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AUG 2004

Bee Culture



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An attractive display is the first thing people notice at a Farm Market stand. Next, it's lots of product, with not just honey, but candles and more. Find out how Duane Waid makes it all work well and look great in his article on page 32.
(photo by Duane Waid)

800.289.7668 • www.BeeCulture.com

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Subscription Information

U.S., one year, \$21.50; two years, \$41. Newsstand price: \$3.50. All other countries, (U.S. Currency only), \$15.00 per year additional for postage. Send remittance by money order, bank draft, express money order, or check or credit card. Bee Culture (ISSN 1071-3190), August 2004, Volume 132, Issue 8, is published monthly by The Root Candle Co., 623 W. Liberty Street, Medina, OH 44256. Periodicals Postage Paid at Medina, OH and additional mailing offices.

Advertising

For information on placing display advertisements, contact Dawn Feagan in our Advertising Dept. 800.289.7668. Ext. 3220

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

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

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Bee Culture The Magazine of American Beekeeping
is



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Recycled Paper

Bee Culture

THE MAGAZINE OF AMERICAN BEEKEEPING

AUGUST 2004 VOLUME 132 NUMBER 8

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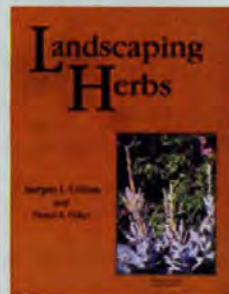
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Following The Bloom

\$18.95

X118

First published in 1991, this book follows the trials and tribulations of some of America's migratory beekeepers. Soft cover, 246 pages, black & white



Root Publications (a division of The Root Candle Co.)

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KEEP IN TOUCH

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Been There, Done That

Day One – It is hot and humid at 6:15 a.m. My wife is suited up to help with the honey robbing. I have 20 colonies and am short on honey supers. The bees are in the top boxes and the honey flow has about two to three weeks to go. I don't want to lose any honey so feel I must extract now. Big mistake number one.

We went into 10 colonies and took 18 boxes of capped honey. Loaded them on the back of the tractor and put them in the honey house. All is well.

After an hour or two of rest we decide to extract. The trouble starts: the barrel faucet is not tight enough. I take time to tighten it up as my wife is uncapping and piling frames up. I begin extracting, dump in 10 gallons and no leaks. Things are looking good.

About the third box, my wife says this box is half full of brood. Out of the 18 boxes, six were full of brood or uncapped honey. What I had not done was check each frame of each box. When the two outside frames were capped I assumed all frames were capped and full of honey. Big mistake number two.

We did get 37 gallons of honey. But it is too wet, 19½ percent moisture. Now I have to dry the honey. I wanted to put the uncapped boxes back on the bees as soon as possible. But it was hot, 95°F and 100% humidity. I will wait until tomorrow. Big mistake number three.

Day 2 – It's 5:45, still hot and it's raining. When I look at the apiary the bees on the robbed boxes are bearded up from the ground to the cover on two sides. I have to put the boxes on these bees, rain or not. Big mistake number four.

I light my smoker and load half of the boxes on the tractor. It is raining, but not hard. Just when I need the smoker, it goes out. The hives are open, it is

MAILBOX

raining and the bees are going crazy. I go to relight the smoker and at that moment nature calls. I run to the house. When I get back the rain is really getting heavy. The bees are even more upset. I put the boxes on the colonies. I don't have time to fix the frames properly. I'll do that later. This may be a mistake.

George Dupeire
Baker, LA

Jurkovic Swarm Control

My name is Joze Simec and I come from Slovenia. I am the representative of Ivan Jurkovic.

You must probably know about the many European beehive types. But Mr. Jurkovic has invented a very simple swarming control method. This method can save a lot of working time on one colony, but that depends on the bee race. As you may know, in Slovenia we have a very original bee race – the Carniolan bee and it's known for a strong swarming instinct.

This handy "swarming control method" is really an innovation and we know that real inventions in beekeeping appear every 50 or 100 years. They have to be practical, simple, commercial and this method complies to all these demands. It hasn't been published yet.

On the other hand, "the high bottom board" was already observed in a German magazine – *Bienen Welt* (2002/6). I mention that because this new method is closely linked to the high bottom board which is very useful in modern beekeeping.

Ivan Jurkovic has developed three important things: Thermo-sublimator for treating *Varroa* with oxalic acid; The High Bottom Board for LR and DB hives with 10 frames; Swarming Control Method.

All three innovations are closely linked to each other

Joze Simec
Jakopiceva 17
1000 Ljubljana, SLOVENIA
BEE CULTURE

Hutterites & Bees

I am a member of a Hutterian Brethren church of Rosebud Colony in Alberta Canada. I have been a registered beekeeper for 25 years. The colony has 26 hives and I have spent a lot of time studying these remarkable creatures. I am interested in writing a book relating the lifestyle of the colony of bees to the colony of the Hutterites lifestyles. To my knowledge no one has done this type of comparison.

I am asking everyone who reads this letter to help if possible. I am asking for people to send me any beekeeping stories, magazine articles and/or pictures of bees. For example, I would be very interested in information of bees swarming, one bee feeding another, bees fighting, bees cleaning in front of their hive, carrying away their dead that type of information to help me write my book.

I already have these books: *ABC/XYZ; The Biology of the Honey Bee; Beekeeping in Western Canada; The Hive and the Honey Bee* and *Honey Bee Diseases and Pests*. Any further information, articles, stories and pictures would be very helpful and greatly appreciated. Thank you all for your time and help.

George Hofer
Box 289
Rockyford, Alberta, Canada
T0J 2R0

Backyard Solution

At Tuttle Apiary Labs we never really knew what caused the mite count to drop after using Mite Solution, even more, why didn't the mites show some resistance after 14 years of use? We thought it may suffocate the mites, as suggested by one entomologist from Cal Davis, but we knew there were no toxins in any of the ingredients. Still not being able to perform an autopsy on the

Continued on Next Page
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MAILBOX

mites on a sticky board we found ourselves at odds with the EPA, who's approval we could not afford. It was never a matter of passing tests or doing studies, as the EPA has a monetary answer for those road blocks. Rather it was the fact that we just didn't have the millions that it costs to get EPA registration. So we skirted the issue with our ads and tried our best to say that Mite Solution and Bee Calmer were not pesticides, which they are not. But then why do the mites die? Why does the mite count go down if there are no poisons in Mite Solution or Bee Calmer?

The answer came as recently as the March Issue of *Bee Culture's* Research Reviewed. An article by Dr. Steven Sheppard, on page 13, "*Fundamentals of Grooming Behavior, A measure of Resistance.*" Read the article, like all of his articles, it is extremely informative. Yes, we have all read where grooming of bees which are naturally not susceptible to mites was responsible for their significant reduction of mite numbers, but we were also told that they had larger mandibles and therefore could mutilate the mite better than our European cousins. Here at Tuttle Apiary Labs, I have always known that when Mite Solution was introduced, it caused bees to groom themselves first and then any bees next to them, grooming seemed pandemic, and before long the whole hive would take on a darker shade. That grooming, I attributed to the bee's lack of interest in the beekeeper, and so the instant spray application form inspired by larger customers' needs, was soon sold as Bee Calmer, a substitute for smoke which no one likes to use.

I never suspected that the grooming by its self would yield such dramatic mite reductions in hives. Noted, however, some beekeepers had observed mites still alive on the sticky board, or jelly coated sheet at the bottom of the hive. I thought the herbal extract must have evaporated,

leaving only the petroleum jelly carrier, recent tests show that is not the case. In addition, it is noted that some reduction of mite population occurs with just petroleum jelly. All of this information has been a great help in understanding the WHY

It is hoped that more studies will bring even better methods of mite control. In the meantime my thanks goes to the work done by Dr. W. Steve Sheppard, Department of Entomology, Washington State University, Pullman, WA. And to the *Bee Culture* magazine for their continual help in bee keeping success.

Steve Tuttle
Woodland, WA

Ezily Confused

Based on the feedback we have been getting from the beekeeping industry to our advertisements and their misguided perception that the EZYloader is a copy, new product or has been taken over by a multi-national or overseas company we attach a short article piece that should clarify the confusion.

Varsitor Corporation the owner, designer and manufacturer of the unique and patented EZYloader is well on its way to securing major market share in the Overseas Bee Keeping market. Australian apiarists have had the good fortune over the last 5 years to be exposed to and purchase the revolutionary EZYLoader ... the EZYLoader has provided its customers with significant increases in productivity (as much as 300%) and minimized one of the curses of the industry - **back injuries!**

EZYLoader

The company has worked very closely with beekeepers in Australia and more recently in the USA, Canada, New Zealand, France and even South Africa. Feedback from clients has enabled the EZYLoader to continue its evolution and increase its innovative features.

The EZYloader was designed for beekeepers and may well be a solution for your needs ... contact Varsitor Corporation today and find out more!

For more information contact Fundamental by Design ... Productive by Nature, (07) 3832 3220 or varsitorsales@opusint.com.au or visit www.varsitor.com

Chris Wansbury
Spring Hill Q, Australia

Fitting End

From Audobonworkshop.com

Protein is extremely important to birds. Though suet provides birds with protein, insects provide four times. More protein than suet.

Offering living insects such as provided by Grub Block will increase songbird diversity in your backyard. During the Summer, insects are usually readily available in yards where chemical pesticides are not used, but insects can be scarce in Winter and Early Spring. To keep birds returning to your yard year-round, try offering living insects.

Enthusiasts know that some birds prefer insects over seeds. Consider offering Grub Block as a "special treat" for your bird friends - it's the ultimate temptation to insect-eating birds who may not have visited your backyard in the past.

Live waxworms are nutritionally superior to live mealworms, providing more calories, higher fat and calcium content and lower moisture than mealworms. Mealworms also have a tendency to move out of the feeder, while waxworms in the Grub Block stay put.



MAILBOX

Grub Block containers approximately 100 prepupal waxworm larvae (caterpillars). Waxworms are creamy white, about ¾ inches long and have a soft body that is easily digested by birds. The waxworms are neatly rolled into a corrugated cardboard block that can be easily inserted into any conventional suet feeder. Hang approximately five feet high or from a seed feeder in a visible spot.

If your Grub Block freezes during Winter weather, birds still will find and eat the insects. Can be stored at room temperatures for up to three weeks, but best if used immediately. Available October to April from Audubon Workshop, www.AudubonWorkshop.com or call 513.354.1485.

Joe Fitzpatrick
Blue Bell, PA

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Spraying straight vinegar into the colony does not work. It must be volatilized by steam.

Beekeepers who have used this machine claim a massive buildup of brood and bees, increasing splits and tremendous production. Requires a 120 or 240 volt generator.

References can be supplied.

Please write or call for more information,
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HARVEST IT EXTRACT IT BOTTLE IT SELL IT

A few drops of butric Anhydride on a Betterbee fume board and you'll have bee free honey supers. For a less odiferous solution, try the sweet smell of Fischer's Bee Quick on your board.

Or, for a non-chemical solution to honey removal, try the Betterbee triangle bee escape board.



The Maxant 3100 (available in hand or motorized)

At Betterbee, you can choose from 9 different extractors holding from 2-20 frames and priced from \$198 to \$1075. Pictured above is an American classic, the Maxant 3100 which now comes with a new insert which turns it into a six frame radial for medium frames.

Betterbee carries the largest number of plastic and glass containers for honey in the industry - over 40! For the smaller beekeeper, most of our plastic honey jars are available in special bulk packs that travel freight free to anywhere in the lower 48 states.

The Betterbee Flat Panel Bear Family - 6, 8, 12, 16 oz.



With over 42 different honey labels, plus the lowest custom printing prices in the industry, Betterbee can professionalize your sales. And, be sure to check out our new tamper-proof jartop labels. Also, check out all our value-added products from honey soap to candy to candles.

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INNER COVER

Every five years the USDA conducts its own census, measuring everything agricultural it can find and count. Like the other periodic counts the USDA does, it relies on input from various agencies in the field, returned producer forms and processor records. It makes some assumptions based on historical data, does some double counts because

things move around sometimes and leaves some data out due to low numbers gathered. If you follow the Annual Honey Report that comes out in February every year you are aware of the value, and the limitations of these reports. All in all they are pretty good, but more importantly, they are consistent – whether exact or not – and make life predictable.

And predictable is important. Where the world is taking us affects every beekeeper – whether two or two thousand colonies. Land use, crops grown (and no longer grown) farm ownership, chemical use and other factors all add to the mix in making decisions on expansion, where to move bees for Winter, pollination potentials and equipment purchasing plans.

You can access all the data (by U.S., by state, by county) at the NASS web site, but we've gathered some of the more pertinent data here, just in case you're not keen on sifting through the thousands of pages you'll find. Most of the comparisons made are between 1997 and 2002, but a few go back further and will be noted.

