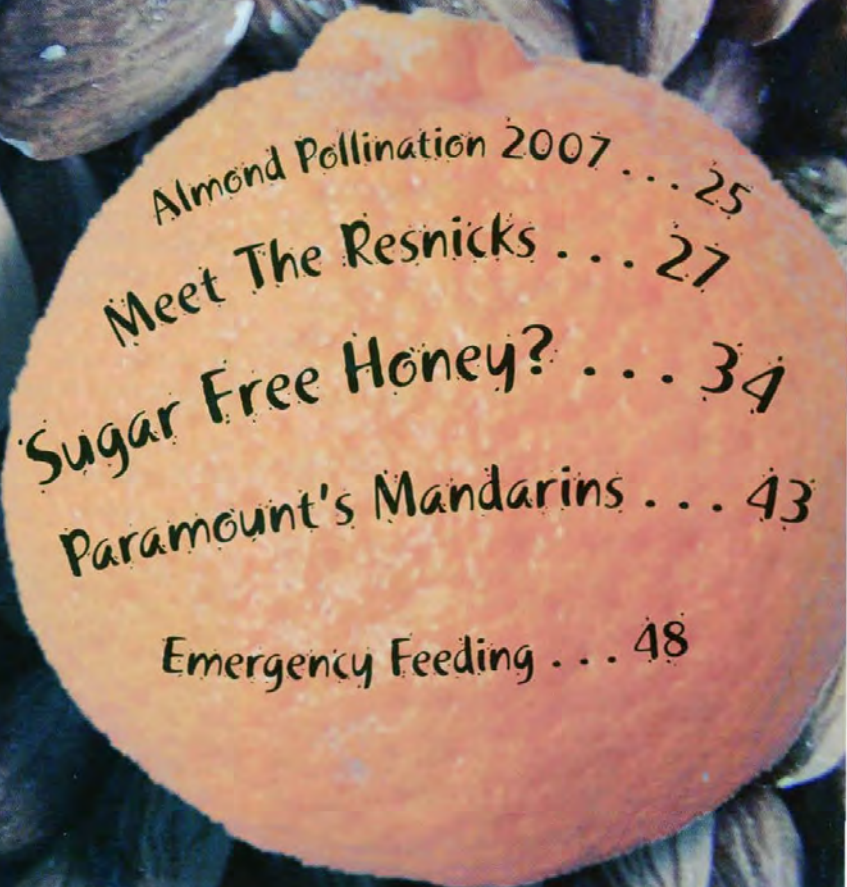


The background of the entire cover is a close-up photograph of many almonds, showing their characteristic brown, ribbed texture and some lighter-colored tips.

OCT 2006
Bee Culture
WWW.BEECULTURE.COM

A large, textured orange circle, resembling a piece of citrus fruit, is positioned on the right side of the cover. It contains the table of contents text in a black, handwritten-style font.

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\$4.99





Almonds and mandarins dominate the beekeeping world at the moment. Both have serious issues with honey bees. One can't survive without them. The other (at the moment) can't survive with them. Both situations will affect how bees are kept in the U.S. next year, and for years to come. Find out why, right here.

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Publisher – John Root

Editor – Kim Flottum, Ext. 3214, Kim@BeeCulture.com

Production Coordinator – Kathy Summers, Ext. 3215, Kathy@BeeCulture.com

Circulation & Advertising – Dawn Feagan, Ext. 3220, Dawn@BeeCulture.com

Publication Assistant – Sharon Garceau, Ext. 3255, Sharon@BeeCulture.com

Contributors

Clarence Collison • James E. Tew • Ann Harman

Malcolm T. Sanford • Steve Sheppard

Larry Connor • Connie Krochmal

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Bee Culture

THE MAGAZINE OF AMERICAN BEEKEEPING

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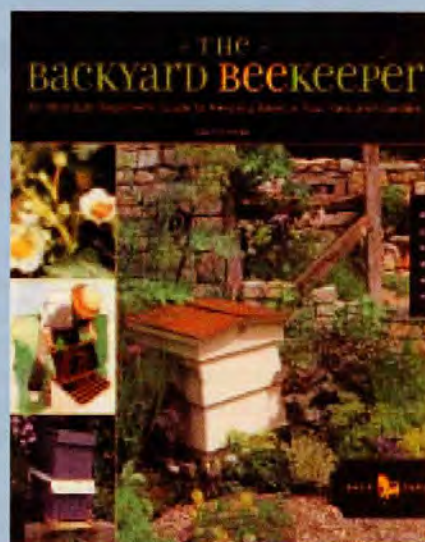
Buying and selling.

BOTTOM BOARD 72

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Peter Sieling

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Sting Relief

This is my second year of beekeeping and I have loved everything about it, except getting stung (who does?). Having a red, puffy, and painful hand, foot, etc., for a week, or more, is no fun at all, especially if you have to go to work or do everyday chores. I tried a few different things to help ease the pain, but nothing worked, until I came across lavender essential oil. It reduced the pain and swelling from about a week to about three days. Lavender is a natural anti-histamine and histamines are what cause the pain and inflammation.

Recently on a Saturday afternoon, I got stung on my middle finger, right hand. My finger became numb as I tried to hurry and put my hive back together. As soon as I was done, I went inside and put about three drops of lavender essential oil on the sting site and did this throughout the day. At night, I taped a paper towel with some oil on it to my finger. The next day, it was worse, but I kept putting on the oil, two to three drops at a time, every time it started to bother me (by tingling or itching) or every time I thought of it. I did the oil bandage again. By Monday afternoon, it was getting better, but I still kept applying the oil, and by Tuesday it was hardly noticeable.

I use a 100% therapeutic-grade essential oil, meaning it is very powerful. I would use more oil if it is not therapeutic-grade.

I get my essential oils at Young Living Essential Oils, Thanksgiving Point Business Park, 3125 Executive Parkway, Lehi, UT 84043, 888.880.1549, www.youngliving.com.

Let me know how it works for you.

Samantha Seven
ON930 Country Life Drive
Maple Park, IL 60151

Hurricane Relief

On behalf of the Alabama Beekeepers Association I want to

thank you for your contribution to the Hurricane Relief Fund. Your donation will help some beekeepers in Alabama. We have not distributed any of our funds as of the date of this letter. We are waiting for some beekeepers to let us know of their need. We are asking for information on this through our state newsletter.

I will send letters to inform the donors of how the money is used as we decide as an association who will receive the money.

Thanks again for your help.

Bonnie Funderburg
Oneonta, AL

Great Time At EAS!

This Summer I went to the EAS (Eastern Apicultural Society) Conference in Young Harris, GA. Talk about a great time! I met and visited with a variety of people from many different backgrounds. Folks were friendly and the convention had plenty of informal opportunities to effortlessly meet people. They had everything – assembly type research/science based programs, vendors, hands-on hive learning, beekeeping short course, fun bee related workshops, inexpensive social gatherings, honey exchange, and contests ranging from honey to gadgets. About the time I was getting assembly overload it was time for workshops including encaustic painting, mead making and creative writing. The experience was energizing, inspiring and uplifting.

I'm already planning for EAS 2007 in Delaware from August 6-10. Maybe I'll see you there!

Kim Lehman
Austin, TX

Well Trained Bees

Recently we had a neighbor drop by our house to tell us that there was a small swarm of bees on a bush in his yard. He didn't know



where they came from. Usually if you have bees, which we do, people tend to believe they are yours. He told my husband he had seen them come in around 11:00 that morning. He thought we might want to get them. That way he wouldn't have to be concerned about if they would stay and have to deal with them himself.

After going out to eat that afternoon, my husband decided to stop by on the way home to make sure they were still there. If you know anything about bees, you learn pretty quickly, check and make sure the swarm is still hanging. You don't want to load up everything only to find out that they left right before you got there.

We pulled into the neighbor's drive and pulled up to the backyard. My husband kept telling me to drive on around. I was looking for a swarm the whole time. I couldn't see anything that even looked like a bee anywhere. My husband got out of the car and began walking up to a bush. About that time the neighbor came out of the house so he could show him exactly where the bees were. I watched as my husband walked up to a loquat tree and began to move some leaves on the tree. He stuck his finger on the bees and kept looking. They began to fly around. I was in the safety of the car. No bees without a veil, and gloves for me. Those bees began to fly and pretty soon they were in flight. We looked and you could tell they were headed back toward our house. We watched until we



INNER COVER

Every year in the Autumn we all get yellow jacket calls. They start out as “bee” calls but with a few quick, practiced questions you know they’re not honey bees, which means they pretty much drop off our radar. We quickly tell the caller how to handle the situation, as if it were easy and we did it every day, and if it’s late in the season, there may be just a hint of “you-shouldn’t-have-let-this-happen,” in an almost impatient voice. After all, this

is the hundredth time this month someone called during supper.

Some of us relish these calls though and I’m glad those folks are around. It’s money in the bank and food on their table. They go and remove and deconstruct and excavate and repair and a happy, relieved homeowner writes a check no questions asked and offers one of the most thankful thank you’s ever given.

I found out why this Summer.

You’d think I’d have noticed but I wasn’t paying attention and I was gone a lot and besides, it couldn’t happen to me because I know better. After all, I give yellow jacket advice, I don’t ask for it.

It started when I opened the sliding door coming in from the deck. I was descended upon by a horde of angry “bees”! Buzzing, circling my head, getting into my beard and what little hair I have, behind my glasses, up my shirt sleeves and down my neck and on my arms and legs and even in my shoes.

I was halfway through the door heading inside when I was so furiously attacked. While doing that dance of death trying to get those demons from hell out of my clothes and off my face and arms and legs I rushed inside and slammed the door behind me.

Yellow jacket stings aren’t as initially painful to me as are honey bee stings, but they last for days and days, and I had a long three days of recovery. Worse, I had other responsibilities for the next two days and couldn’t get revenge or around to a final confrontation.

Meanwhile, they were getting in the house somewhere. There were always eight or 10 at each of several windows. My home was under siege and I was constantly under attack, or so it seemed.

For two days I was vacuuming them up as fast as I could (fly swatters and rolled-up magazines are almost worthless against them, they’re nearly indestructible!), because I didn’t have time for anything else. I’d come home and suck up a bagful. I couldn’t, wouldn’t dare walk barefoot, and sometimes two or three would swoop down off a ceiling light with murder in their hearts. It was war and I was losing. Where could they possibly be getting in? I looked around window casings and door jams, light switches and everywhere around that deck door. Nothing.

I quickly and hugely empathized with those panicky people who called me during supper. When your home is not safe, when your family and pets are in fear of being in their own beds little else matters other than handling the crisis. Nothing, in fact, is more important.

After a couple of days I had some spare time, found the hole they’d chewed through 80-year-old plaster and fixed that. Outside, the frontal assault wasn’t quite as easy but I was dressed for it and superior brawn, brains and chemistry

easily defeated the suicidal defense of a million warriors. The battle was over nearly before it began.

You and I take live, stinging, venomous insects as routine, but we have experience, equipment and we’re always prepared. In fact we actually take the battle to them. But when they come to us it’s a whole different story. The effect of these seemingly mad, mean, dangerous, painful, unpredictable bullet sized agents of fear and loathing holding a family hostage is more than most normal unentomological people can bear, and any help at all is a Godsend.

The next time I get one of those calls I’m going to be a lot less impatient, supper or no, and a lot more helpful. I’ve been there, and done that.

•

On the bottom of the cover page you’ll note something new, at least new to you. Our bar code and cover price. We’ve been on several hundred newsstands for about a year now, testing the water with what amounts to impulse sales. It’s been an interesting experience dealing with vendors and brokers and the satisfaction of having a new beekeeper find us in the clutter.

We don’t know if we’ll stay in the fray since we’re still evaluating outlets, costs, profits, new subscribers and vendor response.

We are primarily in east coast locations, but are well represented in the southeast and south. But we are as popular in New York City as we are in Birmingham, Alabama, so go figure.

Tim Hatten

**Been There,
Done That**

Good Ideas

Jerry Bromenshenk
Robert Seccomb

Pick Up Hoist

As researchers, we often rent colonies from commercial beekeepers and then have to move them, often from locations far from home. A local beekeeper delivers 30-50 hives on pallets to a designated holding yard. We then put the hives on bottom boards and play musical chairs, each night removing hives for the next day's trial, moving them back the next night and getting a new set.

Typically, we fly to an airport near the test area, lease a large pickup, and go to work. However, tossing beehives into the back of a four-wheel drive vehicle isn't fun. The truck boxes are high off the ground; the bees aren't happy about being uprooted from the pallets; and in places like Yuma, it is really hot in August.

Scott, the body builder on our crew can hoist a hive in and out of a truck by himself. Those of us with bad backs or smaller stature, struggle. And, the rental companies don't want us drilling holes in their trucks.

But a Summer in Yuma was too much. We had to move lots of hives, and some of our crew couldn't reach high enough to load the truck. That meant that the taller of us, myself included, were pulling nightly duty at tem-

peratures running up to 120°F! If we were lucky, it cooled off to the high 90s.

But, a trip to the local discount tool store for a \$99 pickup truck crane with cable winch, a stop at the farm equipment supply for a \$30 clevis-style receiver hitch, 20 minutes of work by a back-alley welder, and the problem was solved.

Our little winch slides into the receiver hitch on the back of the pickup. It has just enough lift to swing a two-story hive over the sides of the truck. We run a ratchet tie down strap around the hive, passing it through a D-ring at the top; connect the winch hook to the ring, and crank away. The system worked like a champ. It's a bit slower than hoisting the hives by brute strength, but much easier on everyone. And, we can use the pickup with the hoist to load other pickups.

The downside is that the position of the winch tower in the middle of the tailgate is not optimal, and you have to remove the lift to open the tailgate. With a bit more time and money, a bracket could be added to offset the winch to an end of the bumper – but we had to have a quick fix and wanted to keep it simple.

Since Yuma, we've seen similar systems being sold over the Internet, including fancy, fold-up rigs made of aluminum, but ours is cheaper and serves the purpose. However, if you build one, be prepared for two responses: 1) people will stop you in parking lots and ask where you got it, and 2) contractors in pickups will wave and give you a high sign.

Bee Signs

C.J. Shane

Have you ever been traveling down a main roadway and found yourself in bumper-to-bumper traffic? Okay, that's a stupid question. We'll transition to a statement. All of us have found ourselves sitting in traffic, fighting our inner road rage, trying to look inconspicuous as we twist around trying to locate the source of this less-than-slow moving traffic. And then you have the ah-ha moment.

There is the culprit; a '93 white Jeep Wrangler with black accents, and muddied with clumps of Montana earth to really highlight its rough edge. It has 'Tough' written all over it. Not to mention it's pulling a 4x6 garden trailer. What a punk...oh, wait...and punkette. There are two culprits participating in this initiative to cause fellow travelers to move at a snail's pace. You know what, 'snail's pace' is awfully generous. More like a glacial movement pace.

Who the heck do they think they are, pulling some trailer full of white boxes? And what could be soooooo important in those boxes to cause the pony-tailed driver and blond companion to drive so cautiously?

So you search around for some sign, any insight as to what this rig is all about. All you can locate are the University of Montana decals on the wheel bumpers,





which you assume is trying to signify something important. But by this time, still moving glacially, you start to get annoyed. Who are you kidding? You're already annoyed. You're just trying to keep it together long enough to make it through the next light. Keep your cool. Road rage is unattractive.

The driver (whom you called punk), and myself (the punkette), along with the millions of little ladies in the white boxes do not appreciate the honking. We do not appreciate you riding our butt. We do not appreciate your negative thoughts and unkind vibes you are sending our way. And those glares, they can go too. Please be patient with us, we are only trying to make this world a better place.

Let me elaborate.

We are transporting honey bees. That would be the millions of little ladies in the white boxes. We are driving very cautiously as we need to transport them to a new research site, and thus, we do not want to disrupt them more than we already have. No one likes to be uprooted, put on a trailer, ratchet-strapped down, and relocated. So we are doing our best to make this transition smooth.

I know what you're thinking. "They are just a bunch of bees." Alas, my uniformed, impatient, road-raging fellow citizen, they are not. They are hard working, intelligent, loyal, diligent, cooperative, land mine finding specimens. They are our co-workers. And how exactly do you treat your co-workers?

You see, we are researchers. We are the *Bee Whisperer* and *Bee Wrangler*. We train honey bees to assess environmental hazards and locate different chemical stimuli to identify threats, and then create a corrective action to eliminate further harm. Training honey bees to locate land mines has been our greatest accomplishment thus far. But this is not about our breakthrough, life-saving research. This is about the treatment we endure from passersby as we cause a little congestion on the roadways, while we're just trying to do our job.

Okay, okay. So we are all mature adults here. Well, at least I am a mature adult, and I am half the problem, and quite potentially, the solution. We, here, at Bee Alert Technology, Inc., in Missoula, Montana, recognize the distress we have subjected upon the innocent workforce of America. We understand you are all just trying to get home to feed your hungry kids, or hurry to the gym for a quick fat blast, or moreso, just trying to get home to sit on the Lazyboy, grab a cold beverage to quench your

thirst, and turn on the television for some mindless entertainment, as you wind down from another successful day. Whichever the case, we certainly understand and sympathize with your desire to get off the roadway. Thus, we came up with a solution to help minimize the anguish on your travels.

Now, listen, we're not trying to solve the world's problems here. Well, unless you count locating and disengaging land mines a world problem, then we really are trying to solve the world's problems. But anyway, this is a very infinitesimal fix to our misunderstandings on the road. Nonetheless, it has helped generate some respect from fellow drivers that we feel we deserve. Also, it will help prevent your anxiety in a concise manner to educate you on the reason we are moving, at what you would like to call "a glacial movement" pace.

We made a sign. Yes, that is right. A simple sign. Believe it or not, not all advancements in life have to 'bee' so complicated. It is a neon orange, triangular, caution sign. In the middle, a basic picture of a bee. Below the picture, the word "BEES." Above the picture, the word "LIVE." That's right, ladies and gentlemen, LIVE BEES.

And we never said our honey bees were sweet like the honey they produce. They have the ability to sting for a reason. They are alive and well.

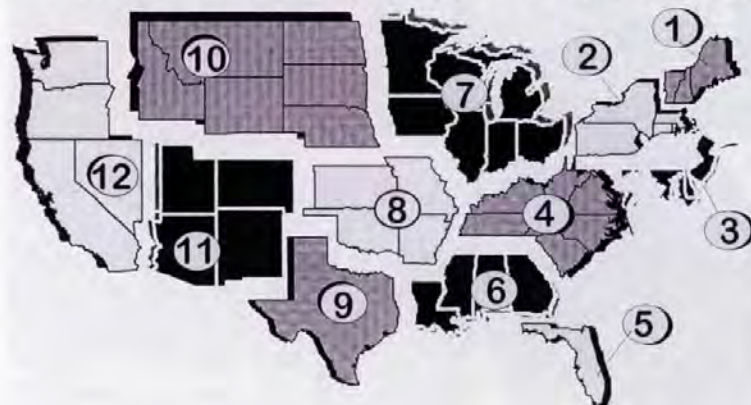
So back off. Stand down. Stop honking. Stop riding our butts. Erase the negative thoughts and halt the unkind vibes. And the glares, really are not necessary.

As you can now understand, we do not drive cautiously to purposely impose annoyance and frustration on accompanying drivers, as much fun as that sounds. Truthfully, we like friendly, smooth, smiling convoys down Reserve Street just as much as the next person. We just want a little respect for the little ladies who are creating security for our world, and generating a paycheck for us. Because at the end of the day, the last thing we want to do is sit in traffic, too. We have hungry kids too...uh, that's a lie. The *Bee Whisperer* and *Bee Wrangler* are young and single. The only kids we worry about are the babies being born within the white boxes. But do not underestimate that task. A queen bee will lay up to 1500 eggs each day. Now, although not all will mature to birth, that is still a lot of kiddies to worry about. Thus, we all have worries, we all have duties, and so we must all have respect and compassion for glacial moving traffic, to lessen our burdens and anxieties...and to not get stung.

Epilogue

The most ironic thing happened. Upon initial placement of the neon orange sign on the back of the 4x6 garden trailer, fellow drivers have given at least a car's length space between themselves and us. There is no more honking. In fact, it is eerily quiet in a 20-yard radius around our rig. Our negative thought radar is showing no movement and we are not feeling any unkind vibes. And no glares. Come to think of it, no one really looks at us anymore. Sometimes we get a nervous look or two, and sometimes people roll up their windows, oh-so carefully. Hey, we understand. We take no offense. We simply thank you for understanding, as do our LIVE BEES. **BC**

OCTOBER - REGIONAL HONEY PRICE REPORT



What's Bugging Your Bees? Across All Regions

Problem	Year			
	2003	2004	2005	2006
Winter Weather	—	—	—	7
Spring Weather	—	—	—	2
Summer Weather	—	—	—	6
Varroa	1	1	2	1
Queens	2	3	3	3
Small Hive Beetle	8	7	10	4
Tracheal Mites	3	2	4	5
Low Prices	4(Tie)	5	5	8
Chalkbrood	4(Tie)	4	6	9
Skunks	5	8	8	10
Bear	7	9	9	11

1 = Worst Problem; 11 = Least Problem

Each year we poll our reporters to measure the degree of difficulty a variety of problems are causing. We tend to modify the survey on occasion as old problems go away – resistant American foulbrood, for instance, now that a new treatment is available – and add or refine new areas of trouble. We focused more on the weather this year than in years past because it played a key role in the honey business this year. Notable changes this year – the sharp de-

cline in prices as a problem along with the continued decline for chalkbrood. Most notable is the sharp increase in problems caused by Small Hive Beetle.

Below is the score for each problem by region, along with the rank of that problem. The scores are telling. The smaller the score, the worse the problem.

