

Celebrate July with a Field Day. You'll be glad you did! Drawing by Lela Dowling

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Subscription Information

U.S., one year, \$23.50; two years, \$44. Newsstand price: \$4.99. All other countries, (U.S. Currency only), \$15.00 per year additional for postage. Send remittance by money order, bank draft, express money order, or check or credit card. Bee Culture (ISSN 1071-3190), July 2006, Volume 134, Issue 7, is published monthly by The A.I. Root Co., 623 W. Liberty Street, Medina, OH 44256. Periodicals Postage Paid at Medina, OH and additional mailing offices.

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Advertising

For information on advertising contact Dawn Feagan at 800.289.7668, Ext. 3220

POSTMASTER: Send address changes to BEE CULTURE, The A.I. Root Co., 623 W. Liberty St., Medina, OH 44256

Opinions expressed in articles or columns in this magazine are not necessarily those of the Editor or Publisher.

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Bee Culture - The Magazine of American Beekeeping

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Bee Culture

THE MAGAZINE OF AMERICAN BEEKEEPING

JULY 2006 VOLUME 134 NUMBER 7

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EAS in

Young Harris, Georgia
July 31 - August 4, 2006

It's not too late to get to the Grandest Summer Meeting of the Year Come on down and meet International and National Speakers.



Denis Anderson is a researcher for the government of Australia and one of the most distinguished scientists of our era working on parasites of the honey bee. It was his pivotal 2000 paper that showed that the mite visiting hardship on beekeepers around the world was not Varroa jacobsoni, but rather Varroa destructor.



Jennifer Berry is Apicultural Research Coordinator and Lab Manager at the University of Georgia. Her area of research emphasis has been a queen breeding program which selects for resistant stock. She is this year's EAS president.

Marion Ellis is the Associate Professor and Extension Apiculture Specialist at the University of Nebraska. His professional and extension responsibilities include teaching beekeeping, a Master Beekeeping Training Program, Beginning Beekeeping Workshops, Bee Tidings newsletter, and an Apiculture web site. He has also received the Roger A. Morse Extension and Teaching Award for EAS 2005.



Jerry Hayes Jerry's monthly article "The Classroom" has been a regular appearance in American Bee Journal for 15 years. Jerry is currently Chief of Apiary inspections for the State of Florida, and since the 2005 announcement of African bees in that state, he has proven himself a regional leader in public education about this enigmatic new bee.

Tony Jadczyk is the State Bee Inspector for Maine, and has been exposed to more commercial beekeeping than almost anybody in the U.S. He's a regular speaker at EAS, a sideline beekeeper and is a past President of EAS.

Steve Sheppard His research interests include the genetics of colonization and origins and diversification of honey bee subspecies. Current projects include molecular systematics of Apis, biogeography of Old World honey bees, and genetic analysis of introduced (New World) honey bee populations. He is a regular columnist for Bee Culture Magazine.



Michael Young hails from Northern Ireland, but he is no stranger to EAS, having visited our shores a number of times. More than anyone else, Michael is responsible for a renaissance of interest in honey shows and bee hive products throughout Georgia and the eastern United States. His engaging lectures and British wit are real crowd pleasers.

Dewey Caron has been active on the EAS Board for more than 30 years. He is also actively involved in the MAARC project and is working on updating their African Honey Bee Action plan. Dewey has published beekeeping books on Honey Bee Biology, African Honey Bees, Observation Hives (with Tom Webster) and literally hundreds of scientific and trade journal articles on honey bees and honey bee related subjects. He will be the Program Chairman for EAS 2007 in Delaware.

Visit www.easternapiculture.org for more information & registration. Don't miss the Grandest, most Entertaining (food, music, dancing, more music) Beekeeper's Meeting This Summer.

Stings-No-More

When working my bees I use Bounce fabric softener. Pin a couple of sheets to your beesuit. The bees hate the smell and leave you alone. On a hot day I leave the box on the truck seat with the window down. No bees inside that have to be gotten out as I take off my gear. Also works on other insects.

Wayne Reedy
San Jacinto, CA

Tap, Tap, Tap Again

I wrote to you about a method of capturing swarms which my Uncle used as a teenager in the hills of southern Ohio around 60 years ago. The method was unusual in two ways: First, they could get an airborne swarm to land in a nearby tree by making tapping sounds on wood. For example, when Fred and some other teenage boys were out hoeing in the fields, they could get an airborne swarm to land by rhythmically taping on their wooden hoe handles.

Second, after wetting the swarm down and knocking it onto a sheet, they could get the swarm to crawl up into the hive in about 10 minutes by tapping rhythmically on the back of the hive. While it remains a mystery why the swarm would land, I have found an interesting tidbit that confirms (but does not explain why) the bees would crawl up into the hive. I was reading the book *ABC and XYZ of Bee Culture* about bees' sound perception. Here's what it says:

"Also, when one beats rhythmically on a hive ("drumming") the bees respond by marching upwards, even leaving their hive and abandoning brood. The role of substrateborn sound reception in bee biology remains unknown."

Verrrry interesting . . . making an entire hive go against its natural instinct to protect its brood. I wonder how this knowledge could be used to better manage hives? Is there any advantage to emptying the brood supers by making the bees move upward into some empty supers? You could then remove the bee-filled supers (which would be light-weight) and have access to the brood frames without risking squishing your queen. Maybe researchers will develop organic

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treatments (for mites, etc.) which work best when applied on the brood frames, instead of on the bees themselves. All this assumes, of course, that once you put the bee-filled supers back on the hive, the bees would move back down into the brood supers.

Any entomologists out there looking for an idea for a research paper?

Karen Pruitt
Campbell, CA

Vinegar Treatment

Why are beekeepers being kept in the dark about the benefits of acetic acid, vaporized and applied for 30 seconds at three weekly intervals, using "The Cyclone" as advertised in your magazine?

Mr. Maurice (the man who sold it to us) mentioned something about inconclusive test results being the reason . . . ?

Look, this acetic acid vapor thing really works! Say it's on the drawing board or whatever, but I'd testify to this "soft" treatment being the main reason for a real fine apiary this Spring.

Steve Qubeck
Waynesboro, TN

Backyard Beekeeper

I'm a hobbyist in Santa Cruz California and I want to tell you how much I love the book *Backyard Beekeeper*, by Kim Flottum. Your photography alone is amazing, but the way the information is organized and presented is perfect for beginners. I'm teaching a short intro class called Backyard Beekeeping to Save the Planet and went looking for new books to present and found yours.

One of the new gifts for me that is going to change my life is receiving the information that there are eight frame hives! Hello, why isn't someone blasting this everywhere for women???????? Or for that matter anyone who cares about their back and shoulders. Just two fewer frames per box will make a huge difference in my life and may enable me to keep enjoying this powerful and magical relationship with bees close up in my backyard.

BEE CULTURE

Bee Culture Information



I'm 48 and have been struggling with the heft of the 10 frame med depth box either full of brood and food storage or pure honey. Sometimes it's gotten so bad, I would literally have to divide every full honey super of 8/9 fat frames of honey into 3rds to carry for harvest. Furthermore, the 10 frame colony has limited my ability to work the hive alone (which is my meditation and joy) and I always need a 2nd person around to help me lift a full box. Spring reversing became impossible as did harvesting a super by myself.

Soooooo, I'm in bliss about eight frame components and hives and am switching over.

The only disappointing fact is none of the suppliers out west manufacture eight frame hives and components - Dadant is just soooooo focused on commercial beekeeping. Though they have the capacity and machinery to easily make them, they just don't. The cost in shipping from N.Carolina where both Brushy Bee and Miller manufacture lovely eight frame hives is very expensive to Santa Cruz, CA. Maybe if you put a buzzzzzz in Dadant's ear they'd try to woo the hobbyist population more with the eight frame hive?????

Thank you for your time and your service to the humanity and planet by promoting hobbyist bee culture.

Beekeeping has been a gift in my life and I'm excited to begin helping other women consider bringing a hive or two into their lives, that they can serve. Thank you for your time and help with my questions as I search for eight frame hives and top bar frames, and your continued service to bringing balance between humans



and nature through teaching about the wonder and magic of bees.

P.S. Oh yes, I can't wait to try the recipe for chocolate/honey syrup for ice cream that was in your book - I think I'll be addicted.

Palika
Santa Cruz, CA

Response To Shilling

I would like to comment on the Commentary article written by A. Gary Shilling, May, 2006. As a first year beekeeper I look forward to receiving my copy of *Bee Culture* each month. I have found many articles interesting and relative to my learning process. With the May issue I was left scratching my head after reading the Commentary section. I was not aware that *Bee Culture* became an Academic Journal outside of beekeeping. Surely there are many other periodicals that would better house Mr. Shilling's views. Possibly I missed the point, I may be of "limited intellectual capability." After all I received my AA degree from one of those community college "diploma mills," and my night school BA may have been taught by the "poorly paid adjunct professors of questionable quality."

I'm paying the government back for my tuition with interest.

Melissa Hurlless
Woodstock, IL

Good Questions

I have a couple of questions for you or for anyone who might know the answer. I have always heard that honey produced in a small radius of a persons living area, has some value in relieving some of the allergy symptoms they might suffer Fall or in the Spring. My question is this? Does heating the honey during processing, or to clarify already bottled honey that has crystallized in the jar effect the honey in a negative way, in regards to the allergy relief qualities of pure honey.

My 2nd question is about

stings. I love the bees but I swell "alot" from the occasional stings I get. When actually working with the bees I wear the usual PPE without much problem but I sure would like to go without gloves sometimes. Is there a some sort of degree or amount of stings that a person has to endure in order to not have the swelling thing going on. I work in an Aluminum melt furnace area and it reaches normal Summer temps around 130°. It's a tough job when your hands are all puffed up and half the side of your face is swollen from a sting on the cheek.

Thanks for your time, and take care'a them bees!!

Kevin Gilbert
Nicholasville, KY

Editor's Note: *The value of local honey tends to be from the pollen in it. People who eat local honey also eat the pollen in tiny, tiny amounts, thus building up immunity to the plants that produced the pollen, and that were/are/may have been allergic to. Spring pollens are often a problem from trees, and trees are often good sources of pollen and nectar, same with Fall plants... thus the immunity factor. Moderate heating has no detrimental effects.*

Swelling, though perfectly natural and healthy, can certainly be irksome. It will go away as exposure increases...more stings - less swelling. But it takes time. One way is to get stung in the winter to keep your immunity to venom up during the off season, and to help build then, too. Try dishwashing gloves, better veils and getting stung on Friday afternoons....it does get better, but it takes more time for some people than others. I admire your persistence.

Banked Queens

Mr. Connor, I always read your articles first each month in *Bee Culture*. I raise my own queens and am always interested in what you have to write. I have a question on banking queens. You stress the use of proper cages and wait for the queen to lay and also at the same time point out that 30-60 queens can be caged (obviously hair roller cages). On page 41 first column "you may find that the queens are laying eggs in their cages" (plastic push in cages? In a five frame nuc box?) Could you clarify my confusion.

Bill Woodland
Lewiston, ID

Author's Answer: *When the queens are in cages are very well fed, you will find the eggs she is laying but,*

of course, cannot put into cells. This seems to happen only under optimal conditions.

Drawn Comb Storage

I have a question regarding the storage of deeps and supers with drawn comb. I find myself destroying literally hundreds of frames of foundation due to wax moth damage during storage. Is there some trick to storing drawn comb where the wax moths can't get at it.

Joel Grier
Cedar Rapids, IA
Joel.grier@wireless.com

Editor's Note: *During the Summer time stack supers so that light and air get to both sides of all frames...some stack on their sides, some offset them is stacks... some put on racks so light gets inside... whatever works for your situation. Keep out of the rain, but in the light. Winter, use PDB (not recommended, but apparently legal) or freezing frames for a week to kill all forms to keep them at bay, after frost, keep in an unheated location. Fumigation with some chemicals works also, is legal with the right chemicals, and is effective. You need a lot of supers to make it cost effective though. Stack on strong colonies to let bees keep them clean works, especially in the fall. The big picture...light and air on both sides of all frames will keep them away; or, kill all forms with freezing or fumigation or pdb; or, keep outside during cold weather. All of these will help, and I hope reduce those thousands to only a few...and then only the worst.*

While Rome Burns

In a sequel to my commentary in the May issue of *Bee Culture*, during a conversation with an EPA manager in Virginia on May 27th I was told: "You know Tom, pollinator protection just doesn't have a very high priority with the EPA right now." When I asked who I had to talk to or what I had to do to change that, the response was "Well, you could sue us like the NRDC is doing." I think the working level EPA employees would like to do things right, but they see little support from higher management, and the managers in turn see little political support. Money talks. You either pour millions into lawyering and lobbying as the chemical industry has, or money into lawsuits. The rest of us, with no money and no voice, are apparently SOL.

Tom Theobald
Niwt, CO



INNER COVER

We are told, often daily, that change is inevitable; that the only thing that doesn't change is change itself; that change happens so live with it; and that we shouldn't fight change, but rather embrace it. These niceties almost always come from someone who has already changed and can't figure out what our problem with change is; or, and even more likely, from someone

who has always done it that way without having to change at all, which isn't your way, and they can't for the life of them understand why you would want to be that way, or do it that way, or wear it that way, or go that way, or not want to do it their way, anyway. Two more things – they are, it seems, almost always younger than you are and didn't have to change to get to where they are now, and where you should be, could be, if only you'd change a little, for goodness sake. And no matter who they are – younger or older, smarter or not, or better or not, those who were born that way or have already made the change are a tad, just a tiny tad disdainful of those of us who can't change, won't change, don't want to change, didn't know we could change, and even if we wanted to change wouldn't know what to change into.

You know all this. You know that changing what you do or the way you do it is hard. You have to learn new skills, get to know new people, accomplish new tasks, get up at a new time, use new muscles, travel new roads, use new forms and formulas. And, at the same time not use the old way. The comfortable way. The easy way. The 'don't much have to think about it' way. You're pushing part of yourself hard toward those new things and at the same time pushing part of yourself hard away from those old things. It's enough to make you grouchy in the morning. And lose sleep at night.

But change, like other things, happens. No matter what you do. And those who have changed charge on ahead to keep up with those who have always done it that way to begin with. You, me...we'll try. We'll practice. We'll muddle through. You'll probably figure it out fast and move on without me.

Dust. That's what I'll eat. The dust you leave me in as you embrace the Brave New World you've come to fit into. And you won't look back as you plow forward - charged, different, better. You don't look back because there just isn't time. Not if you're going to keep up that is.

This isn't about any one thing that needs to change or be changed. It's about the every day assault the world hands you the minute the alarm goes off. Steady, in your face, push from behind, do it now, 'you have to change your ways', change we all face, every day, all day long.

It's never easy. It's usually not fun. Sometimes we're tired and often frustrated because it can't stay the way it was. It's even easy to get angry when you can't catch your breath, and no one, it seems, understands.

Something else goes with this though. You changed the world once...used to do it all the time, remember, back when not so long ago? And maybe you are still changing your part of it. In fact, maybe you're making someone else change now. Someone who changes just as hard as you do. Maybe harder. Or slower. Someone less inclined to learn the skills you want, to ride the roads you travel. The way you do. Someone who needs someone who understands. Take a moment. Look around.

See anybody familiar?

A wise queen producer once told me that he truly enjoyed reading articles in our magazine that showed readers how to raise queens.

Of course I had to ask why on earth he enjoyed seeing people take food off his table. But he had a good reason.

He said that those articles always made the process look easy. In 2000 words and 8 - 10 photos an author would solve all the problems everyone had with queens. In your own backyard, in your spare time, without having to hardly lift a finger – the bees did all the work. Well, some of them made it seem that simple, he said.

So then, that queen producer would sit back and wait. He'd wait until some of his customers had tried that get-rich, backyard, do-it-yourself, easy-as-pie scheme they read about, right here in River City, friends.

Then they'd find out about bad weather, not enough bees, not enough equipment, no time off, and no one who understands the problems a queen producer has every year, every spring, every day and still manages to produce mostly good queens, most of the time.

And next year, said that wise queen producer, his customers would be glad to be back, at any price.

He's right about the problems. It's not as easy as we sometimes make it look. But I hope you try to raise some fall queens this year. Get good queens from that producer and keep food on his table. Then use them for your own breeders, and put some food on yours.

It's harvest season. Sharpen your hive tool and your pencil. And good luck.

Embracing Change; Food On The Table

JULY - REGIONAL HONEY PRICE REPORT



Compared To Last Year

How were things a year ago, price wise? Let's take a look and see what difference a year makes. So... compared to last year.

Region 1

Bulk up 12%, pails about the same. Most wholesale steady, but quarts up 25%. Wax up nearly 30%, pollination just about 10%.

Region 2

Bulk up 10%, pails steady, but wholesale actually down. Retail steady to down. Wax down a tad, but pollination more than double last year.

Region 3

Bulk up about 12%, pails steady to down just a tad since last year. Wholesale steady, but retail down a bunch (about 12% overall). Wax up about 30%, pollination up over 15%.

Region 4

Bulk up about 15%, pails steady. Wholesale mostly unchanged, but retail mixed. Wax up 20% or so, but pollination actually down.

Region 5

Bulk mixed - light up 8%, dark down 15%. Pails up \$10 each, wholesale up about 10% generally, but retail steady from last year. Wax, and pollination essentially unchanged.

Region 6

Bulk prices up about 5% over last year, pails up about 10%, but both wholesale and retail mixed, depending on product. Wax up 30-40%, but pollination only a tad.

Region 7

Bulk prices steady from last July, but pails down about 5%. Wholesale rock steady, but retail down, a little, across the board. Wax up \$.25 to \$1.00, but pollination down 15%.

Region 8

Bulk up 10%, but pails down 10%. Go figure. Wholesale down for a few items, and retail up for a few. Wax down a buck. Pollination up \$10.

Region 9

Bulk up 25% since last July, pails up just about the same. Wholesale and retail both steady, with some items moving a bit. Wax up a buck, pollination up \$25/colony.

Region 10

Bulk up 30%, but pails dead steady. Both wholesale and retail mixed, depending on products. Wax up a buck, but pollination down \$20.

Region 11

Bulk prices down \$.25-.30/lb for some reason since last July, but pails steady. Wholesale steady but retail has gone up a bit. Both wax and pollination the same.

Region 12

Bulk and pails up quite a bit, especially for dark. Wholesale and retail up quite a bit also since last July. Wax, especially dark up, and pollination more than doubled.