Since 1997, the number of farms has dropped by 3.9%, or nearly 87,000 farms. Total farm land dropped only 1.7% however. Harvested crop land, however, dropped 5.1%. The only farm size to gain were those farms greater than 2000 acres, which were up 16%. There were over 560,000 acres on 7,200 farms in organic crops in 2002, or less than 1.0% of harvested land.

Average farm size in 2002 was 441 acres, which hasn't changed much in 18 years. Family ownership since 1997 has dropped by 1.0%, partnerships by 30%, corporation ownership dropped by 18% and co-op and estate ownerships dropped by 7%. Average age of the principal operator has gone from 51.7 years old to 55.3 years old. This means, if you think of it, that they counted essentially the same farmers five years before. Not much new blood in the system. 18.5% of all farms are covered by some sort of crop insurance.

In 1974, 61.7% of all farms were run by full time farmers. This dropped to 57.5% in 2002. Of those who work off the farm for some part of the time, 92% work 200 days a year or more somewhere else. Women farm owners have increased by nearly 14% since 1997, responsible for 60 million acres. They operate 11% of all farms in the U.S. Half are beef and cattle farming and cattle feedlots.

Pollination plans certainly are affected by what's being grown (and what's being imported, which isn't in this report), and in five years there have been some significant changes. The report details every crop imaginable grown in the U.S., by county no

less, so you can look at your home county and note any changes. You should, too, and I'll bet you'll find some surprises.

Orchards are common ground, but certainly not all orchard crops require honey bees. Overall between '97 and '02 there was only a 0.1% drop in overall orchard acres, but the crops are worth noting. Apples dropped 24%, down 145,000 acres in five years; apricots were down 37%; sweet cherries were up 20%, but tart cherries were down 13%. Plums and prunes were down 9%; pear acres remained unchanged; peaches down 4%, and all citrus were down 7%. Almonds of course are the shining light, and the most needful of honey bees. Rising almond prices on the world market continue to drive expansion, and in the five years in question grew by fully 23%. That rate of expansion continues today. In fact, almonds amounted to, in 2002, 13% of all orchard land in the U.S.

Vegetables needing bees (but not necessarily using commercial pollination) include cantaloupe that were down 5%; cukes were up 12%; honeydew melons down 35%, peppers and pumpkins and squash were flat (59, 98 and 71 thousand acres respectively). Watermelon acres were down 13%. Perhaps this is a result of the in-

Continued on Page 49

Numbers. And Queens.

AUGUST - REGIONAL HONEY PRICE REPORT



Late Season Roundup

We polled our reporters this month on early season buildup, and Spring nectar/pollen plant production. Southern areas (Regions 3,4,5,6,8,9 and 11) were asked about major flows while northern areas predicted Summer flows to come based on Spring moisture. Price increases and sales plans were also tallied.

Region 1 - Bees a bit above average in early Spring. Building up mixed, but rainy, cold weather was a slowing factor, especially for Spring plants. Most will keep prices about the same, and sales amounts will remain steady.

Region 2 - Weak colonies weren't helped by early poor weather, but that turned fast with an early Spring with food available early. This led to a promising Summer crop. Most plan to increase prices this season, but sell the same amount.

Region 3 - Average to good overwintering helped early Spring buildup, even though plants were a bit late due to erratic weather. Prices will remain steady this season, and most plan to sell about the same amount.

Region 4 - Wintering was a problem and many had weak colonies this Spring. Early weather didn't help buildup which slowed food resources from developing on time. Major flows came about right, but weren't extraordinary. Prices will fluctuate, but sales will remain about the same as last year.

Region 5 - A pretty 'typical' season so far generally. Spring buildup satisfactory and early Summer crops predictable, but not exciting. Some failures buoyed by

some stronger crops. Prices will remain steady to lower and sales steady.

Region 6 - Average strength colonies coming out of Winter were slowed somewhat by poor Spring weather that speeded up spring plants almost too fast. Summer crops seem pretty good though. Prices and sales mixed for the rest of the season.

Region 7 - Generally, colonies weak to average after long Winter didn't help buildup, and the weather didn't help at all. Surprisingly, nectar/pollen production early better than expected, but late crops spoiled by cool, rainy weather. Most don't plan on raising prices, or selling more this year.

Region 8 - Weak colonies the norm coming out of Winter weren't helped by bad weather which slowed early food sources. This shaped up somewhat for the main crops it seems. Most don't plan to raise prices this year or increase sales.

Region 9 - Mostly average overwintered colonies had a somewhat slow start but caught up fast because good soil moisture helped Summer crops. Prices should remain steady.

Region 10 - Strong to average colonies experienced a predictable early Spring, but early plants were slow to on time, but dry weather really put the cork in the bottle after that, except where it rained. Prices remain steady.

Region 11 - Average overwintered colonies were slowed due to weather early, but nectar/pollen plants were early and enough moisture seems to have helped summer crops. Prices and production will remain steady.

Region 12 - Northern areas faring better than in the south as drought seems to be the key to everything. Summer rains will tell the story. Prices will remain mixed due to imports and production steady.

Reporting Regions													History	
	1	2	3	4	5	6	7	8	9	10	11	12	Summary	Last
Extracted honey sold bulk to Packers or Processors													Range	Month
													Avg.	Yr.
Wholesale Bulk														
55 gal. Light	1.25	1.20	1.30	0.93	1.00	1.00	1.33	1.29	1.31	1.33	1.30	1.30	0.93-1.33	1.31
55 gal. Amber	1.15	1.10	1.25	0.85	0.70	0.83	1.24	1.17	1.20	1.10	1.30	1.21	0.70-1.30	1.14
60# Light (retail)	93.50	111.70	111.22	95.00	100.00	100.00	115.70	94.00	100.00	107.50	107.50	111.22	93.50-115.70	108.99
60# Amber (retail)	86.70	97.16	99.00	90.67	95.00	91.00	107.00	92.00	101.00	100.83	107.50	103.30	86.70-107.50	97.62
Wholesale - Case Lots														
1/2# 24's	41.44	32.26	37.42	35.81	58.50	32.50	39.56	37.42	37.42	35.76	34.00	50.40	32.26-58.50	36.06
1# 24's	56.39	53.76	57.60	52.72	49.00	60.00	61.94	67.20	50.40	61.20	72.00	65.40	49.00-72.00	60.90
2# 12's	48.73	49.15	55.20	49.19	54.18	50.00	53.29	55.50	49.00	54.50	55.00	55.80	48.73-55.80	52.46
12 oz. Plas. 24's	49.17	47.41	64.00	43.50	67.15	52.00	48.72	57.00	43.20	49.74	52.90	44.40	43.20-67.15	50.77
5# 6's	53.94	60.19	71.00	52.50	72.60	86.75	58.68	71.90	73.25	56.43	46.00	69.90	46.00-86.75	64.43
Quarts 12's	68.00	95.50	82.20	62.40	71.82	59.67	78.61	72.84	72.00	78.00	74.20	75.51	59.67-95.50	77.59
Pints 12's	44.00	49.95	54.60	34.00	40.60	37.50	59.00	44.80	36.00	39.00	45.00	53.82	34.00-59.00	47.31
Retail Honey Prices														
1/2#	2.25	2.45	2.63	2.55	3.00	3.20	2.48	1.93	2.89	2.60	2.68	2.63	1.93-3.20	2.80
12 oz. Plastic	2.88	2.85	3.27	2.94	3.25	3.00	3.07	3.45	3.00	3.00	3.31	3.15	2.85-3.45	3.31
1 lb. Glass	3.83	3.59	3.69	3.58	3.65	3.99	4.02	4.09	4.00	3.64	4.16	4.00	3.58-4.16	4.19
2 lb. Glass	5.29	6.04	6.22	5.59	6.73	6.99	7.10	6.85	6.00	6.65	5.69	6.50	5.29-7.10	6.24
Pint	5.68	6.45	5.95	4.85	4.75	4.67	6.66	5.00	4.50	7.40	4.65	5.50	4.50-7.40	5.61
Quart	11.03	8.70	9.50	7.29	7.73	8.58	8.58	7.83	8.48	11.50	7.78	10.00	7.29-11.50	9.36
5 lb. Glass	13.25	12.75	12.48	11.98	12.48	11.99	13.59	13.72	12.48	13.49	12.35	12.48	11.98-13.72	12.47
1# Cream	3.60	4.76	4.50	4.08	4.90	3.69	4.49	4.82	4.50	4.41	4.93	4.00	3.60-4.93	4.47
1# Comb	4.50	4.43	4.15	5.23	6.40	4.25	5.16	4.25	6.00	6.02	6.20	6.25	4.15-6.40	5.27
Ross Round	4.71	3.72	3.65	5.29	5.00	4.50	4.99	4.00	4.71	4.71	5.18	4.71	3.65-5.29	4.57
Wax (Light)	1.83	1.29	1.05	1.10	1.23	1.78	1.94	1.00	1.00	2.00	1.43	2.00	1.00-3.50	1.96
Wax (Dark)	1.17	1.80	1.83	1.08	1.10	1.43	1.39	1.00	0.90	1.10	1.00	1.50	0.80-2.10	1.91
Poll. Fee/Col.	48.33	39.80	37.50	40.00	37.50	40.00	44.81	40.00	41.27	41.27	45.00	37.50	37.50-48.33	38.60



? DO YOU KNOW ?

Honey Bee Nutrition

Clarence Collison
Mississippi State University

Adult honey bee nutritional needs are satisfied by the collection of nectar, pollen and water. Nectar, which is collected by honey bees from either floral or extra floral nectaries, satisfies the carbohydrate requirement. Pollen which is collected by honey bees from a wide range of flowering plants, normally satisfies the dietary requirement for proteins, minerals, lipids and vitamins. The nutritional needs of immature honey bees are entirely different. In to-

tally understanding the nutritional needs of the colony it is also important to understand how the bees maintain the quality of their stored food supplies, as well as understanding the digestion and utilization of these food sources.

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

Level 1 Beekeeping

1. ____ Royal jelly is the primary food of laying honey bee queens. (True or False)
2. ____ Honey bees fill cells containing pollen to only about 80% of their capacity. (True or False)
3. Name three functions of honey bee hemolymph (blood). (3 points)
4. ____ The worker bee uses its mandibles to eat pollen. (True or False)
5. ____ Water is a vital component in the honey bee diet. Water is involved in carrying dissolved food materials to all parts of the body, assisting in the removal of waste products and digesting and metabolizing food. (True or False)
6. ____ Adult honey bees have chewing-lapping mouthparts. (True or False)
7. ____ One advantage of feeding high fructose corn syrup to colonies is that it has a low tendency to granulate. (True or False)
8. ____ Honey bee feces are acidic and will damage the paint on cars and stain the siding of a house. (True or False)
9. ____ Adult drones are fed entirely by workers throughout their life. (True or False)
10. ____ Worker bees consume pollen throughout their entire adult life. (True or False)
11. The honey stomach is closed by a muscular valve called the _____.
A. Ventricular Valve
B. Aortic Valve
C. Proventricular Valve
D. Pharyngeal Valve
E. Cibarium Valve

Advanced Beekeeping

Honey bees like most animals require proteins (amino acids), carbohydrates (sugars), minerals, fats (lipids), vitamins and water for normal growth and development.

12. From the list above, name the top three components making up royal jelly. (3 points)
13. ____ Royal jelly has an average pH of:
A. 3.8
B. 1.7
C. 7.3
D. 6.5

E. 8.2

The principal feeding stimulant for queen larvae is sugar. During the first three days of larval development, queen larvae receive almost 3x as much sugar in their diet, as worker larvae. In addition to the differences in amounts of sugar, the types of sugars differ as well. The three primary sugars found in royal jelly are fructose, glucose, and sucrose. Using these three sugars, please fill in the blanks that follow.

In the diet of queen larvae (14) ____ is the main sugar component throughout the larval period, whereas for workers (15) ____ is predominant during the early larval stages and (16) ____ during the later stages.

17. ____ The mandibular and hypopharyngeal gland contents of nurse bees in a queenright colony are biochemically different than those of nurse bees in a queenless colony. (True or False)
18. ____ Invertase is an enzyme that is produced by the worker's mandibular glands and wall of the midgut (ventriculus). (True or False)
19. It has been established that ____ amino acids must be present in the diet of honey bees for maximum development.
A. 17
B. 5
C. 15
D. 13
E. 10
20. ____ In pollen, the predominant free amino acid is:
A. Arginine
B. Proline
C. Tryptophane
D. Leucine
E. Valine
21. ____ Cholesterol is an essential component in the honey bee diet and it is produced by the salivary glands. (True or False)
22. ____ Pollens are generally rich in fat-soluble vitamins and poor in water-soluble vitamins. (True or False)

Answers On Next Page

?Do You Know?