T = Tie

	Region 1		Region 2		Region 3		Region 4		Region 5		Region 6		Region 7		Region 8		Region 9		Region 10		Region 11		Region 12	
	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Tracheal Mite	6	5.5	6	7.4	3	4.8T	3	4.2	1	2.7T	6	4.9	5	5.1	6	7.3	10	10.3	4	6.0	4	4.0	3	4.1
Queens	3	4.9	2	4.0T	4	5.0	5	4.5	4	4.7T	4	3.9	3	3.8	1	2.8	4	4.8	2	4.9	3	3.3T	2	2.8
Varroa	1	2.9	1	2.6	1	2.0	1	3.4	2	2.8	3	3.4	2	3.5	2	4.0T	3	4.0	1	2.0	3	3.3T	1	1.5
Small Hive Beetle	9	7.6	10	10.0	2	3.8	6	5.5	1	2.7T	2	3.0	9	8.1	5	7.0	6	5.3	9	10.0	5	8.0T	10	9.7
Spring Weather	2	4.1	2	4.0T	3	4.8T	2	4.1	6	5.7	1	2.6	1	3.4	3	5.3	1	1.3	3	5.5	1	2.3	4	5.1
Winter Weather	4	5.1	3	4.8	6	6.0	7	5.9	8	7.7	8	6.1	7	6.3	8	9.3T	5	5.0	6	6.6T	2	2.7	7	6.7
Summer Weather	5	5.3T	4	5.0	5	5.7	4	4.4	5	5.3	5	4.6	4	4.5	2	4.0T	2	3.5	7	9.0	6	8.3T	8	6.9
Low Prices	7	6.3	5	6.8	3	4.8T	8	6.0	3	3.3	7	5.1	6	6.0	4	6.5	8	8.7	6	6.6T	5	8.0T	6	6.5
Chalkbrood	5	5.3T	8	7.6	7	8.2	9	6.9	4	4.7T	9	9.0	8	7.7	7	8.5	7	7.7	5	6.3	6	8.3T	5	6.4
Bears	10	7.7	9	9.0	9	10.0	11	7.7	7	7.3T	11	9.9	11	10.7	9	10.3	11	11.0	8	9.2	8	9.0	11	10.2
Skunks	8	7.4	7	7.5	8	9.0	10	7.4	7	7.3T	10	9.7	10	9.7	8	9.3T	9	9.0	7	6.7	7	8.7	9	9.0

REPORTING REGIONS

	1	2	3	4	5	6	7	8	9	10	11	12
EXTRACTED HONEY PRICES SOLD BULK TO PACKERS OR PROCESSORS												
55 Gal. Drum, Light	1.00	1.01	1.25	1.20	0.90	1.12	1.13	1.01	1.01	1.07	0.92	1.14
55 Gal. Drum, Ambr	1.01	0.85	1.20	1.27	0.85	0.95	1.04	1.01	0.78	0.84	1.07	1.08
60# Light (retail)	102.50	107.33	120.00	98.29	101.67	118.33	96.29	96.25	160.00	115.00	95.00	132.00
60# Amber (retail)	105.00	102.00	120.00	96.75	97.33	100.00	90.60	102.50	130.00	114.73	90.00	121.80

WHOLESALE PRICES SOLD TO STORES OR DISTRIBUTORS IN CASE LOTS												
1/2# 24/case	42.12	47.98	42.93	38.59	59.04	40.25	38.26	48.53	48.53	45.76	43.00	61.25
1# 24/case	60.83	61.78	62.00	61.77	68.24	61.00	61.85	62.40	60.40	77.76	90.00	78.53
2# 12/case	63.24	59.58	57.30	61.60	60.23	53.00	56.24	69.00	46.50	57.84	42.00	71.83
12 oz. Plas. 24/cs	58.56	61.28	48.00	48.00	44.96	51.00	50.75	51.60	51.80	47.64	60.00	68.83
5# 6/case	60.81	63.98	66.75	57.60	67.13	59.00	63.36	50.00	57.00	56.43	45.00	83.17
Quarts 12/case	97.08	110.18	89.60	79.82	77.82	79.88	81.84	78.60	72.00	110.88	89.40	116.00
Pints 12/case	62.50	54.98	55.50	52.32	46.40	53.33	58.02	45.75	48.00	49.50	44.00	67.00

RETAIL SHELF PRICES												
1/2#	2.47	2.43	2.24	2.75	1.99	2.33	2.38	1.69	3.03	2.41	2.00	3.61
12 oz. Plastic	3.25	2.92	3.10	3.39	3.38	3.21	2.80	3.61	3.17	2.79	3.31	4.00
1# Glass/Plastic	3.63	3.58	4.13	4.60	3.58	3.58	3.51	4.45	4.00	3.60	4.08	5.01
2# Glass/Plastic	7.19	6.19	6.40	6.13	6.24	6.25	5.54	8.12	6.58	5.95	6.30	8.65
Pint	6.94	7.38	5.90	5.64	4.91	5.33	4.96	5.61	4.67	6.38	5.42	8.70
Quart	11.79	8.65	10.50	8.90	8.28	8.01	9.97	9.25	8.83	12.76	8.72	12.45
5# Glass/Plastic	13.63	13.56	16.43	13.67	16.00	14.00	12.89	16.00	16.25	13.80	12.19	17.99
1# Cream	4.83	5.31	5.00	4.65	5.76	3.80	5.31	4.45	5.76	5.10	5.00	5.67
1# Cut Comb	5.06	4.85	4.00	5.77	6.40	4.50	5.38	4.75	7.16	5.50	3.50	8.25
Ross Round	4.80	3.98	5.00	5.38	5.00	4.00	5.22	4.75	3.75	6.00	7.00	6.50
Wholesale Wax (LT)	3.50	3.28	2.88	2.16	1.83	2.93	2.57	2.25	3.00	3.51	1.45	3.15
Wholesale Wax (DK)	2.88	2.90	1.97	1.97	1.50	2.44	2.50	1.50	2.00	2.47	1.80	3.42
Pollination Fee/Col.	56.67	76.67	53.33	41.60	43.50	44.33	45.83	60.00	35.00	78.57	29.00	100.00

SUMMARY

Range Avg.

0.90-1.25 1.06

0.78-1.27 0.99

95.00-160.00 111.89

90.00-130.00 105.89

38.26-61.25 46.35

60.40-90.00 67.21

42.00-71.83 58.20

44.96-68.83 53.53

45.00-83.17 60.85

72.00-116.00 90.26

44.00-67.00 53.11

1.69-3.61 2.44

2.79-4.00 3.24

3.51-5.01 3.98

5.54-8.65 6.63

4.67-8.70 5.99

8.01-12.76 9.84

12.19-17.99 14.70

3.80-5.76 5.05

3.50-8.25 5.43

3.75-7.00 5.11

1.45-3.51 2.71

1.50-3.42 2.28

29.00-100.00 55.38

History

Last Month Last Year

1.00 0.92

1.00 0.78

119.22 104.78

103.26 97.23

44.52 38.16

66.17 61.85

57.84 54.76

56.39 52.66

59.74 59.03

95.41 84.63

51.11 51.74

2.47 2.49

3.38 3.29

3.96 3.95

6.64 6.73

5.84 5.96

9.49 9.51

14.10 13.63

5.07 4.69

6.08 5.56

5.52 4.90

2.22 2.31

2.07 2.24

55.16 48.85

RESEARCH REVIEWED

The Latest In Honey Bee Research

Steve Sheppard

"The apple of their compound eyes – bees that prefer to forage for apple pollen."

The heralding of honey bees as "angels of agriculture" is well-known and arguably well-deserved. The nickname refers to the fact that foraging honey bees routinely pollinate many of the agricultural crops that help feed us humans. As we continue to breed crops that show "improvement" relative to our own interests (such as apples that color to a deep even red and keep in storage for long periods), we have often ignored the "interests" of honey bees in the endeavor. Thus, in the case of some cultivars of onions, breeders selected for sweet and large bulbs, without considering the relative attractiveness to pollinators. These particularly "sweet" onion varieties can then be surprisingly more difficult to pollinate for seed production than your average onion (which is not very attractive to bees anyway!). Are plant breeders selecting for onions that concentrate more sugars in the bulb at the expense of bee-attractive sugars in the nectar? This remains a topic for further research. However, reduced pollinator attractiveness under such circumstances is probably unsurprising and may even be expected unless plant breeders begin to include some measure of selection for "attractiveness to pollinators" in their breeding scheme. If the plant breeders don't do it – then what alternatives do we have?

One alternative approach would be to concentrate on the honey bee side of the equation and to actively select and breed honey bees that have a higher tendency to collect pollen from a given crop. Although there have been demonstrations of the principle for specific crops (high and low alfalfa pollen collecting lines of bees) and for pollen collecting in general (high and low pollen hoarding lines of bees),

none of them gained footholds in the marketplace of economic viability. In a recent paper by Israeli researchers (Dag et al, 2005), honey bees were shown to have differential and apparently heritable preferences for pollen collecting from yet another crop (apples). Given the relatively high value of apples (on a yield per area basis), the research opens the possibility to revisit the issue of economic viability for crop specific selective breeding in the future. The authors conducted the research at three locations in northern Israel over four years in orchards where the main variety was Red

Delicious. The researchers used pollen traps on colonies during the apple bloom period to assess the relative proportion of apple pollen collected by the various experimental hives. For the first year, a locally selected Italian strain (Zriffin – 31 colonies) and an Italian strain imported from Hawaii (eight colonies) were compared. The Zriffin strain collected a significantly higher proportion of apple pollen. In year two the authors compared four different strains, including one "selected strain" that was composed of freely-mated queens derived from queen mothers that were themselves produced by instrumental insemination from the highest apple pollen collecting colonies from the first year (14 colonies). The other three strains included queens from an Is-

raeli Buckfast strain (five colonies), a Hawaiian Italian strain (five colonies) and an Australian Italian strain (seven colonies). The Australian Italian strain collected significantly more apple pollen than the other strains. In year three the authors used 30 colonies of the Zriffin Italian strain and three queens of the New World Carniolan (NWC) strain from Hawaii.

The primary purpose of the 3rd year's experiment was to select representatives expressing the highest and lowest tendencies to collect apple pollen. The three highest and four lowest apple pollen collecting colonies (interestingly, one NWC made it into each of these groups) were then used as parental stock for instrumental insemination production of 19 queens of a high apple pollen collecting strain and 15 queens of a low apple pollen collecting strain to use in the final year of the experi-

ment. The authors reported that in the final year the "high strain colonies maintained a higher apple pollen percentage throughout the season, approaching statistical significance...". While this is another way of saying they were not statistically different based on the initial analysis, the authors then applied another type of statistical test that examined the "rankings" of the high and low apple pollen collecting lines. They found that the three "high-strain" groups were ranked one to three in the proportion of apple pollen collected by all groups and the five 'low-strain' groups were ranked in places five to eight, a ranking result that could happen by chance less than two times in a hundred.

In the Discussion, Dag and col-



leagues make the case for the occurrence of a genetic component to the preference of honey bees to collect apple pollen. They suggest that a selection program might enhance this trait by combining specific selection for apple pollen collecting with selection for a high level of pollen hoarding in general. Based on this study and others it is clear that it is quite possible to produce a strain of honey bees exhibiting "enhanced performance as apple pollinators." The overarching question remains, however, as to whether extant market forces could maintain such a strain of honey bees or whether it would exist only as a short-lived scientific curiosity. **BC**

Dr. W. Steve Sheppard, Thurber Chair, Dept. of Entomology, WA State University, Pullman, WA 99164-6382, shepp@mail.wsu.edu; www.apis.wsu.edu.

Dag, A., R. A. Stern & S. Shafir. 2005. Honey bee (*Apis mellifera*) strains differ in apple (*Malus domestica*) pollen foraging preference. *Journal of Apicultural Research* 44:15-20.

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Young Harris College in the town of the same name, and nestled in the Northeast Georgia moun-

tains, hosted the 51st meeting of the Eastern Apicultural Society (EAS), the first ever in the Peach State. The organizers were surprised that it was oversubscribed (361 people showed up), but it was no shocker that President Jennifer Berry and the busy worker bees of the Georgia Beekeepers Association put on a great show. Although somewhat focused on a rather small part of the region's colorful history, making illegal spirits (participants at the hog roast received a shot glass engraved with "Let the Georgia Moon Shine on You"), there was plenty of evidence that the global economy has reached this part of the world. One only has to look at the number of Tex-Mex restaurants in the region, and listen to the strains of Mariachi norteños on the local radio stations to realize that "times they are a changing."

Several themes provided a more worldly emphasis as well. The presence of the infamous Africanized honey bee in Florida (AHB) was one focus of the meeting, and so was the current situation with reference to queen breeding (the Russians have arrived), *Varroa* mite taxonomy and resistance possibilities via news from Australia, and international standards for the honey show with two certified judges in attendance, one each from Ireland and Wales. The bottom line is that the depth and quality of information provided at this conference gets better each year.

Jerry Hayes, Florida's chief apiarist, told those in attendance that it's no longer if, but when the more "defensive" AHB will show up on the eastern beekeepers' doorstep. His message: Beekeepers and regulators had better be ready, for the situation is rapidly heating up in the Sunshine State, and this could provide a nucleus of bees that could rapidly infest the rest of the eastern seaboard. He sees the biggest problems from this insect as not management by the beekeeper, but public relations with the 99.99 percent of people in the

Malcolm T. Sanford

EAS Goes Global In Georgia



"The depth and quality of information provided at this conference gets better each year."

state who are not into working with stinging insects. As such Florida's Department of Agriculture has pulled out all the stops and embarked on an ambitious plan to educate everyone in this urban state about the benefits of honey bees and most importantly, the potential ally that the beekeeper managing white boxes is in limiting invasion opportunities for AHB. To see an example of activities in this area, one can look at those of the AHB Interagency Coordination Group.¹

Under normal circumstances, bringing somebody from as far away as Australia to educate beekeepers would seem counterproductive, given that beekeeping is really a local phenomenon. But this is clearly not so when the organism in question is the *Varroa* bee mite, a globally-distributed organism that has radically transformed beekeeping over the last three and a half decades. Because Australia is the last land mass of any significant size to be affected by this mite, one might also assume that little research on the critter itself would be required apart from efforts to exclude it. However, Australia's Commonwealth Scientific and Industrial Research Organization (CSIRO), approximately equivalent to USDA's Agricultural Research Service, has employed Dr. Denis Anderson,² who specialized in bee pathology for much of his education, to get a handle on this pest's biology before it shows up "Down Under."

Using good old-fashion detective work, and incorporating newfangled technology (DNA analysis), Dr. Anderson has been able to piece together an engaging story that he regaled the audience with, peppered by Aus-

sie accent and euphemism. Several clues led to the conclusion that the mite originally described in 1904 as *Varroa jacobsoni* is in fact not the one that is causing havoc across the beekeeping world. Two observations led to further investigation. Some *Varroa* did not reproduce on the western honey bee, *Apis mellifera*, including *Varroa jacobsoni* itself as first described from Java, and the mite causing the biggest problems was a lot larger than its *jacobsoni* cousin. From this beginning, it is now known that the genus *Varroa* is a large complex of mites distributed across Asia containing many genetically similar races (genotypes), rather like honey bees themselves. However, the *Varroa* mite complex does not have the same cosmopolitan characteristics as the *Apis mellifera* one, the latter being far more able to reproduce among its genetic variants (ecotypes). Over 20 different *Varroa* called "haplotypes" have been identified. Amazingly, all are associated with specific *Apis cerana* hosts in their native range, but only two have actually made the jump from their original host to the western honey bee, *Apis mellifera*. These are the virulent Korean and more benign Japanese haplotypes, now renamed *Varroa destructor* by Dr. Anderson and colleagues.

When the biological basis for separating these mites is better understood, Dr. Anderson said, the next step will be to find out what allows some mites to reproduce on *Apis mellifera*, but not others. Once discovered, this should lead to developing truly *Varroa*-resistant as opposed to simply *Varroa*-tolerant western honey bees. Dr. Anderson



Denis Anderson from Australia (right) gives a workshop in the beeyard at EAS 2006 in Young Harris, Georgia.

believes the mechanism is a specific chemical signal or signals that literally switch on mite reproduction. If the mites do not receive the signal, they do not reproduce, ending their life cycle. Thus, two possibilities come to mind, selecting for bees that do not produce the proper reproductive signal or using genetic engineering to develop bee strains whose signals mites cannot recognize.

Finally, Dr. Anderson spoke eloquently about how *Varroa destructor* affects honey bees. There is a recognized pathology associated with the mite that consists of several possibilities. The first, of course, is the collective effect of the mites themselves as they feed on developing bees. Clearly pupae that are heavily fed on (parasitized) by mites cannot develop normally. This "mechanical damage" leads to all kinds of conditions, including: weight loss, wing deformity, low protein content, shrunk brood food glands, less sperm in drones and runty queens.

However, the question remains, according to Dr. Anderson, whether the above situations themselves lead inevitably to colony death. Another host of problems comes from pathogens that *Varroa* is affiliated with, especially viruses. Some may be transmitted by mites, but others may simply be present in bees and "activated." Dr. Anderson called the latter kind "inapparent viruses." Some 18 viruses have been found in honey bees. Several are clearly associated with *Varroa*, including Kashmir bee

virus (KBV), acute bee paralysis, deformed-wing virus, and cloudy wing virus. The problem is that these are little studied and their symptoms more often than not mimic those of mechanical damage as described above. Other pathological affects correlated with mites are suppressed immune systems, mite-produced foreign enzymes injected into bees, and stress, leading to other conditions (American foulbrood, chalkbrood), the newest organism affecting colonies, the small hive beetle (SHB) and its population buildup.

In conclusion, Dr. Anderson said that no one strategy can be employed to control all *Varroa*'s pathological effects, but in general, there is one with the most chance of accomplishing this on a broader scale. That is the time-honored one of controlling the mite population in bee colonies. This will have to be the goal of beekeepers until research reveals the reproductive "off" switch that he and others are feverishly searching for.

Part of the strategy suggested by Dr. Anderson is already being applied, but in a different manner by researchers at the USDA-ARS Baton Rouge, LA honey bee laboratory. This was relayed by Dr. John Harbo, recently retired from that facility, who assured the audience that he will now become a beekeeper in his own right so will be able to understand better the common problems of the general apiculturalist. Dr. Harbo is credited with finding specific populations of bees in the U.S. on which

Varroa indeed does not reproduce. Originally, he attributed this trait to the ability of honey bees to influence mite reproduction, calling them SMR (suppressed mite reproduction) or "Smart", terms still in use. However, more recently he discovered that mite reproduction itself was not reduced in bees showing the SMR trait. Instead some bees are much better at detecting and removing reproductive mites (and their associated bee pupae), while leaving non-reproductive individuals alone.

Thus, the SMR trait has now been renamed *Varroa*-sensitive hygienic (VSH). Two observations led to more insight about this trait. One is that reproductive mites deposit a fecal patch on the side of the cell; non-reproductive mites do it on the developing bee itself, providing a good signal to any human observer about a mite's reproductive status. Another is that it appears to be a common attribute that 11% of female mites in general are not reproductive. Thus, the VSH trait can be fairly easily monitored and calculated, and it is both heritable and additive. Once the frequency of mites that lay no eggs is calculated, for example, one automatically knows the level of the VSH trait present in bees. Dr. Harbo concluded that just a few genes of the VSH trait placed by selection into a honey bee population could make a huge difference in how a colony copes with mites.

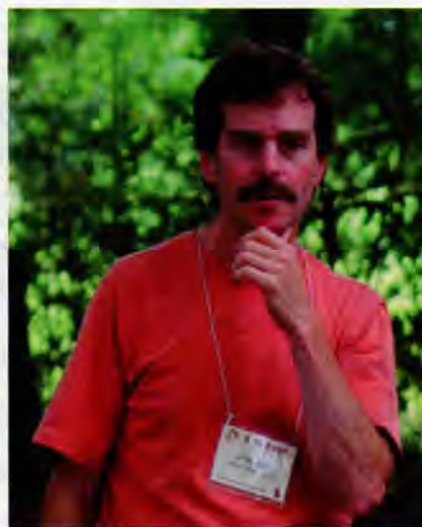
Reducing *Varroa* mite populations is best done using integrated pest management (IPM), according to Dr. Keith Delaplane of the University of Georgia. This could be accomplished through other mechanisms beyond pesticide application, such as drone trapping, monitoring hygienic behavior, and reducing mite numbers using screened bottom boards. Employing only hygienic behavior and screened bottoms, Dr. Delaplane and colleagues have shown it is possible to get keep the mite population below the economic threshold (level at which they cause economic damage). The biggest problem with both these measurements is the time involved in sampling. Now that it is known

that mite numbers can be radically effected by IPM, Dr. Delaplane says perhaps the best use of researchers' and beekeepers' time is to develop more efficient population-sampling procedures.

As was the case at last year's EAS meeting in Kent, OH there continues to be great concern in the beekeeping community about the queen bee supply. One of Georgia's traditional producers, Fred Rossman, discussed the status from his perspective. He "guesstimates" some 265,000 queens are produced each year in Georgia, making it second to California, with 75,000 going into package bees during April and May. The number of shippers is declining in the state with only about 20 being able to hang on at the present time. Huge challenges are affecting the industry, especially those surrounding shipping the insects. Only UPS will ship and the U.S. Postal Service continues to make it extremely difficult to continue this practice. Note letter in the August 2006 *Bee Culture* asking for support for SB 2395 by Gus Rouse of Kona Queen in Hawaii.

Dr. Steve Sheppard of Washington State University also discussed his latest findings concerning queen sources. Several historic "genetic bottle necks" have been identified that have served to produce a huge number of queens in the U.S., but with a narrow genetic diversity, which has been further reduced through loss of most of the feral population by *Varroa* predation. Only nine out of 26 species of bees have much representation in the U.S. gene pool, and there is a large difference between those produced in the east versus the west. To increase diversity, Dr. Sheppard suggested more genetic material should be shared between geographic regions. Finally, if any genetic material is brought into the U.S. in an effort to maximize diversity, he concluded, that the best and least risky source would be from the bees' Old World native ranges.

It is becoming clear that drones are also part of the queen supply equation. We now know that they are adversely affected by low levels



Greg Hunt from Purdue University in Indiana gives a lecture in the beeyard at EAS 2006.

of pesticide use in colonies. In addition, paternity makes a big difference when it comes to the process of Africanization. Dr. Greg Hunt of Purdue University, in his discussion of managing this phenomenon, indicated that although theoretically genetic crosses between European (EHB) and Africanized (AHB) lines should not be affected by paternity, that is not the case from a practical standpoint. In general, EHB queens mated with AHB drones in everyday produce workers that exhibit more rampant African behavior than would be theoretically predicted.