REPORTING REGIONS												SUMMARY		History		
	1	2	3	4	5	6	7	8	9	10	11	12	Range	Avg.	Last Month	Last Year
EXTRACTED HONEY PRICES SOLD BULK TO PACKERS OR PROCESSORS																
55 Gal. Drum, Light	1.13	1.00	1.13	1.18	1.04	1.04	1.10	1.13	1.13	1.11	1.00	1.21	0.78-1.21	1.00	0.97	0.99
55 Gal. Drum, Ambr	1.09	0.85	1.09	1.13	0.75	1.00	1.01	1.09	1.09	1.09	1.00	1.17	0.70-1.17	0.98	0.96	0.95
60# Light (retail)	106.67	103.60	110.00	95.75	91.00	100.00	96.80	96.67	165.00	115.00	150.00	126.68	86.67-165.00	112.26	107.87	107.96
60# Amber (retail)	101.50	98.50	115.00	93.25	92.50	115.00	88.60	90.00	132.50	115.92	150.00	140.20	88.60-150.00	110.79	104.01	100.50
WHOLESALE PRICES SOLD TO STORES OR DISTRIBUTORS IN CASE LOTS																
1/2# 24/case	42.12	38.98	37.20	37.47	37.82	37.50	36.82	37.82	37.82	35.76	30.00	37.82	30.00-42.12	37.26	43.13	39.32
1# 24/case	69.12	56.58	44.40	57.33	63.00	49.33	61.56	62.40	50.40	77.76	74.90	87.30	44.40-87.30	62.84	65.48	61.72
2# 12/case	64.16	55.32	57.30	55.90	58.50	53.00	55.08	59.00	49.80	57.84	58.00	63.60	46.50-74.16	57.85	56.88	54.50
12.oz. Plas. 24/cs	60.71	50.88	48.00	57.85	48.00	50.67	49.56	49.00	51.60	67.85	70.56	74.80	47.64-78.93	55.50	55.05	51.38
5# 6/case	68.36	61.04	66.75	56.10	65.86	63.00	61.58	52.95	59.00	56.43	58.00	73.50	50.00-75.00	61.76	62.02	58.49
Quarts 12/case	99.25	100.35	97.20	80.73	77.00	81.95	81.00	72.38	84.00	110.88	84.70	96.00	71.67-114.00	89.16	82.73	84.99
Pints 12/case	53.00	49.45	51.00	55.58	53.00	45.35	55.36	45.00	54.00	49.50	50.00	54.00	42.60-63.00	51.87	50.72	51.01
RETAIL SHELF PRICES																
1/2#	2.62	2.28	2.05	2.75	1.55	2.70	2.34	2.35	1.99	2.57	2.61	2.88	1.49-2.92	2.40	2.40	2.45
12 oz. Plastic	3.82	2.90	2.79	3.23	3.50	3.32	2.84	3.60	3.35	3.20	3.20	3.75	2.75-3.84	3.29	3.15	3.25
1# Glass/Plastic	4.16	3.35	3.88	4.16	3.59	4.05	3.71	4.32	3.66	3.96	3.90	4.75	3.31-4.80	3.96	3.82	3.90
2# Glass/Plastic	8.27	6.11	7.20	6.29	6.59	5.91	5.54	7.91	5.87	5.73	6.10	7.17	5.36-8.32	6.62	6.39	6.51
Pint	6.95	7.38	6.23	5.25	5.96	5.14	5.41	5.23	5.50	6.38	5.09	5.80	5.00-8.99	5.92	5.51	5.76
Quart	12.15	8.98	9.50	8.19	8.23	8.42	10.04	8.65	8.94	10.95	8.61	9.97	8.13-13.52	9.70	8.92	8.49
5# Glass/Plastic	16.21	13.16	14.65	12.79	15.00	16.50	12.50	16.00	13.50	13.57	13.23	17.00	11.01-19.03	14.62	13.94	13.08
1# Cream	5.04	4.68	4.89	4.30	3.85	3.80	5.50	4.69	5.00	5.09	4.85	4.76	3.79-5.64	4.71	4.52	5.31
1# Cut Comb	6.31	4.60	4.89	5.08	5.74	4.40	5.62	4.49	5.74	6.00	6.21	5.88	4.33-6.50	5.42	5.07	5.56
Ross Round	5.75	3.98	4.63	5.25	4.76	4.33	4.75	4.27	4.76	5.63	6.16	4.91	3.83-7.00	4.96	5.04	4.75
Wholesale Wax (Lt)	2.13	2.12	2.00	2.77	1.40	1.68	2.39	1.85	2.08	2.56	1.88	1.98	1.40-2.95	1.85	2.13	2.16
Wholesale Wax (Dk)	1.50	1.85	1.90	2.00	1.20	1.43	2.20	1.65	1.40	2.59	1.80	1.50	1.20-2.50	1.70	2.06	1.77
Pollination Fee/Col.	51.00	72.33	42.50	40.00	40.00	49.00	50.71	60.00	56.50	39.00	75.00	99.79	39.00-99.79	56.32	61.04	48.19

RESEARCH REVIEWED

The Latest In Honey Bee Research

Steve Sheppard

"Do you know the composition of your pollen load?"

One of the key features of the group of insects known as bees is the presence of finely divided or branched hairs on their bodies that facilitate the collection of pollen from flowers. Honey bees in particular have been referred to by at least one researcher as "flying dust mops," in reference to their ability to pick up various particles and chemicals on their bodies. In the case of this researcher, the flying dust mops were analyzed to determine the level of specific particulate compounds or volatile chemicals from a nearby ordnance dump site of military significance. The tiny insects could fly onto the site in question without the danger of causing explosions, such as those that might accompany the movement of heavier wheeled vehicles. Subsequent chemical analysis of the foragers' bodies provided information on

exactly what was leaking from the ground within the study site. Although less reminiscent of science fiction, another way in which the honey bee can be used to monitor the environment is through analysis of the pollen they collect. That is, pollen loads of honey bees can be removed as they return to a beehive and chemical analysis of the pollen can reveal the spectrum of pesticides or other

contaminants that are encountered by the honey bee population.

Based on a large-scale study of honey bee pollen loads, Chauzat and colleagues recently published a paper worthy of careful consideration (Chauzat et al., 2006). These researchers surveyed five regional sites located from northern to southern France and determined that honey bee pollen loads from all the areas contained a wide range of pesticides. Pollen loads were sampled from five randomly selected colonies within each of five apiaries per region at different time periods of the year (October-November, March-April, May-June, July-August and October). Overall, pollen trap samples taken from returning foragers of 125 individual colonies were examined at each period. The researchers examined a subset of the samples for the presence of residues of 41 different molecules, including 34 that were active ingredients of commercial products (25 insecticides and nine fungicides) and seven that were metabolites (physiological breakdown products) indicating exposure to particular chemical families.

The results showed that of the 41 compounds they searched for, 19 could be found in the pollen loads of honey bees. The most frequent residues were imidacloprid, 6-chloronicotinic acid and fipronil, found in 49%, 44% and 12% of the samples, respectively. Imidacloprid and fipronil are the active ingredients of various pesticides widely used in agriculture. The proportion of samples containing either imidacloprid or its metabolite 6-chloronicotinic acid or both was 69%. Sixteen other pesticides were also found, with the frequencies of occurrence in the samples ranging

from 1% to 11%. It is worthwhile to note that fluralaner and coumaphos were among the "other" pesticides found. These two pesticides were found in the highest concentrations of all contaminants and both have been used in France (and in the U.S.) for control of *Varroa destructor*. The authors suggested that the source of the mite control chemicals in pollen loads could be contaminated honey and nectar regurgitated and used by foragers to "glue pollen grains together while making pollen loads." This, of course, presupposes that some degree of in-hive contamination of nectar and honey had occurred.

Of the samples that were examined for the presence of all 41 compounds, only 12.3% were found to contain no pesticide residues. Thirty-two percent of the pollen load samples were contaminated with one compound, 29% were contaminated with two compounds, 21% were contaminated with three compounds and 6% were contaminated with four. A single sample was reported by the authors to be "polluted" with five different compounds. Interestingly, with the exception of fipronil, the contamination was common throughout the sampled year, with no obvious seasonal effects.

The quantity of the pesticide residues found in the pollen was generally low (with the exception of the aforementioned fluralaner and coumaphos), so the following question was asked by the authors: "Are the doses found in pollen dangerous for bees?" Taking imidacloprid as an example, they suggest that, based on the "LD₅₀", the amount of contaminated pollen that a single bee would need to ingest to be killed directly is rather large (33g). LD₅₀ (median



lethal dose) describes the amount of a given compound needed to kill roughly 50% of a population of test animals. However, the authors point out that the traditional measure of LD₅₀ does not adequately assess the negative effects of a pesticide. On the contrary, it is now known that very small amounts of pesticide active ingredients can lead to changes in honey bee physiology and behavior that can have profound effects on the viability of a colony. Leaving us with this dilemma may seem to be unkind, but in their defense, the researchers point out that the uncertainty results from current limitations of the available methods. The inability of scientists to measure subtle effects of contamination on individuals in the field represents a great hindrance to understanding the full consequences of contamination on the well-being of whole colonies.

How are the results of this study relevant to us as beekeepers and consumers in the U.S.? First, as there is no reason to think the situation

in France is unique, we can imagine that a similar study in the U.S. would show that pesticides and mixtures of pesticides also enter the pollen stores of our colonies, especially those in agricultural settings. Second, if we accept that it is worthwhile to reduce the levels of pesticides inside beehives wherever possible, then we should strive to reduce or eliminate the beekeepers' contribution to the pesticide profile. Thus, by reducing pesticide use in hives through the implementation of IPM principles, beekeepers can simplify the profile of chemicals their colonies must face.

In recent years, some beekeepers have reported problems with higher than "normal" levels of queen supercedure, difficulties in queen introduction and unexplained colony dwindling and colony losses in the presence of adequate food stores. Could this be due to sub-lethal effects from the mixture of contaminating pesticides that are present in our hives? Further, as newer pesticides that target specific features of insect/

arthropod physiology and reproduction become available to replace broad-spectrum pesticides, could these newer chemistries be even more likely to affect honey bee colonies though the "sub-lethal route"? All of these are questions that will need to be answered in the future. Meanwhile, as always, beekeepers will have deal with the situation at hand. Perhaps consideration of the implications of this report on the pollen loads of French honey bees could serve as a starting point to recognize the seriousness of an issue that may be with us for a long time. **BC**

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No honey report in any beekeeping publication omits reference to Argentina. The name comes from the Latin *argentium*, which means silver. The Spanish called the most known geographical element of the country the Río de la Plata (River Plate), the river of silver. In the modern era the country is best known for its capitol, Buenos Aires (nice airs), considered the Paris of South America, and its agricultural commodities, mostly grown in an area known as the humid pampa adjacent to Buenos Aires, and extending to the foothills of the Andes mountains, which separate the country from its western neighbor, Chile. Perhaps beef and wine are the best known of these, but soybeans, sunflowers and other crops are also grown there. And then there is honey.

The humid pampa is a perfect environment for the European honey bee, temperate enough for the insects to do well in putting up stores of honey and planted with crops the bees do well on in other temperate lands including the United States, Canada, China and Russia. There is also a tropical side of Argentina to the north near its borders with Paraguay and Brazil, which is inhabited by Africanized honey bees. Even in that area, however, most beekeepers continue to prefer European bees because of their honey productivity.

Beekeeping began in earnest and continues today in the central part of Argentina in the province called "La Pampa," according to a report by Marcelo Real published in 2004.¹ It started in the 1930s when Raimundo Urmente Gil began to manage a small apiary near the town of Victoria. Honey was eventually put in barrels and sent by rail to Buenos Aires, where it was packed and exported by several firms. The activity slowly grew through the 1950s and 1960s. Queens from Italy were first imported in 1967. In the 1970s, growth in beekeeping accelerated and a census was begun. The first woman to enter the business in 1973 was Celia Castro.

The 1980s saw a dramatic increase in beekeepers. It was a golden

Malcolm T. Sanford

Beekeeping In Argentina



"Beekeeping, bee research, and honey production in Argentina."

era where colonies made between 80 and 90 kilograms (176 to 198 lbs) of honey during the long growing season (December to March) and there were few pests to worry about. Unfortunately, *Varroa destructor* was introduced in the late 1980s and production declined. The problems brought on by the *Varroa* mite resulted in a series of regulations (the first apiary law was promulgated in 1985). Nevertheless, interest in beekeeping continued to grow and various courses were taught in universities and the private sector. The first "Apiculture in the Pampa" convention took place in 1984.

The 1990s brought more growth as Argentina became and continues to be one of the largest honey producers and exporters in the world. Financial help and credit were extended to beekeepers and the federal government became involved through the Instituto Nacional de Tecnología Agropecuaria (INTA), equivalent to the United States Department of Agriculture's Research Service, this year celebrating its 50th anniversary. The first strictly beekeeping cooperative was formed in 1993 (Cooperativa Apícola de Toay). It was followed by Cooperativa Apícola de Winifreda in 1999. The number of beekeepers in La Pampa province grew from 498 in 1990 to 1,200 in 2001 while the number of colonies increased from 57,270 to 170,000 respectively. Production has been variable during the period, from 60 kilograms (132 lbs) in 1990 to a low of 35 kilograms (77 lbs), but total honey production has gradually risen from 3,436 to 7,000 tons.

La Pampa province includes two geographic regions, the steppe to

the east and the hill country on its western boundary with its neighboring state Mendoza, which encompasses the eastern side the Andean mountain range. In the steppe are found the major forage crops, grown mainly for livestock food. The hill country contains more trees and shrubs. Traditionally, the steppe had the largest number of beekeeping outfits in the province, over 90% in 1990, but that has been reduced to 70 % in 2001. This is only one province of course and represents 11% of the country's total production, third after the provinces of Buenos Aires itself (58% of production) and Córdoba (14% of production) to its north.)

Argentina's honey production continues to increase over time. The country produced 45.6 thousand tons in 1990. This more than doubled to 93 thousand tons by the year 2000. Over 90% of the crop is exported to the United States and Germany.

There have been some huge challenges to Argentinian beekeeping in recent years. In the 1990s, it was reported that American foulbrood had become resistant to Terramycin®, the first report of this phenomenon anywhere in the world after almost 40 years of use of this material as a prophylactic.² The U.S. beekeeping industry was also successful in reducing honey importation through legal means, when Argentina and China were both declared by the World Trade Commission to be dumping product at lower than costs of production.³ Finally, Argentine honey contaminated with a class of antibiotics called nitrofurans was detected in Canada⁴ and Australia.⁵ During the same period, the Argentinian



economic crises deepened after a precipitous 70% devaluation in the currency.

It has just been reported that this year's Argentine honey crop appears to be 30% below average.⁶ Because it is in the southern hemisphere the production season is our Fall and Winter. This is good for the world market as prices will probably move up, but of course will affect many of Argentina's beekeepers in a negative way.

Unlike in the United States, many beekeepers in Argentina are fairly young. Most range in age from 30 to 50 years old in La Pampa province. The country boasts some of the best educational and informational

efforts of any beekeeping industry in Latin America that I know of. Several paper journals are available, including one called *Espacio Apícola*. I was interviewed for that magazine by its editor during an international congress a few years ago. Most remarkable is the suite of electronic information resources beekeepers can take advantage of by using the World Wide Web. These can be found by entering the word "apicultura," in the Argentine search engine: <http://www.todoar.com.ar>.

At the top of the list is the porta apícola (apiculture portal): <http://www.apicultura.entupc.com/>. This Web Site sports a periodic newsletter that is sent to subscribers and a list of recent and archived articles on many topics. For example, it is reported that this year's San Francisco convention complete with exhibition saw fewer visitors than normal. A rather complete description of the current beekeeping situation in Uruguay, which in 1998 had 7,023 colonies and the number has grown to 263,605 hives in 2001, reveals that for this country production peaked in 2004, falling in 2005. A total of 1,176 beekeepers responded to the portal's honey questionnaire in April, with 67% believing the price would increase soon.

The Api-Guia electronic portal, dubbed "The First Commercial Directory of the Argentinian Beekeeping," has an electronic newsletter that one can subscribe to and the Web site is also available in English and French: This is the English version on the site itself:

1. You are able to announce your needs of honey, pollen, royal jelly, bees-wax, propolis or any apiculture equipment free of charge.
2. You may find out any company who is involved in some way with apiculture commerce.
3. You can make advertising of your merchandise.
4. You can look up for dates & places of apicultures meetings & fairs in Argentina.
5. You can see statistics of the Argentine honey market. You will have an answer to most of yours

doubts or questions about the Argentinien (sic) beekeeping market.⁷

Unfortunately, you need to read Spanish to take full advantage of the Api-Guia electronic portal. Perusing the exhibitions and fairs link reveals there are several expositions in June and July and at least one for every month through mid-October. Perhaps the largest and most traditional is the Expomiel Azul 9-11 June, 2006, which features a movable extraction facility in a trailer, election of the national honey queen and a large array of exhibits. The Web site for this event: <http://www.expomielazul.com.ar/2006/index.php> also has a virtual tour of the exhibits. In other words, you don't have to attend to get an idea of what is being promoted. They are available right from your office or home via your personal computer. The event takes place in the town of Azul, east of Buenos Aires, thus its name.

Argentine beekeepers also have at their disposal a government program called the Proyecto Integrado de Desarrollo Apícola (PROAPI) under the auspices of INTA. The project began in 1995 and in its first decade of operation provided beekeeping instruction to numerous groups, sponsored tours to the U.S. and other countries including Germany, New Zealand, and Brazil, and implemented distance education initiatives. Dr. Enrique Bedascarrasbure invited me to attend a planning session when I was in the country in March. The objective was to develop the budget for the next three years, until 2009 as part of a longer-range plan, which is expected to run for at least another decade with funding expected to be adopted for two additional three-year intervals, 2009 through 2012 and 2013 through 2016.

Some extremely ambitious goals were discussed and if implemented could put Argentinian honey bee research at the forefront in some critical areas. This information would then be transferred to beekeepers to help them increase productivity. Various subprojects were discussed in five general areas:

Honey quality: This is a significant area given the country's flirt with honey contamination by nitrofurans. Potential for contamination and traceability of the product from hive to the packer is considered of utmost importance and will be given priority. Because honey is shipped to Europe, especially Germany, where honey identity is important to consumers, there will be an effort to chemically characterize nectar and resultant honey in the various parts of the country. INTA has published a booklet *Florida Apícola del Delta del Paraná*, a practical guide to recognizing important bee plants in the region where the Paraná river empties into the Río de La Plata, some 20 miles northeast of Buenos Aires.

Germ Plasm: The Africanized honey bee exists in the northern part of the country, but does not seem to have invaded much of the traditional European honey bee areas in the humid pampa, perhaps because of lower temperatures. In addition, there has been a significant effort to introduce European stock into the more tropical northeast and northwest to blunt the effects of the Africanized bee. This effort will incorporate knowledge from other studies around the world to identify heritable characteristics (hygienic behavior and *Varroa* tolerance) that can be introduced into the current stock to improve productivity. One of the areas to be looked at is the difference that appears to exist in the Argentinian Africanized honey bee population with reference to mite tolerance when compared to that of Brazil.

Integrated Pest Management: Like elsewhere in the world, the two most important conditions that adversely affect beekeeping are *Varroa destructor* and American foulbrood. Developing best management practices to help control populations of both of these is a must in any beekeeping endeavor. In addition, studies on more traditional diseases like nosema are being considered.

Nutrition: Little is known about honey bee nutrition in the country. Projects in this area will seek to characterize the relative protein content

of various pollens in Argentina and determine how this relates to current bee management practices. This is a critical topic in bee research around the world, and significant advances in knowledge in this area would be an important contribution to the beekeeping literature.

Pollination: A commercial pollination enterprise is beginning to be established in the country. Plants requiring honey bee pollination are mostly those that we see in the U.S., including fruits and nuts (almonds, apples and kiwis), vegetables (cucumber, squash, watermelon), forages and seeds (red clover, alfalfa), and oil-producers (sunflower, soybean and rape, the source of canola). Systems need to be developed to help both beekeepers and growers get the most out of honey bee pollination.

Several of these projects have been written up in INTA's October 2003 edition of *IDIAXXI*, *Revista de Informacion Sobre Investigacion y Desarrollo Agropecuario*. This publication can be viewed directly on the World Wide Web.⁸

In summary, Argentinian beekeeping has a lot going for it, including a maturing history as one of the world market's significant honey sources. It also has in its favor a rather young labor force that is comfortable using electronic information, and an ongoing research and education initiative through the government to help beekeepers improve

productivity. There's much to suggest the Plate Republic will increasingly be a future force to reckon with in the global beekeeping community. **BC**

Dr. Sanford is a former Extension Specialist in apiculture at the University of Florida.

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Combating Insurance Denial, Cancellation, and Non-renewal

Sylvia A. Ezenwa, J.D.

In my article "Insurance Protection for Beekeepers," *Bee Culture* vol. 133, no. 6, at 23-26 (June 2005), I explained that insurance is necessary for all beekeepers – hobby, sideline, and commercial. There are home and business insurance policies; each offers different kinds and amounts of financial protection or "coverage," depending on the size and worth of your beekeeping operation. For instance, a standard homeowner's policy may be sufficient for a hobby beekeeper with only a backyard apiary, but a businessowner's policy is a much wiser choice for sideline and small commercial beekeepers in the pollination business, with colonies both in their backyards, and in the orchards of out-of-state growers.

However, regardless of the size of your operation, what it is worth, and whether it is a hobby or business, at some point, you will likely find yourself in the unenviable position of having an application for insurance denied, or of having a current policy either cancelled or not renewed, when an insurance company discovers that you keep bees on your own and/or someone else's property. But can you lawfully be denied insurance simply because you keep bees? Or can your current policy lawfully be cancelled or non-renewed? And what recourse, if any, do you have in such situations?