Answers

1. **True** Royal jelly is a substance produced by glands in the heads of worker honey bees. It is deposited in the cells of young worker larvae, fed to developing queens throughout their larval life and is the chief food of laying queens.
2. **True** Honey bees fill cells containing pollen to only about 80% of their capacity. You never see a cell filled to the brim with pollen. If the pollen is to be consumed soon, the cells are left open. However, if the pollen is to be stored for several weeks or months, the rest of the pollen cell is filled with honey and capped. This seals the pollen cells, and the honey gives the surface of the otherwise exposed cell of pollen further protection against attack by microbes.
3. Distribution of nutrients
Distribution of waste products
Fight pathogens and infection
Clotting mechanism
4. **True** The mandibles (jaws) are suspended from the head at the sides of the mouth, therefore the mandibles swing sideways. The worker honey bee uses its mandibles in collecting and eating pollen.
5. **True** Water is an essential material in the honey bee diet. Water serves some very important functions in the bee, including carrying dissolved food materials to all parts of the body, assisting in the removal of waste products, and digesting and metabolizing food.
6. **True** The mouthparts of the bee are complex structures located on the bottom margin of the head. Honey bees have chewing-lapping or chewing-sucking mouthparts, which means they can manipulate solids and lap up liquids.
7. **False** Commercial beekeepers find high fructose corn syrup to be a good source of supplemental food primarily because it is cheaper than sugar. Corn syrup may granulate quickly, however,
8. **True** Honey bee feces contain uric acid, the end product of protein (pollen) catabolism. Because of its acidic nature, the feces will ruin paint on a car or vehicle, and stain the siding of a house.
9. **False** Adult drones are fed entirely by workers for the first few days of their lives and then gradually begin to feed themselves from honey cells. After they are about a week old they feed themselves entirely.
10. **False** Pollen consumption is necessary for proper post-emergence glandular development and growth of internal structures during the first eight to 10 days of a worker's life, but after that it is not essential unless older workers begin to produce brood food and feed larvae.
11. C) Proventricular Valve
12. Water, proteins (amino acids), carbohydrates (sugars)
13. A) 3.8
14. glucose
15. glucose
16. fructose
17. **False** Nurse bees probably do not specialize in feeding worker or queen larvae but seem to vary the proportions of their mandibular and hypopharyngeal gland secretions according to the type of larva they are visiting. The food of worker larvae contains a ratio of 2:9:3 of white to clear to yellow components averaged over the 5 days of larval feeding. The white component contains mandibular gland secretions, the clear material originates from the hypopharyngeal glands and the yellow component is mostly pollen. In contrast, queen larvae receive mostly white food during the first three days, and a 1:1 ratio of white to clear during the last two days of feeding. Thus queen larvae receive a much higher proportion of mandibular gland secretion than do worker larvae. The mandibular glands of queenless workers contain 8 times the pantothenic acid and 115 times the bipterin found in queenright workers, while the hypopharyngeal

glands show no differences between queenright and queenless workers.

18. **False** As nectar is drawn into the esophagus the enzyme invertase is added by the secretion of the hypopharyngeal gland. This starts to invert any sucrose present into its component monosaccharides, glucose and fructose. When the contents of the honey stomach are passed into the ventriculus any invertase from the hypopharyngeal gland is destroyed and another invertase is added from the wall of the ventriculus.
19. E) 10
20. B) Proline
21. **False** Honey bees, like most insects, require sterols in their diet for normal growth and development. One class of sterols (cholesterol) is known to be essential for honey bees; and since bees, like most insects, are not able to produce these components, they must obtain them in their diet for normal development. Cholesterol or 24-methylene cholesterol is present in most pollen and both can be incorporated into the structural components of cells.
22. **False** In general, the vitamin requirements of honey bees are satisfied as long as pollen or supplementary protein foods are nutritionally adequate, abundant, and available in the hive. Pollens are generally rich in water-soluble vitamins and poor in the fat-soluble vitamins.

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

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

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Mark Winston

Here We Go Again

"Is imported honey really 'dirtier' than ours?"

I was half-heartedly watching the television news this Spring. Its monotonous litany of global tragedies had lulled me into a stupor, with stories of terrorist bombings in Spain, grisly mob scenes from Iraq, and corporate corruption scandals on Wall Street. The towards-the-end-of-the-news story-lite covering the obesity epidemic among North American children had just about put me under, when my almost-snoozing brain snapped to attention upon hearing beekeeping's two most frightening words: "honey," and "recall."

Jarred awake, I managed to catch the rest of the story. Once again, honey had been recalled from supermarket shelves, this time due to contamination with nitrofurans. The official government press release from the Canadian Food Inspection Agency (CFIA) succinctly explained nitrofurans, justified the recall, and reassured consumers, all in three sentences, a marvel of writing so impressive that it deserves repeating verbatim:

"Nitrofurans are antimicrobial drugs which are banned for use in Canada in food producing animals. Consumption of foods contaminated with nitrofurans may pose a human health risk related to the inherent toxicity of the drug and the potential to cause allergies. There have been no reported illnesses associated with the consumption of this product."

This particular recall soon grew to include No. 1 Grade Liquid and Creamed White and Golden honeys blended from Australian, Argentine,

and Canadian sources, as well as product packed in Turkey that involved both No. 1 White and No. 3 Amber honeys.

It is illegal in North America to use nitrofurans in food-producing animals, as these substances can have wicked consequences for humans. They are used for human health as absolute last-resort antibiotics for bladder infections, when nothing else has worked. Presumably, beekeepers in Argentina, Australia, Canada, and/or Turkey had used nitrofurans in their hives to treat terramycin-resistant American Foul Brood, leaving tiny but detectable residues in the honey.

The posturing began immediately to shift the blame and reassure consumers. A representative from the Capilano Honey Company from Australia commented *"It appears certain Canadian protectionist groups opposed to importing Australian honey may have been provided with misleading information by a disgruntled former Capilano Honey shareholder and a Canadian honey producing competitor."*

According to this source, the honey was packed in Australia, using labels provided by the Canadian buyers, but had originated elsewhere. The Capilano Honey representative pointed out that there was no health risk at the levels allegedly detected, implying that there was just no big deal here. He also stressed that the Canadian test for nitrofurans was "self-developed," and suggested that the Australian tests not only were

better but had delivered "nil-detectable" results.

He concluded, *"By competing for market share, we are upsetting those Canadian packers who have the market to themselves until now and it seems some are desperately clutching at straws to try and discredit the reputation Capilano has earned over the past 50 years."*

The Canadians were not about to let that one go by. Bee Maid Honey, a Winnipeg-based supplier of 100% Canadian honey, issued a press release urging *"consumers seeking high quality honey for their families to review the product origin area of the honey container label and choose Product of Canada."*

Phil Veldhuis also commented in the Bee Maid press release. Phil is a honey producer from Starbuck, Manitoba who moonlights as a Philosophy professor, and wears shorts virtually year-round in a climate where -20°F (-29°C) is a warm Winter day. In spite of that somewhat eccentric quirk, he is highly respected among Canadian beekeepers, and weighed into the fray with *"As a honey producer, I take a great deal of pride in the quality of the honey I supply to Canadian consumers. Frankly, I am appalled to think that a banned drug could be present in imported honey."*

Here we go again, the classic themes of economic self-interests, imported honey contaminated with illegal products, and consumer confusion. Taken together, the latest dirty honey scandal begs the question: Can beekeepers ever get their global act together and clean

Continued on Next Page

"The technology to detect a part per billion or less of contaminants has become routine, and the cost of sampling a higher proportion of local and imported honeys is not prohibitive."

our chemical house?

The signs are not good. Beekeeping is among the most clannish of occupations, with local interests fighting with national ones, and national interests at war internationally. Oh, we do get along fine as we travel the globe meeting each other and talking bees, so long as money issues don't pop up. As soon as our livelihoods are perceived to be at risk, though, it's open season. You're all familiar with the routine: rival organizations, sniping in the beekeeping press, behind-the-scenes lobbying, and so on.

Imported honey has been a flash point in North America for as long as I've been involved in bees. Simply put, most countries outside of North America and Europe can produce honey more cheaply due to lower labor costs. Given that disadvantage, we go with our technological strength, using highly sensitive equipment to detect minute residues of contaminants to screen out imports.

Is imported honey really "dirtier" than ours? We do find residues of nasty antibiotics and miticides in some honey from overseas. Many chemicals we ban or restrict in North America are legal abroad, or at least poorly regulated, and appear in imported honey with depressing regularity.

Pesticides and antibiotics also are cheaper overseas. It would be difficult for a beekeeper in Iowa or Alberta, for example, to afford nitrofurans sold in North America, even if they were easily available. Multinational companies sell chemicals in developing countries for way less than they are sold in the more developed world, miraculously making a profit at fire-sale prices.

And if by chance an American beekeeper came across an illegal

stock of cheap imported nitrofurans (imported from Argentina, say), and used it as a treatment to suppress terramycin-resistant American Foul Brood, would anyone know? Probably not, because we don't test our in-country honey to nearly the extent that imported honey is examined.

Part of the failed initiative to expand the U.S. National Honey Board a few years ago included funding a honey testing facility. In my idle moments, I have wondered how many votes against the Board might have come from beekeepers concerned about how their honey would fare when shot through a machine that could find one part per billion of a banned substance.

And how about consumers? Should we be concerned about one part per billion of nitrofurans? As the press release told us, there have been "no reported illnesses." Even so, there is an epidemic of resistance to antibiotics raging around today's globe, driven in part by rampant use of antibiotics to prevent myriad infections in livestock, including bees.

Most of these antibiotic applications are prophylactic, employed just-in-case rather than treating an active disease. Next

time you or your loved ones are in the emergency room with a raging infection, and the doctors go to an obscure, expensive, and last-resort antibiotic to treat your resistant bacteria, remember that low level of nitrofurans or chloramphenicol you ingested with the honey on your toast that morning.

If that doesn't help you pause for thought before using the latest under-the-counter mite or AFB remedy, think about the price of sugar. I'm sure some Canadian consumers paused at the honey section in their supermarket, vaguely remembered a report on the evening news about contaminated honey, and slipped over to the sugar shelf to purchase a cheaper and less scandal-ridden product.

The solution to honey contamination is simple: more policing. The technology to detect a part per billion or less of contaminants has become routine, and the cost of sampling a higher proportion of local and imported honeys is not prohibitive. We must, however, agree to look at our own honey as closely as that which we import, partly in fairness to our beekeeping cousins around the globe but also because more serious national testing would reveal that we may have as much of a problem in North America as "they" do overseas.

More extensive testing will not punish the majority of law-abiding, competent, and diligent beekeepers here and around the globe. Most of us do care about our honey, follow regulations, and would be devastated to discover any contamination in our products. As always, it is the minority of renegade producers who raise the vigilance bar for the rest of us.

Still, regular recall notices and honey alerts on the national news require a response. The best retort to dirty beekeeping is to uncover the villains, here and abroad, leaving the playing field to those of us who believe our income is best protected through a pure product.

I'd pay half a cent a pound to have my honey tested by an independent laboratory. How about you? **BC**

Mark Winston is a Professor at Simon Fraser University, Burnaby, B.C. Canada.

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Few business phenomena in recent months have matched the hype of the "Google IPO."¹ Google is one of the most often used search engines/protocols on the World Wide Web.² As a consequence it is looked at as an eminently "marketable" product and a effective tool for advertising. So when it was announced that Google, which began in a garage by students, but has now become a large corporation, would sell stock through an Initial Public Offering (IPO) there was and continues to be huge interest.

Google took the Internet by storm using a specific searching protocol, which "consists of three distinct parts, each of which is run on a distributed network of thousands of low-cost computers and can therefore carry out fast parallel processing. Parallel processing is a method of computation in which many calculations can be performed simultaneously, significantly speeding up data processing.

- Googlebot, a web crawler that finds and fetches web pages.
- The indexer that sorts every word on every page and stores the resulting index of words in a huge database.
- The query processor, which compares your search query to the index and recommends the documents that it considers most relevant."³

Google has become so popular that it is now a verb in the English language. Thus, many understand the sentence, "I Googled it." In other words, I search for it using the Google search engine/protocol. There are many neat things about using Google besides the fact that its continued use means it will eventually be in the dictionary and become eligible as a Scrabble® word, although is not now according to the official dictionary on the subject.⁴ More importantly, relevant and frequently used sites come up first ensuring that one is generally directed to the most current and reliable links. In addition, "sponsored" (paid for by advertisers) links also are placed in a special side panel.

Googling is so popular that students at the University of Florida didn't miss a beat when much of the

Malcolm T. Sanford

Searching For Beekeeping Information



"Electronically - The Google Example"

Google™

old library was moved to a temporary headquarters while the facility was undergoing renovation. They simply switched to using Google. They can access most of the information they need from their dormitory, bypassing the physical library. What all this means for traditional libraries is not known. Some pundits believe they are doomed, however, nothing can take the place of having a book or article on paper and in hand.