A discussion of drone rearing by Dr. Larry Connor, owner of Wicwas Press, who says drones are more important than you think, revealed the importance of feeding syrup and pollen for maximum production. He also provided information on sustaining drone holding colonies: four frames of target drones with four frames of brood and a caged virgin. These ideally could be set out 2.5 to .5 miles from the mating apiary. He detailed a two-year plan using 40 colonies incorporating five lines (survivor, Russian, SMR-now VSH, Minnesota hygienics and New World Carniolans).

Dr. Marion Ellis and students spent a summer looking for drone congregation areas (DCAs) on the University of Nebraska campus, and collected data suggesting that these are not randomly placed, but ap-

pear to coincide with linear objects that drones use as navigational aids rather than direction of the sun as employed by foragers. He concludes the best chance of finding a drone congregation area using a fishing rod and weather balloon with lure is at the end of long rows of evergreen trees at the University of Nebraska. As part of this study, he and his students found that drones were usually located further from colonies (three to five kilometers) than queens (one to four kilometers).

It is impossible to describe in one column the total of the week's activities in Georgia that encompassed both an EAS short course and conference program. Suffice to say it was full of both beekeeping and social activities. The latter included the southern hog roast featuring a welcome from a certain Confederate Colonel Forrest who regaled the "Yankees" in the crowd with a good dose of Southern humor, a low-country shrimp and sausage boil, and the final costume ball and banquet. The honey exchange, auctions, award ceremonies (Hambleton, Morse and Divelbiss) and master beekeeper examinations, and first-ever Jeopard-Bee Contest rounded out the event.

Next year EAS meets again in Delaware after a 10-year hiatus at the University in Newark, just off I-95. The theme is "Beekeeping - Inside & Out." We already have a taste of the event provided in the Summer 2006 *EAS Journal*. If you join The Eastern Apicultural Society today (send a \$25 check made out to EAS to the Treasurer, John Tulloch, P.O. Box 473, 211 High St. Odessa, DE 19730), you will receive four more newsletters about the event before it occurs, August 6-10, 2007. I hope to see you there. **BC**

References:

1. www.doacs.state.fl.us/pi/plantinsp/apiary/ahbgroup/, accessed August 20, 2006.
2. www.ento.csiro.au/staffhome/danderson.html, accessed August 20, 2006.
3. And for more on EAS visit www.easternapiculture.org.

Almond Pollination 2007

Learn The Lessons From Last Year!

Kim Flottum

Back in April we reviewed a host of computer chat-room (Bee-L) messages from assorted people who had been involved in California almond pollination earlier in the season. We thought it prudent to revisit those messages from the past and update any information we've gleaned since then before the big rush begins again. There is no doubt that what happens in California starting in October this year will affect beekeeping in every state during 2007. Mite treatments, queen problems, nutrition issues, transportation costs, pollination contracts, African honey bee movement, honey prices, honey bee imports and more will affect, and be affected by what happens before, during and after the greatest pollination adventure in the Universe.

Beekeepers and almond growers are wiser this year, and pollination brokers always were pretty wise, so let's take a look and see what they have to say.

Sharpen your pencil when you start figuring out your Opportunity Cost to pollinate. Honey will reach some pretty good prices this Winter due to the world-wide shortage and they won't drop much at all until Argentina's crop comes in next Spring. Even though Canada has a pretty good crop they don't sell cheap, and China had a bust for a crop this year, plus honey is being used in-country more than ever, plus their bonding loophole has been plugged. Add to that the extreme crop shortage in this country and what do you have? Confusion, that's what.

Where will honey prices be a year from now? If it's still in the clouds will pollinating almonds mess up your honey production: only a little; some, but not much; lots; terminally – pick one. What if there's yet another U.S. crop failure? Does it make a difference whether there is any honey at all? And what if the only money you plan to make next year is pollination money? But what if pollination takes away a quarter of a bumper crop? Or a quarter of an average crop? Or half? Or more? And what about other pollination work? Do almonds enhance colony

performance later in the Spring? Hurt performance? Take you out of the picture? Can you afford to lose those crops if everything turns to crap? Will this harm long term relationships with growers at home? And just so you know, can you even afford to haul your bees all the way to California, even if it's taken out of the final pay? Or, can you afford not to try this because you just don't know about honey next year, or other pollination next year. Or your banker says you gotta try something, or else.

Take a full day this month and do the math. Then do

it again. Sharpen that pencil ten or twenty times. This is kind of like playing poker for lots of real money with those smarter-than-most-of-us guys on TV. Knowing for sure – figuring in honey production, all the pollination costs and returns for all the crops you do will answer that big question – Will bills get paid next October? Then decide.

Of course the fundamental rule is Go

West Young Man, Go West – But Only If You Have A Solid, Iron Clad, Bullet Proof Pollination Contract with a grower or pollination broker you have checked, rechecked and checked again. And you had better understand every word, every sentence, every clause, every nuance of that contract. You better know exactly how strong your bees need to be, what happens to you if they are not but what you get if they are stronger. Flat out, you better have more than enough colonies ready to fill that contract when it's time to be filled. You can probably rent any extras.

How much are you being paid this year? And when do you get paid? Before, during, after bloom? Half and half? One long-time broker this season is charging growers \$145 for eight frames of bees, brood not included. A big multistate beekeeping operation is charging \$150 for eight frames of bees at 60 degrees or higher. Early on last year beekeepers took advantage of the appearance of a shortage and were charging what seemed like outrageous prices, sometimes for empty boxes. But late in the game there appeared to be a glut of colonies and growers took





advantage of that, offering only \$80. Nobody really wins in a gouge and glut market.

Obviously the cost of fuel is a factor again this year. And all those critters that can ride along on pallets – fire ants, any ants, weeds, weed seeds and the like are problems. There's ample information available on eliminating these pests before you load and several tests to find them after you do, just to make sure, so there's no excuse anymore if you bring some along and the border police get testy. You can hope they won't be found or you can make sure there aren't any to be found. Fixing it first is easier than fixing it later, or going home empty handed.

Once you've made it in you have to have a place to stay if you've arrived early. Do you happen to know where there's 20 or 1000 acres of unused land near your orchards that's passable after 100 days of rain and is safe from hive theft? And when a holding yard is found who will check the bees? You? You I'd trust with my bees. Maybe not that other guy. And checking for what? Strength? OK, they need feed. Feeding what? Sugar and protein obviously. But how much time do you have before you move into that orchard, and how many bees do you have, and how much food do you need to get them up to strength and keep them there, and where do you get all that feed and the feeders and how much is it all going to cost? It's a math thing again. Or a planning ahead thing. You choose. Either way, you spend.

But virus, *Varroa*, and tracheal mites can negate all that expensive food if you aren't careful. If you treated before they left that's good. But if you didn't because they were in the snow do you need to treat now? If no, that's good. But if yes, with what? Every answer costs money because somebody has to look, and you spend again.

So who says your bees are strong enough? If it's your Broker that's fair. What about the almond grower or a government official or a private contractor? Even you?

Who says, really? Your contract says, that's who.

Or at least leave some doors open for discussion.



The point is, have a fall-back position both you and your grower agree on in case a question comes up and you need to appeal.

Next. You have a contract, transportation, and a place. But suddenly you don't have the bees! What happened? What ever you did, it didn't work and you need to find 50, 1000, 3000 strong-enough colonies in next to no time at all. What's that contract say? Probably that you'll find colonies, or you'll pay to have someone find them, or...well, you'll probably pay and pay and pay. If not in actual dollars, in reputation and respect. But hey, you said you'd have enough, and now some grower is short, and nuts are back to \$3.00 a pound and the screaming you hear all they way out to your place is that grower. Who do you call? Boy, know that answer before you sign anything.

If things go well you'll get them taken care of – fed, medicated if needed, and ready to move into the orchard... oh, how does that work? Got a truck I can borrow for a

couple of nights? Got a front end loader or lots of really strong guys handy? Know where you can get any of the above when everything approaching a pallet mover is being used by every beekeeper in California? Oops.

Ever been in a strange 2000 acre orchard without paved roads at 2:30 AM on a cloudy night? Hmmm. Should've seen that one coming. But let's assume it worked and you got them placed and the weather's fine and the bees are flying and life is good.

Of course every day your bees are kicking butt, bees from that guy from (pick your least favorite state here) are drifting over to your colonies bringing who knows what with them. You did due diligence, but did he? What evil is he sharing? Ouch.

So it's more time and money checking for pests and feed and to stop swarms. And just checking. And who ever that is, is sleeping somewhere that costs dollars whether it's you or a hired somebody, and checking is absolutely necessary. Figure on that cost.

Almond growers, too, have some fundamental math to work out, and the story problems are pretty much the same. Their opportunity cost is the flat-out gamble of how many colonies per acre to rent. Experienced brokers and crop insurance companies say two per acre at least. Cool rainy weather says more. The high or low price of nuts a year from now gets the nod and sets the number of colonies used, but what will that price be?

Contracts? You bet, covering strength, number, price, delivery time and departure. All the same things you need. The finished document is as good as it gets, if your attorney is as smart as their attorney.

The article we printed last April detailed five major problems that occurred in almond pollination in 2006. They were: Supply and demand; lack of contracts; border problems; grading; and gouging. And they added education.

The suggestion was to educate growers about the difference between renting boxes and renting bees; about numbers of frames in a box; about grading criteria – time of day, temperature – and about the minimum strength needed to do the job.

And it was about beekeeper education, too. When to treat for mites – late September to early October; when to start feeding – mid October; what to feed – pollen, pollen supplement and HFCS or better, sugar syrup; where to park – somewhere near a local beekeeper who knows the repair shops, syrup suppliers, and where accessible yards are. Use G.P.S. for orchards and locations in orchards if you have to, warned one, and above all – do your homework.

This is all good advice and food for thought, certainly. Talk to brokers, to growers, to experienced beekeepers in both California and just down the road, do the math, sharpen your pencil, cross your fingers, and maybe offer up a little prayer. Mostly, be really, really prepared.

If you do, this just might be the year that it really will be better. **BC**





Taking On The Resnicks

An Introduction To The Owners Of Paramount Citrus

Joe Traynor

A Brief History

In late April this year, just after most beekeepers had placed bees on long-held citrus locations in the San Joaquin Valley, a number of beekeepers received a startling letter from Paramount Citrus' in-house attorney stating that "Paramount hereby demands that you immediately remove your bee hives a minimum of two (2) miles away from Paramount's Property" and threatening legal action if this demand was not met. Honey bees can contribute to seediness in certain varieties of mandarins by transferring pollen from certain other varieties; seeds greatly reduce the market value of these mandarin varieties.

If beekeepers are held liable for their bees trespassing on another person's property, no bee operation in the U.S. is secure. As one beekeeper put it "we're going to war." Past cases of trespassing bees have been decided in favor of beekeepers but never have beekeepers been pitted

against as formidable an opponent as Paramount Citrus and its billionaire owner, Stewart Resnick.

Paramount Citrus is a subsidiary of the giant, Los Angeles based Roll International Corporation holding company privately owned by Stewart and Lynda Resnick. Knowledge of one's opponent helps in preparing for war; it also helps if one can demonize the enemy. Although the Resnicks are publicity shy (unless they are promoting their own products) ample information on them is available. Unlike recent disgraced heads of empires, one searches in vain for any sign of malfeasance or impropriety on the part of the Resnicks. In fact, the more one learns about them, the more one comes away with a grudging respect for what they have accomplished – they are the quintessential American success story. Mr. and Mrs. Resnick have earned the sobriquet "Power Couple" and are probably the most powerful couple in California.

Stewart Resnick, 67, put his way through UCLA law school by operating a janitor service. Lynda Resnick, 61, is a highly intelligent and energetic woman and a co-equal partner with her husband. She started her own ad agency at 19 and has been listed as one of *Working Woman's* top 50 business owners for six consecutive years and, in 2003, was named California's *Person of the Year*. Together, the Resnicks make a formidable team.

The Resnicks live in a \$17 million Beverly Hills mansion decorated with fine art work. They serve on the boards of three major museums: Los Angeles County Museum of Art (LACMA), New York Metropolitan Museum of Art and the National Gallery of Art. As philanthropists, the Resnicks have been more than generous, donating \$25 million to LACMA and \$15 million to UCLA's Medical Hospital. They have made numerous other donations, including to many political candidates, almost





exclusively Democrats. As members of Hollywood's A-list, the Resnicks have the requisite second home in Aspen, Colorado and are well connected in Hollywood. Lynda Resnick's father produced horror films, including the cult classic *The Blob* (co-starring screen neophyte Steve McQueen). Their pomegranate juice, POM Wonderful, is a staple at the major annual Oscar parties and is consumed by a number of Hollywood notables.

Following are the seven major companies of the Resnick Empire:

Teleflora

In 1980, the Resnicks purchased Teleflora and by pairing flowers with gifts, turned the company into the world's largest flower seller.

Franklin Mint

In 1984, the Resnicks purchased the Franklin Mint for \$187 million and, as with Teleflora, infused the company with new energy, introducing 1500 new items including \$100 Rolls Royce replicas and \$4800 Faberge-type eggs. An annual advertising budget of \$100 million was the engine that drove the Franklin Mint to record sales. These ads are textbook examples of the power of advertising to create a burning desire in people to purchase something they really don't need and weren't even aware they wanted.

One senses advertising genius Lynda Resnick as the creative force behind the extremely effective Franklin Mint ads. *Note to honey producers: hire Mrs. Resnick to put together an advertising blitz for honey. Cautionary note: don't ever refer to to Franklin Mint collectibles as "kitsch."*

In two separate Franklin Mint cases, with two different outcomes, the Resnicks showed that they are not averse to litigation. In 2002, the Franklin Mint won approximately \$25 million in punitive damages from the Princess Diana fund. The Fund had sued the Franklin Mint for using Diana's image on a collectible. The Resnicks counter sued and won, then magnanimously donated their winnings to charities, including Princess Diana's favorite charities. The legal fees for each side in this dispute totaled in the millions of dollars. In a rare legal defeat for the Resnicks, Tiger Woods won a substantial sum from the Franklin Mint who had issued, without Mr. Woods' permission, a medallion commemorating Woods' 1996 Master's championship. Woods' papers referred to Franklin Mint goods as "low level merchandise of the type which Tiger Woods does not wish to associate himself."

The Resnicks recently entered into an agreement to sell the Franklin Mint. Perhaps the collectibles market became saturated, or perhaps the Resnicks tired of fielding questions from guests at their Beverly Hills mansion as to what the porcelain replica of the Star Trek crew was doing next to the Matisse original.

Paramount Farming Co.

The Resnicks started Paramount Farming in the 1980s, leveraging dollars from cash cows Franklin Mint and Teleflora to purchase thousands of acres of almond and pistachio orchards. Their timing was impeccable. Oil and insurance companies with large agricultural holdings wanted to get out of ag since commodity prices were depressed and the future was cloudy. These cash-rich companies didn't haggle about price and the Resnicks were able to buy quality orchards at bargain basement prices. Paramount now farms about 30,000 acres of almonds, 25,000 acres of pistachios and 6,000 acres of pomegranates in the southern San Joaquin Valley (mainly Kern County).

Nut prices rebounded in the

1990s and both prices and nut yields have been excellent in recent years. Almonds and pistachios are both bright spots in an ailing agriculture economy that suffers from global competition. Almonds require a "Mediterranean Climate" found in few places in the world. The six to eight years it takes for pistachios to bear a crop has discouraged many from planting them; also, pistachios from major producer, Iran, are prohibited from being sold in the U.S. Getting into almonds and pistachios was a gutsy move for the Resnicks but one that has paid off big time. Paramount Farming recently purchased 15,000 acres of row-crop land in Madera county from Newhall Land Co., that will undoubtedly be planted to almonds, pistachios and pomegranates. Paramount Farming has replaced the Franklin Mint as the jewel of the Roll Corporation's holdings.

Paramount Citrus

The Resnicks purchased Paramount Citrus in the 1980s. They own 20,000 acres of their own citrus and farm another 10,000 acres through their subsidiary S&J Farm Management. Paramount Citrus is the largest citrus grower in California and supplies 20% of Sunkist's citrus. Citrus has not been nearly as profitable as almonds or pistachios and to improve Paramount Citrus' bottom line, the Resnicks decided to plant the popular new seedless varieties that command a premium price in the market. It was this decision that led to the current standoff with beekeepers.

Suterra

Paramount Farming cooperated with UC researchers in testing pheromones that disrupted the mating of navel orange worms, a major pest of almonds. To continually dispense a fixed amount of pheromone to the orchard, puffer dispensers were used. Paramount Farming purchased the technology and formed an ancillary company, Suterra, to sell this technology to others. Suterra products could be

useful to beekeepers in wax moth control and possibly in the control of other honey bee pests. CheckMate is the brand name of one of Suttera's products.

POM Wonderful

As with Suttera, pomegranates found the Resnicks rather than vice versa. One of the large almond-pistachio holdings they purchased also had 100 acres of pomegranates. Paramount planned to replant the pomegranates with almonds but the pomegranates made money the first year, then the next and Paramount Farming now has 6,000 acres of what was heretofore considered a very minor crop. Lynda Resnick researched the health benefits of pomegranates, was intrigued by what she found and hired Nobel Laureate Dr. Louis Ignarro to conduct further studies. The Resnicks have spent \$10 million on scientific studies on the health benefits of pomegranates (and pomegranate juice) with another \$8 million earmarked for future research.

Paramount's choicest pomegranates go to the fresh market, the remainder for juice – and extracting juice from pomegranates is a formidable undertaking. Lynda Resnick has created, from scratch, a solid market for a brand new product, one that will improve the health of those that consume it. This is a considerable achievement and one that the Resnicks are justifiably proud of. The surprising success of POM Wonderful has spawned numerous copy-cat producers of pomegranate juice, riding on the coat tails of the Resnicks' pioneering efforts. *Note to Honey Board: Hire Mrs. Resnick to map out a marketing plan for honey.*

Fiji Water

In December of 2004, the Resnicks entered the bottled water business by purchasing Fiji Water (for either \$50 million or \$150 million depending on the source). The purchase was probably a sound business investment since the original owners spent \$48 million

to build an on-site bottling plant (in Fiji) in 1995 and annual sales were about \$25 million (since increased by 67% over the past year with the application of the Resnicks' marketing savvy). With this purchase, however, the Resnicks have regressed to their Franklin Mint days, selling people something they don't need (the test: would citizens of a developing country buy your product?). Shipping water from Fiji to the U.S. in disposable plastic bottles makes no sense to confirmed environmentalists. *Here's a conundrum: why are so many Prius-driving Hollywood Democrats also enthusiastic consumers of Fiji Water?*

Owning any one of the many companies under the Roll Corporation banner would justify a cover story in a national magazine. For one couple to own all of them is truly mind-boggling. When people rise as high as the Resnicks, they become tempting targets for those that would denigrate their achievements, including those that have not accomplished in their lives a tiny fraction of what the Resnicks have accomplished. The Resnicks could answer their critics by quoting Theodore Roosevelt: *"The man that really counts in the world is the doer, not the mere critic."* The Resnicks saga is a remarkable and uniquely American success story.

As with the Franklin Mint, both Paramount Farming and Paramount Citrus have gotten involved in legal disputes. Paramount Farming is currently attempting to extract itself from the Pistachio Commission, an organization of growers that is assessed according to acreage with a portion of the assessments going to generic advertising. The Resnicks feel their assessment dollars can be better spent advertising their own pistachios (currently sold under the Sunkist label) and are using free speech statutes to back their case. Paramount Citrus is trying to back out of Sunkist on related grounds. In both cases, it would be easy, but unfair, to slap the "does not play well with others" label on the Resnicks

but who can blame them for their actions? With their track record of marketing successes one can only imagine their frustration at having little or no control over the marketing of their health-giving almonds and pistachios.

Some beekeepers have called for a boycott of Paramount almond orchards and at least two beekeepers involved in the the current dispute have told Paramount that they won't deliver almond bees in 2007. Unfortunately, an effective boycott of Paramount's almond orchards is dead in the water because there are plenty of beekeepers out there who would be happy to service Paramount's almond acreage and who have no suitable almond alternatives. Beekeepers who have come to depend on an annual almond pollination check most likely won't jeopardize that check. Who can blame them?

And where does Paramount Farming, sister company of Paramount Citrus stand in this matter? On the sidelines. Paramount Farming is sympathetic to the beekeeper position and has even apologized for the confrontational tone of Paramount Citrus, however the final say in this matter belongs to Stewart Resnick and Mr. Resnick has apparently made up his mind that the bees must go. Just as no one was able to explain to President Bush the ramifications of invading Iraq, no one can explain the ramifications of his bee policy



to Stewart Resnick. At this time, it appears that negotiations will be unsuccessful and that litigation is inevitable. If such be the case, beekeepers are united in their stand – “Bring it on!”

The New King (and Queen) of California

Jim Boswell, the largest cotton grower in California (and the world) was labeled *The King of California* in an excellent 2003 book of the same name by Mark Arax and Rich Wartzman. With California's cotton acreage half of what it was 10 years ago (much of it converted to almonds) Stewart Resnick can justifiably lay claim to the title *King of California* or, more accurately, Resnick, with his wife Lynda have earned the title *The King and Queen of California*.

There are some striking parallels between Jim Boswell and Stewart Resnick. Both live in palatial homes in the Los Angeles area. At one time Boswell was the largest single renter of bees in California (and the world) using two-plus colonies per acre on thousands of acres of alfalfa seed (an excellent rotation crop with cotton). The Resnicks are now the largest renter of bees in the world on their vast almond holdings. Both Boswell and Resnick have come under fire for using state and federal water on their holdings – water that would command a much higher price on the open market. Both have in-house attorneys and neither is averse to litigation. Both have succumbed to the temptation common to many who have built empires: to re-write the Golden Rule as *The Man with the Gold Makes the Rules*. Both are stubborn, which can be either a fault or a virtue depending on the circumstances.

In the 1980s, Boswell, convinced his rules applied, was on the losing end of a lawsuit that could serve as a cautionary tale for Resnick on

the perils of hubris. Boswell sued a group of farmers claiming their anti-Boswell ads on a contentious water issue were libelous. The farmers counter-sued on free-speech grounds and eventually won \$3 million in compensatory damages and an *additional* \$8 million in punitive damages. Punitive damages – that the defendant knowingly and maliciously caused harm – are difficult to prove, but some beekeepers feel a case can be made against Paramount Citrus. The dollar amount of punitive damages is based on the financial status of the payee; they are assessed high enough so that they inflict enough financial pain on the defendant to discourage future similar action by either the defendant or anyone else. Winning punitive damages against Paramount Citrus is a distinct long shot, but would represent a windfall for beekeepers if it happens.

