS** - Steve Laube, RT. 1, Box 184, Bedias, 77831-9610
- **WASHINGTON CO BKPRS ASSN** - Ed Lemke, Rt. 4, Box 478, Brenham, 77833
- **WILLIAMSON CO** - Jimmie Oakley, 1799 Goodson Ct., Round Rock, 78664

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★**UT BKPRS ASSN** – William Jones, 2586 Andrew Lane, Murray 84107, (801) 358-2033

- **WASATAH BKPRS ASSN** - Will Jones, 2586 West 500 South, Salt Lake City, 84104

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- **BENNINGTON CO BEEKEEPERS** -J. Esh, P.O. Box 723, Bennington, 0520

VIRGINIA

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- **BLUE RIDGE BKPR ASSN** – Ron Hanawalt, 2615 Northridge Rd., Hardy 24101-0018
- **CENT VA BKPR EAST**- Sylvia Newland, 9002 Gayton Rd., Richmond, 23229
- **CTRL VA BKPRS WEST** – Guy Miller, 2025 Spottswood Rd., Charlottesville 22903
- **GLOUCESTER BKPR ASSN** – Carmen Stanford, 6399 George Wash Mem Hwy, Glocester, 23061
- **HALIFAX BEEKEEPERS ASSN** - E. Donald Chandler, P. O. 265, Virgilina 24598
- **LOUDOUN BKPRS. ASSN.** - Richard L. Hays, Sr., P.O. Box 1030, Purcelville, 20134-1030
- **MT. EMPIRE BK ASSOC** - Edwin Wilson, 190 Dogwood Drive, Wytheville, 24382
- **NASA-LANGLEY APIC CLUB** – Ray Wilson, 403 Calthrop Neck Rd., Yorktown, 23693
- **NELSON CO BKPRS** - Michael Lachance, P.O. Box 298, Lovingston, 22949-0298
- **NO PIEDMONT BKPRS** - Ann Harman, 1214 North Poes Rd., Flint Hill 22627
- **NORTHERN VALLEY BKPRS. CLUB** - Gary Deoms, 20 N. Loundoun St., 2nd Fir., Frederick Co. Crthse., Winchester, 22601
- **NORTHERN VA BEEKEEPERS** - Pearl Liles, 2451 S. Culpeper St., Arlington, 22206
- **PIEDMONT BKPRS ASSN** - George Kelley, P.O. Box 2411, Lynchburg, 24501-2411
- **RICHMOND BKPRS ASSN** - Robert Falconer, 4440 Honey Lane, Glen Allen, 23060
- **SHENANDOAH VLY BKPRS** – Alden Dodge Rader, Jr., Rt. 1 Box 591, Stuarts Draft, 24477-9616
- **SOUTHWEST PIEDMONT BKPRS** -Edward Keaton, 2325 Trent Hill Dr., Bassett, 24055
- **TIDEWATER BKPR ASSN** – Kenneth Carmody, 1908 Foxwood Dr., Chesapeake 23320

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- **CENTRAL WA BKPRS ASSN** – Alice Bounds, 261 Meyers Rd., Toppenish 98948
- **CLARK CO BKPRS ASSN** - Mary Ann Morrison, 14303 NE267th St., Battle Ground, 98604
- **COWLITZ CO BKPR ASSN** - Eva Davis, 3956 Columbia Hts Rd., Longview, 98632
- **INLAND EMPIRE BKPR** – Albert Bell, 17110 N. Highland Lane, Colbert, 99005-9758
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- **NORTH OLYMPIC PENINSULA BKPRS ASSN** – Cherie Pickett, 878 N. Kendall, Sequim 98382
- **NORTHWEST DIST BKPR** – Jeanne Kneebone, 23807 5th Ave. W., Woodinville 98021
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- **MARION CO BEEKEEPERS ASSN** -Fred McClain, P.O. Box 243, Farmington, 26571
- **MID OHIO VALLEY BKPR** - Clifford Leeson, Rt. 2, Box 353-A, Washington, 26181-9571
- **MORGANTOWN AREA BKPR** – Myrna Huffman, Rt. 6, Cherry Hill Rd., Morgantown 26505
- **NORTH CENTRAL BKPRS ASSN** – Donald Wikert, Rt. 1, Box 162, Wallace 26448
- **RALEIGH CO BKPRS ASSN** – Barney Walls, 115 Honey Lane, Beckley 25801
- **RANDOLPH CO BKPRS ASSN** – Mark Buterbaught, Rt. 3, Box 120, Elkins 26241
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- **TUCKER CO BKPRS ASSN** – John Campbell, 102 First Street, Parsons 26287

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- **BROWN CO BKPR** - Thomas Cashman, 1418 Chicago St., Green Bay, 54301
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- **MARATHON CO BEEKEEPERS** - Dean Kaatz, 210 River Dr., Wausau 54403-5449
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- **SHEBOYGAN CO BKPRS** - Mrs. Elaine Schuman, 126 Grafton Ct, Kohler, WI 53044
- **ST CROIX CO BEEKEEPERS** –Bob Olson, 1237 Willow Ave., New Richmond, 54017
- **TAYLOR-CLARK BEEKEEPERS** - Florette Kohn, N2580 Cte, Medford, 54451
- **WAPUACA CO BEEKEEPERS** - Stan Jakubek, P.O. Box 54, Iola, 54945