Fortunately, Google can be used by anyone with an Internet connection and web browser. So any beekeeper can search for relevant information quickly, conveniently and reliably. Let's look at an example. If I enter the word "beekeeping" in the Google search box, the sentence, "Did you mean: **beekeeping**" appears. One is given the option of selecting the correct spelling, which leads to the following: "Results 1 - 10 of about 229,000 for **beekeeping** [definition]. (0.29 seconds)." It literally boggles the mind that 229,000 pages can be found in 0.29 seconds. However, the incorrect spelling also brings forth the following: "Results 1 - 10 of about 64 for **bekeeping**. (0.45 seconds)." It appears to take a lot longer to search using incorrect spelling. Sites containing the word reveal that some need the services of a spelling check, and as might be expected, the incorrect spelling has been used in some foreign language sites.

Beekeeping is a broad term and not so useful when one requires something more specific. Neverthe-

less, it is a good starting point for those who might begin the apiculture craft and/or are first-time users of the Google technology. Let's say one would like information on "beginning beekeeping." This narrows the field considerably: "Results 1 - 10 of about 13,900 for **beginning beekeeping**. (0.37 seconds)." Rising to the top of the list is "Beginning Beekeeping for Kentuckians" by R.T. Bessin and L.H. Townsend (ENT-41, Kentucky Cooperative Extension Service, a 20-page booklet).⁵

Now suppose that after reading the chapter on "Enemies of Bees," one puts that into Google. The following is displayed: "Results 1 - 10 of about 71,000 for **enemies of bees**. (0.40 seconds)." Again, rising to the top of the list is a Kentucky Cooperative Extension 4-H fact sheet on honey bee diseases.⁶ Narrowing the search further to one enemy described in the fact sheet, "American foulbrood," the following is displayed, "Results 1 - 10 of about 4,540 for **American foulbrood**. (0.21 seconds)." At the top of the list is the Beltsville Agricultural Research Center's (BARC) Bee Research Laboratory's description of the disease.⁷ Finally, if one wants to return to any of the phrases mentioned above, Google conveniently remembers what has been entered and it appears automatically when the first letter is typed into the search box.

Google also understands Boolean logic.⁸ In the most simple terms this means that one can search

Continued on Next Page

using three "operators:" These are "and," "or," and "not." Thus searches can be customized. Selecting "advanced search preferences" on the Google page, leads one to a bewildering number of options provided by Boolean logic that cannot all be described here.

Returning to the "sponsored links" found in Google mentioned above, several come up when "beekeeping" is entered correctly. Improbably, at the top of the generated list is China's Sangdi, which "has been engaged in collecting, processing, and marketing business for China's market as well as the world market. It is located in Dalian, a beautiful coastal city and the entrance to the Northeast China where honeybee products chiefly abound. It goes through the certificate of ISO 9001:2000 and HACCP."⁹

Some of the better-known manufacturers and suppliers are listed as sponsored links as well. But there are other possibilities that would not be immediately suspected. These include informal

B meetings of beekeepers. Over 160 beekeepers have signed up to meet through the services of beekeeping.meetup.com.¹⁰ Also present is a link to the third meeting of the Heartland Apiculture Society in Lebanon, Tennessee July 8-10.¹¹

eekeeping items for sale are also found through a link to the largest electronic auction site in the world, Ebay®.¹² Like Google, Ebay is one of the great successes of the Internet revolution. Items listed include books, extractors, hives (comb honey frames and supers), building plans, t-shirts (CAUTION: BEE HANDLER - If you see me running, you should follow), signs (honey for sale) and videos (Keith Delaplane's "A Year in the Life of an Apiary," from the University of Georgia is being auctioned at a re-

Gduced price).¹³ oogle is simply a "jumping off" place for those in search of information relevant to their needs. Quickly one leaves this powerful site and is off "surfing" the "information superhighway." There are many delightful surprises along the way. For example, the Beltsville Bee Laboratory boasts its "Bee Bibliography."¹⁴ If one enters "American foulbrood" into this search box the following is returned: "Matching Record Count: 1920, Total Retrieved: 25, Interpreted Query: American foulbrood, Total Database Records: 30772, Query Time: 12 seconds." At the top of the list is found:

Google has become so popular that it is now a verb in the English language. Thus, many understand the sentence, "I Googled it."

"AUTHOR: Hitchcock, J. D.
ARTICLE TITLE: Comparative Susceptibility Of Larvae Of Different Stocks Of Honey Bees To American Foulbrood When Reared By The Same Nurse Bees.

JOURNAL TITLE: In: Tenth Internatl. Cong. Ent., Proc. Montreal, Aug. 17-25, 1956. 4:1097-1103, Tables, Fig., Refs

YEAR OF PUBLICATION: 1958

NOTES: Summary: In An Attempt To Determine If Different Stocks Of Honey Bees (*Apis mellifera* L.) Are More Resistant To American Foulbrood Than Other Stocks Because Of Differences Not Only In The Behavior Of Adult Bees But Possibly Also In The Physiological Resistance Of The Larvae Themselves, Larvae Of Different Stocks Were Reared In Adjacent Combs Simultaneously By The Same Nurse Bees. Larvae Were Individually Inoculated At The Same Susceptible Age. Removal Of Disease By Adult Bees After Sealing Was Prevented By Rearing The Sealed Brood In An

Incubator. No Consistent Relationships Were Observed Between Larvae Of Different Hybrid Stocks And Their Susceptibility To American Foulbrood. The Percentage Of Diseased Brood Cells Within The Same Stock, Or Even The Same Colony, Were Extremely Variable. Larvae Of Different Stocks Frequently Showed Great Differences In Their Rate Of Development, But The Time Of Sealing Was Not A Reliable Index Of Their Comparative Susceptibility Of American Foulbrood. A Very Rapid Decrease In Susceptibility Occurred Between The Larval Ages Of 18 And 30 Hours. This Probably Explains The Wide Variations In The Percentage Of Diseased Cells Reported.

These Experiments Appear To Substantiate Previous Literature Which Indicates That Colony Resistance To American Foulbrood Is Associated With Adult Behavior In Removing Disease, Rather Than With Physiological Resistance Of The Larvae.

KEYWORDS:

American Foulbrood
Breeding Disease Resistance
AFB.¹⁵

The above is only an abstract. To see the full article one still has to trek over to a library, at least for the time being.

The future of Google after its IPO is unknown. There are certain to be improvements, however, as computers become more powerful and reliable. We can easily predict that this will translate into more customized powerful and reliable searches for information as well. **BC**

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SECURITY ISSUES

Security begins with locking doors, but where does it end?

Terry **Fehr**

Security of our home and business has increasingly become an issue in recent times. Thirty years ago most people in this area did not lock doors to their homes. Today they have monitored security systems. Gone are the days when a stranded motorist could walk to the nearest house knowing the door would always be open even if the owner was away. Beekeepers are especially vulnerable as our business is on display for all to see, scattered over the landscape perhaps fifty miles from home, often more. Sites may only be checked twice a month, with extra monitoring of equipment costing more in both time and dollars. Honey producers are facing significant cost increases as the industry shifts rapidly from the low cost operations of the 1990's to deal with changing climate, parasites, disease, and security.

Security we have traditionally thought of in terms of vandalism of our equipment or theft from our farms. Add to those issues security of our product, honey. How can a modest family operation protect itself from criminals, intent on causing harm to our business? When dealing with security of farm buildings the options are clear. Monitored security systems are available, modestly priced and monitored 24/7 with temperature sensors available for indoor storage of bees. Access to buildings is monitored and serves as a deterrent to vandals. With cell phones, we can always be available to the security system monitors should an alarm be tripped. Of course, problems may still occur but providing a disincentive helps. A thief who knows that within minutes of breaching an alarm system someone will arrive at the break-in site, may think twice of causing trouble. Make getting into your building difficult with locked doors. Hide equipment left outside. Generally leave your farm less inviting to the people who have nothing better to do than cruise the countryside looking for an easy target.

As society evolves and bee equipment becomes more valuable, vandalism of isolated hive locations has become more of a problem. Hives can be stolen, knocked over, burnt, driven over by trucks, and so on (use your imagination). These can be frustrating and expensive calamities. Most people come up with some solutions that include abandoning that site, hiding hives in brush, and co-opting neighbours to keep a watch over the hives. It may be useful to stress the potential danger colonies of angry bees pose to a vandal when they push over a hive. "Stay away from the bees for the good of your health," might be a slogan for a beeyard sign. Remote cameras are available but I question the usefulness as they can be unplugged, and will not see those causing trouble in darkness. Be certain wooden

equipment is identified with brands and a sign is in each location with the owner's name and phone number. Equipment can be recovered, and a brand on frames and supers improves the odds of recovery. It is always in a beekeeper's best interest to have a phone number posted in each beeyard so that considerate people have someone to phone if they see a problem. Posting a name and phone number is also mandatory and part of legislation regulating beekeepers in some provinces and states.

A professor from the University of Montana, Dr Bromenshenk, gave a most remarkable presentation at this past Winter's American Honey Producers' convention. Actually he was so enthusiastic about his work that he virtually gave me a personal presentation in the hallway during registration. I merely asked what new developments had occurred in the past 12 months since I had last spoken with him. He graciously proceeded to tell me of new technology just available.

Several years ago I pursued an idea of remote monitoring of beehives. It was frustrating to not know what was happening in and around my hives 30 miles from home. A full day would have to be taken to drive out to my sites and look. When first investigating the technology back then, it was rudimentary and barely practical with a relatively high cost. Last year Dr Bromenshenk told us the equipment was nearly to the point of practicality. This year he showed a tiny chip that currently will cost less than one dollar and can be imbedded in wooden equipment. The cost of this chip is forecasted to fall to a mere one cent within two years. At that point some manufacturers may begin including chips in all frames and supers. What can these chips do for us? They will identify equipment and send this information to a receiver. Each chip can be programmed with an individual producer's code. If the equipment is sold the code is reprogrammed to the new owner's code or simply cancelled. If supers are stolen the whereabouts of the missing supers could be determined by using satellite technology and GPS coordinates. Receivers in beeyards could also pick up information emitted from other devices such as an electric fence, a load cell under a pallet of hives or a weather recording station. Sounds all too futuristic for some traditional beekeepers but there were hives in California this Spring with chips embedded to prevent theft. Actually the chips have been developed for large retailers where they will be appearing in coming months but that is another story. Inventory of equipment will be easier to manage. How many supers do you have and, where are they? We will be able to track every piece of equipment to better keep track of our business. Another

example of cutting edge technology being made available to those interested with improving their efficiency. We need only pay attention to those who we pay to do this work.

Security of our production is an area I have heard little of, but I offer a few thoughts. Those producers who sell directly to local consumers have little to fear but some sell to markets far from home and our honey passes through several interim handlers along the way. Should a problem arise with honey in the end product, the beekeeper is always the first to be called. For this reason we need to keep in mind routes our honey takes to get to our market. What problems might be encountered along the route? Can we document how honey was handled on the farm, prior to shipment? How can we overcome some of the risks associated with moving food through unfamiliar waters? We need information about these systems that handle our product and we must have confidence in those systems.

Recently the American administration has required all businesses producing food for their country to register. If the system works as designed, they will have a record of all companies moving food into their domestic market. If used in conjunction with other initiatives, food safety may be improved. Farmers take plenty for granted when selling food product. Honey must be in a clean barrel that has only contained food previously but how do we know only food was in our barrels prior to arrival on our farm. To be reasonably certain of this we only buy barrels from reputable people

and wash them ourselves with only water, leaving them to air dry. No soap, as a residue, may be left in a barrel. Trucks used to move barrels of honey to market should be clean. Ask the driver what was last in the trailer and have them sweep the floor. Any compound on the floor of a truck, will without doubt, be on top of your honey drum after a few hundred miles of highway travel. If the compound on the floor happens to be a poison, and a honey packing plant employee removes a drum lid carelessly, knocking dust into the opened barrel. Well you get the picture. Seals can be used on vans and a serial number noted. Alert the purchaser of the honey as to the seal number. If moving honey across an international boundary the seal will however be broken when moving through customs to allow officials to inspect contents of the truck. To overcome some risk I find it best to deal with smaller trucking companies. The driver picking up the load will in many cases be delivering it to the buyer. In this situation my honey is not left unattended in a truck yard but

delivered directly. The driver will be required to keep a lock on the door to prevent anyone entering the van before arrival at the buyers warehouse. Consider the ramifications of a vandal entering a van, pulling off a lid and tossing in a compound while your driver sleeps. For the same reason, it is best not to use flat decks for transport of honey. Security. This all may sound like paranoia. Perhaps, but I consider some of these security issues as I consider fire insurance. The chance of having a steel shed burn down is minimal but most of us carry fire insurance because we cannot afford to lose our building. I doubt many of us could afford losing a load of honey due to contamination or even the perception of contamination. View these practices as inexpensive insurance.

Further insurance to secure our honey is maintaining records of actions within our business. An underlying principle behind food handling procedures is record keeping. If a problem arises the source of the problem can be found quickly. For example, how are chemicals, and antibiotics used in your business?