In what could serve as an example of unchecked hubris, Paramount Citrus' attorney is threatening beekeepers with punitive damages if their bees are not removed. When one owns a legal pit bull, it must be tempting to unchain it from time to time to keep it in fighting trim.

Unsolicited Advice for the Resnicks From The Author

1. Topwork your problem mandarin varieties to ones that are seedless in the presence of bees. Or, isolate problem varieties at least two miles from problem pollen sources. With 20,000 acres of citrus, including pollen-sterile navels, surely you could do this. And why didn't you do it in the first place?
2. Get in the honey business. The

honey business is badly in need of someone with your proven marketing wizardry. Do for honey what you have done for pomegranates. You will become a hero to beekeepers.

3. On your 15,000 acre Madera holdings, consider planting crops such as safflower and canola; such crops could be cash crops for you and feed locations (esp. in late Summer and Fall) for honey bees. Such plantings could serve as cost-effective alternatives to moving bees to North Dakota for the Summer. Investigate other honey-pollen plants for feedlot beekeeping.
4. Secure the copyright to the song *The Farmer and the Cowboy Should be Friends* (from the musical *Oklahoma!*). Hire a lyricist to rewrite the lyrics, substituting *beekeeper* for *cowboy*. Have the song played whenever a can of almonds (or the front door at corporate headquarters) is opened.
5. Have the Franklin Mint fire up the furnaces in Philadelphia to produce a limited edition (limited to the number people purchase) bronze statue of a beekeeper with the inscription *Honey Bees – The Backbone of Agriculture*. Place a life-sized replica of the statue in front of Paramount Farming's headquarters.

Conclusion

If the current dispute goes to litigation, the only sure winners will be the attorneys. The best thing that beekeepers have going for them is that the Resnicks are good people. When good people are well informed, they usually make good decisions.

Epilog

A meeting between Paramount Citrus and representatives of the beekeeping community was to be held shortly after we went to press. We'll have information on next month's issue. Look for it, because it's going to set the trend for the next few years. **BC**



Bee By Bee

Larry Connor

It takes me, on average, five approaches to a subject in order to learn it.

One of the non-beekeeping books I value is one on writing by Anne Lamott; *Bird by Bird: Some Instructions on Writing and Life*. Lamott is both a writer and a teacher of writing. Her father was a writer and she tells stories about growing up with a writer-father and of learning to write herself by using humor while telling great stories. She tells a story she shares with new students in her writing classes: "Thirty years ago my older brother, who was 10 years old at the time, was trying to get a report on birds written that he'd had three months to write. [It] was due the next day, we were out at our family cabin in Boltinas, and he was at the kitchen table close to tears, surrounded by binder paper and pencils and unopened books on birds, immobilized by the hugeness of the task ahead. Then my father sat down beside him, put his arm around my brother's shoulder, and said, 'Bird by bird, buddy. Just take it bird by bird.'"

I value this book because it helps me face life's challenges as well as the blank computer screen. The author struggles to write, as I certainly do. And she has had more than a few bumps in life's path, and is willing to share them with her readers with a great deal of humor. It has helped me keep a balance, I think, between my science persona and my regular guy nature. It was very instructive earlier this year when I had a scheduled gap in my travel and speaking cycle so I was able to appear in a two-man show called *Greater Tuna*, where my fellow actor and I played 19 people and a dog in the fictional town of Tuna, Texas, the third smallest in the state. I faced the challenge of memorizing half a play's worth of dialogue as well as mastering 10 different characters, 10 costumes and 10 sets of mannerisms.

David, the other actor, and I sat down in February and recorded a CD of the play so I could to play it in the car as I drove from meeting to meeting. Maybe you passed me on the Interstate, muttering to myself in of several strong Texas accents as I labored to learn these lines. Lamott's advice provided me with the blueprint for how I should memorize the lines – one phrase at a time, then one paragraph at a time, repeating them over and over, so that I slowly built up my memory and confidence in the words in the show. It was a challenge: was it possible for my 60-year brain to hold this amount of information by the time the show opened in May? After all, I routinely forget the names of people I have known for years, or what it was I went into the store to buy for dinner.

At beekeeping meetings I often find beekeepers who are way over their head in the material being presented (sometimes they know it, painfully; other times, they have no clue). Usually I survey the audience to find the "new-bees" as well as the lifetime beekeepers, and even suggest they sit beside each other at lunch if possible. Of course, not everyone who says they are advanced beekeepers actually meet minimum standards for the craft; my telling them that would be a horrible mistake for both student and teacher! Using Lamott's approach, I need to build on what they know; not point out what they don't!

Lack of beekeeping experience becomes most apparent in beeyard demonstrations. Honest confessions of "I've never seen the queen before" are a bit frightening when the class is designed for advanced beekeepers. Of course, that is why these people have taken time out of their lives to learn more about bees and beekeeping, and

if it is necessary to back up or slow down to accommodate these people this is the only correct thing to do. So we take the time to show the "experienced" beekeepers a

One approach is to attend as many bee meetings as possible, to learn that 'one thing' they didn't know.

queen bee for the very first time, and those who have seen a queen a thousand times can move onto something new they have not seen before. There is always something to teach inside a beehive.

As both teacher and student, we must use Lamott's bird-by-bird imagery; convert it to a bee-by-bee model of teaching and learning. As teachers we must be mindful that our subject – bees and beekeeping – includes a wide range of relatively unrelated material, and sequential instruction is advised. For example, in a bee school the problems of beekeeping – brood diseases, parasitic mites, and other concerns – might be introduced before the new students have had a chance to *really* learn the parts of the beehive, the members of the bee community, and how basic bee biology works. And a 45-minute lecture on bee biology is rarely enough time to give new beekeeper the depth of knowledge of bee biology needed to understand the microbiology of American foulbrood. And without time inside a beehive, where the eggs, larvae, pupae and adult bees are clearly and repeatedly observed, it is hard to see how a new beekeeper will be able to understand the preferential feeding of *Varroa* mites.

Many bee organizations teach beekeeping classes for new beekeepers, especially people who are thinking about starting a hive of bees. There are multiple approaches to this subject, but the successful clubs seem to offer an

ongoing program of learning opportunities: sessions with mentors and monthly hive visits during the year. Other clubs might put on a winter six-week program and then are disappointed when few of the students started or stayed with bees.

In medical training, students are expected to see-do-teach any particular procedure: See a procedure, Do a procedure and Teach a procedure. We don't do that with new beekeepers on a regular basis. If each new beekeeper is given a thorough hive inspection to find a queen, and later is asked to do this on her/his own, then we can just as well as expect them to teach this process to other new beekeepers. It will cement the information into the mind of the beekeeper doing the see-do-teach, and will probably insure their success as a beekeeper since they will have integrated more of the information about bees than if they are repeatedly shown the same procedure without proof they understand what is happening.

Whenever I can during field events I like to hand the hive tool and smoker to a willing beekeeper to do the hive manipulations. The key then is not to criticize their methods, but to make suggestions in a helpful way so they may refine their way of working a hive. Just the simple act of removing a frame to inspect a colony is subject to many variations, but gentle suggestions on how to break the combs apart as well as systematically inspect for the

queen will encourage the beekeeper, and those watching, to develop some sort of systematic approach to hive inspection. The key problem I have is to remember to give the beekeeper the hive tool back after I have made a demonstration of some technique; the goal is to build the confidence of this beekeeper in an instructive environment, not razzle-dazzle them with my beekeeping technique!

I find it very important NOT to criticize while beekeepers are working a hive. Stay calm when something horrible (to you) is being done. The demonstrating beekeepers will undoubtedly be nervous (or should be!), carrying with them the methods taught to them by other well-meaning beekeepers, and will be filled with the opinions and insights passed on to them, right or wrong. If the apiary is comfortable to work in (no defensive bees) and the human environment is open to discussion and lacks strong

critique, then all the beekeepers are likely to relax and take seriously the business of learning without themselves being defensive or distracted. It is a great time to clear up misconceptions of biology, and try to reinforce their need for a solid basis in bee biology before expanding a beekeeping operation with many hives.

Rather than dealing with right-wrong methods, I like to show beekeepers an *alternative* method to do something, such as searching for the queen. My observation is that for most new beekeepers, the identification of a queen bee is hard. Lacking hundreds of hours of beekeeping experience, they have trouble seeing the *differences* between queens, workers and drones, but instead are still struck with the *similarities*. A series of small nuclei hives will help train a small group of new beekeepers to become expert in queen finding, recognizing key bee behaviors, and become adept in brood stage recognition. Bring a large hand magnifier to the apiary; many beekeepers need to get their vision checked, but I don't bring that

up until beekeepers try to learn to transfer larvae from worker cells to queen cells in a queen rearing class.

It takes me, on average, five approaches to a subject in order to learn it; five different methods of teaching or information exchange before I really know the material and it is integrated into my brain and body. This is why it is so hard to learn beekeeping by reading a book, regardless of who wrote it or how good it may be. Using

my acting experiences: when I learn lines for a show, I MUST use MULTIPLE techniques to learn the speeches word perfect; reading them, saying the words out loud, writing them out, listening to them repeatedly on a CD, and actual rehearsal with full set, sound, lights, costumes and props. Of course, some people learn faster than I do, but whether a person is learning facts about beekeeping or lines in a show, it takes them time, effort, countless repetitions, and varied techniques.

Lamott suggests you break things into the smallest possible unit to work with it effectively. In June it was my pleasure to help Dr. Marion Ellis put on his Master Beekeeper program at the University of Nebraska, outside Lincoln. This program is not like the EAS Master Beekeeping program (a testing of existing knowledge). Marion's program is modeled after the Master Gardner program, and is a focused teaching/learning environment



Marion Ellis, left, uses a part-by-part approach to teach honey bee anatomy in his Master Beekeeper class.

for beekeepers with different skill sets. I find the program ideal for teaching beekeeping in a three-day program, and sending the students on the road with a series of lessons and activities they must complete before they become Nebraska Master Beekeepers. I wish more states used this model for beekeeper training.

The Nebraska program is effective in breaking the complex subject of bees and beekeeping into smaller, manageable units. It also lays a solid foundation of general biology for the students to understand the workings of all insects and their relatives. Since this is a university program, Marion is able to rely on resources of the University for speakers (an introduction to all insects) and for technology. One effective tool was a micro camera video system that served as a microscope that is viewed on a computer screen. When a live bee was observed under this system, the beekeepers could see features they had probably only read about. Well, we hope they have read about it, anyway. It helps teach the fact that insects perceive the world differently than humans do, that their methods of seeing, hearing, tasting, feeling and smelling are quite different than mammals.

I liked the approach Marion and his students used to demonstrate the parts of the bee. They had a separate microscope set up to show each structure: wing, mouthparts, leg, etc., so the beekeeper could see the actual item and look at a drawing next to the microscope that showed them what was being shown. Again, this part-by-part approach uses the kind of analysis Lamont refers to in *Bird by Bird*.

Also in the Nebraska program are sessions on *Problem Solving*. These are parts in the program where an instructor helps students put the bits and pieces of what they have learned together in an effort to solve a particular problem or challenge in beekeeping.

There are many methods people use to apply this part-by-part, bee-by-bee, bird-by-bird business in their lives. One approach is to attend as many beekeeping programs as they are able, to fill in parts of their knowledge, or to learn the new information that is being presented, some for the very first time. My parents continued to

raise Christmas trees long after most people retire, and after my father died in 1989, Mom continued to attend grower meetings sponsored by the association and the university. She always said the same thing: if she was able to go to one of the meetings and learn ONE THING, it was a worthwhile meeting. It did not make much difference if it was a new method of pest control, or an idea to help with selling trees to customers.

This is the meeting time of the year for beekeepers. The honey crop is done; maybe it has been removed and extracted, maybe not. But for all beekeepers it is time to make plans to attend a meeting in your area that will help you learn your ONE THING at that meeting. Nobody will mind if you learn more than one thing; consider that a bonus. If you are able to get to the Northeastern part of the country, I have been working with the Back Yard Beekeepers and the Connecticut Beekeepers to organize the first Southern New England Beekeepers Assembly (SNEBA), to be held in Hamden, CT on November 18. Drs. David Tarpy and Diana Sammartaro will discuss their latest research; Commercial beekeeper Mike Palmer from Vermont will discuss his method of making summer nucleus colonies and over-wintering them; I plan to discuss a variety of drone and queen management issues. For information and a registration form go to the new website: www.sneba.com. If that does not work, call me at 203 397 5091 for further information.

In January I have been asked to present the Serious Sideline Symposium II in Austin Texas as part of the American Beekeeping Federation meeting. We did this last January in Louisville, KY, and the response was remarkable. Sideline beekeepers tend to be overlooked, yet they keep the industry going by selling honey at local markets, running bee clubs, and oh, yea, teaching and running bee meetings. I hope you can attend both programs and get at least *One Thing* out of each. **BC**

For a copy of Larry Connor's new book *Increase Essentials*, contact your local bee supply dealer, or email the author at abeebooks@aol.com

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Sugar Free Imitation Honey?

Jim Fischer



INGREDIENTS: MALTITOL SYRUP,
NATURAL AND ARTIFICIAL FLAVOR,
ACESULFAME K, MALIC ACID.

PACKED BY: HONEYTREE, INC.
ONSTED, MI 49265

August 1, 2006

Bee-Quick
Mr. James H. Fischer

Dear Mr. Fischer,

Your wall of shame website, featuring Honeytree's Sugar Free Imitation Honey at the top of the list in the "Worst" department, was recently brought to my attention.

While we agree with, and whole-heartedly support your effort to point out the misrepresentations of Honey in the marketplace, we think your interpretation and representation of Honeytree's Sugar free Imitation Honey is misguided.

Honeytree's Sugar Free Imitation Honey was developed for Diabetics. I am sure you are aware that 20 million Americans suffer from this disease. We consistently receive positive comments from diabetic consumers that could never enjoy the taste of honey because of their disease. With Honeytree's Sugar Free Imitation Honey they can now enjoy the taste of honey without the serious consequences of the real thing.

Honeytree is not trying to fool anyone. The label is legal per federal labeling laws and has withstood multiple challenges. Honeytree's Sugar Free Imitation Honey clearly states what it is.

In light of this perspective, we are hopeful you will reconsider our place of dishonor on your site and perhaps even give us some credit for providing this product to a honey-loving segment of the market that can't consume real honey.

Very truly yours,

Stephen D. Burd
Vice President

Mr. Burd:

Thanks for your letter. As you might imagine, we get many letters from companies like yours who are embarrassed to find their ingredients lists out in the open at <http://bee-quick.com/wall> where everyone can see and understand them, rather than hidden in tiny type on the back of their package.

You get points for writing it yourself rather than having a lawyer send something, so I will take the time to explain in hope that you will correct the more misleading aspects of your labeling and packaging.

I'm sure that you are just trying to make a living, but when your company goes so far as to apparently violate federal laws concerning "truth in labeling", no person of good conscience can see your product as bringing anything but shame upon the integrity of the honey-producing industry as a whole.

I will respond to your letter, point by point:

"...we think your interpretation and representation of Honeytree's Sugar free Imitation Honey is misguided."

Well, let's compare notes, shall we?

- 1) The product label features the term "Sugar Free" in yellow print on a red background, for excellent contrast and visibility.
- 2) The term "Honey" also appears in yellow print on a red background, and shows up well.
- 3) The term "Imitation" appears in slightly darker red print than the red background, in what can only be a deliberate and cynical attempt to mislead the consumer as to the actual contents of the package.
- 4) The label features a flower of some sort, an interesting choice of graphics for a product that contains nothing from any flower known (the actual ingredients of this so-called "sugar-free honey" are "Maltitol Syrup,

Natural and Artificial Flavor, Acesulfame K, and Malic Acid").

5) The package itself is a unique container known as a "Queenline style" bottle, one traditionally associated with honey, and honey alone. Clearly, this product is intended to hide amongst other bottles of real Honey on the supermarket shelf, and appear as the lowest-cost choice to the hurried, inattentive, or uninformed consumer, who, as the National Honey Board recently found in their exhaustive survey of consumers, *"virtually all consumers when presented with a product with the word Honey in its name, expect the product to not only actually contain honey, but also use honey as the primary sweetener."*

It seems clear that the combination of packaging design features listed above are overtly intended to result in consumer confusion, moreso when one finds this much cheaper product shelved alongside legitimate honey in retail stores. Please see http://bee-quick.com/wall/why_care.html for a fairly complete overview of the specific basis for prosecution of your company under FFDC 403.

In brief, your packaging and labeling are not an accident, but are clearly intended to mislead the consumer, a criminal violation of FFDC 403(a)(1). As your label obscures the term "Imitation" by using color to blend it in with the background of the label, this violates FFDC 403(c) and FFDC 403(f).

Prosecution of your firm by the FDA is doubtful under the current "business friendly" administration, but this will likely change when the administration changes. Be secure in the knowledge that the "Wall Of Shame" has many repeat visitors from regulatory agencies, and consider putting your lawyers on overtime come the next presidential election.

"Honeytree's Sugar Free Imitation Honey was developed for Diabetics."

Uh huh, sure. That's why it says NOTHING AT ALL about "Diabetic" on the label, and is shelved alongside legitimate honey, rather than being shelved with the other "Diabetic" items in retail stores, where diabetics might easily find the product. If you called it "Imitation Honey FOR DIABETICS", your claim might be slightly more credible. If your label used the term "Diabetic" in any way, your claim might be slightly more credible.

Further, "diabetic" products tend to be higher-priced than their non-sugar-free equivalents, so your pricing alone tends to contradict your claim as to your target market. You are selling a cheap low-end product, priced below the cost of legitimate honey.

"...positive comments from diabetic consumers that could never enjoy the taste of honey because of their disease."

"With Honeytree's Sugar Free Imitation Honey they can now enjoy the taste of honey..."

I've tasted your product. Lots of beekeepers have tasted your product. Honey judges have tasted your product. I assure you that any similarity between the taste of your product and Honey would only be imagined

by those suffering from a delusional state, massive head injury from blunt trauma, or permanent taste-bud nerve damage caused by years of twice-daily consumption of excessively spicy Indian, Mexican, or Thai food.

"Honeytree is not trying to fool anyone."

That's your story, and I'm sure you will stick to it. Sadly, the clear and compelling evidence of your label and packaging contradict your claim. Your packaging is overtly and clearly intended to confuse and mislead the consumer.

"The label is legal per federal labeling laws and has withstood multiple challenges."

The clear wording of the FFDC is fairly easy for even the layman to interpret, and tends to refute your claim, but you know as well as I do that the FDA is so poorly funded that they have a problem regulating items that pose tangible risks to human health, and have no time or budget to encourage your firm to comply with the law.

But think for a moment – if there have been "multiple challenges", hasn't this been a hint that your marketing efforts need to be re-thought? If your target market actually is "diabetics", rather than the budget-conscious and/or uninformed, why not take the challenges as a clue that you need to at least use the term "Diabetic" in large print on the label?

I am sure that your lawyers have "withstood" inquiries from state-level food and label regulators, but I am also sure that the sole response was that your product was a "nationally marketed product", and therefore outside the regulatory reach of any one state's food-and-label department.

"Honeytree's Sugar Free Imitation Honey clearly states what it is."

If the word "Imitation" was not camouflaged to blend in with the background, I'd agree, and your product would not be listed on the "Wall Of Shame."

While the phrase "sugar-free honey" is perhaps the most egregious self-contradictory and overtly fraudulent phrase used in commerce since the release of the 90-minute movie *"The Never-Ending Story"*, it is not only possible, but a near certainty that some significant fraction of grocery shoppers would think that "Sugar Free Honey" was not only possible, but produced using hives of bees that were somehow themselves in better physical shape than typical bees.

"In light of this perspective, we are hopeful you will reconsider our place of dishonor on your site..."

Yes, I have reconsidered, and we need a whole new section, where your product will be the first product in the section. I'll call it:

"Unrepentant Products"

Here we will offer the lame excuses of product manufacturers, and our replies, cutting their claims to ribbons, and poking even MORE fun at their mislabeled and misleading products.

What else would you expect from a beekeeper?

Tongue firmly planted in cheek,

James Fischer, Fischer Alchemy

All The BUZZZ in...



*Hello Friends,
Welcome back to my fun bee pages,
where curious kids go.
Have fun with my activities and then
join the club!*

Bee B. Queen

Brought to you by Bee
Culture Magazine -
www.beeculture.com



Johnny Apple seed seek

How do you know if an apple has been fully pollinated? Try this experiment with the help of an adult. All you need is an apple and a knife.

(1) Cut an apple in half around the middle.

... Like the equator the earth.

(2) Inside, find the little star.

(3) Count the full, plump seeds in both halves.

... A fully pollinated apple will have 10 seeds, two in each "pocket."

... If a seed is puny looking and kind of shriveled up do not count that seed.

Why? If you planted it would a tree grow?
I don't think so.

Pollination is important for producing food and making seeds for more plants.



Photo: Mark Wieland

YOU ASK...

Dylan from Austin, Texas asks, "Do bees sleep?"

No, not really, but they do slow down at night. Some folks say that if you dream about bees it means good luck and happiness.



this month's contest



WIN A PRIZE

TO BEE A BEE

Send us a photo of you or any member of your family in a bee or bee-related costume by November 6. The winner will receive a prize!

... Bee Kid's Corner

Produced by Kim Lehman -- www.beeladyprograms.com

The Eyes of a Bee

On the side of a bee's head are two big compound eyes. These compound eyes contain about 6,900 smaller lenses that are great for helping the bee notice movements. On top of a bee's head are three small simple eyes called ocelli. They help the bees sense changes in light. These ocelli help bees find flowers and help them get to and from the hive at sunrise and sunset.

How do you say ocelli?



I just say "Oh-SELL-i."