This article answers those questions, discussing how to combat the denial, cancellation, and non-renewal of home and business insurance policies, including suggestions on how to find an alternate insurer.

How does insurance protect you?

Insurance is defined as: "A contract whereby, for a stipulated consideration, one party undertakes to compensate the other for loss on a specified subject by specified perils. The party agreeing to make the compensation is usually called the "insurer" or "underwriter;" the other, the "insured" or "assured;" the agreed consideration, the "premium;" the written contract, a "policy;" the events insured against, "risks" or "perils;" and the subject, right, or interest to be

protected, the "insurable interest."¹

As a beekeeper, your insurable interests include: (i) the structure of your home and of any detached buildings (e.g., garage, honey house, or tool shed) on your property; and (ii) personal belongings (including beekeeping equipment and supplies) located both on and off of your property. When you purchase either a standard homeowner's or a businessowner's policy, your insurance company – upon receipt of your premium – promises to compensate you for damage or loss caused by: (i) natural disasters (e.g., wind or hail)

and man-made perils (e.g., theft or vandalism); and (ii) personal injury and property damage lawsuits filed against you. But an insurer can only make a profit if the total amount of premiums it receives from policyholders is greater than the total amount of compensation it pays to them. So, in an effort to reduce the amount of compensation it must pay to policyholders, an insurance company will be reluctant to insure an individual or business that engages in conduct, like beekeeping, that increases the company's risk of liability.

Why are beekeepers an "increased risk"?

The bees on your property can cause property damage by dropping excrement onto neighbors' siding, laundry, and parked cars, and by drowning in neighbors' swimming pools. They can cause personal injury

by stinging visitors to your property, passersby, and neighbors and their pets. Visitors might also be injured by slipping on honey or beeswax spilt in your garage or honey house, or falling over a spare super lying near your apiary or toolshed. Fear of these types of incidents leads many insurers to believe that beekeepers pose an increased risk of legal liability. After all, in today's litigious society, the person who has been injured or whose property has been damaged by bees will likely sue you – the beekeeper – to recover monetary compensation. And if such a lawsuit is filed,

"Can you lawfully be denied insurance simply because you keep bees?"

your insurance company is obligated by your standard homeowner's or businessowner's policy, to pay the cost of defending you in court and any monetary damages awarded by the court to the injured party (up to the liability limits specified in the policy). Consequently, when an insurer discovers or is told that you keep bees on your own and/or someone else's property, it may decide to: (1) deny your application for insurance; (2) cancel your current policy; or (3) not renew your current policy when it expires – all three options are discussed below.

(1) Denial

Insurance companies can lawfully deny your application for insurance because you keep bees. Similar to dog bite liability, insurance companies are entitled to take measures to limit their exposure to legal liability for

Does Your Queen Come With A Warranty?

Sylvia A. Ezenwa, J.D.

In Part 1 of my article "Protecting Beekeepers from Product Liability," *Bee Culture* vol. 134, no. 5, at 23-26 (May 2006), I discussed the law of product liability, which allows a consumer injured by a defective hive product – typically, candles or honey – to recover monetary compensation or "damages" for his injury by suing any individual beekeeper or company involved in the product's manufacture and production, processing, packing, distribution, or sale. One issue not discussed, however, was whether beekeepers can sue each other. For instance, suppose a queen producer sells you a queen bee, making no claims of quality or performance at the time of sale, and the queen dies or is replaced prematurely (say, within two weeks, as opposed to an entire season). Can you sue the queen producer to recover compensation for the actual expenditures made or other monetary losses suffered by your beekeeping business as a result of the defective queen? The answer is yes, because your queen bee comes with certain implicit promises or "implied warranties."

As I stated in my May 2006 article: "[A]ny product that is sold comes with an implied warranty of merchantability and fitness for a particular purpose; and, just by selling a product, a seller is implicitly promising that: (1) the product is merchantable, i.e., fit for the ordinary purposes for which such products are to be used, provided that the seller is in the business of selling products of that kind; and (2) the product is fit for a particular purpose, provided that the seller, at the time of sale, knew the particular purpose for which the product was required, and the buyer relied upon the seller's skill or judgment in selecting a suitable product for that purpose."¹ In other words, although the queen producer made no "express warranties" (i.e., claims of quality or performance) at the time of sale, the queen still comes with both the implied warranties of merchantability and fitness for a particular purpose. And, as the buyer of the queen, you can certainly file a product liability lawsuit against the queen producer (the seller), but you will only be awarded damages by the court if you can successfully prove that the seller violated or "breached" either of the implied warranties.

To prove that the seller breached the "implied warranty of merchantability," you must convince the court that, at the time of sale: (i) the queen bee was unfit for the ordinary purposes (e.g., producing eggs, for instance) for which queens are to be used; and (ii) the seller was a commercial beekeeper/queen producer in the business of selling queens. To prove that the seller breached the "implied warranty of fitness for a particular purpose," you must convince the court that, at the time of sale, the seller: (i) knew that the queen bee was to be used for a particular purpose (e.g., producing eggs); and (ii) you relied upon the seller's skill or judgment in selecting a suitable queen for that purpose.

Finally, if a court determines that the queen producer did in fact breach either of the implied warranties, it will assess the amount of damages you should be awarded. The assessment will undoubtedly include an evaluation of the queen producer's counterargument or "defense" that your own negligent conduct contributed to the premature death of the queen. If the court is persuaded by the producer's contributory negligence defense, you will not be barred from recovery; however, the amount of damages you are awarded will be reduced in proportion to your own negligence. For instance, suppose you sue the queen producer to recover \$1,000 in damages that your beekeeping business suffered as a result of the queen's premature death (including actual cost of the queen, cost of purchasing a replacement queen, and lost profits and sales while awaiting the replacement queen). Then, at trial, the court determines that: (i) the queen producer was 80 percent liable for the queen's premature death because he produced the defective bee; and (ii) you were 20 percent liable for the queen's premature death because you mishandled the bee after the sale. As a result, the court will reduce your damages by 20 percent or \$200, which means that you will be awarded \$800 instead of \$1,000.

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property damage and personal injuries caused by bees, including opting not to offer a line of insurance that covers bees or beekeepers. In lieu of denying your insurance application, however, a company might still sell you a policy, but will: (i) limit your liability coverage to a certain amount

(e.g., \$100,000 to \$300,000 in a standard homeowner's policy), and require that you be responsible for all damages above that amount; or (ii) charge you a higher premium.²

(2) Cancellation

If your insurance policy has been

in force for over 60 days, your insurance company cannot lawfully cancel the policy unless you have: (i) failed to pay your premium; or (ii) committed fraud or misrepresentation on your insurance application.³ For example, failing to disclose on your application that you keep bees on your prop-

erty (or on someone else's property as pollinators) constitutes fraud or misrepresentation, and entitles the insurance company to cancel your policy without notice upon discovering that you are a beekeeper.

(3) Non-renewal

An insurance company may lawfully decide not to renew your insurance policy when it expires, provided that the company: (i) notifies you a certain number of days in advance that your policy will not be renewed (the number of days' notice required varies, depending on the State where you live); and (ii) explains to you the reasons for the non-renewal.⁴ Those reasons may have nothing to do with you. The company might simply have decided to drop one or more lines of insurance that cover beekeepers, dog owners, or owners of other biting animals; or to sell fewer policies in your particular State or locality.⁵ As a result, if you become a beekeeper during the term of your current policy and promptly inform your insurance company; when the policy expires, the company is entitled to either increase your premium (to account for the increased risk of your keeping bees), or to not renew your policy.⁶

How can you find an insurer?

If an insurance company denies your application, cancels, or decides not to renew your current policy because you keep bees on your own and/or someone else's property, your first priority should be to find another insurer. Here are several

suggestions:

- Try to purchase a policy from your current automobile, home, or business insurer. Mention that you have been a responsible policyholder, with no bee-related liability claims filed against you in the past several years.
- Try to purchase a policy from an insurer that regularly issues policies to other beekeepers in your State or locality. If possible, use the name of another beekeeper-policyholder as a reference.
- Explain to any potential insurers about any safety measures you have taken to reduce the likelihood of bee stinging incidents on or near your property (e.g., erecting natural or artificial barriers between your apiary and public walkways, or the posting of warning signs at the apiary entrance).
- Call your State Insurance Department and request a list of insurance companies that operate in your area. Ask about any State programs that offer insurance to high-risk individuals and businesses.

Finally, if you feel that an insurance company has treated you unfairly, either by denying your insurance application, or by canceling or non-renewing your current policy (or you are dissatisfied with the company's stated reasons for doing so), you may:

- File a complaint or grievance with your State Insurance Department. If enough complaints are received, the department might take some

regulatory action.

- If government action is slow or not forthcoming, hire an attorney from a private law firm to negotiate with the insurer. Request a contingency fee arrangement, so that you will be required to pay attorney's fees only if your case is satisfactorily resolved. **BC**

References

1. Black's Law Dictionary 802 (6th ed. 1990).
2. See Insurance Information Institute, *Dog Bite Liability*, available at www.iii.org/media/hottopics/insurance/dogbite/ (last accessed May 3, 2006).
3. Insurance Information Institute, *What's the difference between cancellation and nonrenewal?*, available at www.iii.org/individuals/home/hbasics/cancellation/ (last accessed May 3, 2006).
4. *Id.*
5. *See Id.*
6. *See Id.*

For more information about home and business insurance policies, visit the Web site of the Insurance Information Institute at <http://www.iii.org/>.

BIOGRAPHY: Sylvia A. Ezenwa is a lawyer, author, and freelance writer based in Superior, Colorado. She is licensed to practice law in the State of Texas.

DISCLAIMER: The information in this article is not intended to constitute legal advice. Please consult an attorney regarding your specific situation.



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Anecdotal Evidence

(Anecdote: A story.) Some of you will look this up! I deliberately did not.

Dick Marron

Before the birth of Christ the tribes of Israel passed on a verbal history by telling and retelling anecdotes around the campfire. These stories later formed a backbone for one of the most important books ever written, the Bible. Anecdotal evidence has gotten a bad name since that great beginning. Even if you called them by their upscale name, parables, they are still just stories. (Parable: A classic story.) Later, when the lawyers got into it, the words "hearsay evidence" came into use. You can't offer as evidence something you heard someone say. (Hearsay: A story someone told someone else.) If all these restrictions were in general use throughout history ... there would be no history.

What does this have to do with bees? Thanks for asking. I was getting bored, too.

I suspect that the use of Thymol for *Varroa* was first passed on via an anecdote by a hobbyist operating out there on the fringe of beekeeping. I think there are three commercial preparations of it at present. The same is true of a lot of other stuff.

I have met a few unpretentious people who are using some of those "unproven" techniques in beekeeping. All they have is some of this anecdotal evidence but they don't seem to care ... they have healthy bees and use no pesticides or antibiotics.

Let's take the case of Don Kuchenmeister. With a name like that he should have ended up operating a bakery. (Kuchen Meister: Master Baker) If you go to Bee-source.com, the internet bee-addicts' other chat line, his screen name is "Fat beeman." I don't know why he calls himself that; we're both the same size. He's in the small

town of Lula, Georgia. (About an hour north of Atlanta). He hosted me and my rig last year and invited me back. As the roads got smaller and the roar of the freeway faded, I began to understand how a beekeeper could think about moving here. That's exactly what Don and his good wife of 39 years, Monique, did ... about 35 years ago. (She verified the 39 years of marriage but added that it seemed longer. Does that tell you something about their relationship?) They lived for 14 years in other Georgia spots before moving a last time to the present location. It was all about the bees.

This is a case of bee fever run amok. He had no other reason to move all the way from Ohio. He has many skills and at one time, was in danger of being a successful real-estate agent. He's done construction, operated heavy equipment, has a semi (CDL) license, and worked in a sawmill. He did actually have his own small mill. In fact, he has the equipment to make a specialized molding for you. There are a number of those racks of wood that you see at a sawmill hanging around his yard. You know, where the stuff is drying or seasoning? He can explain why air-drying is better than kiln drying, at the cellular level. It leaves the wood in a more stable condition. After all, Stradivarius didn't have kiln-dried material. Some of this wood is of special or rare types. I remember a mention of Black Walnut, Pecan, and Poplar, and various kinds of Oak and Pine. He knows his wood. He showed me a "Powder puff beetle" in a pine board. I would have just passed by the mysterious sawdust it leaves behind.

Don would say that his main business is bees. Specifically, it's queen bees and nucs. While he makes some honey it's more or less incidental. The way he tells it, if he makes any *money*, that is also incidental. It's not the way he measures success. We got along well. He has Italians, Carniolans, Russians, and "Ferals." He considers a colony to be "Feral" if it's been in a tree or a building, without human intervention, for more than two years. He values his feral bees as he feels they add survivability to his queen matings.

I was going to build or buy a boat once and sail around the world. I actually considered renting the molds and spray forming my own fiberglass. A guy at a boat yard woke me up with the Statement: "It depends Dick; on how far back you want to start with your boat!"

Don starts a beehive by looking at a likely tree. He saws the tree into boards and stacks it to dry. Another source of lumber comes from scavenging. He then makes all his equipment out of what is at hand. Later there may be recycling. A damaged cover can quickly turn into a

Don Kuchenmeister



Curing Buckshot Brood In The Fall

Raymond Crocker

The effects of *Varroa* mites in relation to Buckshot Brood patterns have been observed over the past several years in my and other beekeeper's hives. Observations in the past have brought suspicions of failing or mismated queens, as well as suspected American Foulbrood problems.

This past Spring I arrived at another conclusion. Large portions of the U.S., were conducive to swarming. Early on we had pollen in a steady supply as well as a light build-up flow. This was interspersed with two or three days of good foraging weather, followed with one or more days of rain or cold which crowded the bees together. Untreated bees in such conditions have an added incentive to swarm in an effort to relieve crowding.

The buckshot brood problem begins later in the season, with a colony's "peaking-out" in population. This is in late June or early July here in SC. Then begins the inevitable decline in hive population.

At the same time the colony is making other changes. New brood is being reared for Winter populations. Bees that should live for six months rather than six weeks are filling the cells daily. This is the treatment threshold and it occurs approximately two weeks after the colony "peaks" and the queen cuts back on her egg laying. The first wave of the *Varroa* changeover gives the "buckshot brood" effect with the bees still trying to control the situation. They are cleaning cells of dead brood. Further infestation brings on the virus proliferation and then colony collapse.

My Treatment Plan

No.1. This treatment can be

applied at anytime. It is used with screened bottom boards for instant *Varroa* mite reduction.

Mix thoroughly 1lb. powdered sugar with 2 to 2.8 oz. garlic powder. Take a handful and drizzle it between the frames onto as many bees as you can. Personal experience has shown this to result in some Queen loss. I use screened bottom boards to create a sudden knockdown of the mite count. Mites on the ground are a free meal for fire ants in my beeyard. Ten days later I check to see how many queens I have to replace.

No. 2 Small or Large Mix

1 oz. Thyme Oil or
1 Pint Thyme Oil
1 oz. Tea Tree (Melaleuca) Oil or
1 Pint Tea Tree Oil
10 oz. Canola Oil or
5 Quarts Canola Oil

Mix the oils together and soak cardboard glass coasters in the mix overnight. They are approximately four inches in diameter and 1/6th inch thick. Next day, slide one coaster to the center of each hive's bottom board. Another method for small operators is to cut a coaster into four pieces and staple the pieces to the top of the frames, surrounding the brood nest.

This treatment is normally done three times. This is applied as soon as my honey crop is off the hives. At the end of 15 days, remove the first coaster and replace it with a new one. Fifteen days later, the second card is removed and replaced with Treatment No. 3.

NOTE: When the temperature is high we have seen some queens shut down egg-laying for up to four days. That causes a break in the

brood cycle.

No. 3: Grease Patty Formula

1. 4 Pounds of granulated sugar (sucrose)
2. 3 oz. corn or canola oil
3. 1½ Pounds of vegetable shortening (Crisco)
4. 1 Pound Honey
5. 5 Tablespoons (2.5 oz.). (Natural) Wintergreen Oil
6. ½ Pound mineralized salt (if available)

Do not exceed the 2.5 oz. Wintergreen oil in the recipe or you will start killing your bees.

APPLICATION METHOD: Apply about a 2½ oz. patty at edge of the brood nest in each rear corner of the brood chamber.

I like to apply this treatment a second time in the middle of October. This is smeared across the end bars and into the rabbet, and can remain in the hives until February in my area and during broodless periods. Wintergreen oil is effective against *Varroa* mites. It is our belief that we get a good *Varroa* kill with the wintergreen oil through the capped cells of the bee brood, too, as there is a great increase in housekeeping immediately after an application.

After you get the mites treated and under control, reflect on this system and do whatever it takes to keep your colonies expanding into Winter. Feed, feed, feed. Watch for pollen intake. If no Fall flow; more than sugar may be required. You may have to feed pollen or substitute, also. Remember, one cell of nectar, one cell of pollen and one cell of water = one bee. *Many* bees take care of themselves and do their (your) thing next year.

bottom board for a nuc. A secret ingredient is paint. (At least it seems to be a secret to a lot of beekeepers.) Everything is nicely painted. The part of the bottom board that goes inside the hive gets two coats of latex. It fills in

some of the crevices the SHB like to hide in. He showed me some hive bodies that had been in continuous use for 27 years. That was the last time he branded hives. He loves to trade and confided that he trades for the paint.

I think he'd rather trade honey for something even if it would be cheaper to buy it. After we got to be friends he agreed to let me call him "thrifty," because he spends money sparingly.

I think half his fun is in making things. Lately he has condescended to buying frames, though I did see quite a few he made. One out of red oak! We laughed at how heavy ten oak frames would make a hive. At 64 he doesn't need to worry about that because he's pretty husky and because he started wisely; he began with eight frame equipment. Since he makes nucs he also has a lot of five-frame stuff. And then there's the baby queen-mating nucs, all of wood. In fact I didn't see a piece of plastic on the place, in the two sleeps I was there. (He welcomed my RV in his driveway a second night). He starts pretty far back when he makes foundation, too.

I ramble. You want to know how to keep bees without using drugs. I think the first part is in loving the bees and being a good observer. Next is the use of essential oils. Then get some small cell foundation. After that, recycle the wax every two or three years. Then fog them with FGMO (food grade mineral oil.) This is Dons' recipe.

The real test is in watching how the bees respond to stress. Can you imagine anything that would stress a colony more than splitting and re-splitting it? Or the manipulations required in making queens?

Don has been doing this for many years, his hives are healthy and his customers are happy. He tells me that he has never advertised, though at peak he may have 300 hives to make his queens and nucs from. The word of mouth is that he has good bees.

He will ship a three or five frame nuc in a wooden box or as many queens as you are wise enough to order. I saw the boxes and I challenge you to throw one away. You'll find a use for it if you are like me. I suppose you want the specifics.

Don't use more than one oil at a time. Don't put oil in syrup. It floats and will be much too strong for the bees when they finish the last bit.

1. Use FGMO with Thymol weekly.

2. Insert a paper towel, wet with FGMO and Thymol in the top bars.

3. Eucalyptus oil: 30 drops in a quart of honey and spread it on the end bars in the Spring. Repeat a few times, the last one in June. Good for tracheal mites and SHB

4. Wintergreen oil: 60 to 65 drops in a quart of honey. Dilute with a cup of water and give the bees several table-spoons in the Spring. (Spearmint and peppermint were tried. Wintergreen is preferred.)

5. Patchouli oil: Use as a swarm lure.

6. Lemongrass oil: Swarm lure.

7. Tea tree oil: 25 to 30 drops in a quart of honey. Several spoonfuls per hive, two or three times in the Spring

You may say that these things are expensive. Don says, "So is Checkmite+ and Apistan."