Knowing precisely how they have been used and when can give a buyer more confidence with the honey they have bought from you and in a worst-case scenario they can be used to verify actions in court. What cleaning procedures were used, or when has extracting equipment been maintained. Keeping a record of work done and practices employed is little more than a habit. Leave a notebook in the honey house, maybe the same one used to



Security for beekeepers includes safe beeyards, producing safe honey, and insuring that the product is protected from beeyard to bottle – and everywhere inbetween.

record barrel weights.

Many people carry a notebook in their truck and have a page for each yard site. When leaving a yard, notations should be made as to the date and what work was done when on that site. Those notes are often used for management purposes but can double as a record of when the last dosage of antibiotic was administered and when honey was harvested. It can be used to determine if the proper withdrawal period was allowed from the last application of chemical. When extracting we should make note of where honey in each lot has originated. If an herbicide is found in your honey where has it come from? Noting the origin of each lot can make tracing a problem easier. Written records can be used for management purposes such as tracing movement of hives throughout your operation. Keeping track of the age of particular hives as some operations split up or eliminate older colonies. Any problem will be easier to solve if written records are available and management becomes more efficient with records.

Continued on Next Page

Some of the more organized beekeepers keep their records on computers, either entering the notes in the field on digital media or transposing notes from paper to computer once home. Whatever the method first make the notes then keep them organized so that they will be of use for future reference. No sense going to the trouble of making the notes then discarding them.

Agriculture is changing to meet the needs of a demanding society. Some of the safeguards mentioned will require more time and investment of dollars but will often save money in the longer term by improving efficiency. Think of these investments as insurance. Evaluate the most cost effective means of accomplishing the goal of securing a product then proceed. Security of our businesses must move up on our list of priorities. In some situations we have no choice in the short term. In other situations we have no choice in the long term. Deal with these changes before being forced. **BC**

Terry Fehr operates about 1,000 colonies in Gladstone, Manitoba. he started with 14 colonies 20 years ago.

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Bee Culture's Beeyard

All Beeyards Are Not Forever

An unusual topic

This subject certainly has to rank as one of my more unusual topics – *Beeyards I no longer have*. But you would have to be here with me today. It's an early Summer day. Clover is in full bloom and – at least in Ohio – rain has been abundant. More thunderstorms are predicted for this afternoon. Cookouts are planned for the weekend. All in all, things seem pretty good. Today is one of those Summer days I plan to recall on some future Winter day. But aside from my philosophical mood, I should point out that many beeyards that I no longer maintain have played a major part in my beekeeping history and development. They are like old, departed friends. You have yours, too.

I'm thinking about this lost yard issue because I am facing significant program funding cuts. I have made a logistical decision to eliminate some – in fact most – of my University beeyards. Throughout my career, I estimate that I have had – at one time or another – about 40-45 permanent locations. At my peak, we maintained about 16 locations. I am reducing my yards to three locations, all near my lab. That's quite a change. My emotional attachment to some of these yards has surprised me. They have names that are meaningless to you but have been part of my life for years; the Metz yard, the Shreve yard, the Chipley yard, the County Home yard, Matt's yard, and the Fredericksburg yard are some of the

many names. Specifically, the Metz yard and the Fredericksburg yard were locations that I personally established as a brand new professor at OSU in 1978. It seems impossible that I have had these locations for 26 consecutive years only to close them out. I thought these yards would continue forever.

In the case of the Metz yard, located just off Metz Road here in Wooster, Ohio, through the years, we have survived stuck trucks, swarms, AFB, tall grass, mites, and ground hogs. On the positive side we made a lot of honey there, too. Being located near a stand of pines, we would gather bags of pine needles for our smoker fuel. In fact, we have been there so long that many years ago, the Senior Mr. Metz died requiring us to get permission from Mr. Metz's son to continue the

use of the yard. He allowed us to stay so we are into our second generation at this location.

Where is this reminiscing going?

Eliminating these yards made me realize that I have evacuated far, far more yards than I currently maintain. Yet each of those now abandoned locations was, for a while, a part of my beekeeping life. Stories and bee events came and went. Now nothing of a bee nature remains at these locations. In fact, there are only a very few people who even remember the hives were ever there. That's okay. It's only important to me anyway.

Memories of some of my long-gone yards

Not all of the memories that follow are specifically my yards, but



*The Metz Yard,
one of my old
locations.*

Continued on Next Page

"Some yards last much longer than others, but sooner or later all beeyards give it up only to become memories for guys like you and me."

they all contribute to my beekeeping memories.

The Unit-Two Yard.

The reason for the clumsy yard name is unimportant, but the now long beeless yard has several significant memories for me. It was in this yard that I had the very personal experience of having a mouse run up my pant leg as I was removing supers from the hive. I have relived the story literally hundreds of times at meetings across the country and choose not to relive it here, but you can believe that I will NEVER forget the experience (and neither will the mouse).

Reason for giving up the Unit-Two yard. Pesticides.

The yard was located near university field plots and every year the hives located there were seriously damaged by pesticide kills. I now wonder, in light of decreased pesticide use, if that yard could be reoccupied.

The Eck Yard.

Mr. Clarence Eck was the grand old beekeeper in Wooster for many years. We no longer have Mr. Eck, but he and others, including Jim Thompson, now retired from the A.I. Root Company, initiated a small beekeeping workshop for helping new beekeepers. This past March, we conducted the 26th annual version of this workshop with hundreds of people in attendance. Mr. Eck's home beeyard, and one in which he conducted early classes,

was north of Wooster. That yard, too, is now gone.

Reasons for giving up the Eck Yard.

The local Ford Motor Company dealership (Commercial encroachment). Many years ago, the then-new dealership could not figure out where all the "birds" were coming from that defecated on their fine, new cars. It took them a while to figure out that it was bees – not birds – but when they did figure out that it was bee poop on all their cars, under threat of lawsuit, a historical bee location passed into oblivion.

The Sawmill Yard.

In fact, the sawmill and the beeyard are now both gone. I wrote a series of articles for *Gleanings in Bee Culture* under the title *The Solitary Beekeeper* from experiences in this yard. From this yard, I took my best friend to the hospital emergency room as he was having a systemic reaction to multiple bee stings. He won't forget this place. Neither will I. While moving beehives past midnight one dark, quiet night, I inexplicably became spooked – one of those 6th sense things. I couldn't talk myself out of the threatening feeling. I cut the trailer loose, left hives sitting all about and left for the night. The next day – nothing. Nothing but memories.

Reasons for giving up the Sawmill Yard. American foulbrood outbreaks and agricultural encroachment. The

yard is now a soybean field and the sawmill is standing derelict.

The Chipley Yard.

During the early 80s, from Ohio, I kept a yard of about 80 hives of OSU bees in Chipley, Florida. At the time, I had a thriving international beekeeping program made up of people who wanted to learn more about migratory beekeeping. I wintered OSU bees in Florida and produced springtime queens there. I have many, many memories of driving trucks to Florida, loaded with palletized beehives, dead tired, stressed, but being a migratory beekeeper. It was a spectacular amount of work. No one got hurt. We kept good bees and we all had a good experience. To this day, this yard makes up the bulk of my migratory beekeeping experience. I have a lifelong collection of memories of "stuck trucks" from this yard. As usual, I wrote about my experiences.

Reasons for giving up the Chipley Yard. Bee program redirection, maintenance costs and mud. I understand that watermelons are now planted where our bee yard was located. Ironically, they bring in bees for pollination.

Multiple Ohio State Beeyards. I don't even know how to review all the yards that have come and gone at Ohio State. One of the most famous was near the football stadium. If I put bees that near the stadium today, people would freak, but in the 1930s it was fine. The first beeyard here in Wooster at the Research Center is now a parking lot that I drive by every time I come to my lab.

Reasons for giving up these various Ohio State yards. Civilization encroachment in nearly every case.

Here's the truth.

If you have hung on to this point, you must have figured out that I am writing this piece for me as much as you. I must have several hundred slides of various bee-



The beeyard to my back had to be abandoned. Guess why?



No way beehives will ever be this near the stadium again.

keeping events in yards that are now beeless. Most of these old photos recall good memories of bee times past. Though not the only reason, but a primary reason for evacuating all the yards that I have left was some kind of encroachment. Not just urbanization. In many instances, farmers wanted their land back to put into cultivation. For example, watermelons in Chipley and soybeans in Ohio. The Ford dealer causing Mr Eck's yard to be moved is an instance of commercial encroachment. Secondly, a common reason for giving up yards was accessibility – mainly mud that would trap my bee trucks. I never once – not once – left a yard because of a lack of nectar sources or limited water supply or a damaging frost pocket or because my hives couldn't be faced to the east. I left because of encroachment, mud, and in a single case – pesticides.

When I pass by these locations, I usually have a look and think, "I used to have bees there." A beeyard is a bit like the circus coming to town. Lots of planning, activity, work, memories, only then to be gone. Some yards last much longer

than others, but sooner or later all beeyards give it up only to become memories for guys like you and me.

Do you recall Mr Eck, the Wooster beekeeper, who I wrote about earlier? For years, he had a beeyard behind his house. The city built a grade school on property that joined the rear of his house. For years Mr Eck, the bees, and the school kids co-existed agreeably. Some time ago, Mr. Eck passed and his beehives were sold. Then, just this year, the school was permanently closed. In this case, everything is gone – the beekeeper, the bees, even the school, but for many years, that was a beehive-hotspot. I cherish the memories.

You just wait. If you keep bees long enough, you'll get your own "abandoned yard" memories. But shake them off. No doubt, right now you should be out in your present yard doing bee stuff. Making those memories. **BC**

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

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Honey Plants

Conn e Krochmal



Knapweed

One person's weed is another's honey plant. In short, that's the story behind the spotted knapweed (*Centaurea maculosa*).

Following its accidental introduction in the late 1800's possibly as a contaminant among a shipment of alfalfa seed imported from Eastern Europe, this short-lived perennial or biennial became naturalized in the U.S. and Canada.

Range

In the U.S., this species grows in all but five states – Alaska, Georgia, Mississippi, Oklahoma, and Texas (but there's probably some hiding in even these states). Its main distribution is in the Northwest, though it is a common weed in the Northeast as well.

Doubtless, spotted knapweed will continue expanding into new territory within its range, especially since it releases a toxin that reduces the growth of forage species growing nearby. Once it finds a niche, it takes full advantage of the situation to the benefit of beekeepers.

Spotted knapweed is abundant, and spreads to new areas by various means. Its plentiful seeds (a thousand or more per plant), which remain viable for five years or longer, are dispersed by the wind, in hay, and by farm vehicles. It's likely that roadside mowing could spread them as well.

In some instances, spotted knapweed may wait until it is well established within a local area before it begins its inevitable spread.

Growing Requirements

All that spotted knapweed really requires is full sun. It will tolerate many kinds of growing conditions. That is one reason it is so successful. This wily plant is widely adapted to most any kind of soil from moist to dry, including dry sterile, gravelly and sandy ones.

Habitat

Spotted knapweed lives in a vast array of habitats from sea level to the higher elevations. It thrives in the prairies of the Midwest and in the Rocky Mountains as well as in the Adirondacks and Blue Ridge Mountains of the East. Much to the dismay of ranchers, it is present in several million acres of grasslands in the West. Spotted knapweed even grows in the Yellowstone National Park. This species is found along waterways, roads, and railroad tracks, in waste places, forest openings, old hayfields, and pastures. Recognizing an opportunity when it sees one, spotted knapweed is a pioneer species—moving into disturbed sites where trees and other vegetation have been removed, or where pipelines, utility lines, and the like have been installed recently.

Generally, so long as the land is under cultivation, it's unlikely that

spotted knapweed will become established. However, no-till and fallow fields are welcome places for this species.

Other Common Names

Spotted knapweed is known by other common names. These include European star-thistle, and ballast-waif in reference to the fact that it can spread through ships' ballast. In Michigan, it is known simply as star-thistle (sometimes without the hyphen). This species is related to yellow star-thistle, another excellent, well-known honey plant, which is disliked by farmers even more than its purple cousin.

Plant Description

Spotted knapweed is an erect, bushy, branched plant. It can be two to four feet in height. Its rough, hairy, wiry stems with purple stripes have a sandpaper-like texture. Pale green, the alternate leaves are up to three inches long. They're rough on the upper side, and are covered with translucent dots. The upper foliage is linear. Forming a rosette, the lower leaves have irregular lobes.

The large taproot enables this plant to take advantage of whatever water is available on dry sites.

Flowers

Flowering occurs from early to mid-Summer, and continues for several weeks with the time varying slightly in different areas of the

Continued on Next Page



country In the West, they begin opening in early July, while in New York, Michigan, and elsewhere in the East, this occurs a short time later, around mid-July to August.

Spotted knapweed blossoms resemble those of the cornflower, a related species that is often grown as an annual. The tubular, compound blooms are one inch wide. Present in large numbers, they ap-

pear on short stalks terminally and from the leaf axils. Generally, they're purple to purplish-pink, but occasionally there are white ones. The outer petals form a fringe around the edge of the flower. Stiff, black-tipped bristles surround the base of the blossoms. These lend a spotted look to the plant.