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- **CARLTON CO BKPRS ASSN** – David Hatt, RR #3, Bath E0J 1E0, (506) 73-5406
- **CENTRAL BKPRS ASSN** – Ruth McKinney, 761 Rt. 2 Hwy., Maugerville NB E3A 8L1
- **COMOX VALLEY BKPRS. ASSN.** – David Scruton, 2031 Hawk Dr., Courtenay, BC V9N 9B1
- **COWICHAN BKPRS ASSN** – Steve Mitchell, 4820 Wilson Road, RR#7, Duncan, BC, V9L 4W4
- **DUFFERIN CO BKPRS ASSN** – Mark Van Trigt, RR 5 Orangeville, Ontario, L9W 2Z2
- **GOLDEN HORSHOE BK ASSN** – Vince Mevison, RR 1, Branchton, ONT N0B 1L0
- **GRAND RIVER BK ASSN** - Vincent Nevidon, RR 1, Branchton, Ont. N0B 1LO
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★ **PE ISLAND BEE CO-OP ASSN**-J. Burhoe, P.O. Box 1114, Charlottetown C1A 7M8

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- **SAINT JOHN/KINGS BKPRS** – Blair Williams, RR #2, Clifton Royal E0G 1N0, (506) 763-2902

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- **SO EAST NB BKPRS** – Paul Vautour, 488 Cape Breton Rd., Saint Phillippe E1H 1W2, (506) 388-5127
- **SOUTHWESTERN ONT BKPRS ASSN** – Joe Muehmer, 36 Victoria Ave., Box 122, Ridgetown, N0P 2C0
- **THUNDER BAY BK ASSN** - Jeannette Momot, RR 6, Thunder Bay, Ont, P7C 5N5
- **TORONTO DIS BKPRS ASSN** – Lorna Robinson, 71 Saskatoon Dr., Etobicoko, ON M9P2G1
- **W. KOOTENAY DIV OF BCHPA** – Kelly Poznikoff, RR 2, S6, C28, Castlegar, BC, CDA V1N 3L4

INTERNATIONAL

• **International Bee Research Association.** Richard Jones, 18 North Road, Cardiff, CF1 3DY, UK. Telephone: (1222) 372409, Fax (1222) 665522, E-Mail: ibra@cardiff.ac.uk; www.cf.ac.uk/ibra/index.html

• **Apimondia.** International Federation of Beekeepers' Associations - President, Raymond Borneck, Rue Du Creux, Montbarrey, France, 3y; General Secretary, 101 Corso Vittono Emanuele Rome, Italy 00186, (6) 65-12286. Periodical: Apiacta (quarterly). **Apimondia '99** Manitoba Agriculture, 204-545 University Cres., Winnipeg, MB R3T 5S6 Canada, www.apimondia99.ca; congress@apimondia99.ca

• **American Apitherapy Society** Mrs. Linda Day, Office Coordinator, 5370 Carmel Rd., Hillsboro, OH 45133, (937) 466-9214, FAX (937) 466-9215; email: linda.day@hopewell.net; www.beesting.com

INDUSTRY ORGANIZATIONS

· **American Bee Breeders Association.** Fred Rossman, P.O. Box 905, Moultrie, GA Phone or FAX (912) 985-7200

· **American Beekeeping Federation.** Exec. Dir., Troy H. Fore, P.O. Box 1038, Jesup, GA 31598, (912) 427-4233, FAX (912) 427-8447, email: info@abfnet.org Web Site: www.abfnet.org

· **American Honey Producers Association.** Jack Meyer, Jr., 536 Ashmont Rd., Madison, SD 57042, (605) 485-2221(bus), (605) 256-4700(home), FAX (605) 485-2231

· **Apiary Inspectors of America.** I. Barton Smith, Jr., State Apiary Inspector, 50 Harry S. Truman Parkway, Annapolis, MD 21401 (410) 841-5920, FAX (410) 841-5835, email: smithib@mda.state.md.us; Web Site: www.mda.state.md.us/DOCS/aia/aia.htm

· **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.** Eric Mussen, Univ. of CA, Davis, CA 95616 (530) 752-0472, FAX (530) 752-1537, email: ccmussen@ucdavis.edu

· **National Honey Board.** Executive Director, Bob Smith, 390 Lashley St., Longmont, CO 80501-1421 (303) 776-2337, (800) 553-7162, FAX (303) 776-1177, email: bob@nhb.org; www.nhb.org

· **Mid-U.S. Honey Producers Marketing Assn.** Gary Reynolds, Box 363, Concordia, KS 66901, (913) 243-3619.