Clean wax is not easy to come by. I'm talking wax that is pesticide free. I brought down six pounds of my best cappings wax (I think this is pesticide free, but I didn't test it. Maybe I should.). It took us a couple of hours, working steady, to turn that into about 40 sheets of beautiful deep foundation, embossed with small cells. I intend some of it for my queen mating nucs. I want to get back to some long lived queens. Most folks won't spend the \$700 or so to buy a foundation mill. Perhaps it would be a good investment for a club. What one could do is make sheets of wax and cut it into starter strips. That would get you started on the clean wax trail and save money besides. You do know, don't you, that they will draw it out faster? Try it, you'll like it.

I could go into more detail on foundation making but that's a story in itself.

Don is not trying to sell his system to anyone. He has a lot of respect for those who tout science. "I'm just a country boy," he says, with a glint in his eye. "I don't know what all these educated people know, I just know bees!" The anecdotal evidence is that he does. At another time he remarked, "All of my placebos must be doing something, look at the bees!"

I'm an old Yankee trader and Don loves to trade. We agreed via email that he would take some incidental equipment off my hands. We had talked about a price somewhere in the ether, but had settled nothing. Then, when I got there, the fun began. I thought I was sharp but walked back to my camper with a few jars of honey and my head spinning. A day later, when he'd let my defeat soak in overnight, he mentioned how many more queens he was going to send me. Then I felt like I was taking advantage of *him*.

You can write to him at Beekeeper4u2@wmconnect.com. Or try the website: <http://www.geocities.com/fat-beeman/> He'll be happy to talk about any beekeeping subject with you. Beware of that, "I'm just a country boy" routine. **BC**

Dick Marron is a retired psychologist living in a bee-yard in Connecticut.



Controlling *Varroa* With Hive Fumigation Techniques

An Industry Survey and Response

David VanderDussen & Joanne Szabo

Turning A Hive Into A Fumigation Chamber Is New Technology

New mite control products on the market, such as ApiGuard®, ApiLife Var, and Mite-AwayII™ Single Application Formic Acid Pads (MAII), all work by turning hives into fumigation chambers. For many beekeepers this is a new technology for mite control, and new technology can be difficult, as shown by the old expressions “better to deal with the devil you know than the one you don’t” and “you can lead a horse to water but you can’t make him drink.” This article is a look at how the transition is going.

Beekeeping Education

Beekeeping education generally takes place in the “family business” or mentorship context. Clubs and associations also provide a valuable arena for beekeepers to share beekeeping knowledge, bring in speakers, and conduct workshops. Textbooks, trade journals, and government hosted websites are also a good way to disseminate knowledge, but it all takes time.

March 31, 2006 marked the one year point in which U.S. beekeepers have had access to a fully registered, single application product, for treating both *Varroa* and tracheal mites. This product, MAII, uses formic acid vapor in a structured slow release formulation.

What has been the response?

One year is a good time frame to look at the industry’s response to a new technology. In order to find out what the response of the U.S. industry was to the introduction of MAII, NOD Apiary Products, developer and manufacturer of MAII, conducted an informal telephone survey of State

Apiarists, as follow up to a mail out of the educational video, “Working with Mite-AwayII™”. The results were very interesting.

Survey Results

All the lower 48 states were mailed the video (in DVD format) in the Fall of 2005. NOD was able to make telephone contact with 37 state officials (77 % of the 48 States) the following Winter. Of these, 72% said they received the DVD but only 38% took the 10 minutes to watch it.

Varroa Treatments In Use

Of the States that responded, Apistan®, CheckMite+™ and MAII respectively were the favored treatments. Illegal chemicals ranked fourth. (See list below). It was not uncommon to hear that beekeepers are using “anything and everything but the kitchen sink...”, “doing whatever they want...”, “treating with everything illegal under the sun,” perpetuating the impression that beekeepers are indeed resourceful and

frugal, but causing concern for regulatory officials. In one state the fine for illegal chemical use wasn’t a deterrent, but rather, just a cost of doing business. More than one comment described beekeepers as “running scared.” Not only about colony losses due to the mites, there was also a fear that testing their honey for residues could show some unpleasant results.

Tracheal Mites



There did not seem to be much concern over tracheal infestation and there has been minimal testing. However some state apiarists are now encouraging testing in order to understand an increase in unknown hive loss. One respondent felt that a tracheal infestation was "an Italian bee problem."

Control Product Options:

States planning to renew Section 18 for CheckMite+™ – yes 65%; no 8%; not sure 27%.

What are beekeepers doing to control Varroa and Tracheal mites in your area? In descending order:

Products in use:

Apistan®
CheckMite+™
Mite-AwayII™
Illegal (unknown Active Ingredients)
ApiLife Var™
Apiguard®
Amitraz®
Formic acid
Sucroside™
Oils & foggers
SMR & Russian Queens

IPM in use
Nothing

Formic acid, as an active ingredient, has a history of use in the U.S., leading to some misinformation and misunderstandings about MAII. For example, there was a feeling that MAII would not be effective in southern states that experience high humidity, even if temperatures were within the range set out in the label. From other comments it was clear that many did not know that the day time maximum temperature restriction was only for the first week of the three week treatment period. All respondents were pleased a registered formic acid product is now available.

Beekeepers Response

So what do the beekeepers themselves think of MAII? In Canada, MAII has been available since 2003. There has not been the desperate need for alternatives to Apistan® and CheckMite+™ in Canada, since widespread resistance has not occurred. However, some beekeepers have made the switch to avoid residue issues and treat tracheal mites, and have relied on MAII for four years. It is now the recommended *Varroa* and tracheal mite control product for the Province of Ontario for 2006.

Since its introduction, over 300,000 MAII pads have been sold, and, for a new product using an acid as a vaporizing active ingredient, complaints have been minimal. Most were about the requirement to use spacer rims and sticks, telling us we need to continue to do more research on delivery methods so they wouldn't be required. Nobody likes the additional equipment. The few calls received about damage to the colonies could be traced back to the beekeepers not reading and following the label. There were some artificially high expectations, where colonies were so far over the *Varroa* threshold at the time of application that MAII could not save them. Many beekeepers liked the ease of use and the single application. Most customers become repeat customers.

As with any new technology there is a learning curve. Turning the hive into an effective *Varroa* fumigation chamber is a new concept for many beekeepers, and the industry leaders they turn to for guidance. ApiGuard®, ApiLife Var, as well as MAII, are fumigation products, and oxalic acid vaporization may be available in the future. It is important for the beekeeping community to learn how to adopt and effectively use fumigation technology for mite control.

For more information on MAII go to www.miteaway.com or call 866-483-2929, on ApiLife Var go to www.brushymountainbeefarm.com or call 1-800-233-7929, on Apiguard® go to <http://www.beekeeping.com/vita/products/apiguard.htm>. **BC**

David VanderDussen runs NOD Apiary Products in Ontario, Canada.



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ATTIC Ventilation

In the Summer, hive cooling is the objective. In the Winter, the concern is metabolic moisture condensing overhead. In either season the inner cover is a key player in the desired results.

There is a list in my files of what are called "five-percenters." Those are considerations in hive management or design that make a small difference in a total honey production. They may contribute only one percent to total production potential, or they may well increase production more than 10 percent. Since there is no convenient way for me to assess the merits of each, they are lumped into the five percent general classification. Collectively, those small items could make a significant difference in your "bottom line." By attention to details when they are not a significant penalty in cost or time, the overall results increase honey production.

The "five percenters" are considerations that occupy an unnecessarily large percentage of workers in some unproductive activity. In this discussion, the diversion of workers to fanning and evacuation of air flow space are those not engaged in honey production. Beekeepers are accustomed to the bearding of bees off the landing board in hot weather, and generally consider that normal. It doesn't have to be. Those bees that evacuate to the beard out front are those making air flow paths through the comb for ventilation cooling. More fanners inside move the cooling air through those channels. Those fanners that you see on the landing board are a small percentage of the workers diverted to hive cooling.

It is interesting to me that at the be-

ginning of the main flow, landing board fanners appear automatically. That's the way they have dried honey for eons. Old habits are hard to break. When sufficient ventilation is provided, those fanners are no longer engaged in that chore. They soon learn that circulating air out the entry is not required. No fanners in sight, or maybe just a few hardheads, slow on the uptake.

So, what is sufficient ventilation? Glad you asked. To get maximum airflow up through the stack the overflow of warm air at the top should slightly exceed the entry incoming capacity. Warm air rise will do the job. The entry on my bottom boards is about 11 square inches. That means at least that much cross section must be provided at the top. A little more is better to accommodate air expansion when warmed and any intake leaks at the bottom.

The typical inner cover from suppliers doesn't come close to being adequate. Even those with a scooped out section in the edge will not permit enough flow to cool a Summer colony. The vent port in the center of most, sized for a bee escape, restricts air flow too much. The considerations are different in the Winter and Summer. In the Summer, hive cooling is the objective. In the Winter, the concern is metabolic moisture condensing overhead. In either season the inner cover is a key player in the desired results.

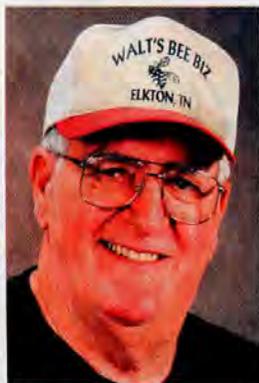
A too-small space between the panel and the hive cover invite other creatures to move in. Those vermin that are shorter or thinner than the patrolling honey bee are exempt from ejection. Roaches, earwigs, ants and the like are free to set up housekeeping. Note that roaches feed on decay-

ing wood. That's like living in a deli. The center panel of the inner cover only has to bow the slightest amount to cause the bees to seal the crack with propolis. With nine frames in the top box, the vent is directly over the center top-bar

For the above reasons, my inner covers are homemade. It is affectionately called the "attic. Half inch plywood is cut to outer box dimensions and a three quarter strip is added top and bottom. Nails are driven through the strips and clinched for extra rigidity. A four inch square opening is cut in the center of the panel such that the diagonal points of the square provide upward flow from the maximum number of frames below. This provides approximately 16 square inches of opening for upward air flow. It was done freestyle, with a circular saw, without measurement. (not recommended for neatness).

When daytime temperatures get into the 80s, the front of the cover is propped up with a cross stick. A 5/8" to 3/4" thick stick, cut to hive width, is placed about one third of the way from the front. The increasing side angle created, and the opening at the front will overflow warm air at the bottom board intake rate.

Note that this design is not suitable for Winter use, as shown, without help. The large opening directly above the cluster permits condensate, forming on the underside of the cover to drip on the cluster. The bees can handle cold, but they can't handle wet and cold. To use this model overwinter, the square vent port must be closed off and the assembly turned upside down. Newspaper can be layered both above and below the opening to good advantage. The newspaper adds insulation, and



any condensate can be absorbed by the paper. Note the notches, front and back, in the rim to vent moist air in the Winter is below the panel.

This approach is not as good as their natural residence, but is better than abusing your bees. In the tree cavity, where the insulation (live wood) is greatest at the top of the cavity, warm air is trapped there. It might even warm the live wood slightly, reducing overhead condensation. This is mostly speculation, but if the condensate formed on the sidewalls of the cavity, the water could be recycled in late Winter to thin honey. Man, in his infinite wisdom, provides the bees with less than suitable quarters, and vents the moisture overboard.

A few words of caution: Observation indicates that a hive can be *too well ventilated* in the Spring. The colony housed in a "hot box" can fill cells to the uncapping depth, extend cell depth, fill the deeper cells, and cap the product in a very short time. Although my bees don't do that as quickly, some areas of the country report completing a super in a week or so. That speed implies that nectar driers are very efficient and that there is an abundant corps of wax makers. It is reported that wax makers need a temperature of at least 100°F to secrete wax. If you set out to flush the hive with temps below that level, it would seem reasonable that you might handicap the wax makers.

In my management system, there is often four or five supers of uncapped honey/nectar early in the main flow. Wax workers are lagging the incoming nectar. In a couple seasons where capping supers seemed to be lagging excessively, some quality wax was added in the attic. Some of it was used, but of course it's difficult to say where it went. Even without the supplemental wax, the wax makers will eventually catch up with the need. By flow end, the honey will be capped. The bees are quite proficient at apportioning the work force to get the job done. Or, it might be that seasonal warming pushes the temperature toward the range of wax making requirements when ventilated with ambient air. You will need

to assess these considerations for your area. If you normally extract honey from completed supers, to recycle supers back on the hives in the same flow, it becomes more important. It may be necessary to increase ventilation air flow incrementally with ambient temperature warm-up.

The photos were taken on May 8, 2006. The main flow has been on for two weeks. There are several of their favorite sources available in the field, but it's been an unusually rainy flow, so far, and they haven't made much progress. There weren't as many processors in the attic as expected. Most were in the two empties of drawn comb below. As work progresses into those empties, more would move to the attic.

I take full responsibility for the poor quality of the photos. Photographer, I'm not. The point-and-shoot, "el cheapo" camera that stays in the truck for the random shot that maybe of interest, was used for these pictures. It has a minimum focus distance of 3.3 feet. That doesn't permit a close-up picture. When the excess countryside was cropped off, what was left is what you see.

The picture block is intended to show nectar processors collected in the attic and the lack of fanners at the entry. The upper left side of the block shows the cover upside-down between two hives. The inept photographer strikes again. Shadowed by the hive at the right, the bees collected on the underside of the cover are barely discernible. The spacer stick, propolized along its length on both sides came off with the cover. Sometimes, it stays with the attic.

At lower left of the picture block is the attic used for many years. In a strong flow, on a strong colony, the upper deck is often literally covered with nectar processors. They gather there to take advantage of the warm air overflow that helps in the drying of nectar. This picture is not representa-



tive of that situation. Time spent on the cover picture and finding a stable position for the step-up platform in rough terrain allowed most of the processors to retreat below. Not only inept but also slow.

A feature of the deeper upper deck not mentioned above is the accumulation of hive scrapings. When the attic is angled on removal such that corners jut out of removed boxes, a handy place is provided to wipe scrapings off the hive tool. The bees can retrieve any honey in the scraping, and you can harvest the residual wax accumulated when you want.

The right side of the photo block shows a fairly busy landing board. No fanners were seen. Most of the bees were coming and going, and only a couple of blurs are caught in flight.

I'm not proud of either the attic or the photos. But I did want to show a picture of the attic. If it's true that a picture is worth a thousand words, then even a lousy picture might have some value. If I were starting over in beekeeping, a Winter and a Summer model would be designed. Changed out with the seasons, they would be better than commercial models available for either season. If you have a flair for innovation, have a go at it. The design goal for the Summer model would be to get rid of the vent stick and provide enough air overflow. The design goals for the Winter model are a little tougher. It would be nice to collect condensate that is accessible to the bees for recycling. I personally resist boring holes in new boxes to vent the moisture overboard. Nobody bores holes in the tree hollow. I won't preempt your ingenuity by offering concepts that I have in mind. Your answer might be better. **BC**



BUILD THIS WINDOW MOUNTED OBSERVATION HIVE

Peter Sieling

Observation hives offer a window into the life of bees. You get a clearer picture of what is happening in your apiary – what pollen are they collecting, when a honey flow is on, or when it has stopped. Some people don't care for bees in their living room, even within glass walls. If you share living quarters with that sort of person, **an outdoor observation hive mounted in a window might be the solution.**

An exterior observation hive is a good idea for nature centers where employees might not have the knowledge and skill to handle the little crises that sometimes occur with observation hives, such as leaking bees. The colony need not be removed from the building for routine maintenance.

In this design one side looks just like the outside of a real beehive (that's what it's made from) while the other side hums with the secret mysteries of colony life. By adding holes for ventilation and a feeder, the hive can also be modified for indoor demonstrations.

Small observation hives are more difficult to maintain than larger colonies. It is particularly hard for a small colony to maintain the appropriate warmth where the temperature varies widely through the day. A two story, two frame wide hive provides the same space as a four frame nucleus hive, allowing better control for the bees and less maintenance for the beekeeper. Each story is self contained and it can be disassembled and manipulated like a regular small hive.

Preparation

One deep super provides enough material for a two story hive. The bottom board can be made from unassembled bottom board parts or from planed lumber. A table saw with a cross cutting and a dado blade will make all the necessary cuts. A drill for pilot holes prevents crack-



#1 Cutting sides to length.



#2 First cut on the rail tenon.



#3 Cutting tenon on rail.



#4 Line up blade with tenon to cut groove.



#5 End detail on top (left) and bottom (right) rails.

ing. If you own the tools needed to assemble a regular wooden hive, you have the tools you need for assembling this observation hive. Before starting, sharpen your saw blade. Make test cuts on scrap lumber to make sure the miter guide and fence are perfectly square.

Prepare the Super

Cross cut four pieces 4-5/8" wide from the shorter rabbetted super ends and discard the center. Lower the saw blade to cut a 3/8" deep kerf (photo 1). Set the fence 5/8" from the blade and saw a groove on the rabbet side on all four pieces. The glass should fit loosely into these grooves if you use a carbide tipped blade which is thicker than most steel blades. If not, nudge the fence toward the blade a few thousandths and re-cut the groove a little wider until the glass fits.

Milling Top and Bottom Rails

Each glass pane is framed on all four sides to protect the edges and make the hive easy to take apart. Start with four pieces cut to 5/8"x7/8"x19-1/8". The upper rail fits across the frame rabbets. The lower rail needs a tenon that fits into the saw kerf. You could skip the tenon and just nail it in place, but the joint will be less rigid,

weaker, and the resulting gap hiding under the box will bother a woodworker.

To mill the tenon, stack the dado cutters to make at least a 3/8" wide cut. To make four identical cuts quickly and accurately, clamp a block of scrap wood to the miter fence to allow a 3/8" notch. Raise the blade exactly 1/8". Notch both ends of both lower rails (photo 2). To prevent tear out where the blade exits the wood, put a piece of scrap wood behind the rail.

Raise the blade to just under 5/8" and notch the other side. Check the fit – the tenon should be too thick to fit into the groove into which the glass fits. Raise the dado blade a bit at a time, thinning the tenon until it fits into the groove (photo 3). Finish the other three rails.

Reinstall a regular saw blade and lower it to 1/8". Adjust the rip fence so the blade lines up with the tenon (photo 4 & 5). Rip a groove on both upper and lower rails. Assemble everything with the glass in place. If the glass pane is too wide, deepen the grooves until it fits.

#7 Parts cut and ready to assemble.



#8 Gluing the hive body.



#9 Squaring the hive body.

Gluing the Hive Bodies

Spread glue on the finger joints. Fasten with just enough nails to pull the joints tight. Make sure the joints are square. Allow the glue to set and then finish nailing. Glue the bottom rails in place. Pre-drill and nail one 4d x 1½" finishing nail in each end. The glass should slide in easily.

Fasten the top rail. There isn't that much side grain to side grain surface area to allow a strong glue joint so use 4dx 1½" nails as reinforcement.

Bottom Board

If you start with an unassembled commercial bottom board, you only need to shorten the end piece and make a floor to fit.

Drilling pilot holes on cover.



If starting with milled lumber, mill a dado ¾" wide by 3/8" deep in the side and end pieces. Using the dado blade, cut the end to fit into the dados on the side. Cut a floor board to size, assemble and nail with 6d x 2" nails.

Cover

Cut the pieces to size. The top can be butt jointed, but rabbetting the edges offers more strength and stability. Nail it all together.

Assembling the Hive

Fasten the lower hive body to the bottom board. Drill pilot holes straight through the bottom board rails,

Number	Part	Size	Notes	
1	Unassembled hive body	9 5/8"x16 1/4"x19 7/8"	Exact dimensions vary by manufacturers. Other parts may need to be sized accordingly	
1	Bottom board floor	3/4"x3 7/8"x21 5/8"	Pine, poplar or basswood are inexpensive, easy to work and commonly available.	
2	Bottom board sides	3/4"x2"x22"		
1	Bottom board end	3/4"x2"x3 7/8"		
1	Cover top	3/4"x5 1/2"x21 1/2"		
1	Cover side	3/4"x2"x21 1/2"		
2	Cover ends	3/4"x2"x4 3/4"		
1	Inner cover	4/3"x4 5/8"x19 7/8"		
2	Lower frame rails	5/8"x7/8"x19 1/8"		
2	Upper frame rails	5/8"x7/8"x19 1/8"		
2	Glass or Plexiglas	8 3/4"x19"		
2	Chest latches			
4	Screws	8x3"		For fastening bottom board to brood chamber
	Finishing nails	4D x 1 1/2"		
	Finishing nails	6D x 2"		

countersink from beneath and use 8x3" drywall screws. To hold the two boxes together, chest latches make it easy to move the hive without coming apart. Leave the inner (optional) and outer covers loose or for extra security, fasten them with drywall screws.