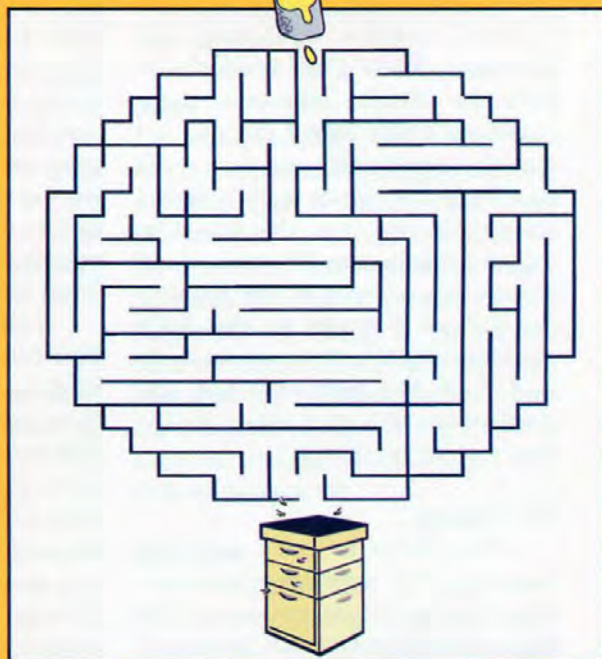


Photo: Mark Wieland

Can you see the three bumps? They are bee ocelli.

Hey, Bee Buddy! Can you use your ocelli to find your way back to the hive.

Bzzzzzzzz...



Congratulations
to our very first
Bee Buddy-
Brooks Hamby
from
Brawley, CA



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birthday surprise!

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Address: _____

City, State, Zip code _____

Age: _____ Birthday: _____

E-mail (optional) _____



HONEYLESS HONEY BEES

James E. Tew

For those not having the problem

As do most of us, I read articles and watch TV programs describing or showing some distant disaster – maybe a wildfire, windstorm, or a mudslide. While I am sympathetic with the affected populace, there is generally very little I can do, so I quickly commiserate and then move on with my life. If you made a Spring honey crop this year, this would be a good point in time for you to move on to other aspects of this month's *Bee Culture*. However, for that fairly sizable group of us whose bees made no honey crop, let's strategize and sympathize with each other for the next few paragraphs.

The problem

My problem is that I presently have about 80 honey-deprived colonies. Roughly 40 are producing hives that probably have not produced five pounds of surplus honey this season; otherwise, they are stable. The remaining 40 are strong splits that probably don't have five pounds of honey between themselves at this moment.

Just a few months ago I was op-

timistic. I was prepared to sacrifice the year's honey crop to make colony splits. I planned to keep half of the colonies strong, but rob honey from them to subsidize my splits. In my ideal early-Spring world the splits would build up to nearly two deeps and Winter well with new queens. In previous articles, I wrote about making the splits and the challenges with queen performance. Ironically, the splitting procedure went well and in short order were queen-right.

It started with a late season frost that nearly killed some long-time established plants like the locust tree in my yard. The very early nectar and pollen sources were sorely damaged. Then the Spring rains started. It rained almost daily. On three separate occasions my newly planted garden was literally under a few inches of water. Mud abounded. While other parts of the country cried for rain, my nectar season washed away one day at a time. Then the record-breaking heat came. What was to be the next seasonal thing – locust swarms? I watched as each nectar crop came and went – all unexploited. I told myself that the bees were resilient. Yes,

it was raining excessively, but surely the plants were producing nectar and pollen in the intervals. Apparently they were not producing anything, or if they were, *my* bees were not getting the crop. For you, it is now October, but as I write this for you, it is mid-August for me.

This is the fundamental crux of this article – ***If I don't get a good Fall flow, I am going to have a very serious bee colony die-off this Winter – even if it's a mild Winter.***

Labor

Before I go into the time-honored reviews of emergency feeding, I need to say that, as always, labor is critically short for me. I can't just drop everything in my personal and professional life and become a fulltime "bee-feeder." Anything I do must be labor-efficient. I'm limited.

Costs

Notwithstanding the cost of labor, there is the looming cost of supplemental feed. I have already invested too many thousands of dollars in the 40 splits. It has been my experience that feeding hungry wintering colonies in a cool climate is a futile labor-of-love. (*You folks in warmer climates might be able to work a few more wintering miracles than I, but not many.*) So anything I do to help the bees needs to be done within the next few weeks and must be done cost-effectively. I'm limited.

Sugar availability

Even if I come up with labor and money, where to buy a thousand to two-thousand pounds of sugar. Corn syrup? I still have to get it from some where and it's not that much cheaper.



A hairless robber bee being confronted by a guard bee.

The price of gasoline dictates that I get it as close to me as possible. On one hand, the amount of sugar I am looking for is a lot, while on the other hand, it is nothing.

I am exploring getting sugar from a large, but local jelly manufacturing company. The problem is that they automatically unload sugar and corn syrup from railroad tankers. I only wanted five to 10 drums. There is no convenient way to get it from the tanker to my drums. Later this weekend, I will visit local high volume grocery sellers like Sam's Club or Gordon Food Service to see if I can get 25 – 50 pounds bags of sugar. At this point, I don't know how much it will cost. I will try to report later in this article.¹

I possibly can get waste sugar from a local candy company, but I am leery of reject sugar and corn syrup. I don't know what else is in the waste sugar. I would be more inclined to feed such sugar in the Spring, but to have the bees Winter on it might just be good labor/money after bad. At this point, I am hemmed in.

I have several drums of honey from better crop years. Why not just feed the hungry bees their own honey back? Beekeeper greed. Due to an apparent world-wide shortage of honey, the selling price of honey has gone up and apparently will go higher. To feed honey back would doubtlessly be the most expensive feed I could come up with. Plus, we conduct an annual honey sale at Ohio State. This upcoming year will clearly be short several varietal honeys that we commonly have had in the past. I will need most of the honey I do have to support my customer base.

Honey quality

While my immediate problem is hungry bees, what if all goes well – even too well with the feeding pro-

The
"Trailer"
yard.



cess? I need to be sure that whatever I feed the bees is used as winter food and to produce future bees. Even if I could, I do not want to have my sugar feedstuffs stored as surplus honey next Spring. In light of my numerous past failures in Fall/Winter feeding, I don't think that surplus sugar syrup in my colonies will be the problem, but I need to be aware of the possibility of stored sugar syrup *though sugar syrup in the colonies would be an easier problem than the one with which I am now dealing.*

The bees

The bees look good in a strange way. Good brood patterns with no signs of bacterial disease. But the splits are desperately hungry. The brood frames are full of brood and nothing else. The frames look weird – even out of balance. Pollen seems to be in nearly as short a supply as nectar. Should I be feeding a pollen substitute in the Summer? I have never done that before.

Testy

Most of the Summer, the bees have been feisty. There was never that smooth, gentle period where I could work the colonies with minimal gear. Weed trimming or adding supers required smokers and full protective gear. The bees were not unreasonable, just protective of the bit of food stores they did have.

Robbers

Every Summer I and my bees go through the robbing season. It usually starts in mid-July where colonies fight amongst themselves and stupidly rob exposed equipment. Essentially, robbing has been a hassle all season this year. It was difficult

to check colony split development due to testy and robbing bees. Consequently, in the high heat of Summer I had to suit up, reduce colony entrances and manage robbing as well as possible.

Mites

I don't know if I should be so honest, but again due to costs and labor, I tend to treat for mites when there is a problem rather than treating on an arbitrary calendar date. Right now this process is working, but it may very well change in the future. To some extent in my bees, but also based on the reports of others *Varroa* populations are making a strong comeback in the late Summer. Add that to the woe list.

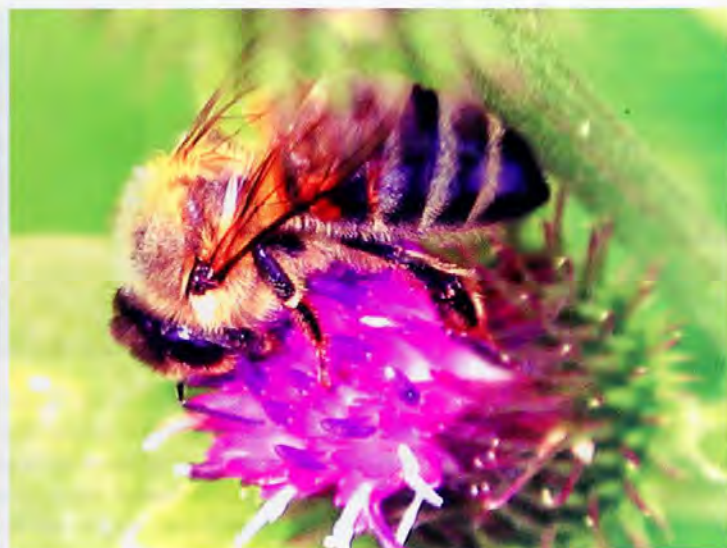
Behavior

If I begin to feed too soon, bees will convert sugar syrup to bees rather than food stores. Then I only have more hungry bees going into Winter. My challenge is feeding when bees will store the food as reserves. The middle of August is too early. When? Mid-September? I don't know. It still depends on the Fall flow.

Colony Management

Have I mentioned costs and labor enough? Due – again – to those limitations, I have dramatically reduced the number of yards I managed; from 12 to about four. It is labor-efficient to work 50 colonies of bees in one yard – even if the per colony honey production declines some. I can treat for mites, add supers, cut grass, and check queens so much quicker than riding from one yard to another only to relight the smoker and unload my gear. That's true in good production years. In terrible years, large

¹ A quick search of sugar sources on the web revealed that 25# bags of granulated sugar are fairly common. If I feed 1000 pounds to 40 colonies, my estimated cost for sugar only (no labor or transportation) will be about \$600 to feed each colony 25#. That will barely be enough for a small colony to winter, but how much is enough? I still need to explore sources for High Fructose Corn Syrup.



"Bee weeds" near my trailer yard.

yards come home to haunt me. High populations of hungry bees are testy, prone to excessive robbing, and individual colony honey production drops below a critical amount. After two full years of reducing yard numbers, now I am starting up remote yards again. If I do try to feed, I need a manageable number of colonies in each yard. Having open feed cans, spillage, or small colonies is begging for uncontrolled robbing. So strangely, I am inclined to move colonies into smaller groups more remotely located just to keep the bees from killing each other. At least moving light colonies is easier work.

My plan (subject to change)

You are in the middle of an evolving plan. For once, I am on time in my emergency analysis. I still have some time (and some hope) before the Fall flow starts (or not).

I plan to:

- (1) Explore sources of sugar or corn syrup availability within the next few days.
- (2) Not start seriously feeding until I can determine if I and my bees have any hope of a natural fall flow.
- (3) Reduce colony numbers in individual yards by establishing more local yards.
- (4) Use an eclectic assortment of feeders: Internal, top feeders, pail feeders and "quail" feeders. Essentially – any feeder style I currently have.

- (5) Consider feeding pollen substitutes at non-typical times.
- (6) Monitor and treat for *Varroa*.
- (7) Feed until I can't afford it, until the bees stop taking it, or until the bees have adequate stores.

I plan not to:

- (1) Feed questionable sugar or corn syrup products.
- (2) Buy additional feeder equipment but will make do with whatever I have or can borrow.
- (3) Move colonies to warm climates. Not this year anyway. For me, gasoline prices prohibit long-distance moves for climatic reasons only.
- (4) Take off a single drop of surplus honey.
- (5) Feed honey back to the bees.

My first "Feeding" yard

Earlier this week I moved 10 colonies to a new yard about six miles from my lab. All colonies are splits made this past Spring, are disease-free and are headed by new queens. All are hungry for both carbohydrates and protein. The yard I moved them to is not particularly good for either pollen or nectar, but is accessible year-round. I may or may not keep the yard as a permanent location.

Strangely, this new yard has the most profound hive stand I have ever had in any yard in my entire bee life. The 10 colonies sit upon a retired, heavy equipment trailer – rock solid and level. I must say that getting the

trailer in position was no small task (and getting it out will be no small task, either). Though it is convenient in this yard, another such trailer is not to be had. The colonies in this yard will most certainly be fed – even if there is a Fall flow.

The day after putting the bees there, there were hundreds of bees gathering water from readily available standing water, but no pollen coming in. Today, however, successful pollen foragers were actually abundant. From what sources, I don't have a clue. At least I felt better about that.

The yard, though wooded, is surrounded by a typical sea of corn and soybeans, useless to Ohio bees. The only thing available to the bees is smatterings of weeds. I don't know weed species well enough to name them, but right now I and my bees are glad they are there.

I can't predict the weather for the next couple of months. In my gut, I am pessimistic when hoping that the bees will have the best Fall flow ever. I am mentally preparing for an emergency feeding event. I suspect that my discussion next month will be an update on my predicament. There's always next Spring. It's only a few months away. Surely, it will be a good one. **BC**

James Tew, State Specialist, Beekeeping, The OH State Univ., Wooster, OH 44691, 330.263.3684, Tew.1@osu.edu; www2.oardc.ohio-state.edu/agnic/bee/;

SOUTH AFRICAN GUIDELINES PUT A KNIFE IN U.S. BEEKEEPING

Joe Traynor

The South African Guidelines state: At least 10 rows . . .

For those that missed it, the big news out of California this Spring was the April 19 letter a number of beekeepers received from Paramount Citrus' attorney Andrew Asch requesting they keep their bees at least two miles from certain Paramount mandarin plantings, threatening legal action if the bees were not removed by April 21st. The "trespassing" bees were causing seeds, and seeds greatly reduce the market value of mandarins.

Needless to say, this letter (hereinafter referred to as The Letter) raised a firestorm of protest from affected beekeepers and sent a ripple effect through the entire U.S. bee industry; if beekeepers can be forced to move because their bees are "trespassing", every beekeeper in the U.S. is affected. Some beekeepers removed their bees after receiving The Letter, some stayed. As of August, negotiations are taking place between Paramount and the California State Beekeepers Association (CSBA) but as of this writing it appears that the matter will be litigated and that the only real winners will be the attorneys.

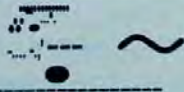
How did such a standoff come to pass? What was the genesis of what some have called a Range War? The answer is *The South African Guidelines*. Around 1998, seedless mandarins, esp. Clementine mandarins, from Morocco, Spain and South Africa became increasingly popular in the U.S. because of their intense flavor and easy peeling. California citrus growers took notice and took a crash course in growing mandarins. The largest grower to step to the plate with mandarins was Sun Pacific who planted over 1,000 acres of mandarins in the Maricopa area (aka the Maricopa Flats or the Wheeler Ridge-Maricopa area) in the southwest corner of Kern County.

Most of the popular new mandarin varieties (and all of those causing problems for Paramount) are seedless if grown in an isolated block, even when bees are present. Some varieties (including several promising new varieties) are seedless in a mixed variety planting even when bees are present. The current most popular seedless mandarin varieties, however, require isolation from compatible pollen sources or else they will become seedy (if bees are present). All of this was known when Sun Pacific started planting mandarins but growers felt as long as they could isolate the problem varieties the seed problem would be solved. Here is where a single word, *isolation*, assumes critical importance and the definition of that word even greater, or paramount, importance. An improper definition of the word eight years ago is the genesis (seed, if

Disclosure: A final draft of this article was sent to David Krause, President of Paramount Citrus, requesting that he correct any factual errors before the article was published in *Bee Culture*. His reply: "We disagree with your report, which contains many factual errors. We have no further comment." The article was carefully reviewed for errors, but without further guidance, to the best of my knowledge, this article is factual, but the reader is forewarned that it may still contain some, even "many" errors. . .

you will) of the current imbroglio.

Instead of relying solely on University of California expertise, Sun Pacific hired one or more consultants from South Africa who had some experience in mandarin cultivation. As a rule South Africans enjoy a deserved reputation as superior agriculturists and their work ethic and affability make them ideal collaborators in any venture.



April 19, 2006
Andrew E. Asch Associate
Counsel-Litigation

PARAMOUNT CITRUS
Re: Bee Trespass/Nuisance Damage to Paramount's
Clementine Crops

To Whom It May Concern:

I am litigation counsel to Paramount Citrus Association ("Paramount").

Paramount is the owner of a parcel of property, which contains Clementine mandarin orchards ("Property").

It has come to my attention that you have placed bee hives, or allowed bee hives to be placed, in an open field adjacent to and about Y2(sic) mile from Paramount's Property. Please take notice that the close proximity of these bees to the Property threatens to devastate Paramount's Clementine mandarin crop, and cause substantial monetary damage.

As you may know, it is well-established that bees will forage for great distances, often two, three, four, and even seven, miles from their hive. As you also may know, Clementine mandarins produce a large amount of seeds when bees are present, and, in today's market, seedy Clementine mandarins yield only a small fraction of the price of seedless Clementine mandarins. In addition, even a small number of seedy fruit can cause tremendous damage by not only damaging the affected fruit, but also making the remaining fruit suspect since it is impossible to tell which fruit have seeds and which do not. Thus, only a small intrusion by bees can destroy the value of an entire crop.

While we appreciate that bees are sometime(sic) necessary to assist in the pollination of other crops (besides Clementine mandarins, which are self-pollinating), we believe that the bees(sic) hives in this instance have been placed dangerously close to Paramount's Property. We also believe that the hives have been, or will be, left in their present unsafe location for far longer than necessary in order to aid in pollination - solely for the purpose of making honey, in part from our Clementine mandarin blossoms.

Paramount has invested a substantial sum of money, time and effort in developing the Clementine mandarin industry and takes great pride in bringing the very best quality seedless fruit to its consumers. Paramount will not tolerate any damage caused by bees that trespass and interfere with Paramount's use and enjoyment of its land, and threaten to destroy its crop.

Accordingly, Paramount hereby demands that you immediately move your bee hives a minimum of two (2) miles away from Paramount's Property. If you fail to do so by no later than the close of business on Friday, April 21, 2006, we will have no choice but to immediately take legal action against you, including filing suit against you for negligence, trespass, nuisance and other claims. Should such action become necessary, please be advised that Paramount will seek injunctive relief, compensation for any and all damages caused to its crops, as well as punitive damages.

This letter is not, and is not intended to be, a complete or exhaustive statement of all of Paramount's rights or claims. Nothing contained herein shall be deemed a waiver of any of Paramount's rights or remedies, all of which are hereby expressly reserved.

Very truly yours, Andrew E. Asch

They are, in short, great people and when they look you in the eye and tell you this is the way to do things, it is difficult – if not impossible – to question their advice.

In contrast, University of California personnel, on the whole, usually couch their recommendations in qualifying language: “this is what our data show, but it may not apply to your situation,” or, “additional studies are needed before we can make a recommendation,” or “we simply don’t have enough data to answer your question.” Such responses can cause impatience and frustration for someone chomping at the bit to plant mandarins. The UC extension service held meetings throughout the San Joaquin Valley when the mandarin craze started about eight years ago and I attended almost all (maybe all) of these meetings. Kern county farm advisor Craig Kallsen presided over the meetings I attended in Bakersfield. Drs. Tracy Kahn and Thomas Chao, UC, Riverside, were speakers at some of the meetings. Sun Pacific and Paramount Citrus personnel were at some of the meetings and one or more South African consultants attended an occasional meeting. The question inevitably arose at every meeting:

Note: Many of those at the UC meetings mentioned above were Pest Control Advisors (or consultants like myself) who attended to keep up to speed on all facets of citrus culture (and to attain education credits for their PCA licenses) since the meetings also included segments on pest control, etc. I know of no one at the UC meetings that based their plantings on the South African Guidelines.

“How far do Clementines need to be isolated to be seedless?” The UC personnel would usually reply (paraphrasing), “At present, we don’t know; we don’t have sufficient data at this time to answer that question.” A prudent (and correct) reply. In her presentation Dr. Kahn included a slide giving the South African Guidelines, which many in the room dutifully wrote down: *At least 10 rows of a buffer cultivar or 1640 feet of bare ground between two cross-pollinating cultivars.*

Sun Pacific (and Paramount via Sun Pacific) likely made their planting arrangements based on input from these Guidelines. They may not have followed the exact Guidelines presented above, but likely at least some permutation of them. The South African consultants also exchanged information with UC personnel – a common practice among those studying the same subject. South African Etienne Rabe, currently employed by Sun Pacific, did his graduate work at UC Riverside and in 1999 in the UC publication *Subtropical Fruit News* wrote a two page article titled *Considerations Relative to Establishment of Clementine Mandarins* (Vol. 7, No. 1, 1999). In this article, Dr. Rabe addresses the seediness problem thusly: “*The Clementine is a self-incompatible variety which does not have the capacity to pollinate itself. It therefore sets seedless fruit in solid-block plantings. This characteristic of self-incompatibility, producing seedless fruit is a sought-after characteristic.*” There is no mention of buffer zones

between solid-block plantings of different varieties and the word “isolation” does not appear in the article. Apparently in 1999, Dr. Rabe, and others from South Africa, did not consider seediness a significant problem.

The South Africans may have arrived at the Guidelines via South African G.H. Barry’s 1995 M.S. Thesis (*A prediction model to determine the cross-pollination ability of Citrus spp.*) cited by Dr. Chao, et al. in a 2005 paper. (Note: Barry may have also served as a consultant for Sun Pacific). This South African model in turn may have been based on studies, including studies done in almonds, which showed that bees are very territorial – worker honey bees return to the same relatively small area on every trip from the hive. A 10 row buffer or a 1640 foot separation between mandarin varieties would seem more than ample. Further bolstering this position is that a roughly 500 feet separation is required between varieties of alfalfa seed plantings to assure pure seed; and producers of genetically modified (GM) seed and crops would agree that the South African Guidelines would be more than adequate to prevent gene transfer to “normal” crops and weeds. Unfortunately, we are now finding GM crops need a much wider separation than previously thought. The GM people, and possibly the South Africans, neglected the fact that honey bees can transfer pollen from bee to bee *inside* the hive. Thus a bee that is territorial to one variety of mandarins can transfer its pollen to a bee that is fixed on another variety, and vice versa. The pioneering work of Gloria DeGrandi-Hoffman (currently head of the USDA Bee Lab in Tucson, Arizona) showed this in-hive pollen transfer and subsequent workers have confirmed her work; all this is in published studies going back to 1986. DeGrandi-Hoffman ran a model to predict apple set and came up with a set of 1%, far short of a commercial crop; but when she allowed for in-hive transfer of pollen, the model worked. Apparently the bees weren’t consulted when the initial mandarin plantings were made.