Value to Bees

Spotted knapweed blooms are an excellent source of nectar. They're valuable to beekeepers in all the northern regions with honey surpluses most common in Michigan, New York, and Montana as well as Canada. The yield is said to be very good.

Spotted knapweed honey is high quality, with light and delicate flavor, but is full bodied and thick, much like that of yellow star-thistle. It is slow to granulate, remaining liquid for six months or more. This is in demand as a varietal honey, and is often used for making mead.

Though some may view spotted knapweed as a pesky weed, this has no effect on its status as a superior honey plant. **BC**

Connie Krochmal is an award winning garden writer and a beekeeper.

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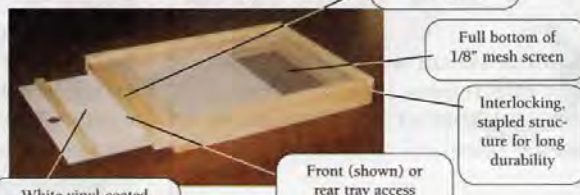
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You Have To Dazzle 'Em

Here are 20 great marketing ideas for a Farm Market, or nearly anywhere.

"You've got to dazzle 'em." These words of wisdom were being offered by my good friend, Mel Stamp, a Rochester candlemaker as he took a critical look at our display at the Ithaca Farmers Market, many years ago. "You need more colors, more combinations, a larger selection," he continued. "You're not dazzling anyone." Little did I realize then how much credence we would place on this conversation later on as we developed our marketing plan.

On one particularly busy Saturday morning, when shoppers were shoulder to shoulder, we were amazed at how many people crossed the walkway, against the flow of traffic, to look at our honey, several

stopping to take photos. We have just ordinary run-of-the-mill honey but we attempt to keep the varieties separate. The morning sun, shining thru the jars created a kaleidoscope of honey colors.

Why did shoppers stop? Were they "dazzled?" Probably.

As they admired the honey, many asked questions. "Why the different colors?" "How do you keep it separate?" "Do they taste different?" "Which one is best."

Ah, finally the question we were waiting for! "Taste the samples – you decide," we replied. You can predict the rest of the story.

If it works for honey, why not candles, we wondered and added a

couple spot lights to illuminate the candle display. Voila! The same results.

"What is the difference between molded tapers and the hand-rolled ones?" "Do they burn differently?" "Why should I buy beeswax candles?" "Could you make me some pink and purple ones?"

Listen carefully! Hear what your customers are saying. Determine what they want and provide it. It will create extra sales.

An example. In central New York State, several health food stores sell pollen – but it isn't produced locally. Since most of the people who asked were looking for relief from allergies, they wanted pollen from the area. Our son, Craig, who is also a beekeeper, agreed to trap some.

Since trapping, cleaning and storing pollen is very time consuming, we put a price on it to reflect the time and effort involved. Yet he has had to add more traps yearly to meet the demand.



Variety in color and size, and a full shelf add sales.

Now, having said all this, let's discuss some of the other things we have done to increase our sales.

Step number one, of course, is to stop people and that is what "dazzling 'em," is all about. Advertise some specials, put up some signs. This helps also. Once they are stopped – what then?

As mentioned earlier, the market is sometimes crowded – very crowded. How long would shoppers remain at our booth if they were constantly being jostled around by the masses. Not long, I'm afraid.

To solve that problem, we set our counter back a few feet into our booth, providing a place where shoppers could step out of the line of traffic to view our display, to ask questions, sample our wares and make purchases at their leisure.

We always leave space on the front of our counter where shoppers can set packages or purses as they contemplate further purchases in comfort.

For convenience sake, we try to place products at different levels. For instance our honey sticks and honey candy are placed at child-eye level, (thought many adults are hooked on those items as well). Slower selling items such as gift boxes and larger (gallon) jars are placed higher up and further back and the more popular sizes are placed on belt-high to shoulder-high shelves.

This also makes it convenient for people of any size to see what we have and make most of our items easily accessible to the handicapped.

A permanent location makes it easy for repeat customers to find us. We believe it is well worth the extra cost of having a reserved space and it also allows us to modify the booth to fit our specific needs.

Keep plenty of large bags (preferably with handles) so that you can help shoppers consolidate their smaller packages. It will make their day at the market easier and they will remember this courtesy.

Don't be afraid to charge what your product is worth.

Bring plenty of change. Don't make shoppers wait while you get change from your neighbor. Don't give them the impression that they inconvenience you when they hand you a larger bill.

Show plenty of product. No one likes to take your last jar or leave

the same items. We observed first hand how many more people were stopping at the neatly arranged stands as opposed to those which were just a hodge-podge of stuff.

At all times be friendly, courteous and always ready to wait on those who stop. Years ago, at a time

Color, color, color! You gotta dazzle 'em. And keep the display full.



you short. Keep the shelves full so prospective customers have that feeling of plenty which generates buying. (Dazzle 'em?)

As for packaging, we try to have all sizes available, from six ounce salt and pepper shakers to gallon jars. We deliver 60# cans on order

Keep your display neat and tidy – no sticky jars, no dusty covers. Be organized. We put similar products together – liquid honey, creamed honey, comb honey, solid candles, rolled candles, etc. We recently visited a large flea market in Florida where several vendors were selling

when there were several honey vendors present, Richard Taylor stopped by our stand. "Why were we so busy while some of the other vendors were doing very little?", he pondered.

For one thing, he observed, one vendor was setting on the tailgate of his truck, trying to squeeze in a little snooze, another was visiting with his next door neighbor, while still another was reading a book, seemingly oblivious to those passing by.

On the other hand, we make a conscious effort to personally ac-

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More variety, and grouped, too, for easy to find every time.

knowledge anyone who appears even remotely interested in us. We are available to answer their questions, and help them make a selection. Suggestions always seem to be appreciated. Be helpful, be friendly and above all else be honest. Don't exaggerate. Don't try to entertain. That's not why they are there.

Be willing to answer questions as best you can but don't be ashamed to say "I don't know." If the question is a pertinent one, offer to find the answer and get back to them. Then be sure to do it. We've had people call and thank us, appearing surprised that we took time to do it.

Shoppers come from a variety of backgrounds and have a variety of questions. While some have the opinion that "Honey is Honey," others appreciate the subtle differences

between varieties and have questions about the nectar sources and how we manage to keep them separate. Others seek nutritional facts about honey and almost everyone has questions about bees.

Try to anticipate if you can, the most frequently asked questions and answers them in advance with signs and labels. Besides the required labeling such as name and address of the producer and the net weight of the honey, variety should be given prominence somewhere on the jar. We use top labels for this purpose. Print your telephone number to invite repeat business.

I believe that having a price label on each jar is best, but since many of our items are purchased for gifts, we prefer to use shelf talkers to state the prices.

Speaking of labeling, don't un-

derestimate the power of the word "local." We use it on most of our signs and say it more subtly on all our labels with the words "Finger Lakes Honey" or "A Taste of the Finger Lakes." A statement about your area or product can be conveyed through the use of back tags.

Have some printed material available to hand out about honey, beeswax, beekeeping and such other topics of enlightenment for shoppers. Have recipes, lots of 'em. People love to discover new ways to use honey. There is lots of literature available out there from your beekeeping organizations and suppliers. Check out the National Honey Board. We use their handouts, recipes, labels, fact sheets and posters regularly.

Don't forget, shoppers like to tell you their stories also. It seems that everyone had an uncle or grandpa who kept bees and how many times have you heard the tale about "the time I got 'bit' by a bee."

Samples are another powerful

Don't ever underestimate the power of the word LOCAL.



Candle sizes, candle colors, candle variety. And clean, attractive shelves.

selling tool. One lady apologetically stated that she could not stand the taste of honey "What kind?" we asked. "Honey is honey," she replied, and "and I don't like it!" yet when she reluctantly tasted one of our samples, she was "converted" and became a steady customer, often bringing friends, insisting that our honey was "special," which of course it is not.

Check out the local health regulations to be sure you meet the sampling requirements.

We sell to a lot of tourists who like to buy something to take back to family members or the guy taking care of the pets. Others just like to patronize local producers.

This was driven home to us sometime ago, by the manager of a local super market which already had three national brands of honey on the shelves. When our local honey was added, at his request, it outsold the national brands – even at higher prices.

"Handmade," "hand crafted," "pure beeswax," or any other statements which can make your candles and other products seem unique to shoppers will generate additional sales, even if you have to charge more for them.

Don't be afraid to charge what your product is worth. We've actually experienced an increase in sales when the price was raised.

The most important element in successful marketing is something that cannot be acquired. It's something one is born with or without. You have to enjoy marketing. Some of the best beekeepers I know would get no enjoyment at all spending the time and effort that we do standing at a market booth dealing with people.

If you don't enjoy dealing with people with have a desire to serve them, my suggestion would be to work hard producing just as much honey as you can and wholesale it. Considering today's prices, this is

certainly profitable.

However, if you enjoy doing the things we have suggested plus constantly looking for new and better ideas, marketing presents some real opportunities.

As kids, my brothers and I discovered that we could earn money to go to the county fair or a movie, by picking wild blackberries and selling them door-to-door to some of the older neighbors who could no longer gather them for themselves. This effort spread to 4-H garden projects and marketing vegetables to raising rabbits and chickens.

Today (many years later than I care to admit), it is honey bees and candles but we still find marketing exciting and our customers enthusiastic and appreciative and we are constantly looking for better ways to serve them.^{BC}

You can visit Duane Waid at his exciting honey stand at the huge Farmers Market in Ithaca, New York.

The County Bee Apiary Man

Trindle Ellwood

Isn't this what life is supposed to be like?

Hubby had his first apiary bee inspector outing of the season. Little One and I went along for the ride. It is kind of a neat way to get to see the land. Have you ever driven down a country road and wished that you could just stop at some of the pretty little places that you see? Take a stroll in their field and meet the interesting people that have such lovely country places full of fruit trees and vines?

Well as a bee inspector's wife you can do that! Beekeepers usually welcome apiary inspectors. You would think that they wouldn't like them coming around, but it just isn't that way in the honey bee world. There are a lot of challenges, mites and such with keeping bees, and the main thing that bee inspectors are looking for is disease. Keeping the diseases from spreading is important to ALL beekeepers. So when the state almost dropped the funds for county bee inspecting, the beekeepers and farmers got together and spoke up and the state actually listened.

Hubby is glad because he loves being the County Bee Apiary Man, as I call him. There is just something about beekeepers! Perhaps it is that spark of wonder in their eyes.

We get to drive people's back lanes, and ramble on down into their back forty if that is where the apiary is. Apiaries can be situated in some pretty neat places. The lady

of one apiary was the Columbine Queen and she gave me Columbine seeds in six different colors! Little One was the first to spy a swarm in one beekeeper's orchard, which we were happy to inform him of. He was thankful and said he would have missed it, if Little One's sharp eyes had not brought him good fortune.

In one Apiary, where the owner had become ill, Hubby was somber as he approached the hive and saw

what he had dreaded, no activity. Honey bees were not flying, so without bothering to put on his hat he lifted the lid on one of the boxes. Then he asked me if I wanted to see their last emotion. I said what do you mean? And he showed me how the bees in the center had perished looking for food, with their heads buried deep in the cells that had run out of honey. And how the outer bees who were at their stations keeping the

hive warm were still in their positions, warming the hive until their death. My Hubby loves and respects these bees so much, this makes him want to cry.

After the inspecting of the day was over, he went out to his apiary, his place of meditation and fell into a happy man's sleep in his chair out there under the pine. But he was

awakened by a call from the Sheriff's office, with the number of some people who were frantic about a swarm in their yard. Hubby gets excited about these calls. This is when he gets to play.

People were already gathered on the street when he got there. Children were busy on their bikes spreading the word. The whole neighborhood seemed to have come out to witness the swarm and the coming of the Bee Man. Later they told Hubby that some were disappointed when he didn't have a suit on, as they had told the children that soon this man all dressed in white, with a veil on, would pull in. But any disappointment was soon forgotten when Hubby approached the swarm and seemingly charmed the raving bees into his box and carried them to his truck, like magic.

This is my favorite part of the day, knowing that the wonder is being passed on. There was a little boy at the swarm who's Mother had just started some beehives and he was learning about them. So this little fellow, of, oh, seven or so, was not as scared of the bees as the others and wanted to help Hubby carry his equipment back to the truck. He carried the load that he had been assigned as he walked beside Hubby who held the swarm. That little boy then looked up at Hubby and he said with enthusiasm, "I am PROUD to be a Beekeeper!" And so on it goes, some lucky little girl, when she grows up, she has herself a bee man! Hubby came back home that evening saying, "Is this what life is supposed to be like? It is isn't it!" **EE**



Evaluating Colonies Without Opening Them

Maybe I am lazy

In past articles I have discussed various ways to make beekeeping easier including smaller hives and hive movers – even finding another beekeeper to help. I guess looking at features visible from the hive front is one more of my “*beekeeping made easy*” articles. Maybe I am becoming lazier than I want to admit, but it's second nature to walk by a hive and have a look at the front door without opening the hive. And there are so many observations that can be made without even removing the outer cover.