Mounting on a Window Sill

The window should be out of direct sun and at least 22" wide by 23" high, although the bottom board can be shortened to 20" and the height reduced by using a medium super. Because sills can vary in style and shape, there is no single way to mount a shelf. An empty hive weighs 17 lbs. Loaded with honey, it could weigh nearly 50 lbs. I used a 2x6, drywall screwed into the window frame. It's a good idea to fasten the hive to the shelf and/or fasten with picture hanging wire. In a public area post warning signs prominently. **BC**



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Further reading:

Webster, Thomas and Dewey Caron. Observation Hives: How to Set Up, Maintain and Use a Window to the World of Honey Bees ISBN 0-936028-12-2

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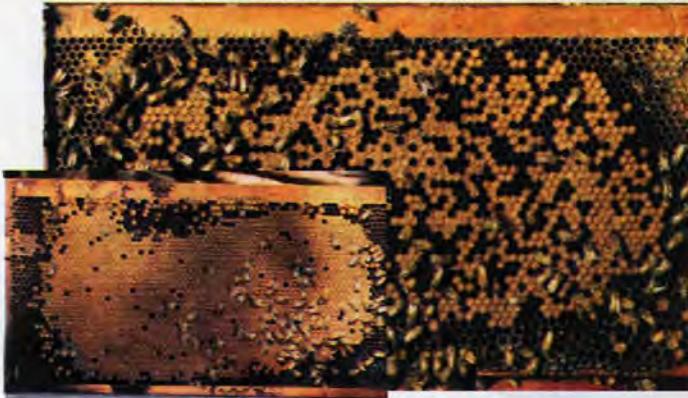
Nicholas Calderone

Your Colonies Should Be Strong, Healthy and Have Enough Room

In Ithaca (that's New York, not ancient Greece), August is one of the most important times of the year on our beekeeping calendar. The early and mid-Summer nectar flows are over, and Fall is just around the corner. Japanese knotweed starts to bloom during the last half of August, while goldenrod is pretty much over by the last week of September. Technically, these are still Summer flows, but we call them our Fall flows since they come at the end of our season when it is usually getting rather chilly out. August is important because the management steps we take at this time determine the size of our Fall crop and the ability of our bees to successfully Winter.

A successful Fall depends on our colonies being strong and healthy when the flows begin. In addition, they must have adequate space for rearing brood and storing honey. Consequently, the August inspection is one of our two major inspections. We try to combine this inspection with the harvesting of our Summer honey. We leave the colonies in three deeps so that there is adequate room for the bees, and we inspect before returning the honey supers for Fall. During our inspections, we evaluate 1) the age and quality of the queen, 2) disease status, 3) *Varroa* levels, 4) brood nest organization (especially honey-bound situations), and 5) space for rearing brood and storing honey. We also make sure our bear fences are working

Fig. 1a - Spotty brood pattern (**1b** - inset, good brood pattern).



and that skunk guards are in place where needed.

The Queen: Successful beekeeping begins with a good queen. If she is in her second year, we requeen (see BOX) with one of the selected stocks advertised as SMR, Hygienic or Russian; or, we purchase queens from a local queen producer with good stock. We also requeen if the brood pattern is spotty [Fig. 1a] or whenever we see evidence that a queen is becoming a drone layer [Fig. 2]. Many things affect the brood pattern; so, we don't judge a queen on a single comb; instead, we look at all of the brood combs. We are looking for evidence that she can be a good performer when given the opportunity. By looking at all the brood combs, we get a good feel for her quality. A couple of spotty combs is not a problem, but the overall pattern must be solid.

Disease: This is the time of year that we make our second thorough inspection for American foulbrood (the first being in the second half of April about three weeks before adding supers). While evaluating the quality of the queen, we look for signs of brood disease, including abnormal or discolored larvae [Fig. 3a] and spotty or punctured brood cappings [Fig. 3b]. If we find AFB [Fig. 4], we destroy the colony and burn up the bees, honey and equipment. If the hive bodies are in good shape, we save those, but we sterilize them before reusing. We like to inspect for AFB at this time because there is a lot of brood present in both brood chambers, and that allows us to make a thorough inspection. Fortunately, we have not had to destroy any colonies for a number of years. If you use TM (Terramycin®) as a prophylactic treatment. DO NOT apply it at this time because that would result in antibiotic residues in your fall honey and violate the product's label. Apply TM only after removing your Fall crop.

The FDA approved Tylan for treatment of AFB. However, the current label only permits treatment of active cases of AFB. Tylan, like Terramycin, WILL NOT cure AFB. So, if you elect to treat active AFB with Tylan you are likely to find AFB throughout your entire operation and end up having to treat all your hives with Tylan on a regular basis to keep the disease under control. This will greatly increase the chance of antibiotic residues in your honey. I am seeking clarification on this issue from FDA. At this time, I do not recommend using Tylan to treat active cases of AFB.

Fig. 2 Drone layer.

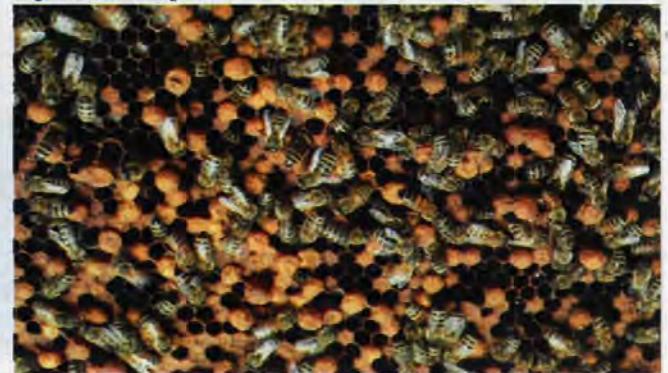




Fig. 3a Discolored larva.



Fig. 3b Punctured capping.



Fig. 4 AFB

Mites – Fall Collapse: Mid-August to late September is usually the time when *Varroa* populations are surging, and many colonies are lost or suffer irreparable damage during the Fall flow when it is illegal to apply most chemical treatments (while honey supers are on the colony). A colony may survive until the end of the Fall flow and beyond, but that does not mean that it is healthy. Mite damage is insidious, and infected colonies often dwindle and die well after the fall flow, even if treated with an effective miticide. The reason is that the mites have damaged the worker bees during a critical time in the colony's life-cycle; and even though an effective Fall treatment may kill the mites, the colony does not have enough time to produce the two or three additional cycles of healthy brood needed to carry it through the Winter. To prevent Fall-collapse, you need to check your mite levels in mid-August and be ready to treat if needed. The use of drone comb traps will greatly reduce the chances of Fall collapse.

We use the ether roll to estimate mite levels. We collect about 250 bees from the brood nest (don't kill the queen), pour them into a one quart, wide-mouth glass jar, spray them with a two to three second burst of starting fluid, cap the jar, shake it vigorously for 10 seconds, and then toss and roll it three times along the long axis. The ether roll count is the number of mites sticking to the inside of the jar [Fig. 5]. If the count is four or more, or if we see any signs of parasitic mite syndrome (deformed wings, atypical brood disease, workers crawling at the entrance unable to fly, or lots of adult mites on adult workers), we remove all honey supers and treat with a miticide. If we fail to treat colonies with these symptoms at this time, the ether roll count will be approaching 20+ by the end of the flow, and that is dangerous territory.

The Fall crop from colonies treated in August cannot be used for human consumption if the honey supers

are left on. However, for every colony that needs to be treated, we remove both the crop and Winter stores from an *untreated* colony at the end of the flow, and use the crop from the *treated* colony (if the supers were left on) as feed for the untreated colony. That way, we do not actually lose any honey.

Honey-bound: Occasionally, colonies will fill up some or all of the combs in the upper brood chamber with honey [Fig. 6]. If this happens, the workers may not move up into the honey supers during the flow; instead, they will pack the rest of the brood nest with honey, right down to the bottom board. This prevents the queen from laying eggs, and the colony soon starts to decline because it is deprived of the young workers it needs to replace dying foragers and survive the Winter. As you inspect the brood nest for queen quality and disease, be sure to check for brood combs with capped honey along the top. You can place a couple of these in the outside positions of the first story. If necessary, you can move them to the outside positions in the third story, but be sure that you do not raise any eggs or young larvae above an excluder or the colony may rear another queen.

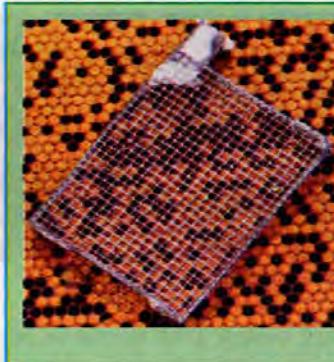
Strength: We divide colonies into three groups at this time. In the first group are those that boil out of two or three deeps and have the equivalent of a deep box of healthy brood. These are ready for Fall. In the second group are those that fill one to two deeps with bees and have a bit less brood. These colonies will need a boost to maximize honey production. We could let them build up on the Fall flow, but we will not get as large a crop. The third group includes those colonies filling less than a deep with bees and brood. These are combined with a colony in the first or second group to make a strong three story colony (before supering). Before you combine a weak colony with a strong colony, be sure to determine why it

Fig. 5 Mites on jar side.



Fig. 6 Honey bound.





There are many ways to requeen. Try the candy-tube push-in cage [Fig. 7]. You can make one from a 5" x 6" piece of 1/8" hardware cloth, about one inch of 3/8" soft-copper tubing and 20 minutes of your time. The hardware cloth is cut, folded and soldered at the corners, and two or three rows of wire are removed so it can be inserted into a comb. Pack the tube with queen cage candy, place the queen on a comb with some emerging brood and empty cells, and cover her with the cage. Be sure there are no adult workers under the cage with the queen, and be sure to orient the cage with the candy tube pointing upwards at a 45° angle. Check in 7-10 days.

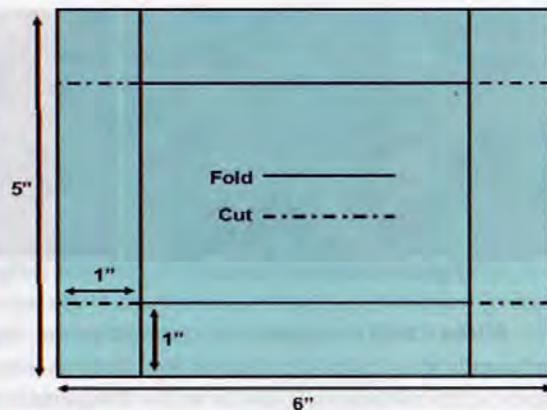


Fig. 8 Template for candy-tube push-in cage made from 1/8" hardware cloth.

is weak. If it is heavily infected with mites or chalkbrood, do not use it. It will only hurt the stronger colony with which you combine it. Of course, if it has AFB, you need to destroy it. However, if the weakness is the result of a poor queen or having been honey-bound, remove the queen, remedy the honey-bound situation, and combine it with a strong colony.

Room: The Fall flow is usually heavy in Ithaca, and colonies must have enough empty space to process and store upwards of 100 pounds of honey. They must also have plenty of room for rearing brood during the flow. So, we need to make sure that our colonies have enough room to do both. Just how many supers you need to add depends on your location, but in Ithaca, a strong three-story colony (with only a few combs of honey) will need another deep or a couple of mediums. We use queen excluders during the first part of the season, but we remove them for the Fall flow.

Checklist: If you have addressed each of the above conditions, your colonies should be well-prepared for the Fall flow. They will be strong with young, vigorous queens, free of disease and damaging levels of mites, and they will

have plenty of room for rearing brood and storing honey. You may want to check them for room during the flow, but restrict any inspecting to the honey supers.

After the flow: If everything goes well, you will return to your colonies at the end of the Fall flow to find that they have filled up all of the hive bodies – except the bottom brood chamber – with capped honey. The bottom brood chamber will be filled with plenty of brood and maybe a couple of combs of honey. The colony will be strong – boiling out of two deeps after removing the crop – with lots of young bees. A colony in this condition needs very little attention to prepare it for Winter. If it comes up a little short on stores, you can feed to bring it up to weight. If you find a colony plugged with honey right down to the bottom board, you did not add enough supers. On the other hand, if you find that there is little or no honey stored in the second story, and, instead, it is spread throughout the supers, you added too much room. Experience is the best teacher. **BC**

Nick Calderone is the Extension Apiculturist at Cornell University, Ithaca, NY and a frequent contributor to these pages.

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Culinary Tourism

Use Your Imagination, And Their Good Ideas,
To Sell More Than Honey.

Andrew Dobson

There is a new word “buzzing” around the travel and tourism industry these days. Culinary Tourism is taking the world by storm, literally, as more and more seasoned travelers seek to get more out of their vacation than just “a beach and piña colada adventure”. Baby boomers are emerging as a significant source of travel dollars and their ever growing interest in exploring new food and drink have made tourism operators and hospitality stakeholders take notice. The concept of Culinary Tourism sheds light on the excellent opportunities available to honey producers, local tour operators and food and beverage enthusiasts alike. Several stakeholders have already started to take advantage of Honey Tourism in Canada, New Zealand and Australia. The following discussion seeks to encourage honey producers to take advantage of Culinary Tourism practices in order to attain competitive advantage in the marketplace.

What is Culinary Tourism and how does it differ from Agritourism? The International Culinary Tourism Association explains that these interrelated industries are in fact independent in purpose. Agritourism is focused predominantly on “rural and often technical experience that focuses specifically on agriculture with benefits to the farmer.” Conversely, Culinary Tourism focuses on the needs of the consumer first with an emphasis on the expression of local culture. Both of these terms can be rather confusing but must be seen within their context. Agritourism focuses on the rural production of raw foodstuffs and Culinary Tourism focuses on the history, production, consumption and purchase of branded regional food and beverage products.

Who are Culinary Tourists and why do we care? Elena Ignatov from the University of Waterloo in Canada, found that “females were more likely than males to be involved in food or wine activities.” Most of these travelers are between the ages of 26 and 55, tend to have a university education and an above average income level. The Culinary Tourist is a mindset and way of life rather than an expression of short term “holiday” interest. These “foodies” tend to indulge in fine food and drink on a daily basis and consider these interests as a fundamental part of who they are. Culinary Tourism practices, when implemented properly give food and beverage producers a competitive advantage in the marketplace as consumers are drawn to the integrated “experience and product” rather than just the product on the shelf.

A defining attribute of Culinary Tourism and its success is its inherent “sense of place.” Tourists want to discover a new culture in all of its wonderment through

Gourmet Honey

Cooking

Robert Roeshman
William Mondjack

If one were to try to imagine how you could combine a Spring Culinary event with Beekeeping and the ancient art of Mead making you might be hard pressed to come up with an idea. However, for this year’s second annual Lehigh Valley Honey Tasting event things once again could not have come together any better than they did. It was as if we were blessed by St. Ambrose, the Patron Saint of Beekeeping. But it certainly was not a feat that was accomplished single handedly, many individuals assisted in organizing this wonderful dinner.

The location was the historic Cab Frye’s Tavern, (owned by Chef Ed Galgon Jr.) located in Palm, Pennsylvania, surrounded by picturesque farm country, but close to Philadelphia, Allentown and Reading. Using a list of patrons who attended last year’s dinner, Captain Fred Parks, the inspiration and founder of this event, mailed postcards in early Spring (before his untimely death in March of this year) announcing this year’s event. This began to pique everyone’s curiosity which attracted return customers. However, it was Diane Stoneback, senior food editor of the Morning Call, who can be credited with the sell-out status. We had accommodations for 76 guests, which we filled within a few days of Diane’s feature article and the phone kept ringing. We maintained a waiting list of 20 eager “patrons to be” just in case of a cancellation. Her story complemented not only our upcoming honey tasting event but also beekeeping in general, honey bee facts from The National Honey Board and a wide variety of honey uses.

Jeff Barndt, Vice President of the Lehigh Valley Beekeepers Assoc. displayed and explained the workings of an observation hive. Bill Mondjack, EAS Master Beekeeper and past president of the Lehigh Valley Bee-



Robert Roeshman, left, &
Bill Mondjack

keepers Assoc. spoke about honey judging and guided the patrons on how to rate our three highlighted honeys of the day...Black Locust, Japanese Knotweed and Summer Wildflower. Jim Bobb, President of the Pennsylvania State Beekeepers Assoc. discussed the plants from which the bees forage to create these unique honeys. Greg Fink, our local mead maker produces a variety of different kinds, which we feel none even on a national level

song, dance, food, history and language. The concept of place can be seen in the following example: *A couple from Berlin, Germany take their first trip to Spain. While in Madrid they spend the night watching Flamenco dancers, as they sample an assortment of freshly made tapas and sip on sangria. The background chatter of local Spaniards, the smell of fresh Spanish cuisine and the sound of "the flamenco" make this couple's evening a Culinary Tourism experience.* This meal could be recreated when they return home to Berlin but the experience of using all five of your senses and truly experiencing food and beverage in its cultural context makes this couples experience a unique one.

Canadian Ice Wine is a prime example of a branded regional food product that international tourists have on their must purchase list. The Culinary Tourist takes great pleasure in the purchase of regional food and beverage products as they can return home to friends and family and share their experiences in a verbal and physical way. Similarly, Canadian Maple Syrup can be found across the country at souvenir shops, even though over 80% of Canadian Maple Syrup is harvested in Quebec alone. Clearly the demand for Maple Syrup across the country by locals and tourists alike can be attributed to its historical significance, cultural impact and association with the nations flag appearing between two red stripes, the maple leaf.

How are honey stakeholders using the concept of Culinary Tourism to their advantage? Australia, New Zealand and Canada are the worlds leading experts in the Culinary Tourism industry and have integrated their regional honey products in a successful and meaningful way.

The West Coast Australian Tourism website provides excellent resources to Culinary Tourists with a specific interest in honey products. The West Coast Honey company is located in a "tranquil rural setting of Blue Gums and Banksia bushland ~ *Heaven from a Hive.*" The company offers tourists the chance to observe the process of honey extraction from behind glass viewing windows with the guidance and expertise of trained beekeepers. Beekeeping guides also provide different varieties of fresh natural honey from Western Australia's State forests. These regional honey products are available for free tastings, along with honeycomb and pollen. The company also allows visitors to purchase fresh honey from the hive along with other gifts and souvenirs with bee related themes. A café is also available on premises with a wide variety of honey related items such as honey ice cream. West Coast Honey specifies on their site that they can accommodate bus tour groups, school groups and the individual traveler. This is an excellent example of how a privately run honey business uses Culinary Tourism principles to differentiate itself from the competition. A unique tourist experience has been offered that focuses on interactive learning and regionally branded honey products and souvenirs available for purchase.

New Zealand has also proven to be an innovative player in the food and beverage travel industry. The Arataki Honey and Visitor Education Center in Hawkes Bay New Zealand lies in the countries northern wine region. The company was formed in 1944 and is one of the largest beekeeping enterprises in the Southern Hemisphere. The Arataki Honey company provides valuable information on their website to interested Culinary Tourists. They provide an "innovative self-paced learning experience for children of any age, as well as those big kids." The owners of Arataki Honey have done an excellent job of focusing on the five senses as a way to ensure visitors that they will have a sense of place and interact during their experience:

can be compared to, having sampled all of them myself (although I may be a bit prejudiced). Professor Dr. Bob Berthold, from Delaware Valley College in Doylestown, PA pleasantly surprised us with his presence. Bob announced his beekeeping short course at DE Valley College and entertained the guests between courses with some humorous stories of being a beekeeper.