The mandarin-seed history in Morocco and Spain also brings into question the *South African Guidelines* – a two to three mile buffer zone has been found necessary in both countries. If Sun Pacific had received more input from Spain or Morocco, their planting layouts would likely have been quite different and beekeepers would be the better for it. This is not in any way to imply that the South African researchers were careless scientists – far from it. Their initial studies, especially Barry’s work, represent superior science; these studies just weren’t carried far enough. All research is a continuum with one worker building on the work of another. Dr. Chao built on Barry’s work and determined that much more isolation was necessary than previously thought to get seedless mandarins. The South Africans may well have arrived at the same conclusion had they continued their work. Although Dr. Chao’s work serves as the foundation for the article you are currently reading (this article would not have been written without it) others will undoubtedly build on his work and shed even more light on the seediness problem in mandarins.

Sun Pacific planted their first mandarins around 1998, apparently using the South African Guidelines (or a form of the Guidelines) to separate different varieties. The first uh-oh moment came around 2003 when significant seed numbers were found in some plantings. In 2004, Sun Pacific contacted landowners and beekeepers in the Maricopa area to clear the area of bees. They got beekeepers to vacate their bee locations by promising them other citrus locations on Sun Pacific's holdings further north. Sun Pacific kept its promises to beekeepers and successfully turned the Maricopa citrus area into a ghost town for honey bees. I was personally involved in the Maricopa "cleansing" having secured locations in the area for two beekeepers and I met with Sun Pacific representative Don Berry to resolve the situation. In our "frank" discussions, (and in his discussions with the two beekeepers). Mr. Berry was a gentleman at all times. He never raised his voice, but put forth Sun Pacific's case in a forceful but calm and courteous manner; there was never any threat, veiled or overt, of litigation. Mr. Berry's diplomacy undoubtedly led to a smooth resolution of the "Maricopa problem." Although they probably wouldn't have worked because of the vast acreage involved (see below) Mr. Berry's diplomatic skills were never utilized (To my knowledge) in the current problem; instead many beekeepers were blindsided by The Letter.

*Note: When Clementines were first considered in California, Valencias were thought to be the pollen monster because of their extensive acreage. In an April, 2000 trip to Morocco, Dr. Chao (and co-author Guy Whitney) reported that Valencia orange planted with Clementine mandarin did not cause the resulting mandarins to have seeds (UC Subtropical Fruit News, 2000); the strains of Valencias were not specified. In the same M.S. thesis referred to above, and in a superior piece of work, Graham Berry showed that there were significant differences in the ability of pollen from different varieties to set seeds in other varieties and that some of the Valencia strains he tested had a very low ability to set seeds in Clementines. UC Riverside has temporarily (pending further study) categorized the two main California strains of Valencias, Olinda and Frost Nucellar, as *moderate* in their ability to set seeds. UCR has shown that W. Murcott Afourer was one of the highest, if not the highest, in its ability to set seeds in other varieties (i.e., that pollen from W. Murcott Afourer is one of the most virulent pathogens if seediness is considered a disease).*

Sun Pacific formed a working relationship with Paramount Citrus around 2000, advising Paramount on aspects of mandarin growing, including variety layout. Most of Paramount's citrus is in the citrus belt of the San Joaquin Valley, the east sides of Kern, Tulare, Fresno and Madera counties. This citrus belt has over 200,000 acres of citrus including about 130,000 acres of pollen-sterile navels, 50,000 acres of Valencias, 5,000 acres of lemons and 18,000 acres of tangerines (including

mandarins) Just as the South African Guidelines likely influenced Sun Pacific's plantings in the Maricopa area, they also likely played a part in Paramount's planting arrangements in the citrus belt (beekeepers might say that the Guideline virus was transmitted to the citrus belt) the major difference being the huge difference in citrus acreage between the two areas, the Maricopa area being much, much smaller in size.

Probably emboldened by their success in clearing the Maricopa area of bees, Sun Pacific and Paramount used the same tactics to establish a two-mile bee-free zone around their citrus belt holdings. A circle with a radius of two miles has an area of 8038 acres. Since many orchards are half a mile long, a two and a half-mile bee-free circle would be needed; such a circle contains 12,560 acres. Paramount representative James Jordan gave beekeepers eight mandarin orchard locations targeted to be bee-free – two in Kern County, four in Tulare County, one in Fresno County and one in Madera County. Three of the four Tulare County locations are within two miles of each other and the two Kern County locations are within four miles of each other so the total acreage to be cleared (of bees) is less than if the locations were separated by four miles. Still, establishing a two-mile bee-free zone around these eight sites means clearing about 70,000 acres of bees. To accomplish this Herculean task, Sun Pacific and Paramount again offered beekeepers citrus locations away from their mandarins but these locations had lost much or all of their value because they were already over-crowded with bees. In an aside, Mr. Jordan mentioned that he had some Clementine trees at this house and intended to establish a bee-free zone around them; hopefully, he was kidding – if not, add another 8,000 acres to the Off Limits to Beekeepers list. If smaller growers of problem mandarin varieties climb on Paramount's bee-free bandwagon, many more acres of bee locations would be potentially lost to beekeepers.

As the seediness problem grew in importance, Paramount Citrus, to their everlasting credit, cooperated with UC researcher Dr. Thomas Chao in a 2004 study to determine the parentage of seeds on one of their Kern County orchards. Another orchard in Madera County was used for the same purpose. In a superior piece of work (and one that will be cited by the anti-GM crowd for years) Chao determined that pollen was transferred across over 90 buffer rows at the Madera site and across 1430 feet of open ground or 91 rows of pollen-sterile navels at the Kern County site. In Paramount's Kern County orchard 100% of Clementine seeds tested came from W. Murcott Afourer pollen (there was a Valencia orchard of unspecified size located 3608 feet or 1.1 km south of the Clementines; no Valencia parentage was found in the Clementine seeds). Chao concluded that "Growers in California, as well as in other places, need to consider a large distance of isolation, up to several km or more than 116 rows of buffer trees, to prevent cross-pollination by honeybees." Chao's study put a fork in the *Guidelines* (may they rest in peace).

The two most popular seedless mandarin varieties

are Clementine Nules and W. Murcott Afourer and the latter is an especially effective seed setter in the former as Chao showed in his study. Paramount Citrus farms about 20,000 acres of citrus in the San Joaquin Valley and manages another 10,000 acres with its subsidiary S&J Farm Management. With all that acreage, much of it pollen-sterile navels, Paramount (and Sun Pacific) should have easily been able to isolate problem varieties from problem pollen sources. The reason they didn't probably lies in the harvesting windows for mandarin varieties – Clementine Nules ripens in October-November, W. Murcott January-March. Less popular varieties (Fina Sodea, Caffin) probably fall in between. Fruit in the San Joaquin valley ripens from south to north with southern Kern County as much as two weeks earlier than Madera County in some years. Planting a combination of varieties on a single ranch makes sense from a marketing standpoint but can be devastating from a seed standpoint.

By mixing mandarin varieties (mainly W. Murcott Afourer and Clementine Nules) on single ranches, Paramount (and Sun Pacific) fouled their own nest. They planted trees that produced a known pathogen (W. Murcott pollen on some of their plantings) far too close to a pristine seedless variety (Clementine Nules, which can also cause seeds in W. Murcott). Paramount is now focusing almost 100% of its energy in the seediness problem to the transmitter of the pathogen (mainly honey bees) and little or no attention to the pathogen (pollen). Shouldn't Paramount be suing those that gave them planting advice rather than threatening beekeepers?

It takes considerable gumption for someone to admit making a mistake, but Paramount has shown no indication that they are willing to admit they made a mistake in the varietal distribution on their mandarin plantings. Instead, they are exerting extreme pressure on beekeepers to neutralize their initial planting error.

Paramount's mandarin plantings could be considered an attractive nuisance for bees, just as an unfenced swimming pool is considered an attractive nuisance for youngsters (at least in California) and pool owners can be sued if a youngster in the neighborhood drowns in their unfenced pool. That Paramount Citrus knew it had a pollen problem with mandarins is evidenced by the fact they had buffer zones between varieties. These fences just weren't constructed well enough to prevent pollen transfer by bees. From a legal standpoint, Paramount would probably have been better off by planting different varieties side by side with no buffer zone between them.

Paramount Citrus and its sister company Paramount Farming are class organizations. I have worked with Paramount Farming and know they are class people from top to bottom. I have had little interaction with Paramount Citrus but feel it is the same because the owner of both companies, Stewart and Lynda Resnick appear to be quality people. Stewart Resnick is the ultimate decision maker in this dispute (Sun Pacific is heavily involved but is staying on the sidelines and letting Paramount do the heavy lifting). Mr. Resnick usually stays removed from

major decisions by the Paramount companies because he knows competent people run them. Apparently no one in either of the Paramount companies has informed Mr. Resnick that he risks being badly bloodied if this dispute goes to litigation.

Paramount Citrus can (and eventually probably will) solve this problem by topworking problem pollen sources (and problem pollen recipients) to other varieties. It will be costly to do so but it doesn't take long for topworked trees to return to full production. It is highly unlikely that Paramount will succeed in pushing beekeepers off long-held locations. The longer the delay in transitioning their problem varieties, the longer their seeded mandarins will suffer in the marketplace. Legal battles sometimes last for years before a resolution but time is not on Paramount's side in this one. Each year that goes by without a decision means more money lost in the marketplace for Paramount. If the ultimate decision goes against Paramount they will not only have lost precious time in re-designing their orchards but will look foolish for having waited. To topwork trees, however, would be an admission of error, and to date Paramount Citrus has shown no inclination to admit making a mistake.

There are no "bad guys" in this matter (although beekeepers might argue that Paramount attorney Andrew Asch, author of *The Letter*, deserves the "bad guy" label). The three major mandarin participants – Paramount, Sun Pacific and the South African consultants – are all good people and all of them acted with the best of intentions. As the oft-quoted Robert Burns said: *The best laid plans o' mice and men gang aft agley*. The best intentions of the mandarin participants went awry and beekeepers are under threat of paying a heavy penalty as a result.

Both Paramount and Stewart Resnick are likely getting conflicting advice on this. It is unlikely that Sun Pacific will encourage Paramount to admit to a mistake. On the other hand, there are likely some (although I don't know of any) in Paramount Citrus or Paramount Farming that feel that Paramount Citrus should admit its planting error, cut their losses and move on with life. Stewart Resnick holds the knife that currently resides in the belly of the U.S. bee industry – he can either remove it, or give it a twist. Only time will tell if Mr. Resnick makes an informed and proper decision. **BC**

Joe Traynor is an agricultural consultant and advisor, and honey bee pollination broker from Bakersfield, California.

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EMERGENCY FEEDING

2 SIMPLE WAYS TO SAVE BEES

Hard Candy

Whether a master beekeeper or a beginner, a hobbyist or a commercial beekeeper, come January, we all seem to be asking the same questions: Are my bees alive and are their honey stores near the cluster? These two questions are followed by the beekeeper contemplating such ideas as: Did I take too much honey? Did I extract too early or too late? Should I have fed sugar syrup in the Fall? Do the bees have enough stores to hold till the maples and willows bloom in Spring? I once overheard a seasoned beekeeper remark, "If you need to do emergency feeding, you shouldn't have bees – you're obviously doing something wrong." However . . . Winter losses from starvation cannot always be attributed to the inexperienced, lazy, or selfish beekeeper. In spite of the best preparations and planning, sometimes the bees don't do what is best. I'm sure we've all seen a strong hive gobble their way to isolation and starve surrounded by improperly positioned food sources.

Well, the big question is how much is enough??? The colony must have enough honey to get through the Winter and begin Spring brood rearing. Remember, it takes one cell of honey, one cell of pollen and one cell of water to make one bee. Most experts would agree that a hive must have the equivalent of two deep brood chambers or between 80 and 90 pounds to get through sufficiently. Guessing the weight of a hive takes some experience, and even the finest beekeeper has been fooled. Over feeding a colony will likely encourage crowd-

Kathleen Williams

ing and surely lead to swarming come Spring. You may figure that one brood frame can weigh between five and seven pounds and a shallow usually weighs about three pounds. When a colony gets below 10 to 12 pounds of honey stores, emergency feeding is necessary for colony survival. Although I've heard veteran beekeepers argue to cut your losses early – I, like many, go the extra mile to pull a weak hive along.

After a brief hive inspection on a warm January day, I discovered one hive fatality due to starvation. All but one of the remaining seven in the apiary were clustered in the top box. Now is *not* the time for second-guessing and self-blame. Desperate times call for a fast effective action plan. I found myself searching for the best method of emergency feeding that would get provisions to the bees without adding stress to the colony or disturbing the cluster. Options this time of year are very limited. With the temperatures expected to fall below freezing, sugar syrup didn't seem like an option – the baggie, tophive, jar, pail and division board methods have many disadvantages. The bees simply cannot break cluster to take advantage of the syrup with these techniques. In addition, increasing the moisture content in the hive only creates further problems to an already stressed hive. And then, there are the chances of leaks. Sugar candy seemed to be the logical alternative. This method will not stimulate a nectar flow or brood rearing at an inopportune time.

In the past, I found myself making a batch of bee

Fondant David Diamantes

Bonnie was in the kitchen making soup when I got home from work. I pulled the battered old book from my briefcase and laid it on the counter. It was the 1910 Edition of *The ABC and XYZ of Beekeeping*. The spine was loose and the cover was worn through and stained, but the pages were clean and unmarked. "Mike and Sandy picked it up for me at an antique shop," I said, beaming and pointing to the yellow sticky note on page 2.

"Dave, we found this and immediately thought of you," it said. Bonnie flipped the page back and looked at the inside cover. *Asylum for the Chronically Insane of Pennsylvania* was stamped diagonally across the inside cover and on the flyleaf in purple ink.

"Yes, I guess it did make them think of you," she said. She went back to chopping vegetables. She tells me that I'm the man of her dreams. She also tolerates my hobbies and creative endeavors – most of the time. She totally supports my efforts at beekeeping, even when it involves mixing up a batch of sugar syrup in her kitchen to feed

my bees. Maybe that's pushing it a little.

I have never heard of a downside to leaving too much honey on an over-wintering colony. The more you leave, the quicker your bees can start filling supers in Spring. There are times when it's beneficial to feed honey bee colonies. Mixing syrup to get packages started or to stimulate brood rearing in spring are joyous occasions for me. I get giddy because the weather is warm, bees are flying and I'm always optimistic. The realization that a colony is on the brink of starvation in Winter evokes nothing short of dread. I have had a few disasters trying to feed colonies in Winter, where pails leaked or syrup crystallized and sealed the container. Moisture is the enemy in Winter. The discovery that a colony has succumbed to starvation due to my neglect or inattention is by far the worst feeling I have experienced as a beekeeper. It shouldn't have happened. This article is limited in scope to one method of providing emergency stores at a moment's notice, when you don't have time for anything else or the weather isn't cooperating. Moving full frames within the hive, providing frames of honey from other hives and other methods of feeding are either more labor intensive, require more

candy and pouring it into aluminum pie pans. I placed the cake near or overtop of the cluster pushing the bees aside, waiting a bit, then smashing the inner cover down to get the lid on and closed up. Without a spacer, a chunk of candy prevents the cover and lid from fitting properly. But now, I'd like to share an alternative way of dispensing candy that is more efficient for the bees and user friendly for the beekeeper.

I started by having a friend make frames similar to those used for queen rearing from scraps. This allows the sugar candy to be placed against the cluster without disturbing it. With these easy steps anyone can utilize this method of emergency feeding.

Step 1: Build feeder frames using second-hand lumber to standard frame dimensions. The only difference is these frames have straight not beveled sides. Allow the frame sidebars to be thicker so the frame can hold a maximum amount of candy yet allow side space for bees to move. You may want to wire the frame to provide extra support, though if you cook the candy as directed, it should stay strong.

Step 2: Once the frames are ready, have a clear, flat working surface and all your supplies at hand and measured. Exercise common sense with this project. This stuff will burn skin. Also, plan for some spills. Prepare your work surface for the worst-case scenario, a leaky frame. The last thing you need is to pour molten sticky syrup down the side of the kitchen cabinets or bubble the veneer on your antique oak table. I find it easy to block off the kitchen and lay thick newspapers around and pour the frames on the floor. I wouldn't recommend doubling the recipe. You're better off to make one batch after the other. Otherwise, you increase the chance of a cooking blunder and the candy may be tacky or not set up. I sometimes cut the recipe in half. Beekeepers are frequently resourceful at finding low priced sugar, i.e.



A homemade frame used to hold the candy.



Put aluminum foil on one side of the frame and fold it so the syrup won't leak out before it cools.



A cooled frame hanging in a super. The middle section has pollen in it.

planning, or are more affected by weather conditions.

This year as I normally do, I left plenty of honey on my colonies. Just in case, I decided to produce some emergency stores that could be ready to feed without any preparation and at a moments notice. After scouring my beekeeping books and the Internet, I decided that fondant candy was the way to go. Preparation is a bit more complex than mixing sugar syrup, but I found it was less of a mess. The kitchen floor wasn't sticky when I was finished. That's another story. Bonnie was at the counter balancing her checkbook. "Do we have a candy thermometer?" I asked. I could tell what she was thinking as she pointed to the drawer beneath the stove. She is nuts about me.

Fondant is simply a creamy sugar paste used in candy and as an icing. Sugar and water are heated to a high temperature and then whipped into a paste. You can find lots of recipes in beekeeping books and at beekeeping websites. Most are similar: sugar, water and a bit of vinegar. Combine the ingredients, stir while heating, bring to a boil and then heat to just under 240°. Candy makers call that a "hard crack." I really liked what the



Follow the cooking instructions carefully and don't spill - burns are painful. Note the mold in the background. These can be made to fit most any hive, or configuration.

1910 version of *The ABC and XYZ of Beekeeping* had to say about making fondant:

"Care will have to be taken that the mixture doesn't overcook. To determine when it has boiled enough, dip the finger into cold water, then into the boiling syrup, and immediately back into the water. When cooked enough, the film of syrup will crack on the finger as the joint is bent."¹

I showed it to Bonnie and she just raised her eyebrows, got the candy thermometer out of the drawer.

broken bags and bulk. The recipe I use is from the book, *Fundamentals of Beekeeping*, by the Pennsylvania State University College of Agriculture.

Step 3: Measure and prepare the following items.

15 pounds refined household sugar (not brown sugar)
3 pounds white corn syrup
4 cups water
a candy thermometer is a MUST
cooking spray
aluminum foil and frames (and potholders, of course)

Step 4: Bring the following ingredients to a rolling boil while stirring. Be attentive to the temperature at all times. You can't cut corners here. Take a brush or spoon and well coat the outer edges of the frames with syrup. This will create a seal as it cools, in effect gluing the aluminum foil to the frame. Now you can flip the frame over and lightly spray the exposed foil inside the frame with cooking spray. Put the frames in the freezer to harden the seal. The frame is ready to fill it without fear of leaks.

Step 5: It is imperative you cook the candy to 242°F. using a candy or candle thermometer, then remove syrup from heat.

Step 6: Let the syrup cool to 180°F., stir, and quickly pour into frames. Let cool.

A deep frame of candy weighs approximately three to five pounds. The candy will last a varying amount of time depending on conditions like temperature, etc., but replacement frames can be prepared well in advance and easily stored for quick use. If it becomes hard in storage, simply put it in a sealed bag and place in warm water. I was also able to use a potpie tin to make a pollen patty for the inside of the frame. I made the pollen in advance, let it cool, then placed it in the center of the frame. Then following the above directions, pour the sugar candy into the frame surrounding the pollen center.

From my experience, the bees will receive the candy and finish the Winter well. Sugar candy is not likely to be stored by the bees but only consumed as needed. It is a good idea to check on the hive periodically as weather permits. Once the bees are able to move through the hive in better temperatures, resume feeding 2:1 sugar syrup. **BC**



Line the mold with wax paper, fill, let cool, remove and store the fondant slabs in sealable plastic bags in the freezer until needed.

and laid it on the counter next to the stove. I wonder if she really thought that I'd try that?

Most of the recipes for fondant candy are similar.

What's different is the method of feeding. I think that's what chefs call "presentation." A *candy board feeder* is one possibility. It is like a small telescoping cover that has the same footprint as the hive body. It is filled with molten candy, allowed to cool, and placed on top of the hive under the cover. I didn't try it because I wanted to locate the candy directly over the cluster in the center of the hive. I also had concerns about the effect on hive ventilation. I rummaged through my scrap wood box and cobbled together a mold. My mold is 24 inches long, nine inches wide and $\frac{3}{4}$ of an inch in depth with a hardboard bottom. I divided it into three sections. The recipe produces three candy blocks, approximately $\frac{1}{2}$ inch thick.

Recipe:

5 pounds (12 cups) granulated white cane sugar
3 cups water
1 teaspoon white vinegar

Combine the ingredients and heat, constantly stirring until the sugar completely dissolves. Heat without stirring until the temperature reaches 236°. Be patient, it takes a while. Remove from the heat and allow the liquid to cool to about 200°. Whip with a wire whisk until the liquid becomes opaque. **BE CAREFUL!** A Burn from molten sugar wins you a guaranteed trip to the burn center. Pour or ladle the liquid into wax paper lined molds and allow to cool. I lightly grease the bottom of the molds with Crisco to facilitate removal. Store the candy blocks in plastic storage bags in the freezer. Allow them to warm inside the bag an hour before feeding. Place them on the top bars, wax paper side up over the cluster. The wax paper will help hold moisture from the hive and soften the candy. A shallow super, wood rim baggie feeder or Imirie Shim provides enough head space for the candy block or blocks, or you can turn the inner cover over, set the telescoping cover on and weight it down with a rock. With luck, the candy blocks will still be in your freezer this Spring. You won't have needed them.

This recipe uses five pounds of sugar. With my mold, each cake is only a little over 1½ pounds. Even using more than one cake, that is not a lot of feed and won't last long. It is an emergency step to save a colony from starvation, and it's only the first step. Plan on feeding this colony with syrup as soon as possible. Review your beekeeping practices. Why did you have to provide emergency feed? Did you leave adequate stores on the hive last Fall? **BC**

¹ A.I. Root and E.R. Root, *The ABC and XYZ of Bee Culture*, 1910 Edition (A.I. Root: Medina, Ohio, 1910) page 82.