What should I be looking for?

Right now, it's August, and for most of us the Spring crop season is long gone, but our colonies are at full strength. What should my hive front look like? I suggest you look for the following characteristics.

What to hope for at the hive front.

1. Intensive, busy flight at the entrance, but not frantic flight.
2. A clean landing board and, for the most part, clean on the ground in front of the hive.
3. As a part of #2, certainly, no mound of dead bees indicating insecticide exposure.
4. No indication of robbing or fighting with other insects such as yellowjackets.
5. No indication of skunk or raccoon predation, or attacks by any other animal.
6. No crawling bees, Chalkbrood mummies, or other indications of disease.
7. A few healthy drones on the landing board.
8. If there's a nectar flow, there will be a delicate floral odor in the air.



A reasonably good hive front community.

Limited flight. Not good.

Clearly, weak flight at the hive entrance on a warm day is not a good sign. This time of the year bees should be everywhere. This observation requires opening the hive to find out what's wrong. Queen loss, laying workers, pesticide exposure, or diseases are the most common reason for a hive to fail. There is no outward indication of pesticide damage so I have to open this hive up to find out what screwed up. Interesting, the hive in the figure has elected to use an upper entrance so I would expect the bottom deep to be empty. This is an easy call. This hive needs help. It will not survive the Winter.



This hive needs immediate help. Note the upper entrance.



Chalkbrood Mummies in front of the hive.

I have five hives just outside my lab door. Four look fine at the entrance, but one has a collection of Chalkbrood mummies scattered about the front of the hive. This is a clear indicator of this disease. No reason to drop everything and panic, but this colony will probably not thrive. Without question, requeening, at some time should be considered but again, no real hurry. There is no chemical control for this disease that I should administer. These colonies have been exposed to abundant rain this Summer and Chalkbrood is a fungal disease. Maybe once the colony dries a bit things will recover – or not. But at the moment, I know that the bees within are susceptible to Chalkbrood, while the remaining hives are not. Either way, it needs a new queen. I will watch it.



Chalkbrood mummies on the ground in front of my hive.



A healthy hive with a messy front.

Hive garbage on the ground.

"Let the bees clean it out," is a common comment from beekeepers when putting on equipment that needs cleaning. Actually, I do give colonies cruddy equipment at times. They really can do a better job than I at cleaning things up.

So if all else seems proper – good flight, no robbing, clean landing board – I suspect the hive detritus on the ground is probably OK. The bees are probably refurbishing equipment that had some messiness about it. This refuse is primarily a mix of old comb cappings, wax moth litter, and dead bees. Some colonies make a great effort to move hive garbage farther away from the hive and keep everything much neater. Other bees dump it at the hive front and call it done. I know some people like that.

Bee color at the hive entrance.

Essentially, the color of bees milling about the entrance means very little, but it is an obvious feature of the hive front. Some of you like yellow bees while others prefer darker strains. If you have one color and notice that bees on the landing board are not the color they should be, I suppose you should suspect your queen has been replaced, but not much more can be surmised without opening the hive.



Darker bees and yellow bees on the landing board.



Cappings – a cleaner mess.

When compared to the garbage described earlier, a hive front mess looks better, in a manner of speaking, when bees are cleaning supers for reuse.

When beekeepers uncap frames the beeswax cells are damaged and broken, and wax fragments abound all over the extracted super. When this equipment goes back to bees they go over it and restore it to appropriate bee standards. I suspect this remodeling happens in two phases. At first, before bees need space they simply inspect the newly added supers to garner any remaining honey fragments. This activity results in some hive front litter. Later, as space is needed serious reconstruction occurs, as cells are reformed and combs strengthened. And at this point even more hive front litter is accumulated. Either way, I call this a good sign. Bees are cleaning and getting ready to store honey.

But wait!

In my "Hive Front Features" list above, do you remember that I said the bee flight activity should be energetic but not frantic? Frenzied flight combined with aggressive fighting would indicate a robbing situation. Once the defenses of the hive being attacked are overcome, robber bees loot the hive's honey, resulting in a significant pile of cappings at the hive entrance.

If you have recently put on supers of drawn comb, you can expect some capping piled out front. If you have *not* recently put on equipment and there are piles of cappings out front, suspect robbing.



Normal cappings removal in front of the hive.

A hot hive.

Before you even switch off your truck in the bee yard, you can tell this colony needs more space. Bees matting out front are a clear indicator that things are either too hot or too crowded – or both – inside. Often there's no great harm when the bees cluster out front. If your nectar flow has already passed, I suppose you could still put on some supers to give the bees a place to cluster, but you have already missed some of the crop. But if the ambient temperature is high, the bees may still choose to cluster out front as a way to control internal temperature whether or not you give them space.



Ventilating bees on the landing board.

During this time of the year, a few bees will commonly ventilate at the hive entrance. Fanning behavior is a procedure shown in the photo depicting the color of bees. Ventilating bees will put their rear ends in the air and furiously fan their wings. Look closely – in fact – very closely. If you can see a white membranous area right at the sting end of the bee, that particular bee is scenting to other bees using her Nasanov gland. If the bee is not exposing her membranous area, she is an air-conditioning bee and is simply circulating air. I suppose one bee could be doing both, but most times she's doing one or the other.

I don't like categorically leaving bees clustered out front – even though no great harm comes to pass. However, in a crowded neighborhood (two of mine are), I don't want the spectacle of thousands of bees hanging on the hive front to unnerve my tolerant neighbors. Plus, I don't like for the occasional thunderstorm downpour to drench my bees hanging on out front. So, while no great harm is done if the nectar flow has passed, some assistance would be helpful to crowded hive.

Sooner or later.

You can only put it off so long. Sooner or later, you will need to actually open your hives. But on those afternoons when all is right with the world, just having a look at the entrance activity can give you an easy appraisal of the colony's condition – without having to fire up the smoker and suit up. This is a part of beekeeping I can enjoy and, yes, though productive, I suppose it is being lazy. **BC**

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Finding Old Bee Books

Pellet, Root & Dadant – They're all here, sometime.

Dana Stahlman



Ten years ago I set my sights on learning about beekeeping in the mid 1800s, and began reading books (when I could find them) by authors such as Langstroth, Quinby, H.A. King, Miller, and others. Acquiring books was a hit or miss thing. As I traveled I looked for used bookstores or flea markets. I must say that when I did find a book such as Quinby or Langstroth I considered it a rare lucky find. Gradually, over a number of years I did manage to acquire what I considered a good collection of bee books. I found that if I acquired the book at a rare or antique bookstore the price was quite steep. For example, I paid \$150 for an 1860 Langstroth. From a material point of view, it had no more in it than the inexpensive \$15 reprint that I found in another bookstore of the 1853 edition published by A.I. Root. But I did have a book that was over 130 years old and by the master of American beekeeping. Other hard to find books came into my collection hit or miss. Some were purchased from Joe Bray, a bee book dealer who sends out a sales bulletin every once in awhile. Others were bought at major bee conventions. All in all I thought I was doing well.

Then one day I visited with Darl Stoller and suddenly discovered that my collection had a way to go. I also visited one evening with Kim Flottum and realized that I was sorely lacking in real bee books such as the *History of Beekeeping* published in 1938 by Frank Pellett. I faced the problem of finding these bee books just like everyone else. I let the local bookstore know I was interested in bee books, and sometimes one would contact me and others just wouldn't bother.

Book dealers are a strange lot. They buy books for practically nothing and then either do not know what they have and offer books very reasonably or they think the thing is real rare and thus valuable. Anyone collecting bee books has probably run into the same problems I had. I was not an active computer user and resisted the general trend to get on the internet. But a friend sold me on the value of finding things on the internet so I broke down and by 1998 I started learning a little bit about the various beekeeping sites. It was

wonderful to find so much information. Search engines made the job a bit easier. For used books there are a number of sites that can be searched if you know the name of the author, the title of a book, or a subject you want to search. You can find books in your local community, or search individual bookstores for titles as far away as India. Not surprisingly, many bookstores in England have some of the very best old bee books available. The biggest problem I faced was the cost. I do not have thousands of dollars to spend on a single book. However, the value of a particular book can be quickly determined by comparing the same title, author, and publishing date

with other dealers. I still check the used bookstore sites listed in the box.

Since 2000, when I first registered to use Ebay, I have purchased a number of good old books at auction. This is a very user friendly site and the opening page is shown below when you first ac-



The World's Online Marketplace®

cess the site.

When I first discussed writing this article, several good friends who use Ebay indicated that I might spoil their good buys because more bidders equals higher prices they would have to pay for items they are interested in. However, Ebay is no secret – more and more beekeepers looking for related items to keeping bees are logging in all the time.

The sellers on Ebay can be identified quickly by the rating system Ebay uses. When a person registers as a user, he or she begins with a *zero rating*. Each time a sale or purchase is made, the buyer and seller leave something called *feedback*. The feedback is (positive), (negative) or (neutral). With each positive feedback comment, the registered user receives an increase in the positive rating system of +1. For example, one user may have a rating of 21 while another has a rating of 1021. In addition to the rating number a percentage of positive responses is recorded. A user with 100% rating has received no negative feedback. This gives either a buyer or a seller some idea of the honesty of the individual they are dealing with.

I am sure most people have heard of some deals

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Used Book Web Sites

<http://www.allbookstores.com>
<http://www.half.com>
<http://www.abebooks.com>
<http://www.powells.com>
<http://www.bookfinder.com>
<http://www.bibliofind.com/>
<http://www.alibris.com/>
<http://used.addall.com>
<http://www.fetchbook.info>
<http://www.usedbooksearch.co.uk>

on Ebay having gone bad. Ebay tries to root out the bad apples but it is the feedback system that can quickly ruin the reputation for an individual either buying or selling on Ebay. Bidding and winning an item is a contract between buyer and seller. The buyer is obligated to pay for the item won and the seller is obligated to deliver the item as described on the Ebay site.

I am happy to report that I no longer drive miles to visit bookstores or flea markets – on occasion I will visit one if I just happen to be in the mood to stop but most often, I save myself the trouble.

On almost any evening when I check the Ebay site for beekeeping items, I will find 80 to 100 items for sale. Sellers can list items and set the terms. Some will list a very low starting price and wait for the bidding to begin. Others will set a high starting bid for an item and in some cases learn that no one wants the item for that price. Some will set a reserve price on an item. Reserve price means that the item will not sell for less than the reserve price.

As with any kind of bidding, whether at an open auction or an internet auction, the buyer needs to be aware of what the item is that he/she is bidding on. It is easy to get sucked into bidding an item up far above its value. Before bidding on an Ebay auction item, you should do some research. First, determine just how much you have available to spend. Ebay is addictive. It is easy to use and once you get the hang of it and develop some strategy it is easy to win – snipe other bidders. Sniping is the simple action of waiting until the clock is about to run out on an auction item (usually with just a minute or less of time left) and then place a higher bid. Because time expires, the other bidders do not have a chance to increase the bid. When I began buying on Ebay, I would bid on an item, wait almost the seven days (most items are listed for seven days, but sellers have options of three to nine days) for the auction to end and feel pretty sure I had won the auction. Unfortunately, I would learn that someone else had won the bid and I lost the item. It doesn't take many times for this to happen before one begins to watch the item as the count down begins then place a bid in that closing time period just to protect the bid one had submitted earlier. The speed of a person's Internet connection is important unless you set a high price you will pay for an item, bid that price, and be sure you are willing to pay what you bid.

If you have never used the Ebay site, you can eas-

ily get into the site by typing www.ebay.com and look around at the various items being auctioned. You will not be able to bid unless you register as a user. The site is free. The seller pays all the listing fees to Ebay. You pay the seller the winning item bid and the shipping charges of getting the item to you.

As someone interested in beekeeping, you have many options for search words. A generic term such as *bee* will produce many pages of items that include the word *bee* in the description. Some of the following search terms will help define and reduce the number of items you will look at: *bee keeping, beekeeping, apiary, bee hive, bee equipment, bee culture, bee stamps, honey pots or American bee*. A specific reduction will occur if you use terms: *extractor, smoker, pollen, etc.*

A seller on Ebay can list an item in 45 letters or less. Thus, if the seller includes the word *honey* in any of these 45 letters it will be returned to you if you use the word *honey* in your search. Be prepared to see such things as "Honey the Blond Bomb Shell," and "Honey of a deal," "A real honey," or "Honey I shrunk the Kids." These are not exactly what I think you would be looking for. If you are looking for the product of the honey bee, you might use the terms "pure honey" to get better results. However, if you want to look at all the items listed under honey, you will find pure honey for sale.