Then of course, the food - what a gastronomical delight! Chef Galgon outdid himself with creativity and ingenuity using honeys in every course. We started with an assortment of fruits, vegetables and nibbles (a variety

Nut encrusted Brie, rolled in Cactus Honey. (Mondjack photo)



The Entrée, Chicken, Kobi Beef and Asian bass with a Chipotle honey sauce. (Mondjack photo)



Wildflower honey vanilla ice cream with fresh fruit. (Mondjack photo)

of cheeses & cubes of country ham) with honey and/or honey mustard dip, which were attacked with a passion. Spectacular!

At the outdoor bar there was an interesting surprise for the adventurous, fresh melon balls infused and marinated in mead for specialty martinis along with an assortment of honey prepared cocktails. After the outdoor social we ventured into the dining area where the feast began. This was conducted by Chef Galgon's expert,

Visitors can look at honey bees under a microscope and smell various scents of honey/wax/propolis. Feel the warmth the bees generate to keep the colony thermally regulated. Watch the worker bees take care of their Queen and Drones in the Giant Bee Hive. Taste nine different flavours of honey the bees produce.

The site also describes in detail the various regional honey products only found in this area of the world such as; Manuka, Rewarewa, Kamahi and Tawari. They emphasize that Arataki Honey has a taste to suit every pallet. Arataki Honey has also effectively marketed their honey for purchase in a gift shop in the form of raw honey, body care items, health products, toys, clothing and bee and honey education resources. The website also provides easily accessible contact information, opening hours and easy to read map.

New Zealand also has a bee website with a great wealth of information including recipes, new honey products and an online ordering option. There are several links that provide excellent Culinary Tourism examples incorporating honey experiences such as Coast to Coast Tours which offer several tours depending on your budget. The tour includes cultural experiences such as visits to a premier local craft shop, wine tasting, honey tasting at Auckland's newest honey centre, lunch at a local farm and a hands-on experience feeding New Zealand's infamous sheep. New Zealand is a cutting edge destination for Culinary and Cultural Tourism experiences. Stakeholders involved in tourism and honey have worked together in an exemplary way to provide a unique and branded honey experience.

The Canadian company "Musee de l'abeille" or Honey Economuseum, is an award winning education center that allows visitors to discover the fascinating history between man and bee. The centre teaches visitors how beekeeping has evolved over time and offers a "Bee Safari" to groups accompanied by a trained beekeeper. This museum is located in the province of Quebec and offers similar amenities as our previous two examples did, such as gift shop and online honey ordering (excellent for international tourists who want to continue to enjoy the product when they are back home). The Marketplace acts as this museums unique and diverse honey product showcase. A choice of quality: honey varieties, royal jelly, pollen, propolis, honey candies, beeswax candles, beauty products and souvenirs are available. Unique to this Canadian location is the offering of Mead. The Bee Museum produces seven types of mead from dry to sweet which can be tasted on premise and purchased to take home. This Bee Museum provides another unique Culinary Tourism experience as they specialize in the education of honey history, selling their honey products and offer online methods of payment for those traveling who want to continue to enjoy this "Canadian product" when they return home.

Members of the honey industry as well as local tourism operators are creating a competitive advantage for their products by refusing to simply sell honey "off the shelf". Through innovative and creative business plans honey producers such as those in Australia, New Zealand and Canada are encouraging tourists to experience the unique differences their national and regional products have to offer. There is great hope that honey producers across the world will differentiate their honey offerings much like the previous examples, by recognizing that there is an increasing demand for unique food and beverage experiences. Fads come and go, however honey products have proven themselves to be a promising business strategy in the ever growing Culinary Tourism experience. **BC**



Jim Bobb, Pennsylvania State Beekeepers President discusses the floral sources of the honeys used. (Mondjack photo)

polished and solicitous staff. The first course to tempt our palates was "Nut Encrusted Brie" rolled in Cactus Honey. Quite a treat. This was followed by a salad of "Baby field greens" dressed with "Buckwheat Sage Dressing."

We then had an opportunity to cleanse our palates with a wonderful sorbet (prepared with a mixed varietal honey) of pineapple and coconut, the flavor of which was reminiscent of a cool refreshing virgin pina collata. Our entrée was a masterpiece and a tasting which featured a trio of Chicken, Kobi Beef and Asian Bass with a "Chipotle Honey Sauce." Between des-

ert which was a homemade "wildflower honey vanilla ice cream" with fresh fruit in a thin crusted pastry cup we sampled Greg Fink's wonderful sweet apple mead, which was very smooth, meant to be sipped and complement a desert or the end of a meal. Dr. Robert Roeshman, a Master Beekeeper himself and one of the founders and co-conspirators of this event as well, announced the creation of a scholarship fund in the name of Fred Parks who was the inspiration of this event which will be dedicated to Beekeeping and the Culinary arts, two of Fred's passions as well. Initially, this will be funded by the proceeds of the event, by a contribution from Chef Galgon and from donations.

The evening was deemed a success by one and all. Everyone is already looking forward to our "Lehigh Valley Honey Tasting" next year, with the theme being International Honeys.

Hope to see you next year! **BC**

Robert M. Roeshman and William Mondjack, EAS Master Beekeepers eat well and keep bees in Eastern Pennsylvania.



His bees and queens are subjected to the harshest and most rigorous pressure with the intent of eliminating all but the best.

John J. Roberts

Above, the Purvis Bros. Crew – Alex, Jack, Dann, Matt

Shortly after my retirement from a career lasting over 35 years in small grain breeding and pathology we moved to the North Georgia mountains. We had intended to tour the Country in our new motor home but were so enamored of the area we decided to spend all but the coldest months there, escaping briefly to the warm South. I noticed that we had lots of honey bees in the Trackrock area in Union County and became curious enough to see why. I learned that we had a neighbor who I was told was a beekeeper. That piqued my curiosity so I managed to meet Dann Purvis and have since come to learn that in addition to being a beekeeper, he has a very active program engaged in developing improved lines of queen bees. Since my career had involved developing insect and disease resistant small grain varieties, I was very interested in the approach used in this type of effort.

I soon learned from Dann that the beekeeping in-



Queen cells ready for inspection.

dustry in the United States is undergoing a crisis due to catastrophic reductions in honey bee populations caused primarily by two introduced pests, Tracheal and *Varroa* mites. These pests, like most introduced pests, arrived on our shores without the natural controls that had evolved with them in their homelands. Hence, they were able to rapidly multiply in their new environment without being checked by any natural enemies. These effective pests not only severely reduced commercial colonies, but they also have nearly eliminated the highly important feral colonies throughout most of the United States. Many beekeepers have to use chemical means to control these and other pests and pathogens but there are always downsides to pesticide use such as wax and product contamination as well as general environmental concerns.

Starting in 1997 Purvis Brothers Apiaries launched a vigorous program to find a better way to deal with the problem and offer a new means to thwart the alien pests. Dann has collected and maintains a large gene pool featuring many sources of resistance and tolerance to the major diseases and pests of honey bees as well as sources providing general survival and production advantages. He and his sons subject his bee populations and queens to the harshest and most rigorous pressure from these pests with the intent to eliminate all but the best each generation. His goal is to have only a small percentage survive each season and then evaluate these for productivity, again only saving the best for reintroduction to his gene pool. In nine years his program has managed to



Dann Purvis inspecting queen cells.



A custom-designed queen cell rack.

dramatically improve the survival of his bees under the most severe selection conditions and Purvis Brothers now supplies superior queens genetically equipped to survive under the most intense infestations of mites, beetles, diseases and rigorous weather conditions. These queens are a composite which contain the best concentration of genes from many different types of bees so they are not Russian, Italian, or any other specific type, but are uniquely Purvis Brothers Goldline Queens.

These queens, through this innovative breeding technique, possess the very best array of genes for resisting and tolerating those pests most responsible for the drastic reduction in the number of bee colonies in the United States during the last 15 years. This accelerated evolution program offers those who use his queens an effective means to produce more and better bee products without the need to use chemicals to control pests. This has obvious positive results and is appealing to those that have seen chemical contamination essentially ruin hives after just a few years of use. The queens feature an interesting means of coping with the dangerous *Varroa* mite. Rather than resisting the mite, these queens provide a hive full of bees that live in relative harmony with the mites, and are highly productive in spite of what would appear to be a performance-limiting infestation level. Genes for actual resistance have a major down side, in that the chance mutation capable of overcoming those genes is rapidly multiplied in the pest population quickly rendering the resistance useless. There is no selective advantage gained by the pest if it can manage to overcome the quasi-synergistic tolerance mechanism; hence, it has proven, long lasting effectiveness. The Purvis Brothers Queens put no selection pressure on the mite population and since there is no need for chemical pesticides, pesticide resistant forms are not favored and selected, nor is there any hive contamination due to chemical residues. This also leads to purer honey and bee products.

I am impressed with the similarities between the Purvis Brothers program and the small grain improvement programs I was part of at Purdue University and The University of Georgia. In both programs germplasm having desirable characteristics was collected and evaluated with

the best sources of disease and insect resistance selected for parents. These pests included the very damaging rusts, leaf, stem and stripe, viruses and the Hessian fly and the Cereal Leaf Beetle. The best of these for resistance and tolerance were hybridized with adapted lines, subjected to artificially-induced severe epidemics or infestations of the important production-limiting pathogens and insect pests. Selection of survivors then created an improved germplasm pool to which were added new gene sources for further cycles of crossing, pest screening and performance evaluation. The same types of relationships existed in that the pests mutated and overcame resistances forcing discovery and subsequent introduction of new resistances. With wheat rust, the tolerance mechanism also was much longer lasting for the same reason it works so well with mites.

The two small grain programs, in cooperation with the USDA-ARS produced many highly improved small grain cultivars responsible for major increases in productivity. It is evident that the similar breeding philosophy employed by Purvis Brothers offers a very significant method to replace critically needed honey bee colonies and help provide the pollination capacity needed to sustain a productive agribusiness industry and at the same time reestablish the feral colonies that are so essential to our natural environment. **RC**

John Roberts is retired from the USDA-ARS as a Research Plant Pathologist. He has degrees in Plant Pathology, Plant Breeding and Genetics, all from Purdue University.

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When Does An \$18 Queen Become A \$64 Tomato

An \$18 dead queen.



During the past few months, quite a bit of discussion has been given to a book that is making the rounds about the true cost of gardening. The title says it all. The author reported that, when all costs were considered, he had invested large amounts – hence the \$64 tomato¹ – into the vegetables his garden produced. On one of the radio reviews I heard he clearly stated that even with the increased cost he still planned to garden, so I didn't sense that this was a vendetta against gardening.

But consider this, "What can I truly grow or build cheaper than what I could buy commercially?" As for my woodworking, do any of you think that I have saved a cent by building the various pieces I have produced? No, my costs are wildly higher than what I could buy, ready-made, at the highest retail price. I dare not try to be an auto mechanic any more ergo a service technician is required. Now that my daughters have moved from home, I'm not sure that my wife and I can cook at home any less expensively than we could eat out at every meal. So, when does an \$18 queen become a \$64 tomato?

I have been spending the now-past cold, rainy Spring of 2006 installing packages, making splits and hiving a few swarms. I would like to review some of the events and feelings I have experienced during the past few months.

Maybe I have grown older

I am presently 57¾ years old. As have all of us, I continue to acquire memories – memories that my family



James E. Tew

generally finds boring. I paid \$5,800 for a brand new 1972 Buick Gran Sport – loaded. Within a few years, a present-day new car will nearly cost what I paid for my house in the early 1980s. But my favorite memory is that of 10¢ buying a short Coke and a box of Cracker Jacks, a reward for riding with my Grand Dad to the feed mill. As could you, I could go on and on, but how does this relate to bees?

In 1975, a queen cost \$5.50 - \$6.00. There was the occasional \$4.00 bargain advertised in the trade magazines. During those years, a three-pound package, with a queen, cost between \$18.00 and \$23.00. These prices were not really cheap even then. But this year's prices that I just paid – \$18 for a queen and \$63.00 for a three-pound



A standard queen cage in position. Note burr comb.



Pieces of burr comb filling queen cage space.



While better than wood cages, plastic cages are not perfect.

package – truly rattled me, even considering inflation.

What I was feeling as I worked with this season's queens and packages was a sense that the penalty for screwing up had very nearly crossed an economic line. Combine that feeling with the fact that (apparently) the selling price of an established, standard hive has not gone up comparably (but I admit that I did not perform a comprehensive review of the present selling price of hives).

To these comments, I must add that queen and package availability – at any price – is increasingly an issue. Hypocritical though it may be, I didn't complain about the prices (it wouldn't have helped anyway) because I was glad to get the packages and queens. It is not as though any of us can turn to cheaper producers. There are none.

Before the hate mail starts

I know that production costs – especially labor – have gone up. I can't think of any aspect of queen and bee production that has dropped. Even in my own little operation of about 70 colonies, I am cutting labor costs at every opportunity. Then we, as customers, must be considered in the price mix. We can do really *dumb* things with live bees. For a very brief time in my early career, I produced queens for sale from Ohio State. I can recall having to send three and four queens to the occasional customer before they finally got one to take. Of course, it was never anything they were doing wrong. So yes, I realize that the present-day costs are not out of line with present-day expenses, but that does not mean that I am any less rattled.

Queens

Introduction

In recent years I have frequently said, and I have heard other speakers frequently say, "Just leave the queens in the cage longer. Give the bees longer to accept the new queen." Okay, that's a good idea if not plain common sense.

But how and where to leave the queen in longer? Every one of us who has been keeping bees for longer than ten years has about 20 of the three-hole queen cages

cluttering our work area. Yeah, you know the ones – the ones that you must take out a frame to make room to put the queen cage in the colony. Then there are all the stipulations: put the candy plug down, put the candy plug up, face the screen out so nurse bees can feed the queen, and certainly remove the attendant bees before putting the cage anywhere within the colony. This marginal cage design and the requisite recommendations



Stackable wooden queen cages.

made a bit more sense before queens went to \$18 on their way to an even \$20.

This is an example of what can happen in the field. First of all, it's cool and raining. The bees are cranky. The bees have been exposed to the queen for nearly five days. I didn't remove the attendant bees because the queen was traumatized enough already without me gouging around trying to get dead workers out – never mind putting new workers in. This bug is pricy and difficult to replace if I do something wrong, so I eliminated some recommended steps. Where to put the cage? The extra frame was left sitting outside, in the rain. The disrupted bee space between frames has now been filled with pieces of burr comb that I have to remove before putting the last frame back in. That was a bee-energy waste.

Do I thumbtack the cage in place with a piece of frame wire? The cage didn't come with tacks or nails or anything else useful for suspending the cage in the colony. Maybe lay the cage on top of the frames and turn the inner cover

over to adjust for the increased height. Then I lie awake on cool nights wondering if the bees are covering the cage enough to keep the pricy queen warm. At the very least, why not have inner cover hand holes large enough to lay the queen cage in that slot? The plastic cages that are becoming more common are an improvement, but still make little preparation for suspending within the colony, but at least they fit into the hand slot.

I have written articles on special top bars that allow space for queen introduction, but that is just one more piece of equipment – just another good idea that even I don't employ. Simply stated, *there is no good place to leave a queen cage in the colony that will not disrupt bee space.* Leaving the queen in the cage longer means increased burr comb and risk of the queen becoming either chilled or ignored while trapped in the cage.

Releasing queens from cages

If I were taken from my home, forcibly placed in a cage, sent across multiple states, and held in the cage surrounded by strangers until weeks have passed, I feel that I would be ecstatic upon release from that prison. Yet queens can be remarkably reticent about leaving the cage. Figuratively, I need you to once again be in the field on a day that queens are to be released. I no longer expose the candy plug but physically open the cage to release the queens. Observing the demeanor of the bees clinging to the cage is important. If these bees are aggressive and are showing a sting response, that is exactly the same response they will give the released queen. If the queen is immediately treated rudely or aggressively, I put her back into the cage – a reckless process at best.

Queen behavior upon release is frequently nerve-racking. I would guess that 30% of the time the released queen tries to run up the cage away from the combs. Worse yet, sometimes she frantically tries to fly. Nothing like watching \$18 fly away. Should they not want to depart the cage, neither wood nor plastic cages have a good way to entice queens to leave the cage in a downward direction. Shaking the queen out is a temping, but obviously bad idea.

Requeen every year

Ideally, requeen every year, but at least requeen every two years. How many times have I said it and how many times have you heard that statement? I suppose, for the most part, it's still good advice, but at what selling price do I begin to reconsider the dictum?

Though there have been rumors of impending devices, in the last 100+ years, beekeeping has not had a single major improvement in queen-finding techniques. We find queens the way we always have – we rip into a colony and “hunt” for the queen. So the present recommendation is to dissect a colony to the extent that the old queen is found and killed – even though the colony was healthy

and thriving. Then, a new and relatively expensive queen is introduced having only the single guaranteed attribute of youthfulness. You get no guarantees of anything else. At this point, please refer to my points above.....leave the new queen in the cage longer with the concurrent problems. It is well documented that if we don't requeen, swarming will become an increasing problem, but at what price the new queen?

Swarm queens

Swarm queens should be replaced as soon as the colony is established for she will soon be superceded and you know not what caliber of queen the bees will produce, is another oft repeated statement.

Last Spring, I got a rare call for a swarm that was large and near the ground. It was rainy and cool requiring me to gently move and cajole the bees into my nuc box. They finally moved. It was truly a nice swarm – about five pounds. The colony had had the good fortune to be able to build up to swarm strength. Should I, as the traditional advice recommends, destroy her within a month or so and replace her with an untested queen from some distant state? Maybe swarming is becoming less of a problem than procuring good queens and keeping them healthy. I am not as sure as I once was that automatically replacing a swarm queen is always the right thing to do.

My point?

This season, I bought: (1) twenty-five 3-pound packages with queens, (2) ten queens for splits and (3) ten 4-frame nucs. I acquired four swarms. At \$18 each, I didn't buy a single extra queen. So far one package queen turned up dead at the front of one of the packages. I don't have a clue why. She looked pristine. I had two queens die in the bee packages, but I discovered that the two packages in question had queens loose in the packages. The bees seemingly neglected the caged queens so they died. I was sickened because I unknowingly had two extra queens.

I have been trying to competently manage about \$880 worth of queens in these colonies. Due to the cost and availability of individual queens, the weather, and just plain luck, I found myself frequently questioning common queen management procedures more than usual. I still don't have a clear answer to my question, “*When does the selling price of the queens force me to rethink the way I buy and replace queens.*” Clearly the economic penalty for doing it wrong is greater than it once was. **EC**

Dr. James E. Tew, State Specialist, Beekeeping, The Ohio State University, Wooster, OH 44691, 330.263-3684, Tew.1@osu.edu; www.beelab.osu.edu; www2.oardc.ohio-state.edu/beelab/

¹Alexander, William. 2006. *The \$64 Tomato*. Algonquin Press. ISBN: 1-56512-503-7. 250pp

MAKING & WINTERING SUMMER INCREASE

Larry Connor

Trend to wintering nuclei colonies

If you haven't noticed lately, *over-wintering Summer increase* colonies is THE way to prepare for *Spring increase*. Well, maybe you've been too busy fussing over queen replacements in your package bees, or fretting over all the dead brood in colonies loaded with chalk brood. With African bees in the Southeastern United States, and with *Varroa destructor* sucking the life out of colonies in the north, I think it is time for you to try a new method of increasing your colony numbers. And in all the work I've done, hives I've seen and headaches I've had with old ways of doing things, I'm convinced that wintering nuclei colonies is one way for a lot of beekeepers to go, especially hobby and sideline operations, or about 98.9% of the beekeepers in this country. Or do I exaggerate?

July-early August ideal time for makeup

It is quite possible to make up nuclei during Spring swarming season, when bees instinctively produce queen cells and want to swarm. So, if you hustle out to the apiary and pull out those frames of brood with queen cells on them and put them into a nucleus box and move them to a new yard, you don't have to raise any queens. There is nothing wrong with this – you will not go to Hell for Beekeepers – and I have discussed this several times before. I look at beekeepers while they cut cells and wonder *what they are thinking!* Can't they control swarming by removing frames of brood with queen cells and reduce the swarming instinct all at the same time? Oh, I know what some of the books say, but really, isn't it easier just to make up a new colony? But I digress.