· **National Honey Packers & Dealers Association.** Richard Sullivan, Exec. Sec., P.O. Box 545, Matawan, NJ 07747. Ph. (732) 583-8188, FAX (732) 583-0798; email: RichardSullivan@A-F-I.org

· **Professional Apiculturists Assn.** Marion Ellis, 210 Plant Industries - E. Campus, P.O. Box 830816, Lincoln, NE 68583 Ph. (402) 472-8696, Web Site: http//ianrwww.unl.edu/ianr/entomol/aapa/aapa.htm

· **The Canadian Honey Council.** Linda Gane, Box 1566, Nipawin, Sask. S0E IE0 (306) 862-3844, FAX (306) 862-5122

· **Can. Assn. of Prof. Apic.** Dr. Cynthia Scott-Dupree, Pres., Dept. of Environmental Biology, Univ. of Guelph, Guelph, Ont. N162W1, (519) 824-4120 Ext. 2478, FAX (519) 837-0442; csdupree@evbhort.uoguelph.ca

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• **Beltsville Bee Lab.** Dr. Hachiro Shimanuki, Rm. 209A, Bldg. 476, BARC-East, Beltsville, MD 20705.. (301) 504-8205, FAX (301) 504-8736, email: hshimanu@asrr.arsusda.gov

• **Baton Rouge Bee Lab.** Dr. Thomas Rinderer, Research Leader, 1157 Ben Hur Rd., Baton Rouge, LA 70820. (504) 767-9280, FAX (504) 766-9212; email: trindere@asrr.arsusda.gov

• **Texas Bee Lab.** Dr. William T. Wilson, Lead Scientist, USDA, ARS, SRC Bldg. 205, 2413 East Hwy. 83, Weslaco, 'IX 78596. (956) 969-5005, FAX (956) 969-5033; email: wilson@rsru2.tamu.edu; www.rsru2.tamu.edu

• **Utah Bee Lab**. Dr. William P. Kemp, USDA-ARS/Bee Biology Lab, Utah State University, Logan, UT 84322-5310. (435) 797-2524, FAX (435) 797-0461; email: wkemp@cc.usu.edu

• **Tucson Bee Lab,** USDA-ARS, Dr. Eric H. Erickson, Center Director, 2000 E. Allen Road, Tucson, AZ 85719. (520) 670-6380, Ext. 103, FAX (520) 670-6493; email: eric@tucson.ars.ag.gov; http://gears.tucson.ars.ag.gov

• **Honey Market News.** Linda Verstrate, USDA-AMS, Fruits & Vegetable Div., 2015 So. 1st St., Rm. 4, Yakima, WA 98903. (509) 575-2494 FAX (509) 457-7132.

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

• **Agriculture & Agri-Food Canada.** Dr. Don L. Nelson, Research Scientist, Research Branch, Agriculture & Agri-Food Canada, Box 29, Beaverlodge, AB, Can. T0H 0C0. (403) 354-5122, FAX (403) 354-8171; email: nelsond@em.agr.ca; http://res.agr.ca/lacombe/beaver.htm

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Have You Thought Much About What You Do Around Here?

Ed Hughes

When the first cold weather settled in last fall, I saw what appeared to be a bunch of bees fighting in front of one of our hives. I asked my wife, Bobbalee, what was going on.

"The female workers are kicking out the drones," she said calmly.

"To die in the cold?"

"Yes."

Looking closer, I could see dozens of little craters in the snow in front of the hive. In the bottom of each was an unlucky drone. It looked like the hive itself had sneezed, spewing drones in a buckshot pattern in the snow.

"Why do they do that?"

"The drones don't do anything except mate with a virgin queen, from another colony no less, so, with Winter coming, they're cutting their losses."

There was a moment of silence as we watched a few more drones stumble out, fear in their eyes and fleeing for their lives.

Then she said, "Have you thought much lately about what you do around here?"

I was shocked. Was this just another reference to the leaky faucets she had been trying to get me to fix for three months, or was there something deeper? Did she imagine that I, like a drone, was entertaining thoughts of finding a virgin queen somewhere in Sheridan County? Even if there was a virgin somewhere in the county, could I, at my age, be the drone of her dreams?

Shortly thereafter, I fixed two of the three leaky faucets in the house, repaired the rain gutter, replaced the rotted window sill on the north side, and built 20 or so telescoping hive covers. I left the third leaky faucet unrepaired as a kind of insurance.

Later still, when I was sure that the episode of the useless drones had been forgotten, I gave her the assurance she was looking for by saying that I loved her very much and that I was reasonably certain that there were no virgins left in the county.

"Even if there were," I said with great pride, "I'm not interested in them."

"That's good," she said, a little puzzled but I could tell that I had won her heart all over again.

As a final follow up, I toyed with the idea of a home for homeless drones. Preliminary plans called for a heated hive (sans female workers) a substantial supply of honey (both fermented and unfermented), a miniature TV hooked up to the ESPN channel, and glossy pictures of virgin queens adorning the walls. I even brought an expelled drone into the house and was trying to get him to eat a little honey when Bobbalee caught me.

"What's that doing in the house?" she demanded.

"I'm trying to revive him."

"He's dead. He's laying on his back."

"No, his legs are still moving."

"He goes."

"But . . ."

After that, I changed the oil in her truck, moved a bunch of stuff into the attic, and helped with the baking. But I still haven't fixed that last faucet.