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Walt Wright

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Most beekeepers, who have moved on to bigger operations, go through a phase of what Shirley called "chasing bees." In an effort to increase hive count, they collected swarms, or did various types of structural removal of colonies. As they gained experience they learned that chasing bees is not necessarily an economic advantage. It's much cheaper to add a colony by starting a spring split. Less time and less cost. As fuel prices escalate, that reality becomes more significant.

The increasing price of purchased packages comes into play in this discussion, but it will be ignored for now. The purchased package is the simplest way for the novice to get started, and that has advantages of its own.

I plead "guilty as charged" for going through the chasing bees phase. For my purposes, it seemed reasonable to specialize in feral stock. If studying the internal workings of the colony were the objective, bees that had retained their ancestral characteristics, or reverted to those characteristics, were important to me. Bees selected by the queen breeder for certain characteristics might not be representative of the traits of interest. If a queen was needed on an emergency basis, she was purchased from a local source. Two local beekeepers raised queens from the best of their mongrel stock and normally one or the other had a queen to spare. Acquiring one of their available queens did not seem to dilute my feral stock. But, of course, those colonies were monitored more closely to confirm that they showed no variation in characteristics from the feral.

For three years of building colony count, a yellow page ad under "pest control" was a sound investment. Listed as Honey bee Specialist in a small block in the running list, the number of calls in the swarming season was surprising. That was early in the T mite penetration of the area, and it was actually necessary to engage an answering service to field the calls. Working full time in the city, the answering service would provide morning calls before my lunch break and afternoon calls at quitting time. The answering service was instructed to get a



number where the caller could be reached at those times. The caller seemed agreeable in most cases to endure for a few hours. The specified call-back time added a calming factor for those in a state of panic. That was a reasonable delay to hear from a real expert.

The "real expert" that called them back was the rank-est of amateurs. By definition, an amateur takes no pay for his services. As a trainee, it was not considered appropriate to charge a fee. In the early part of that period, the trainee was subject to really botch a job severely, and that could be embarrassing. Satisfied that the bees and the experience were worth the effort, no fees were involved for a couple years. With experience and confidence, gradually fees were added, but still quite reasonable. Feral stock was what I wanted and saw no other handy way to get them, but to temporarily get into the bee removal business.

Removal was broken down into several classifications, depending on the level of effort. Natural swarm collection is the simplest, easiest, and least time-consuming class. Enough has been written about swarm collection to fill volumes – no need to dwell on that one.

A "cut-down" is that colony that didn't find a cavity after swarming, and started building comb in the open, normally where the swarm settled. They generally are more defensive if they have brood and require protective gear to hive. That's a step up in complexity with some comb already built to deal with. Dealing with new comb

is not as easy as it sounds. It is very fragile, and in hot weather it's so soft it won't support its own weight. Holding the comb at the bottom, while slicing it free at the top results in fold-over or collapse. Messy job. It might be easier to collect the bees and let them start over in your box and forfeit the comb already built.

A "trap out" is what we call that circumstance where the colony is entrenched in structure best left alone. Old literature calls it funneling. It looks simple to the inexperienced. Just add a one-way gate on the entrance such that bees can leave, but can't get back in. Add another queen-right colony adjacent to the entry. Bees that can't return will join (beg in) the added colony outside. It works as described, but if you take on a trap out, be prepared for a long siege. What you are actually doing is starving the internal colony by cutting off their supply of field forage. Depending on their stores accumulated, they can survive a very long time. At the end of the main flow, they can last months. It is best done in the early buildup, when the internal colony has consumed a major part of their Winter stores.

The gain for the beekeeper is limited to building strength of the outside hive with bees diverted from the inside colony. Although more were done, three different trap outs stand out in my memory. Not necessarily in chronological order the three had different effects from the accumulation of residential bees on the outside of the house. One had such a strong colony that the outside hive was supered on the stand – perhaps 15 feet up. Before the inside colony crashed the outside unit had added three supers of honey. Harvesting three supers with wall-to-wall bees and the brood chamber 15 feet up on a ladder was a major operation, but was accomplished in one evening. Waiting until dark to take down the brood chamber with an added empty super, so as to take all the bees away, complicated ladder work a little further. The job went off without a hitch, but taking down the stand was put off until the next day.

The two other memorable trap outs involved strong residential colonies. One built up three outside weaklings – changed out on about two week intervals. The other generated at least one, and possibly two overcrowded swarms from the weakling provided on the outside. As you can tell from these accounts, trap outs are a time-consuming exercise. Frequent visits to the site are mandatory just to monitor progress. The most time-consuming part is in the early part of the operation. When they learn that exiting by way of the trap means they won't come back, they search for alternate routes to the outside around the trap. I've had them start going and coming from a crack ten feet from the trap. Don't even think about doing a trap out where siding has been added over the old exterior. Both aluminum and vinyl siding are loosely fitted into end slots to allow for expansion or contraction with temperature change. Multiple paths abound in such an installation.

The experts who contend that insects don't "think" have not done trap outs. The honey bee not only learns



Not so typical trap out.

that the trap is a one-way route to oblivion, but actively seeks alternatives. If an alternative route is found they can communicate that alternative to other colony members. It may not be thinking as we know it, but it's close enough to impress me.

To summarize trap outs: By any measure, the gain to the beekeeper is not worth the time spent. You can't reasonably charge the homeowner for all the trips to the site over an extended period. Figure three visits a week for a month to check for effectiveness of the trap and a visit a week to check for internal colony crash for another month. Just the transportation cost will erase any net gain. That's for optimal season timing. Later in the season is even worse. For my purposes of acquiring feral stock those were a dead loss. The feral queen perished by



Typical cone trap-out

starvation and took the genetics with her. Trap outs were done primarily to offer a full line of removal services.

We call a removal operation where structure has to be disassembled to provide access to a colony a "tear out". Knowing how residences go together when built is a distinct advantage. I was fortunate in having that background. Working summers as a carpenter's helper in school years and building two separate residences for my own use, from scratch, had given me that advantage. Tearing bees out of a residence did not intimidate me. I promised the homeowner minimum structural scarring,

Tip Of The Month

If you are interested in collecting swarms or gimmers, put your phone number on your honey label. The homeowner in a panic is not going to write you a letter. He or she wants action now. You might be surprised how many calls you get. The feral bee is making a come-back.

but drew the line at touch-up painting. He was responsible for painting – I would reassemble and someone else would paint. I had no intention of being called back periodically because “the paint doesn’t match.” He was also informed that no matter how carefully pieces are removed, some will splinter or break when pried loose. He would refund my replacement cost in addition to the removal fee. If rental scaffolding was required, he would reimburse me that cost. No problems were encountered with those conditions and a lot of happy customers resulted from my work.

If you think you might be interested in doing removal (the AHB will be moving north) let me give you a tip. It is imperative that you confirm that a colony actually is in residence before you start splintering wood. On at least two occasions, nest scouts staking out a potential nest site were mistaken for residence bees. In one case, I was waiting for a break in weather to set up a trap out. The incoming swarm arrived while I was there. They had been waiting for a break in the weather for two weeks – just as I had been. In the other case, a 4x8 sheet of cedar paneling was removed to find no bees inside.

Obviously, it was necessary to learn to differentiate between nest scouts and resident bees. The following provides a clue for you to use in your judgment. When a swarm moves into a new location, foragers start bringing pollen within a couple hours. Arrival of foragers with pollen indicates the colony has moved in. However, one or two bees milling about with pollen is not a firm indicator. Sometimes a pollen forager is recruited as a nest scout before she unloads her pollen. She makes your judgment a little more difficult. When you see several pollen forag-

ers arriving that know where the entry is located, and go directly to it, you can be fairly sure the colony has moved in. It wouldn’t hurt to wait a day or two more, and check again. By then, there should be a stream of returning pollen foragers. Starting brood rearing is a top priority for the swarm in a new location, and having pollen to feed brood is a necessity. (They didn’t bring any with them for the relocation.)

When this submittal was started, it was anticipated that the major part would be about “Gimmers” – another classification of free bees. The gimme (southern mush mouth for “give me”) is the best of the lot. It typically comes as a colony housed in conventional woodenware. A couple of examples follow:

A divorcee who had retained possession of the residence had a bee hive in the backyard abandoned by her ex. She wanted some compensation for the hive (in good condition) but settled for a quart of honey.

A city couple bought a country property with three hives on the place. They wanted to be rid of them and were pleased that I agreed to do it with no charge. One was a dead-out and the other two were live colonies. Even with the propolis clean-up, that was a pretty good deal.

Well, one more, for its interest: A country homeowner had a blackberry thicket in the middle of his backyard. He said there was a beehive in there that was there when he bought the place. The thicket was a result of his avoiding the hive when mowing. After chopping my way into the wild blackberry canes, the hive condition was interesting. The bottom board had rotted, and the hive toppled backward. Apparently, the propolis held the upper hive parts together in the Fall (perhaps somewhat cushioned by the blackberry canes.) What was interesting was that the colony had completely closed off the bottom of the lower deep with propolis, except for a small entry at the bottom. They were happy as clams in their long hive.

My best gimme provided 12 colonies and extra woodenware. That’s such a stroke of good fortune that the story has been added to my yarn list. There isn’t room for it here. **BC**

Walt Wright is a retired engineer and a hobby beekeeper in Tennessee. He is a frequent contributor to these pages.

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Be Kind To Your Skin

Ann Harman

You may be thinking about October festivals to welcome Autumn and Halloween with its pumpkins, bats and ghouls. But I will bet that you can find Christmas wrapping paper in the shops and Christmas gift catalogs in your mailbox. If you have thought about making cosmetics for Christmas gifts or Christmas craft fairs, then October is not too early to start, especially if you have never made any.

For those of you living in the colder regions of the country, the season for dry skin and chapped lips is approaching. If you wish to actively market your products, now is the time to start!

You should give some thought to the time involved in making the various lip balms and hand creams and lotions. You see, both honey and beeswax are quite variable, especially honey. One important variable is the water content of honey. Another is the color. You want your final product to look appealing. If the color of your honey makes the final product an unattractive color, then you may wish to buy honey from someone whose floral sources are different from yours. The color of beeswax, also, is variable, from brilliant yellow to subdued khaki color. Dark brown rendered old brood comb is best left for making fire starters. (Now there is another gift you can make.)

Now you can see that you need time for experimenting in making your cosmetics. Consider your first attempts as experiments. Make small batches and see if you like the final

product. Try adjusting the amounts of ingredients to achieve the consistency appropriate for the product. If one particular recipe does not make a pleasant product, try another recipe, then ask some of your friends to try your product and accept their critiques cheerfully.

If you have never made soap and wish to try I recommend first taking a workshop in soap making. There you will learn hints and techniques to create a good soap. Soap is one product you must make in advance since it must "age" to be a satisfactory product. Soap making has become a popular cottage industry these days and that makes it easy to obtain recipes and ingredients.

Recipes for cosmetics using bee products are scattered throughout various sources. One book, *Super Formulas*, by Elaine White is available at several beekeeping equipment suppliers. Some honey recipe books and leaflets are sources also. Beekeepers who give workshops in cosmetics frequently give handouts of recipes that they have collected. Fortunately with the popularity of soap making, all you have to do is go on the Internet and put in "soap making." You can find books on soap making at book stores, bee supply companies and even at the library. For those of you without access to Internet, pay a visit to your local public library and use their services.

Although unscented products are popular, so are ones with scents such as lavender. Recently an additive, shea butter, has become popular in

soaps and cosmetics. Just type "shea butter" into your search on Internet and you will find information and sources for this ingredient. Keep in mind that aromas and additives are fad items – what is popular today will be replaced by something else next year. Keep your eye on the commercial products to stay up to date.

You will need containers for your products. Fortunately some of the equipment suppliers sell containers and ingredients for making cosmetics and soaps. Before you start making cosmetics, make yourself a little library of catalogs and books. A good source for both containers and ingredients is GloryBee, PO Box 2744, Eugene, OR 97402, 541-689-0913, sales@GloryBeeFoods.com. If you do not have their catalog, order one before you start. Mid-Con has a nice assortment of containers, books and supplies. Call 1-800-547-1392 for a catalog. Both Brushy Mountain Bee Farm, 1-800-233-7929, and Betterbee, Inc., 1-800-632-3379 have containers and some supplies. A great variety of containers can be found at Daniels Scientific, Inc., 1-864-277-1309 and Dominion & Grimm, Inc., 1-802-524-9625. Remember, you are entering the cosmetic world and nice containers are essential. Don't forget to have attractive labels made that fit your containers.

Now to get to work on this project. Select a work area that has good light and good ventilation. Remember, you will be making a mess. Think about making a cake – you spill a bit of sugar, get the counter greasy with a spoon and end up with a dollop of batter on the floor. Making cosmetics is just about like that, but you will be working with other ingredients, most of them more difficult to clean up. A dollop of beeswax on the floor is not easy to clean up. If you are making soap, you will be using lye, a rather nasty substance to clean up. You will want to save up newspaper, rescue that old but sturdy table from the garage for a work counter and look for an apron.

By far the safest way to heat or melt the ingredients is with an electric hotplate, with variable settings



for heat. Please do not use a gas stove with an open flame. Your pots and pans should ideally be stainless steel and must fit the hotplate. A good source of pots is yard sales. But you do not want to buy pots that have dented bottoms and jiggle back and forth on the hotplate. Double boilers are a safe way to heat mixtures.

You will want a thermometer so you can keep track of temperatures recommended in the recipes. You also need a scale to weigh out ingredients. A simple electronic postal scale is quite handy. Mine has a flat surface that will accommodate a container. You may also want some measuring spoons, stainless of course, and measuring cups (stainless or glass) that will be only for your cosmetics or soaps.

Follow instructions! This is especially important for making soaps. Remember, someone else has tried the recipes and made the mistakes. By following the directions on mixing you will end up with a good result instead of some curdled goo. By far the most important direction is in the making of soap: **ALWAYS ADD LYE (SODIUM HYDROXIDE) TO WATER!** Safety goggles are recommended when handling such materials. Remember that beeswax is flammable! Safety measures actually will make your project more enjoyable.

How about a few recipes that can get you started? These recipes appear

in so many books and pamphlets that it is impossible to know the original source.

Beeswax can be grated in order to measure and also to melt easily.

BEESWAX LIP BALM

2 tablespoons beeswax
1 tablespoon coconut oil

Melt the ingredients in a double boiler. Pour into a container while still hot. It will harden as it cools. Makes about 1/4 cup.

HONEY HAND SCRUB

3 tablespoons finely ground cornmeal
2 tablespoons honey
1 tablespoon cornstarch

Blend the ingredients well. If the honey has been warmed it will be easier to blend. Pour into a container and use as hand soap.

BEESWAX HAND CREAM

1/4 cup beeswax
1/4 cup coconut oil
3 tablespoons baby oil
1/3 cup glycerin

Melt the beeswax and coconut oil in a double boiler. Add the remaining ingredients and heat and stir until mixture is smooth, about four to six minutes. Pour into a container while still hot. It will harden as it cools.

Both pollen and propolis can be used in creams.

BEE POLLEN HAND CREAM

1/2 cup petroleum jelly
1/3 cup beeswax
1/2 cup glycerin
2 tablespoons bee pollen

Melt the beeswax and petroleum jelly in a double boiler. Add the glycerin and heat and stir for several minutes until the mixture is smooth. Add the bee pollen, mix and pour into a container while hot. It will harden as it cools.

PROPOLIS LIP BALM

1 tablespoon beeswax
1 teaspoon propolis flakes
1 teaspoon lanolin
3 tablespoons mineral oil
A few drops wintergreen essential oil

Melt the ingredients in a double boiler. Stir while cooling but pour into containers before it hardens.

You will find many more recipes as you explore various sources. I hope your project is successful. Just remember – have fun! **BC**

Ann Harman makes soaps, lotions and hand creams along with keeping her bees and teaching others how to keep bees from her home in Flint Hill, Virginia.

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PUMPKINS AS BEE PLANTS

Connie Krochmal

Halloween has risen in importance in recent years with both adults and children joining in the fun. Consumers spend over \$2.8 billion annually for this holiday. This event would hardly be complete without jack-o-lanterns, which were popularized in the U.S. by Irish immigrants during the 1800s. Now, more pumpkins are used for decorations than in the kitchen.

Pumpkins grow better in cooler parts of the country. They don't respond well to mid-summer heat in the South. New York is the leading source with Illinois, California, Pennsylvania, Michigan and Ohio also doing their part. These are excellent bee plants.

History

Originally grown for their edible seeds, pumpkins originated in South and Central America. Their use dates from around 7000 B.C.

By the time the Europeans arrived, the cultivation of pumpkins had spread to North America. Traditionally, the Native Americans interplanted these with beans and corn. This was an important crop in New England during the Colonial Era, which explains why Boston was once known as Pumpkinshire.

The word pumpkin is derived from pepon, meaning large melon. Known in Shakespeare's time as pumpion, this eventually became pumpkin in the American colonies.

Growing Conditions

The plants need full sun. Like the other vine crops, pumpkins can't tolerate frost. So far as soils are concerned, all types are suitable. This crop thrives in a rich soil high in organic matter – particularly well-rotted manure. Pumpkins are most

productive in soils that are slightly acidic to neutral. A pH of 5.5 to 7.0 is considered ideal.

Planting

Depending on your preference, you can direct sow pumpkin seeds or start them early indoors two or three weeks before the last expected frost. Start transplants in peat pots to minimize transplanting shock. Wait until the weather is warm and settled to plant the seeds or transplants outdoors.

In most cases, seeds should be planted about an inch deep. For clay soils, make it a little less. These will germinate in about five to 10 days.

For best results, till or prepare the plot before planting. Mix a general purpose fertilizer, such as 5-10-10, into the soil during this process.

If planting in hills, place four to five seeds in each. Later, thin the seedlings, leaving no more than three per hill.

For most large vining pumpkins, space the plants about four to five feet apart with eight to 10 feet between rows. Smaller, bushy varieties can be spaced a little closer – three to four feet between plants with rows six to eight feet apart. For the giant pumpkins and others with extra-long vines, allow lots more space. Depending on the variety, these need twelve feet or more between plants.

Caring for Pumpkin Plants

Weed control is helpful, especially when the plants are young. If you hoe or cultivate, do so carefully to avoid harming the shallow roots of the pumpkins. As the vines increase in size, weeds will become less of a problem. Early in the season, a layer of organic mulch will help prevent weed seeds from germinating.



As is the case with other vine crops, pumpkins grow best if they're watered whenever rainfall isn't sufficient. Otherwise, the fruits won't reach their full potential. After all, these are 90 per cent moisture.

Don't stint on the fertilizer for this fast growing crop. Apply a booster application as a top dressing around the plants. Do this several weeks after the seeds or transplants are planted.

Do you want perfectly shaped pumpkins for Halloween decorations? If so, you'll want to turn each fruit a little every couple weeks. This prevents them from becoming lopsided.

Problems with Pumpkins

Weather can adversely affect pumpkin plants. Prolonged wet spells promote disease and reduce the fruit set. Excessive rain can also leach the fertilizer, causing the fruits to be smaller and lighter colored.

Several insects attack pumpkin plants, including the squash vine borer, whose larvae tunnel into the stems. This causes the plants to wilt. To control this pest, cover the young plants with floating row covers, such as Remay. Once the flowers begin to open, remove the protective cloth so pollination can take place.

Squash beetles typically occur late in the season. Cucumber beetles, which can spread mildews and wilts, can also be a problem. The larvae of the western cucumber beetle feed on

the roots of pumpkins. This species is yellowish with three black stripes.

Squash bugs and cucumber beetles are found throughout the country, while squash vine borers and squash beetles are more common in the East.

Among the common diseases of pumpkins are downy and powdery mildew. Typically, these affect the leaves. However, mildews can also damage fruits and stems.

There are several ways beekeepers can minimize disease and insect problems with pumpkin plants. First, grow them in full sun. Also, practice crop rotation every couple years. Clean up the plot at the end of the season to keep insects and pathogens from overwintering on the site. Keep diseases at bay by growing disease resistant pumpkin varieties.

Use companion plants, such as nasturtiums, to discourage squash bugs.

TRUE PUMPKINS (*Cucurbita pepo*)

Of the two species of pumpkins, this is the most widely cultivated one. It includes the kinds used for cooking and for Halloween decorations as well as the ones grown for their seeds. True pumpkins are related to zucchini and acorn squash. Covered with prickly hairs, these plants feature large, triangular foliage with well-defined lobes.

Normally, true pumpkins weigh between two and 25 pounds. There are some exceptions, such as the miniatures.

Some of the best varieties of true pumpkins are the following.

Autumn Gold

This award-winning, early-maturing variety became an All-America Selections winner. Now a classic, Autumn Gold fruits are ready in about 90 days. An all-purpose pumpkin, its meaty, firm flesh is excellent for carving and cooking. The golden orange fruits weigh between seven and 10 pounds. They grow on vigorous vines.

Baby Bear

This variety has become a classic miniature or baby pumpkin. Showing some disease resistance, it was an All-America Selections winner in 1993. These bright orange fruits have shallow ribs and sturdy stems. They only weigh about 1½ to two pounds, and are less than six inches wide. Ready to harvest in about 105 days, Baby Bear can be used for painting, carving, and as is for Halloween decorations as well as for cooking. Being partially hull-less, the seeds are especially suitable for roasting.

Connecticut Giant

This heirloom is the most popular jack-o-lantern variety. However, it is also good for cooking. The fruits, which can be harvested in 110 to 115 days, usually weigh about 15 to 20 pounds. Also called cow pumpkin, its fruits were once used for animal feed. This has been in cultivation since the 1600s.



Lumina

For painting, varieties with beige or light-colored skins are recommended with Lumina being among the best whites. Lumina's globe-shaped fruits normally reach about 10 to 15 pounds. For the best color, harvest this variety early at about a hundred days. Stress can cause these pumpkins to develop a blue tinge if they're left on the vine late into the season.

Orange Smoothie

This variety was named an All-America Selections winner. A hybrid that begins yielding in 90 to 110 days, Orange Smoothie bears all-purpose fruits that can be used for carving, painting, or cooking. Only eight inches in diameter, these weigh five to eight pounds. The uniform, deep orange pumpkins are globe-shaped. With a smooth, tough rind, they have sturdy stems.