This year we have had a damp swarming season, with rain, lots of rain during most of May. Some beekeepers checked their hives by canoe or flat-bottomed boat. Or with water flowing into their high tops. There were a lot of swarm cells and a lot of swarms. It has been an inter-

esting season, with some colonies building swarm cells while at the very same moment pulling out drone brood because they have run out of pollen and are eating the drones. Would you please tell me what beekeeper is in charge of these bees?!

Anyway, if you make up a nucleus with one frame of brood and bees and a queen cell or two, and do it in late May, by late July you probably have a box filled with bees ready for full sized equipment or a nuc that swarmed. Not that there is anything wrong with that, but I thought most beekeepers were trying (at least in theory) to get

away from producing swarms. That nuc can be managed to keep it small, divided into additional nucs, and/or used to requeen a colony that has lost a queen due to CBS (Clumsy Beekeeper Syndrome).

Summer increase – Sacrifice weakest colonies

Many beekeepers think that they must remove brood and bees from their *strongest colonies* to make up Summer increase. I probably wrote that in the past.

You can do this if you like. If you find the queen (good luck). And if your back doesn't give out because of lifting honey supers off and on these colonies. And you are interfering with the precious few good sunny days of nectar forage by messing with your bees again. **Beekeepers: Step away from the strong beehives during the nectar flow! Get away from them! Don't you touch!**

Instead do what Mike Palmer of Vermont suggests: sacrifice the poorest, weakest, saddest (Mike does not have sad bees) performers in the apiary and make Summer nucs out of them. If you take the bees that have not done anything (*I swear that queen has just sat there on that same frame for four years and still looks like she is going to do something real soon*), tear them apart to make nucs in July and August. Less lifting, smaller brood nest, and the old queen may or may not get one more chance



Two Summer increase nucs, using a feed sack for an inner cover.



Preparing Summer increase for Winter. The three-box colony below is wrapped as shown, and the double nuc, with only a plywood floor, is placed directly on the inner cover of the bottom colony. It, too, gets wrapped.

in a nuc of her own to build up or get replaced on the next apiary visit.

Palmer makes up double nuclei colonies (10-frame deep hive bodies divided into two sections). He makes these up in July and August and then manages them to spend the Winter with him up near the Canadian border. Mike, who is president of the Vermont Beekeepers Association, claims that some of his bees forage in Canada and are bilingual. If you order queens from him please specify if you want English or French speaking queens.

Each Summer he makes four-frame nucs with the following arrangement, moving out from the center of the double nuc:

1. An empty frame of drawn comb
2. A frame of bees and brood
3. A partial frame of brood (if you have it), with stored pollen or a frame of pollen
4. A frame of honey or honey and pollen

If you make up a five-frame nuc, add another frame of honey or an empty frame of brood comb or a division-board feeder.

Palmer uses a special feeder copied from Kirk Webster, also of Vermont, that divides the two nucs. It feeds two nucs at once and takes up the space of two frames, giving each nuc four frames for Summer and Winter both.

Use nucs as a means of making additional nucs

Once the nuc is made up and moved to a new location, give it a queen cell or a mated queen. If you do not yet raise queens, I suggest you contact a local beekeeper

who does, and who has good stock you want, and purchase ripe queen cells (ready to emerge in 24 hrs) as a means of introducing your queen. The economics work too, since a queen cell at \$5 to 7 is less expensive than a locally-produced-and-mated-queen at \$15-20. You can't buy locally mated queens at Wal-Mart.

I've been using some newly emerged virgin queens for introduction this Spring, so if it works you will probably hear about it. I've used them before with good results, but you must treat them like a regular queen during introduction.

4 vs. 5 frames

The difference between a four-frame nucleus and a five-frame nucleus, both in a double nuc, is the feeder. I have seen both in use this spring, set up from the previous season, and they seem to be ok. If you use the feeder, you will feed the bees until they have three and a half frames filled with honey or syrup as winter approaches. This leaves half a frame for cluster space. With deep frames, this provides 20 or more pounds of honey per hive.

With five-frame nucs in a double box, you either need to use a top feeder (glass jar in a hole in a migratory cover), or provide frames of honey for the bees. All but half a frame should be filled with honey (and pollen underneath). I do not recommend Fall pollen feeding, since there is no clear evidence it works. These small units usually have stored a good supply of pollen on their own. Unless you messed them up somehow.

Preparation for Winter

Local beekeepers have wintered these double nuclei without doing anything for them except (maybe) to put a two-inch piece of stiff insulation material on the cover of the nucleus. Most of these beekeepers use feedbags or silt fence material for an inner cover, so the insulation sits over the fabric and the telescoping cover is put on top. The double nucleus just sits on the ground without added protection.

Wintering over another colony

Mike Palmer and others Winter their double nucs over a strong three-deep colony of bees. The double nucleus colonies are put on top the strong colonies, after flight for the season is over. The double nucleus (which has a half-inch plywood bottom) is placed directly on the inner cover of the strong colony. The full sized colony is wrapped with roofing paper and the nucleus gets its own wrapping. Again, a two-inch piece of stiff insulation material is placed on top of the double nucleus and the outer cover put in place. Each colony has its regular entrance, cut into the roofing paper as necessary.

Late Winter/early Spring inspection

If a break in the weather allows, a late February early March inspection reveals that the two clusters have moved toward each other in the double nucleus box. When wintered over a strong colony, the lower unit has moved up

and all three colonies are sharing some sort of thermal energy unity through the wood of the inner cover and the nucleus floor. Until some physicist is able to measure what is going on, I will just assume that the three units are benefiting from shared heat from the other two. I like to think they are passing messages back and forth and having a great time all Winter long.

Using over wintered nucs in the Spring.

In April and May the nuclei can be moved off to other locations and allowed to grow with the season. There are several options:

Sell the nucleus – Both Mike Palmer and Kirk Webster sell the double nucleus colonies when they are ready for the beekeeper to pickup in the double box. Once moved to a new site, the nucs can be moved into regular eight- or 10-frame equipment.

Restock dead-outs/Increase – A chief benefit for most beekeepers is a supply of locally produced and mated queens that have survived the Winter in a small conservative nucleus. Just like Brother Adam at Buckfast Abbey, you have actually produced and tested a queen for most of a year, and yet the queen is young and ready to expand into a full sized colony. You do not have to rely on another beekeeper for packages or nuclei produced in some other part of the country. You can grow your operation in a self-sufficient manner.

Keep as a nucleus – A few of the nucleus colonies should be kept small in size (by removing frames of brood and bees) to keep a constant supply of young queens in the operation. If you or another beekeeper loses a queen, you have one. For a hefty fee, of course. **BC**

Larry Connor has finished writing and preparing Increase Essentials and has sent it off to the printers for their magic. He is well underway with a second book on Bee Sex Essentials, but will need to work on it on the road while traveling (again) this Summer to beekeeper's meetings. Readers may contact him at ebeebooks@aol.com

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The Honey Garden

Combining the best of honey bee pollinated garden crops with honey recipes. The best of two worlds.

Nothing compares with the flavor of home grown raspberries. Although the plants do require routine care, they amply repay us for our attention.

Related to blackberries, these have prickly, erect or trailing stems that root wherever they touch the ground. The canes generally behave as biennials, dying the second year after they produce fruits. Mostly deciduous, the foliage can be semi-evergreen in some areas.

The fruits arise either singly or in clusters from the leaf axils and terminally at the tips of the canes. These come in a variety of colors. Yellow raspberries are actually a variety of red, while the purple ones are a hybrid of the red and black. Unlike blackberries, the stems or cores of raspberries remain on the plant when the fruits are harvested.



Connie Krochmal

Hardiness

Some varieties of raspberries are hardy to USDA zone two. The reds tend to be the hardiest of all. Some exposure to Winter chill is necessary. For that reason, the southern limit for raspberries is usually about zone eight.

Growing Conditions

Choose a sunny, well drained spot as raspberries don't like wet feet. If necessary, use raised beds. So far as soil is concerned, they thrive in all types. A pH between 5.5 to 6.8 is considered ideal.

Types of Raspberries

Raspberry varieties can differ in their fruit color, growth habit, bearing pattern, and harvest time. They are divided into two broad categories – Summer-bearing and everbearing. The former produces fruits on two-year-old canes, which then die.

Everbearing, also known as fall-bearing, can bear fruits twice on the same canes. These yield their first crop from late Summer through the Fall months. Later, another crop develops in the axillary buds during the following Summer before these canes die.

For most home gardens, Summer-bearing raspberries are a good choice. These yield a relatively small crop of exquisitely flavored berries.

Black raspberries have arching canes that don't sucker. Though these plants yield smaller crops than the reds, the distinctive taste of the berries makes them well worth the effort.

There are so many varieties available that gardeners can find it confusing. Generally, most growers select

RECIPES

Ann Harman

The best, richest-flavor raspberries are those you pick from your own garden. I hope your garden gives you more than enough to eat-as-you-pick because raspberries can be used in so many ways. Fortunately raspberry recipes feature that flavor; the fragile berries are not overpowered by the addition of other flavorings.

Fruit soups can be used as a breakfast dish or as lunch or dessert. This cold raspberry soup is simple to make and wonderful with a breakfast waffle or as a light dessert.

Cold Raspberry Soup

5 cups crushed raspberries

2/3 to 1 cup honey
1 tablespoon cornstarch

Crush berries and put through food mill to remove most of the seeds. If you do not have enough berries, add apple juice or red wine to make up the difference. Reserve 1/2 cup of liquid. Pour raspberry pulp into a large saucepan and add honey. If you wish a tart soup, use lesser amount of honey. Heat to boiling point. Add cornstarch to reserved liquid and mix thoroughly. Gradually add this mixture to the hot mixture stirring until thickened, about five minutes. Put soup into a container and chill. Serve topped with whipped cream and a whole berry. Serves six.

Honey Of A Cookbook Vol. II
Alberta Beekeepers Association

Papaya is now widely available and is an excellent mild-flavored fruit so the raspberry flavor will not be masked.

Raspberries And Papaya With Honey-Rum Dressing

1/4 cup honey
1/4 cup rum
1/4 cup lime juice
2 papaya, peeled and diced
2 cups fresh raspberries

Mix honey, rum and lime juice together and pour over prepared fruit. Chill and serve with a bit of the honey-rum mixture with each serving. Serves six.

Honey Of A Cookbook Vol. II
Alberta Beekeepers Association

several different ones that bear at different times in order to extend the harvest season.

A few varieties, such as Allen (black), Amber (Summer bearing yellow), Autumn Bliss (everbearing red), Heritage (everbearing red), and Royalty (purple), are pretty much suited to most regions of the country. Those in colder climates will find the reds and purples are the most suitable. For warm regions, the blacks display more heat tolerance. Those with a shorter growing season need fall-bearing varieties that ripen in advance of the Autumn freezes.

Planting

Check mail-order catalogs for raspberry plants that are listed as virus-free. These cost more, but are well worth the price. Don't obtain raspberry bushes from other gardeners for these might be diseased.

Planting is usually done in early Spring in the East. In other regions, the Spring or the rainy seasons are the preferred times.

Keep cultivated raspberry plants at least 300 feet from any wild ones that occur in the area. This helps to minimize disease problems. Avoid planting black raspberries in plots where you have previously grown strawberries or nightshade crops, such as potatoes or tomatoes, within the last five years or so.

Prepare the bed by tilling or removing all weeds and grass. For red raspberries, allow two to four feet between the rows. The purples and blacks need a little more space – about three to five feet. Space the plants around a foot apart within the rows.

The planting hole should be wide enough so that you can easily spread the roots out. Set the plants one inch deeper than they were in the nursery.

Although raspberry plants might live for 15 years, it is best to replace them every seven or eight years.

Plant Care

For optimal crops, raspberries require attention on a regular basis. Keep the plants watered during dry spells. Mulch or cultivate between the rows to minimize weeds. It is hard to pull these once they get close to the raspberry canes.

Unless your soil is clay, apply several inches of organic mulch. This minimizes weeds, preserves soil moisture, protects plants from excessive cold, and promotes better yields. It is particularly helpful to newly planted raspberry beds.

For best results, run a soil test before you plant. Then, follow the specific fertilizer instructions you receive with your soil test results. Otherwise, a general recommendation is to use either 5-10-5 or 10-10-10 at a rate of ½ cup per plant each year during the Spring. Apply as a top dressing in a circle around each bush about six inches from the canes. Compost or other organic amendments can be used instead of chemical fertilizers.

Supporting Raspberries

Trellises are recommended. When compared with untrellised plants, the yield for trellised ones can increase several fold. These supports also provide better air circulation around the plants, and make it easier for gardeners to pick the fruits and care for the plants.

A V-shaped trellis works best. This consists of two posts several feet apart at each end of the row. Then, attach wire to the posts. This method is superior to the standard single-wire trellis.

Pruning

The pruning method differs according to the bearing pattern of the raspberry variety. For everbearing, the simplest approach is to mow the canes close to the ground during the Winter or very early Spring. Then, the plants

Salad greens are always available but summer brings them fresh from the garden. What could be better than a simple salad of greens with some raspberry vinaigrette dressing made, of course, with fresh raspberries.

Raspberry Vinaigrette

1-1/2 cups fresh raspberries
1 tablespoon sugar or honey
1/4 teaspoon dried whole thyme
1/4 teaspoon freshly ground pepper
3 tablespoons white wine vinegar
3 tablespoons water
2 teaspoons vegetable oil
1-1/2 teaspoons soy sauce or low-sodium soy sauce

Combine all ingredients in blender, cover and process until mixture

is smooth. Strain to remove seeds. Cover and chill thoroughly. Serve with salad greens. Yield 1 cup.

Cooking Light Cookbook
Pub. Oxmoor House

You have probably made peach cobbler but did you ever consider a cobbler made with raspberries? If not, then try this recipe. It's quick and easy. And really delicious!

Raspberry Cobbler

4 cups fresh raspberries
1/4 cup butter or margarine at room temperature
1/2 cup sugar
1/2 cup milk
1 cup flour
2 teaspoons baking powder

1/2 teaspoon salt
1 teaspoon vanilla extract
1/2 cup water
1 cup sugar

Grease an 8- or 9-inch square baking dish and pour in the raspberries. Make batter by mixing butter or margarine, the 1/2 cup sugar, milk, flour, baking powder, salt and vanilla. Pour batter over fruit and spread evenly. Mix the 1/2 cup water and 1 cup sugar and pour over batter. Bake at 350° for one hour. Serve warm with cream, ice cream or whipped cream.

Meal-Master

Here is a recipe with some interesting ingredients. But the raspberry flavor is not diminished.

will produce an extended crop of premium berries from late Summer to Fall.

For the Summer-bearing, individual pruning of the canes is needed. During the Autumn, remove all those canes that have already borne fruits. Then, thin the remaining canes the following Spring. Leave six or eight of the thickest, healthiest ones per running foot. Next, top the remaining canes by pruning the top four inches of so of the tips.

Problems of Raspberries

Raspberries are by no means pest-free. Aphids are a common problem. But, the most serious pests by far are deer and birds. The best long-term solution for these is to enclose the plants in net or wire cages.

So far as diseases are concerned, the more common ones are viruses – often spread by insects – and fungi. Black raspberries are more susceptible to diseases than everbearing reds.

It is far easier to minimize outbreaks than it is to treat affected plants. Take appropriate steps to prevent diseases. These include selecting disease resistant varieties, buying virus-free ones, and avoiding overcrowding. To keep fungal spores from overwintering in raspberry beds, do a Fall clean-up every year. Remove all the old canes and raspberry debris from the area.

Pollination and Bee Plant Status

Though raspberries are self-pollinating, cross-pollination leads to higher yields. For that reason, choose several compatible varieties that can serve as pollenizers for each other.

Bees are very fond of raspberry flowers from which they obtain both nectar and pollen. This crop is almost water white. It has a mild flavor. When enough raspberry blossoms are available, these can yield anywhere from 50 to 150 pounds of honey per colony per year.

Harvesting Raspberries

From a 20-foot-row of well-tended raspberry plants, gardeners can expect to harvest over a dozen pints or more of berries each year. The everbearing reds will yield a small crop the first year. Usually, you'll have to wait two years or more for the others to reach their full potential.

Summer-bearing raspberries can begin ripening in June, but the peak season begins in July. The everbearing types have an extended season throughout the Summer and Autumn.

Harvest when the berries are well-colored, shiny, and fully ripe. When these slip off the center core, they're ready to pick. Handle the fruits carefully for they are easily bruised. Refrigerate them unwashed. Then, rinse just before you plan to use them. **BC**

Raspberry Yogurt Ambrosia

1 pint fresh raspberries
1/4 cup sugar or honey
2 to 3 tablespoons curaçao or orange liqueur
6 egg yolks
3 tablespoons confectioners' sugar
1/3 cup white wine
2 tablespoons raspberry liqueur or rum
1 tablespoon lemon juice
1/2 cup plain yogurt

Sprinkle berries with the sugar or honey. Let stand 30 minutes. Divide among 4 sherbet or parfait dishes. Sprinkle with the curaçao. In top of double boiler combine yolks, sugar, wine, liqueur and lemon juice. Stir over simmering water only until thickened; do not overheat. Stir in yogurt. Pour over berries. Serve at once. Yield 4 servings.

The Encyclopedia Of Creative Cooking
ed. Charlotte Turgeon

This recipe for a pie must be raspberries at their best. Invite some friends for this special dessert.

Raspberry Deluxe Pie Nut Crust:

1 stick butter or margarine
7/8 cup flour
3 tablespoons brown sugar
1 cup ground nuts

Melt butter or margarine in a skillet. Stir in flour, brown sugar and nuts. Cook over low heat until toasted and golden. Cool. Press into 10-inch pie pan.

Filling:
6 cups fresh raspberries
3/4 cup water
1 cup sugar
3 tablespoons cornstarch
2 teaspoons lemon juice

Reserve a handful of berries for garnish. Then simmer 1-1/2 cups berries in the water for five minutes. Combine sugar and cornstarch and

add to simmering mixture, stirring constantly. Cook until clear and thickened. Remove from heat and add lemon juice. Cool. Put the remaining berries in pie shell. Pour glaze mixture over berries and chill two hours.

Topping:

1/2 pint whipping cream
2 teaspoons honey
1/2 teaspoon vanilla

Beat whipping cream until slightly stiff. Add vanilla and honey and beat until soft peaks form. Garnish pie with the whipped cream and the reserved berries.

Raspberry Hills Farm Cookbook

Fortunately we can enjoy raspberries many months of the year, whether from our own plants, or frozen, or flown into our supermarkets from other parts of the world. Be sure to thank the honey bees that bring us large, perfectly-formed berries. **BC**



? DO YOU KNOW ?

Honey Bee Reproduction

Clarence **Collison**
Mississippi State University

Reproduction is the basis of honey bee colony development and survival. Understanding the reproductive biology of a honey bee colony is essential to successful colony management. Within the honey bee society, there is a reproductive division of labor with two different types of individuals making up the reproductive castes. In addition to the role of the queen and drones, swarming and

queen supersedure are part of the reproductive biology as well. Management by the beekeeper is concerned with providing conditions that will allow the queen to reproduce at her maximum rate, as well as preventing swarming.

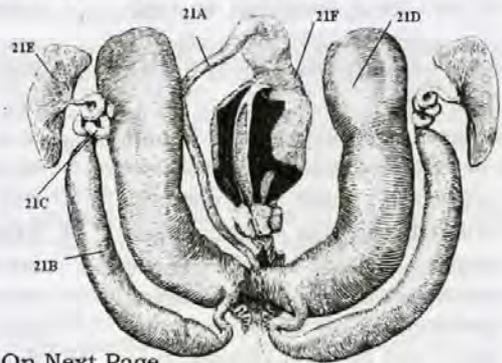
Please take a few minutes and answer the following questions to determine how familiar you are with these important topics.

Level 1 Beekeeping

1. ___ Mature drone honey bees fly to specific aerial locations known as drone congregation areas and these areas remain relatively unchanged from year to year. (True or False)
2. ___ Drones fly at higher altitudes within drone congregation areas than they do in adjacent drone flyways. (True or False)
3. ___ Virgin queens and drones pay no attention to each other in the hive. (True or False)
4. ___ Reduced hypopharyngeal glands can be restored to full activity when older bees are needed to rear brood. (True or False)
5. ___ The development of laying workers in European honey bee colonies occurs at a slower rate than what is found in Africanized colonies. (True or False)
6. ___ Virgin queens introduced to a colony are more acceptable to workers than queens in the egg-laying condition. (True or False)
7. ___ Once a cell has been used for food storage, bees prefer to use it for brood production. (True or False)
8. ___ A colony producing queen cells in the presence of a laying queen always results in the colony either superseding their old queen or swarming. (True or False)
9. ___ Upon mounting the queen, the drone forces the sting chamber open and proceeds with the eversion process. (True or False)
10. ___ In the Fall, the youngest adult drones are evicted from the hive before the older drones. (True or False)
11. ___ Queen cells found on the comb surface is usually an indication that a colony is preparing to swarm. (True or False)
12. ___ Brood production shortens the life of the worker honey bee. (True or False)
13. ___ When a virgin queen completes her mating flight she returns to the hive and begins laying eggs within 10 to 15 hours. (True or False)

Advanced Beekeeping

14. ___ A virgin queen may be induced to lay unfertilized eggs artificially by anesthesia with carbon dioxide gas. (True or False)
15. ___ Honey bees reared by old nurse bees (40-98 days old) are equal in quality to those reared by young nurse bees (5-16 days old). (True or False)
16. ___ Workers have a rudimentary, nonfunctional spermatheca. (True or False)
17. ___ Because of kin recognition within the honey bee colony, reproductive favoritism occurs within subfamilies. (True or False)
18. ___ Drones produce pheromones in their mandibular glands that are attractive to other drones on mating flights. (True or False)
19. Honey bee development and survival requires ___ essential amino acids in their development.
 - A. Five
 - B. Eight
 - C. Seventeen
 - D. Seven
 - E. Ten
20. ___ The flight altitude of drones within drone congregation areas is inversely related to wind velocity. (True or False)
21. Please label the diagram of the drone's reproductive system with the following structures. Testis, Ejaculatory Duct, Penis, Accessory or Mucous Gland, Seminal Vesicle, and Vas Deferens. (6 points)



Answers On Next Page

?Do You Know? Answers

- True** Sexually mature drones fly to specific aerial locations known as drone congregation areas for the purpose of mating with queens. Drones appear to assemble at the same locations year after year even when no queens are present.
- True** Radar has shown that drones fly within flyways at a maximum height of 21 meters whereas, in drone congregation areas they flew mainly from 30 to 50 meters above the ground.
- True** Virgin queens and drones pay no attention to each other in the hive, in contrast to the workers who regularly attend to their queen. Outside the hive worker bees are attracted to queen substance at low heights while drones are attracted only above four meters (13 feet).
- True** Worker honey bees with reduced hypopharyngeal glands (have completed nurse bee activities) can be restored to full activity when they are forced to rear brood.
- True** The latency period for the development of laying workers after a colony loses its queen varies between different races, with European races averaging 23-30 days and African races only five to 10 days before workers begin laying eggs.
- False** Introduction of virgin queens is very risky unless they are within a few hours of emergence. Bees will accept a queen the same age and in the same physiological condition as their own queen much more rapidly than they will one who is unlike their own.
- False** Egg-laying and brood rearing occurs as readily in new worker comb as in comb in which brood has already been reared. Vacated brood cells are subsequently favored for storing nectar or pollen. Once a cell has been used for food storage, it is no longer favored for brood rearing.
- False** Queen rearing is normally the first noticeable step in preparation for queen supersedure and swarming. Neither swarming nor supersedure necessarily follow maturation of queen cells. One or more queens may be reared and rejected before swarming or supersedure occurs, if it does at all.
- False** Successful mounting of the queen by the drone does not necessarily mean that mating will occur. Eversion of the penis cannot take place unless the sting chamber is open. Drones are not physically equipped to force the sting chamber open.
- False** During the drone eviction process that typically occurs in the Fall in temperate climates, the older drones are subjected to attack first.
- False** The presence of queen cells in the brood area is the first indication that the colony is preparing to swarm or supersede its queen. Swarm cells commonly are found on or near the bottom bars of the combs in the upper brood chamber(s), whereas supersedure queen cells generally are found on the face of the comb.
- True** Research has shown that the length of a worker honey bee's life is determined to a great extent by pollen consumption and brood rearing. As a result of their brood-rearing activities, the protein stored in their hypopharyngeal glands and fat bodies that originated from consumed pollen, soon become exhausted and their life spans are reduced.
- False** Once a queen completes her mating flight, she returns to her hive and begins her egg-laying activities within a day or two.
- True** A virgin queen may be induced to lay drone eggs artificially by anesthesia with carbon dioxide gas.
- False** Bees reared by old nurse bees are of lower weight, inferior in the strength of their tissues, and shorter-lived.
- True** Workers have a vestigial, nonfunctional spermatheca and also lack the various genital structures with which the queen can mate and accept sperm from drones.
- True** Within the honey bee colony, there is kin recognition among the different subfamilies. Research has shown that reproductive favoritism occurs within subfamilies. Workers rearing a queen will choose a larva that is more closely related to itself. Nurse bees also take better care of full sisters in comparison to half sisters.
- True** For many years it was believed that drones did not produce any pheromones. Recent research, however, has shown that drones apparently produce pheromones in their mandibular glands that are attractive to other drones on mating flights.
- E) Ten
- True** The flight altitude of drones within drone congregation areas is inversely related to wind velocity.
 - Ejaculatory Duct
 - Seminal Vesicle
 - Vas Deferens
 - Accessory or Mucous Gland
 - Testis
 - Penis

There were a possible 13 points in each test level this month. Check the table below to determine how well you did. If you scored less than 6 points, do not be discouraged. Keep reading and studying- you will do better in the future.

Number Of Points Correct	
13-11	Excellent
10-8	Good
7-6	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.

GLEANNINGS

JULY, 2006 • ALL THE NEWS THAT FITS

GEORGIA - AHB & EAS

Georgia officials are worried an invasion of African bees from Florida may cross the state line this year, before moving north into other Southern states.

The state Agriculture Department has placed traps along the state line to detect the bees' arrival from Florida, where they have been found in more than a dozen central and southern counties.

Officials are hosting classes to teach emergency workers how to rescue and treat victims of African bee attacks, and they're recommending that fire and emergency medical workers purchase protective bee suits.

"I would not be surprised if we find them in 2006 because there is simply no natural barrier between us and Florida," said Keith Delaplane, a University of Georgia bee specialist.

The highly aggressive Africanized bees are already in Arkansas, Louisiana and some Southwestern states.

But fewer than 20 deaths have been linked to killer bee attacks in 16 years, Kim Kaplan, USDA spokesperson, said, and American beekeepers have adjusted by replacing aggressive queens with European queens to minimize the impact on honey production and crop pollination.

While these bees have been spreading out from Texas at a rate of 100 to 300 miles per year, Florida's bees arrived by "human assisted transport," such as trains, ships, trucks or airplanes, Kaplan said.

Danny Drew, one of Georgia's leading beekeepers, said he's followed the bees' spread through other states and is not particularly worried. Drew, his wife and their son and daughter run Drew Apiaries in the south-central Georgia town of Hahira, which honors bees and beekeepers with an annual Honey Bee Festival.

"I don't look at it as that big of a concern," said Drew, who sells honey and bees, including queens, and rents about 5,000 hives each year for pollination.

Tommy Irvin, Georgia's agricultural commissioner, is concerned that the presence of Africanized bees could hurt the state's sale of queen bees. While Georgia is a small player in honey production, it is a major supplier of queen bees.

The demand for queen bees has always been strong and since the arrival of Africanized bees, some beekeepers in Arizona have made a point of buying Drew's queens to replace Africanized queens that invaded their hives.

Georgia's beekeepers also rent their bees to farmers who depend on the insects for pollinating more than 90 crops, such as almonds, blueberries, cucumbers, cantaloupes and watermelons.

Africanized bees are considered less efficient than European bees, so they could lower honey production and pollination, Irvin said.

Delaplane predicts Georgia's strong bee industry will prove helpful in curbing the aggressive invaders.

"Beekeepers are an asset in that they know how to deal with these stinging insects," Delaplane said.

Delaplane said the chance of encountering a swarm of bees is about as likely as being struck by lightning.

"I honestly do think the majority of people in Georgia will be totally unaffected by this," he said.

Young Harris College in the Smokey Mountain area of Northern Georgia, with the Georgia Beekeepers Association is the site of this year's annual EAS conference, where many speakers will be addressing the Africanized honey bees, and all aspects of beekeeping. For more information see www.easternapiculture.org.



FSA GOOF - BE WARY OF GOV'T PROGRAMS

The Farm Service Agency (FSA) announced in February that a firm under contract with its Kansas City Administrative Office inadvertently released the social security and tax identification numbers of approximately 350,000 participants in the tobacco buyout program as part of a response to a number of Freedom of Information Act (FOIA) requests.

The social security and tax identification numbers, which are protected from release under terms of the Privacy Act, were inadvertently sent to eight requesters on January 19, 2006, along with program data authorized for release. FSA officials discovered the error on February 9, 2006.

All eight FOIA requesters who received the data have agreed to

make no disclosures of the privacy protected information, to return the disks containing the information, and to destroy all copies of any records derived from the data.

FSA is also taking steps to notify affected tobacco producers and quota holders, and is recommending they access their credit reports to assure that their personal information has not been used improperly and that these inadvertent releases have not compromised their individual credit records. Individuals can find out how they may request annual free copies of their credit reports, as required by law, at <https://www.annualcreditreport.com>, or through the Federal Trade Commission's website at on-guardonline.gov/idtheft.html.

PLANTS TALK, O.K.?

The key to finding the right mate is communication. Take it from plants, because they have it down to a science.

New research from the University of Missouri-Columbia reveals that most plants use an intimate "conversation" to find appropriate mates and avoid hooking up with close relatives.

How plants determine the ones to which they are too closely related has been a mystery to science.

MU researchers explained that in plants, important mating choices are made through a form of communication between the pollen (the male part of the flower) and the pistil (the

female part).

"We've known that there is a molecular conversation going on between a protein on the pistil side and a protein on the pollen side," said Bruce McClure, associate director of the Christopher S. Bond Life Sciences Center and lead investigator for the research. "The result of this conversation is a decision about whether or not the pollen will be allowed to fertilize the plant."

So if the bee that is looking for sweet nectar brings unsuitable pollen, the plant will reject it (the pollen, but not the bee!). The findings were published in the Feb. 16 edition of the journal *Nature*.

FUNGUS THREATENS HONEY CROP

Australia is urgently preparing contingency plans after the arrival of eucalyptus rust fungus in Hawaii.

The plant disease, which would threaten 3,000 species including eucalyptus and other native species in Australia (and the honey crops they produce), could seriously damage Australia's native vegetation, timber and other horticulture industries.

Commonwealth Scientific Industrial Research Organization scientist

Caroline Mohammed Primary Industries and Natural Resource Management ministerial council meetings that Australia's A\$580 million timber industry was particularly under threat, along with nursery, wildflower and honey industries.

The fungus originated in South and Central America, attacks young stems and shoots in young and mature plants, forming rusty pustules which produce a multitude of spores.

NHB NEWS

U.S. Department of Agriculture (USDA) Secretary Mike Johanns has appointed four members and four alternate members to serve on the 12-member National Honey Board (NHB).

Newly appointed members are: David M. Shenefield, Producer Region 7, LaFontaine, Ind.; Dale D. Bauer, Importer 2, Fertile, Minn.; and Mark Mammen, Cooperative, Sioux City, Iowa. Clint Walker III, Producer Region 5, Temple, Texas, is a reappointed member of the board.

Newly appointed alternates are: John M. Williams, Producer Region 5, Jonesboro, Ark.; Ann W. Harman, Producer Region 7, Flint Hill, Va.; Bartłomiej R. Jelonek, Importer 2, Jersey City, N.J.; and Bob Brandt, Cooperative, Los Banos, Calif.

Stephan & Brady Inc., one of Madison, Wisconsin's oldest marketing agencies, increased the size of its work force from 50 to 30,050 at its headquarters near the airport.

The majority are worker bees. Literally.

In January, Stephan & Brady won its largest account to date – the National Honey Board. So this week they put a beehive on the agency's rooftop and installed 30,000 bees (while wearing protective gear), explains ad exec Megan Bykowski. She says that while a few employees were a little nervous (several are allergic to bee stings), she reports that the bees were docile when introduced into the hive and they'll have Epi-Pens and antihistamine on site.

The firm expects to have 80,000 bees by the end of the summer and about 100 pounds of wild flower honey, which they'll bottle and give to employees. Helping them is local bee hobbyist Susan Richards of the Hidden Oak Apiary in Oregon. Explains PR director Kristina Hoffman, "When you get a client like that, part of the experience is to really delve into the industry we're promoting."

From The Wisconsin State Journal

No Bees, And POLLINATION SUCKS

A giant vacuum cleaner is being used to pollinate some of the million trees growing at the biggest olive grove in Australia.

The Timbercorp Ltd. machine sucks up olive pollen from the trees at the property in the state of Victoria. It is then mixed with talcum powder before being blown back on to other trees using a spreader.

Olives rely on wind rather than bees to spread pollen. Some varieties can use their own pollen to set fruit but others need pollen from different

varieties.

A 5% fruit set can produce a good olive crop but in 2003 Timbercorp's 6,862 acres of olive trees at Boort had a fruit set of less than 2%.

It was found varieties planted in the grove had come from overseas and performed differently in Australian conditions.

After discovering the problem, the company planted compatible trees to ensure adequate cross-pollination.

But until they come into production the machine is being used.

Alan Harman

SWINGER FORK TRUCK CHANGES

NMC-WOLLARD, Inc., manufacturer of the very successful and highly popular 1600 Super Bee Rough Terrain Forklift announces a factory direct sales program to customers in the United States and Canada.

"We're eliminating the middleman and passing those savings on to our brand loyal customers", comments Bruce Steingart, Vice President of NMC-WOLLARD. According to Steingart, "by selling direct we are able to significantly reduce the purchase price to our loyal custom-

ers". Input from the marketplace has helped the 1600 Super Bee Rough Terrain Forklift evolve into the product of choice for the North American beekeepers. A re-designed straight mast, a more powerful 35 hp Kubota diesel, increased cooling system capacity, high visibility and certified FOPS/ROPS overhead guard and high output 40-amp alternator, have been added. For more details on the Swinger 1600 Super Bee Rough Terrain Forklift see www.nmc-wollard.com.

MIDDLEMEN WIN - SAME STORY, DIFFERENT PLACE

The Communal Areas Management Program for Indigenous Resources in Zimbabwe is reported negotiating with an unnamed financier for a US\$20,000 loan to process honey.

Program director Charles Jonga said the commercial viability of beekeeping had been affected by low returns on investment as middlemen were offering below market prices to farmers.

"As a result most farmers are opting out of the business," he said. "For example in Mutoko we had 1 000 farmers but the number has been reduced to 800."

"We are talking to one or two financiers so we can value-add. For that type of project to take off you are looking at Z\$200 million for setting up equipment, Z\$50 million for packaging and another Z\$50 million for training.

"All in all this would add up to US\$20,000 to enable at least 1,000 farmers to value-add," he said.

The Zimbabwe dollar exchange rate is about 26,000 to the U.S. dollar.

Jonga said 20,000 kilograms (~42,000 lbs.) of semi-processed honey would earn Z\$200 million while the same amount of processed product would earn Z\$960 million.

Farmers produce 35 kilograms (77 lbs.) of honey a year but are getting Z\$350 000 and Z\$2.1 million for semi-processed and processed honey, he said.

"Serious price distortions between costs of producing semi-processed honey at Z\$10,000 a kilogram and prices of processed honey on the market at more than Z\$100,000 a kilogram have forced most farmers to produce only for domestic consumption or small markets, losing millions of dollars in the process," he said.

"The middlemen are buying the honey for a song and selling it at exorbitant prices. We have spoken about it several times but they feel it is not our problem so we should not intervene. In the meantime, these farmers are located deep in the bush and have no way of getting to the markets so they end up selling to the middlemen."

HEALTHY HONEY PROFITABLE

New Zealand health products company Comvita Ltd. reported a 26% jump in annual net profit to NZ\$1.59 million for the year to December, up from NZ\$1.26 million.

Comvita, whose products include manuka honey impregnated wound dressings, saw earnings before interest, tax, depreciation and amortization rise to NZ\$4.09 million from \$3.64 million.

Chief executive Brett Hewlett said the result was very good, given the

strong New Zealand dollar and flat domestic market, and the outlook was for even better in 2006.

Comvita chairman Neil Craig said sales were up in all offshore markets, with export revenue now making up 60% of total sales.

In February Comvita signed a long-term exclusive licensing deal with U.S.-based manufacturer and supplier of wound care products, Derma Sciences Inc.

Alan Harman

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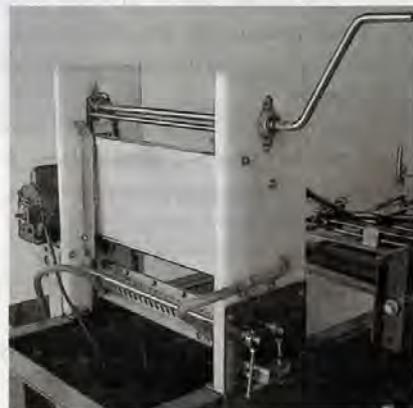
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With your permission, I would like to indulge in a little naked patriotism. The United States of America, during my lifetime, has become a nation like none other on earth. Not because it is the most powerful nation on earth, but because we, more times than I can count, have taken the side of the oppressed with no intention to conquer, rule or pillage.

In the act of offering our assistance, we have sacrificed blood, money and lives. We have beat ourselves up. We have questioned our motives. Our leaders have engaged in heated debate about the hows and whys, but we continue to be the single brightest light for the world's mistreated. We will take on the schoolyard bully.

In spite of all our mistakes, missteps, misjudgments and misgivings, the world today would be a completely different place if our country – conservative, liberal, black, white, rich, poor, North, South, Manhattan, NY, or Manhattan, KS, Americans all – had turned its back on the injustices and inhumanities that relentlessly stalk the globe.

Supporting the troops and their families on the front lines in the war on terror is not a partisan action. It is an act of pride, compassion, love, concern, anguish and hope. They carry our colors into harm's way, and have since 1776.

Ladies and Gentlemen, I give you the Flag
That flew over Valley Forge
Was torn in two by the gray and the blue
And bled through two world wars

I give you the flag that burned in the street
In protest, in anger and shame.
The very same flag that covered the men
Who died defending her name.

We now stand together, Americans all,
Either by choice or by birth
To honor the flag that's flown on the moon
And changed the face of the earth.

History will show this flag stood a friend
To the hungry, the homeless and lost
That a mixture of men as common as clay
Valued one thing beyond cost.

And they've signed it in blood from Bunker Hill
To Saigon, Kuwait, Bosnia
Kabul, Baghdad and Toko-Ri.
I give you the flag that says to the world
Each man has a right to be free.

*Used with author permission from his column
"On The Edge of Common Sense"*

*Coyote Cowboy Company, P.O. Box 2190, Benson, AZ 85602,
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Every so often, in the July issue, I remind myself, and those of you who choose to read my musings, of the too-often, taken-for-granted privilege of being able to write here exactly what I want to write here.

My Father, my nephews and many of you have sacrificed a part of your lives so I can do this; so I, and you, can write, and read what we choose.

Baxter Black is a writer. Often humorous, always interesting, he writes about life in the country, out west, with horses and cowboys and dogs. He writes what he knows, and he's a poet, too.

Offered here is something he did recently that I especially liked. I thought it appropriate for this July issue. So did he.

Kim Flottum

The Flag

Baxter Black

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