Rouge Vif d'Etamps

Also known as the Cinderella pumpkin, Rouge Vif d'Etamps is excellent for cooking. These ripen in about 95 to 120 days. Under good conditions, the very ornamental, deep orange-red fruits can reach 25 to 35 pounds. This French heirloom has been grown in the U.S. since 1883, remaining one of the most popular.

Small sugar pumpkin, New England pie pumpkin

An heirloom that is ready in about 90 to 110 days, small sugar pumpkin dates from the early 1800s. Weighing four to eight pounds, these lightly ribbed, round orange fruits are excellent for cooking. They grow to seven inches in diameter. These can be stored for long periods.

Snackjack

This space-saving, bushy plant is grown primarily for the hull-less, edible seeds. However, the round, lightly ribbed, orange fruits are also great for carving and cooking. These mature in about 90 to 95 days. They can weigh a pound to 2½ pounds. Snackjack fruits keep well for months.

Sorcerer

This variety is especially suited to carving. Sorcerer fruits can be harvested in about 90 to 115 days. With a deep, round shape, the heavily ribbed pumpkins ripen to dark orange. These weigh between 15 and 25 pounds, reaching about a foot in diameter. They feature sturdy stems. A semi-vining plant, this provides a good yield of uniform fruits.

GIANT PUMPKINS (*Cucurbita maxima*)

This species is actually an enormous kind of squash that became known as mammoth or giant pumpkin. It is the preferred type for giant pumpkin contests.

Though the true pumpkin and giant pumpkin are related, the plants differ in several ways. All parts of the true pumpkin plants have prickly hairs, while those of the giant pumpkin are soft to the touch. The leaves of the giant pumpkin will never be

deeply divided like those of the true pumpkin.

Giant pumpkin fruits can weigh over a hundred pounds or more. Typically, these are gray or pinkish-orange.

The most popular varieties of giant pumpkins include the following.

Atlantic Giant

An award-winning variety, Atlantic Giant was introduced in 1978 by giant pumpkin breeder Howard Dill of Nova Scotia. The oversized fruits are deep and round with a small seed cavity. Excellent for cooking, these pumpkins vary in color from buff to yellow or dull orange. Ready in about 120 to 125 days, they usually weigh about 200 pounds. With special care, these can easily grow to 1000 pounds or more. The vines spread from 15 to 25 feet in length.

Big Max

This prize-winning variety comes highly recommended for giant pumpkin contests. Though it depends upon growing conditions, these fruits often weigh over a hundred pounds. The slightly rough rind is tinged with pink. With their classic, round shape, they're a perfect choice for Halloween. Big Max is also good for cooking. These mature in about 110 to 120 days.

Big Moon

A classic variety, Big Moon often receives the top prize at large pumpkin contests. The gigantic fruits vary in size from 40 pounds up to 200

pounds. Ready in 110 to 120 days, this is a popular variety for jack-o-lanterns. These have smooth, wide ribs and a golden orange rind.

Harvest and Storing

Pumpkins are ready to harvest when the rind is hard and the color is well-developed. Cut the fruit from the vine, leaving three or four inches of stem attached to the fruit. Depending on the variety, pumpkins begin ripening anywhere from 80 to 110 days or more after transplanting. Exposure to heavy frost can damage them, so harvest before cold weather arrives.

For long-term storage, a cool, dry place is needed, preferably with temperatures between 50 and 60°F.

Pollination and Status of Pumpkin as a Bee Plant

Requiring cross-pollination, a pumpkin plant produces separate male and female flowers. The large, yellow blossoms are funnel-shaped. An individual female blossom requires eight to 10 bee visits for proper pollination. Otherwise, the fruits will

either be absent or misshapen.

Typically, pumpkin flowers open early in the morning, and close by noon – particularly on hot days. So, the honey bees do most of their foraging in pumpkin fields before nine a.m. Abundant quantities of nectar are secreted at the very bottom of the blossoms. These also yield lots of large-grained pollen.

The honey potential for large fields of pumpkins is moderate to high. In good seasons, this can be anywhere from 65 to 140 pounds per colony. The very heavy-bodied crop ranges in color from amber or straw colored to yellow. Granulating very rapidly, this is considered a desirable, high quality honey. **BC**

Connie Krochmal is an award winning garden writer and a beekeeper in Black Mountain, South Carolina.



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? DO YOU KNOW ?

Queen Rearing

Clarence Collison
Mississippi State University

At the 2006 Eastern Apicultural Society annual beekeeping short course, several of the presentations in the advanced group were concerned with bee genetics and breeding. The students quickly learned that to understand these topics they had to be well grounded in basic honey bee reproductive biology. Included in these discussions

were numerous presentations associated with queen rearing and the factors that impact queen quality including the availability of desirable drone stock.

Please take a few minutes and answer the following questions to see where you are in understanding these important topics.

Level 1 Beekeeping

1. ____ If you were going to mark a queen using the International Color Coding system in 2006, you would use: A. Blue B. White C. Yellow D. Red E. Green
2. Give two reasons for marking queens. (2 points)
3. ____ Royal jelly is fed only to larvae that are being reared to become queens. (True or False)
4. ____ The removal of a queen honey bee from a colony results in workers constructing emergency queen cells for up to six days. (True or False)
5. ____ Worker honey bees regulate emergency queen rearing in honey bee colonies. (True or False)
6. ____ Drones produced by queens have a different number of chromosomes than drones produced by laying workers. (True or False)
7. ____ A Midwestern commercial beekeeper moved bees to southern California for almond pollination and one of the colonies superseded their queen. The new queen mated with several Africanized drones during her mating flight. Upon returning home, this colony headed by a superseded queen would be of concern since the queen would produce Africanized drones. (True or False)
8. ____ Fertilized eggs laid by the queen are capable of becoming either workers, queens or diploid drones. (True or False)
9. ____ When queens are ready to emerge from their queen cells they cut a cap in their cell. (True or False)
10. What is meant by "Drone Saturation" and explain how it is used in the beekeeping industry? (2 points)
11. ____ The destruction of capped queen cells can be carried out by both workers and newly emerged queens. (True or False)

Advanced Beekeeping

12. ____ Overtime time there is a slight decline in sperm viability stored within the queen's spermatheca. (True or False)
13. Two behaviors associated with delaying the emergence of queens from their queen cells. (2 points)
14. ____ The probability that an egg in a queen cell cup will be reared as a potential queen in a honey bee colony depends on its location within the broodnest. Eggs in cells near the center are reared more frequently than those on the edges and those near the top of the frame more frequently than those lower down. (True or False)

During the queen rearing process, audible sounds are often made by the first queen to emerge from her cell and by queens confined in their cells.

15. An emerged virgin queen from her cell starts to produce a substrate-born piping sound called ____.
16. Mature queens that are still in their cells respond to this by a sound called ____.

Colonies consist of large numbers of subfamilies of workers because queens mate with large numbers of drones. Within the worker population there are super sisters, full sisters and half-sisters.

17. Describe the mating combinations for super sisters, full sisters and half sisters and what percentage of their genes they share in common. (6 points)
18. The composition of queen larval food differs from the composition of worker larval food. One of the most important differences appears to be the higher protein content found in the queen's diet. (True or False)

ANSWERS ON NEXT PAGE



Do You Know?

Answers

1. B) White
2. Queens are often marked for the purpose of: A) Quickly locating them within a colony B) Recording the age of the queen C) Identifying genetic lines and D) Knowing when queen replacement or superseding has occurred.
3. **False** During the first two to three days of larval life, regardless of caste, each larva is mass fed large quantities of royal jelly. As this mass feeding period comes to a close, the quality of the brood food changes, impacting caste determination and rate of development.
4. **False** Following the removal of a queen from a colony, the majority of emergency queen cell construction is initiated within 24 hours. Additional queen cells are constructed for up to two days after dequeening. No further queen cells are started on or after the third day.
5. **True** Workers regulate emergency queen rearing in honey bee colonies by differentially constructing queen cells. Workers build different numbers of queen cells from different ages of brood and then non-randomly destroy over half of the initiated cells before their emergence.
6. **False** Drones that are produced from unfertilized eggs either laid by queen or by a laying workers do not differ in chromosome number. Both types of individuals are haploid having 16 chromosomes.
7. **False** A European colony superseding their queen within a geographical area that has Africanized honey bees would likely mate with some Africanized drones during her mating flight. When this colony is moved to an area that does not have Africanized honey bees, the production of Africanized drones by this superseded queen would not be a concern since all drones produced by her would come from unfertilized eggs. Some of her offspring being produced from fertilized eggs, however, would have some Africanized genes.
8. **True** Any fertilized egg laid by a queen is capable of becoming either a

queen or worker. Queen and worker differentiation is dependent upon the quality and quantity of food received during its larval life. Queen larvae receive an abundance of royal jelly throughout their larval life whereas worker larvae receive "bee bread" after they are 3-3½ days old. Fertilized eggs do not always become females, however, they can develop into diploid drones. These diploid male adults are never found in a colony, as the workers destroy all diploid male larvae, a few hours after egg hatch. Adult diploid males have only been produced in the lab.

9. **True** When a virgin queen is ready to emerge, she begins to cut her way out of her cell with her mandibles. When the cap is partially cut away, she pushes it to one side and crawls out.

10. Drone saturation is the process by which an individual produces and floods an area with a desirable line of drones. This is done to insure that virgin queens being raised by the beekeeper will have a plentiful supply of desirable drones to mate with.

11. **True** Both newly emerged queens and workers may destroy capped queen cells in the colony. Queens cut a small hole in the side wall of the queen cell and sometimes sting its occupant. Workers cut a much larger hole in the side wall and instead of stinging, they remove the contents of the queen cell.

12. **True** Comparison of sperm viability stored within the spermatheca of different aged queens declined over time. The percentage of dead sperm increased from 20.5% in two month-old queens, to 21.5% in 12 month-old queens and 33.5% in 24 month-old queens.

13. Worker bees sealing the cuts made by the enclosed queens in their cell caps.

The tooting of the emerged queen causes the confined queens to freeze or become inactive, thus delaying their emergence.

To a lesser extent, workers near queen cells produced so-called worker piping, probably causing freezing similar to the effect of the emerged queen's tooting.

Confinement by workers pressing

their heads on the queen cell cap.

Vibratory dances play at most an indirect role in delay of emergence of queens, since they probably contribute to the induction of tooting of the free queen.

14. **True** The probability that an egg in a queen cell cup will be reared as a potential queen in a honey bee colony depends on its location within the broodnest. Eggs in cells near the center are reared more frequently than those on the edges and those near the top of the frame more frequently than those lower down.

15. tooting

16. quacking

17. Super-sisters- share both a mother and a father, 75% of their genes are common

Full-sisters- share mother but different "brother" fathers, 50% of their genes are common

Half-sisters- share queen and unrelated drones, 25% of their genes are common

18. **False** The basic difference between the queen's larval food in comparison to the worker's larval food is the higher sugar content.

There were 13 points in each test level this month. Check below to see how well you did. If you scored less than six, do not be discouraged. Keep 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.

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GLEANNINGS

OCTOBER, 2006 • ALL THE NEWS THAT FITS

UK IMPORTING MANUKA HONEY FOR CANCER PATIENTS

A British hospital is importing manuka honey in bulk from New Zealand to use on mouth and throat cancer patients after surgery.

Doctors at Christie Hospital in Didsbury, Manchester, said they hoped it would reduce the patients' chances of contracting MRSA and help lessen inflammation.

MRSA (Methicillin-resistant *Staphylococcus aureus*) is a strain of golden staph which has developed antibiotic resistance, first to penicillin since 1947, and later to methicillin and related anti-staphylococcal drugs.

Popularly termed a "superbug," it was first discovered in Britain in 1961 and is now widespread.

A New Zealand biochemist, Peter Molan, of Hamilton, has spent two decades researching the capability of some manuka honey strains to battle a range of bacteria, including *E. coli*, salmonella and helicobacter, as well as actively promote wound healing, even in antibiotic-resistant infections such as MRSA.

Nectar from some manuka – leptospermum species also found in Australia – produced a valuable "active" honey. The anti-bacterial properties of ordinary honey – due to hydrogen peroxide produced by a glucose enzyme – have been known

to traditional healers for centuries but other "bio-active" compounds in some strains of manuka honey are found only in New Zealand and Australia.

While the effects of the glucose enzyme are broken down by heat, light and other enzymes, the additional healing component of manuka honey does not break down in the same conditions and it can be used to treat some wounds and ulcers.

On average, 120 tons of "active" manuka honey is sold each year, and it sells for up to 10 times the normal retail value of ordinary honey, but its bio-active content can vary widely.

The honey has been used on special honey-coated dressings at the Manchester Royal Infirmary since May.

Now 60 patients at the hospital are taking part in a study to see if the honey can prevent infections resistant to antibiotics.

Dr. Nick Slevin, the specialist leading the program, said: "Manuka honey has special anti-inflammatory and anti-infection properties and is believed to reduce the likelihood of MRSA infection."

The honey costs up to £12 (NZ\$36.32) for a jar, but the hospital has imported 400kg in bulk to help keep costs down.

NEW SHIPPER BONDING SUSPENSION LAW

After two years of hard work by the AHPA and its Congressional supporters, Congress has passed and sent to the President for signature legislation to suspend bonding for imports from new shippers in antidumping duty ("AD") cases. The new law suspends until June 30, 2009 the ability of importers from new shippers to post bonds. Instead these importers will now be required to post cash deposits to secure estimated AD duties. The suspension is also retroactive to new shipper imports made on or after April 1, 2006, meaning that bonds posted after that date will have to be replaced with cash deposits. Finally, the new law provides for a study on ways to improve the collection of AD duties and for a study of the benefits of extending the suspension of new shipper bonding beyond 2009 or permanently repealing the bonding privilege.

The provision suspending new shipper bonding was included with a number of other trade provisions in a pension reform bill (H.R.4). H.R. 4 passed the House by a vote of 279-141 on July 28. The Senate passed H.R. 4 by a vote of 93-5 on August 3 and President Bush will soon sign the bill into law.

The new shipper bonding suspension provision included in H.R. 4 combines the best features of a number of earlier new shipper proposals. It includes a study on improving AD duty collections originally proposed by House Ways & Means Chairman Bill Thomas as a means of improving AD duty collections by U.S. Customs and Border Protection ("CBP"). Additionally, the April 1 effective date was included in earlier legislation proposed by Senate Finance Committee Chairman Charles Grassley and Ranking Member Max Baucus. Since its introduction, legislation with this April 1 effective date has played a significant role in deterring abusive new shipper imports. Chairman Grassley, Senator

Baucus and Chairman Thomas were all instrumental in including the new shipper provision in H.R. 4.

The new shipper provision would not have become law without the tremendous efforts of other key legislators who have worked very closely with our AHPA team. This is particularly true of Senators Thad Cochran and Robert Byrd. They took the lead in originally introducing new shipper bonding legislation in 2004 and twice had the Senate unanimously pass a new shipper bill. Congressmen Chip Pickering and Marion Berry were also champions of our cause. They originally sponsored new legislation in the House and strongly supported House passage of a new shipper provision. In addition, a bipartisan group of over 30 Senators and Members of Congress from around the country also co-sponsored various new shipper bills.

Suspension of bonding for new shipper imports should significantly restore the effectiveness of AD orders against unfairly traded honey and result in the return of fair market prices to the U.S. honey market.

OUT OF GAS

The commercial beekeeping industry in Australia's Northern Territory is ending operations.

Kevin Eastburn of the Northern Territory Beekeepers' Association told the Australian Broadcasting Corp. that after the poorest season in memory involving floods, termites, cane toads and a depressed honey market they simply cannot continue.

His greatest concern is what this will mean for industries that rely on local bees for pollination.

"We service most of the melon growers and most of the horticulturists and you know we're both considering pulling out of the territory so basically we've got to try and make some provision for this pollination services to continue," he said.

—Alan Harman

MORE SUGAR-FREE HONEY

Shimla, India, in an effort to motivate beekeepers to produce sugar-free herbal honey, the government has introduced a new eco-friendly beekeeping system in Himachal Pradesh.

The National Horticulture Board sent 5,000 beekeeping boxes with the bees to the state, to be distributed in 10 of 12 districts in the next year.

These bees will be fed on the stevia herbal plant leaves that are said to produce sugar free honey. These leaves will come in handy during the dry Winter countryside and the rainy season when bees are unable to fly out in search of food.

In the lean season, the hungry bees are normally fed sugar, resulting in production of poor quality honey. Stevia will change this practice.

Sugar free honey is in demand by diabetics and those who do not wish to gain weight but at the same time want to enjoy the taste of honey.

It is said to reduce cravings for sugar and fat besides controlling blood sugar and high blood pressure.

"Eventually the state government plans to procure some 100,000 beekeeping boxes to produce herbal honey," said a government official.

"Farmers wishing to get into beekeeping can submit projects up to Rs.1 million. The NHB will bear a fifth of this sum. The rest will have to be paid by the beekeeper," said the official. "A box of bees will be sold for Rs.3,000."

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My 12-year-old beekeeping apprentice, Lindsay, called me while I waited on a customer at work.

"Mr. Sieling, I just read the most amazing fact! Did you know the first written account of the Wright brothers flight was...?"

"A.I. Root wrote about it in *Bee Culture*," I interrupted. "He was a friend of the Wrights. By the way, in Ohio, 'Root' rhymes with 'foot' rather than 'shoot'." My customer started tapping his foot.

"Huh! Why am I always the last to know these things?" Lindsay sounded deflated.

"Well, Lindsay, I am almost a master beekeeper. I know pretty much everything about bees." I consider myself an unauthorized master beekeeper because last year I obtained a bootlegged copy of the Eastern Apicultural Society's Master Beekeeper written exam. I took it and passed by two points. I'll never take the real test, though, because they say that if your smoker goes out during the field exam, you automatically fail. I can't keep a smoker lit under pressure. "Tell you what, Lindsay – you find a bee fact I don't know and I'll give you ten frames." Now the customer was looking at his watch as though he was late for an appointment.

"All right, Mr. Sieling. You're on."

Maybe that wasn't such a good idea, but a child's attention span is only about 10 minutes long. With school, soccer, play practice, Tae Kwon Do, 4-H and television, I figured Lindsay would soon forget.

A week later the phone rang at 10:30 PM. I groggily answered.

"How much honey does it take to power a bee flight around the world?"

"I'd guess about two tablespoons, less with a good tail wind."

"Rats," she huffed.

"Don't your parents tuck you in by eight o'clock?"

"We're waiting for the lunar eclipse at 11:23 PM. Aren't you? How many bees in a pound?"

"Full of honey or empty? Either way it ranges from 3000 to 3500. For a pound of bees on the moon, multiply that number by six."

"Darn."

A couple weeks later she came to help me inspect hives.

"What famous detective wrote a book about beekeeping?"

"According to Sir Arthur Conan Doyle," I answered, "Sherlock Holmes retired and moved to the South Downs to raise bees. He wrote a book called *Practical Handbook of Bee Culture, with Some Observations upon the Segregation of the Queen*. It's a small book with a blue cover and would be quite valuable among collectors if it actually existed."

"When Napoleon attacked Moscow in 1812, who compared the abandoned city to a queenless hive?"

"Leo Tolstoy. All I remember is: 'The bees circle round a queenless hive in the hot beams of the midday sun as gaily as around the living hive. Bees fly in and out in the same way, but one has only to observe that hive to realize that there is no longer any life in it...' The section ends, 'The beekeeper closes the hive, chalks a mark on it, and when he has time tears out its contents and burns it clean.' Are you reading War and Peace?"

"My mother only lets me borrow six books a week from the library, so I've been picking the thick ones."

Later that Summer, my wife and I were at our daughter's piano recital listening to a sixth grade girl playing Haydn's *Allegro Scherzando in F Major*. Nancy forgot to silence her cell phone's ringer. It suddenly started playing Barry Manilow's "Copa Cabana" one half key below the piano. She managed to shut off the music after swatting half a dozen buttons, then rushed out of the hall to answer it. Returning, she sat down and grimly handed me the phone. I squeezed out of the row and slinked out of the room amidst a chorus of "shushes" and angry stares.

"Do you know John Wesley?"

"Hi Lindsay. Not personally. You mean the guy who invented the Methodists?"

"Yes." She sounded smug. "According to his book, *Primitive Physic*, written in 1747, how do you cure baldness?"

"I would rub the bald spot twice a day with onions until it turns red, then apply honey. From pictures I've seen, it worked for Wesley."

"You...are...IMPOSSIBLE!" Lindsay didn't even say good bye. What

does she think old beekeepers do all Winter besides read and memorize obscure beekeeping facts? I spent the rest of the recital in the car reading the operator's manual from the glove compartment.

By late Fall Lindsay had given up. We were putting mouse guards on my hives. Rather, she was putting them on. I was trying to light my smoker.

"Why do we always put these on after the mice move in?" Lindsay asked as she stapled the last mouse guard and began refueling her smoker.

"It forces me to replace old combs more frequently because they chew holes in them. Plus the mice won't starve in the Winter and the owls and foxes can't get them. It's so I have even more mice next year. All master beekeepers know that you can make more money selling mice than honey. I'm hoping to sell them to science labs, people with pet snakes and maybe try marketing a new brand of canned cat food – Mouse Munchies."

"Look, Mr. Sieling, I finally figured out how to keep my smoker lit." Lindsay had a thick white cloud over her head and was trying to write her name in smoke. "Know how I do it?"

"No, how?"

"You tell me."

"You microwave pine needles until they spontaneously ignite?"

"Nope."

"Soak baling twine in gasoline? I hope your dad didn't bring back C-4 explosive from Iraq..."

"No and no."

"Wood pellets mixed with black powder? Plutonium rods? I give up. Tell me."

"You owe me 10 frames."

"After you tell me how you keep your smoker lit."

"That wasn't part of the deal."

"I'll give you 10 frames and 10 dollars."

"Nope."

"I'll buy all your honey – at retail."

"Sorry, Mr. Sieling. It's a trade secret. I'm thinking of taking the Master Beekeeper exam next Summer. I wonder how old you have to be. Want to race me?"

Peter Sieling

Ask The Master Beekeeper

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