Let's suppose you are looking for an extractor. Extractors come up on Ebay often and many individuals bid on them. You should first know what a new extractor sells for. If you have access to a bee supply dealer, they will often have used equipment or know of used equipment. All new extractors are offered in stainless steel. Many old extractors used galvanized metal for the extractor tank. Stainless steel is far better. I just pulled out a 2003 bee catalog to check on the price of a four-frame extractor – hand operated. I found a four to eight-frame hand tangential extractor. It sells for \$475. Now the extractor listed on Ebay is an older model four-frame reversible hand operated extractor with galvanized metal and very clean condition. The winning bidding price was \$289 with nine bidders. This does not include the shipping cost of the extractor to the winning bidder. I would suspect that the winning bidder will live close to the seller and pick up the extractor or will be in a position to pay rather high shipping cost to get it delivered. Let's think about it! If this extractor sells for the high bid price of \$289, that will be \$186 less than a brand new one. The shipping and packing price will add maybe another \$50 to the cost. It is now \$136 less than that brand new extractor. If you had to sell this extractor, what would you be able to get out of it? You might ask a bee supply dealer what he would give you for a used four-frame extractor 20 to 40 years old. Thus, a beekeeper or bidder must keep a clear head about bidding on an item.

Some really rare and highly desirable items often come up for auction on Ebay and they are not limited to just bee books. Anyone collecting old beehives, smokers, honey pots, honey jars, etc. will want to check the site often because sooner or later their item will appear. **BC**

Dana Stahlman collects books, raises queens, and watches for bargains on Ebay from his home in Blacklick, Ohio.

Planning For *Winter*— In August

While it's hot make plans for when it's cold.

Ann Harman

It's August. Actually what can we say about August? It is a Summer month but Summer seems a bit tired at this time. No holidays during this month; only Labor Day to look forward to. It is hot and perhaps in some areas it is humid. Autumn flowers really have not begun to bloom. Usually bees are not very busy during August. So this gives you a chance to catch up on some other projects. This is a great time for sitting in the shade and planning your beekeeping September

Here is a recipe for a nice cool drink. Fix a batch of this in the morning so it will chill for a few hours. That will give you enough time to set up your lawn chair and find a pencil and paper. That's right. You are going to write down your September plans.

HONEY CITRUS TEA

3 tea bags (green or black)
1 cinnamon stick
3 cups boiling water
1 cup grapefruit juice
1/4 cup honey

Place tea bags and cinnamon stick in a 1-quart teapot. Add boiling water; steep for 3 to 5 minutes. Remove teabags and cinnamon stick; discard. Stir in grapefruit juice and honey. (I like this drink chilled, served over ice cubes.) Makes 4 servings.
National Honey Board

Comfortable now? Fine. Start thinking about how your hives have done during the Spring and Summer. Were you pleased with their nectar gathering? Their brood production? Their temperament? If you are a record-keeper (and beekeepers should be) I hope you took those records with you out to your lawn chair.

Let's have a look at the beeyard. Have you and your bees been battling tough weeds during July and August? If so, planning your program for those weeds is long overdue. If you have grass that is kept mown, you do not have a problem. But vigorous weeds need a stronger approach. Unfortunately weed control is best done in

the Spring before those weeds grow big and tough.

They also make it difficult to keep your hives level. And they do provide a path for critters that might wish to invade your hive.

If you have crumbling equipment, now is the time to order what is needed for replacement during your September management time. Winter weather is hard on hives and a collapsing bottom board is difficult to replace in the middle of January. So put on your to-do list to check all pieces of equipment.

September is not the time to draw out foundation but a red thumbtack on a wooden top bar will indicate what needs to be fixed or replaced next Spring. With our use of various chemicals in the hive it is a good idea to have comb renewal every three or four years. You can use the international queen colors to mark frames so you know when to replace routinely. Thumbtacks come in all colors so there is no excuse for not knowing when foundation was put in. Now the plastic frame-foundation combination cannot use thumbtacks. But the paint pens used for marking queens can be used to put a dot on top of the frame. The dot is best placed out on the ear of the frame where it will not get covered with burr comb.

If you do not have a paint pen, put that on your list. You can buy a set of all five colors of paint pens from Mann Lake Ltd., and other places. They keep quite well if you put the cap on tightly after each use.

After looking at the beeyard and the hives themselves, it is time to plan for the bees. You will need to go into each colony to assess the need and what you can do during September for Winter survival. Write down a plan for your inspection, taking into consideration the records you have been keeping during the year.

Looking for disease is always given top priority in beekeeping handbooks. However, in September the diseases usually noticed in Spring were either treated or have disappeared on their own. Chalkbrood and



European foulbrood are characteristic of Spring diseases. Did any of your colonies have either of those diseases? Check back in your records. If so, what did you do back in the Spring? If nothing, then these colonies would be on your requeen list. Some new stock frequently helps clear up both chalkbrood and European foulbrood.

American foulbrood frequently is discovered during Summer with active brood rearing. This disease occurs in pockets or certain areas, frequently around a source that a beekeeper has not identified. If you do not recognize the signs of American foulbrood, get help. If your state has inspection, you are in luck. If your state has no inspectors you will need to find an experienced beekeeper to help you inspect.

Then put this on your list: attend a Short Course or a beekeepers' meeting during the Winter months and learn how to identify American foulbrood. You need to be able to distinguish between that most fatal, contagious disease and the nonfatal Parasitic Mite Syndrome, (PMS).

There is no point in trying to diagnose nosema. Just assume your bees have it. Fortunately for nosema we have a preventive. The antibiotic fumagillin is easy to administer. Mix a rounded teaspoon with about a quarter cup of dry granulated sugar. Then prepare a gallon of about 2:1 sugar syrup, mix in the dry sugar mixture, mix well and feed it to your bees. If Autumn flowers are plentiful your bees may ignore your delicious medicated syrup. Pick a time of unsettled weather, frequently around the Autumn equinox, September 20, 21. On a rainy day the bees are home and are happy to use your syrup.

When September comes you probably have already treated for *Varroa*. If not, don't waste a minute! Test your colonies with sticky boards or powdered sugar and treat if necessary. The legal medications are Apistan® and CheckMite+. Apilife-Var® may have been approved for use in your state. Don't just wait around, do what is necessary.

During August you can make a stack of grease patties to take care of tracheal mites. These will keep in a cool place, in a fridge or even a freezer. Grease patties are made from three parts white granulated sugar and one part plain white solid shortening. Melt the shortening to just the translucent stage in a pot. Mix in the sugar and stir. While still mostly liquid add a cup of *your* honey, and 10-15 drops of peppermint flavoring. This makes the patty more appealing to the bees. Let cool and scoop out the material, place on waxed paper and flatten. One should be kept in the hive except during the hottest part of the year. Place it on the top bars near but not on top of the brood area. Bees generally use it up quickly in warm weather but quite slowly during Winter weather.

If you are one of the unlucky beekeepers with the small hive beetle (SHB) you are already battling that pest, so check out the plastic traps available. When using the ground drench, Gard Star®, do not just spray

a little area around the hive entrance. The little larvae are fantastic travelers and will search out some nice moist, loose soil. Control the beetles and your colony will be able to concentrate on staying healthy and strong. Lures and baited traps are on the horizon I hear, so stay tuned. SHB may be on its way out.

A big September task is identifying weak colonies. Perhaps you had a colony that gave you one full honey super when all the others had at least three or more supers on. Colonies like this should get careful disease inspection. If all is well and the population of *Varroa* is not severe, mark this colony for requeening.

While you are thinking about requeening "lazy" colonies, consider other opportunities for requeening. Are you going into the Winter with a two-year-old queen? Next Spring she will be in her third year and all ready for swarming. Have you had a disagreeable colony all Summer? You know, the one whose bees are waiting for you at the back door so you have neglected it, hoping it will get nicer. Do not put up with nasty bees. We have many sources of queens, both local and from the southern states.

You need to take a good look at the brood pattern. If a queen is skipping cells and producing a spotty brood pattern, look for disease. However, she may be a failing queen and will simply decide to die during the Winter. Now that is something you do not want. Requeen.

Although you may think requeening seems to be the great fixit for colonies, it is quite true. A colony headed by a young queen will produce

many healthy, gentle workers who can cope with all the problems facing them today.

The next September project is really a guessing game. Will there be a rich crop of Autumn flowers for Winter stores? Will the Winter be unusually warm, or record-breaking cold? You are trying to decide whether to feed your bees or not. Whether to feed lots of syrup or nothing at all. Yes, it is a gamble.

Put down on your to-do list to watch the weather (channel) and watch for Autumn flowers. You may not need to feed at the beginning of the month but perhaps at the end. Only you can decide. And being a good weather watcher and plant watcher will help you decide.

Beeyard, equipment, diseases, pests, requeening and feeding - all these categories represent good planning on your part. Don't lose your to-do list between now and the time you will need it.

What? Your pitcher of tea is empty? And the day is still hot? Fix another pitcher, take a little nap while waiting for it to chill, and settle back and listen to the hum of your bees. **EC**

Ann Harman enjoys her iced tea and planning for Winter at her home in Flint Hills, VA.



crease in smaller watermelons needing less space. Some, if not all of these changes can be attributed to imports certainly. However, the difficulty in importing tender, short-shelf-life items plays a role too. I suspect that freer movement from Mexico and Central America will continue to erode U.S. acres of easily transported vegetables.

Tender specialty crops are affected by transport certainly, and available labor for harvest, berries being at the top of the list. Blackberries were up 23%, cultivated (or tame) blueberries were up 7%, while wild blueberries were down 10%. Wild blueberries, however are affected by alternate year harvests, and more recently grower/packer disputes. Cranberries, strawberries and raspberries remained constant. However, mechanical harvesting may change the face of raspberry culture shortly.

Some oil crops are honey bee needy, but their culture has changed. Notably, sunflowers were down 28% (this covers all kinds – oil, human and animal food), in acreage, and 33% in numbers of farmers growing them. Canola, (much of it GM) is growing as a pollination and honey crop, more than doubled in those five years and seems to be still growing (from 562,000 acres to 1.2 million acres).

Soybeans, too, expanded nearly 6.4% in five years, but weather and world markets continue to put pressure on this crop. They increased from 48.1 million acres in 1974, to 72.4 million acres in 2002. However, has expanding this crop caused an increase in pesticide use? Especially herbicides? GM modified crops are supposed to decrease both herbicide and insecticide use, say the manufacturers. Herbicide treated acres were up only 1.0% in those five years though, and insecticide treated acres were up the same (with soybean acres up five million acres in five years (6.4%) herbicide use was up only 1.0%). Perhaps, with this increase in soybean acres, and essentially an unchanged use of chemicals, GM crops are living up to the claims of their producers.

Just for background, sugar cane for sugar increased from 890,193

acres to 978,393 acres, or 9% increase – all to feed that sweet tooth of ours. Meanwhile, sugar beets for sugar – an equally heavily subsidized crop in the U.S., dropped from 1.5 million to 1.3 million acres. Corn syrup is taking its toll, it seems.

Just so you know:

	2002	1997
Number of farms (acs)	2,128,982	2,215,876
Land in farms (acs)	938,279,056	954,752,502
Total Cropland (acs)	434,164,946	445,324,765
Total Woodland (acs)	75,878,213	76,854,833
CRP or Wetlands (acs)	32,723,967	31,901,955

Finally, all of this farming is managed by less than 2% of the U.S. population.

If you haven't already, determining the *Varroa* population in your colonies should be at the top of your to-do list. Or do you just treat? No matter what, no matter how many, no matter how few?

Checking means a sticky board for three days. It does not mean an ether roll, a sugar shake or stabbing drone brood. These tell you yes, or no. A sticky board tells you how many, and it's how many that tells you to treat, or not.

How many? Existing data says that, at this time of year, with populations large, more than 60 mites dropping per day means there are enough mites in your colony to warrant a treatment, and if you don't there will be consequences of lethal proportions before Spring. Fewer than 20 per day and you'll make it to Spring without that treatment. But check them. Watch for an invasion of a nearby absconding colony that will send the mite population soaring *after* you've checked and decided you were safe.

U.S. queens are going to Canada already. I've heard mixed reviews from U.S. queen producers on developing, or should I say redeveloping that market. Some, including Strachan's, Hill and Ward's, Wooten's, Heitkam's and Powell's already have, or soon will be sending queens north this season, according to *The Alberta Beekeeper's Association* newsletter.

It's clear that those bees and

queens from Australia and New Zealand didn't fill the bill. Quality, quantity, price or timing seemed not to meet the needs of Canada's beekeepers.

One wonders if Canadian beekeepers will be requesting queens with the IPM qualities of hygienic behavior, or *Varroa* or tracheal mite tolerance (although they already have the best T mite resistant queens available, but not until June or July). Or, will they opt for honey production, chemical treatments, and replacement queens the following year do you suppose? Sound familiar?

Many I've talked with over the years have developed their own system of producing nucs from overwintered colonies and requeening with their own stock they've selected themselves. I gotta believe those queens are as good as anything we can send up there as far as overwintering is concerned. It would be good to see some of the pest resistance developed down here added in to help those Canadian queens just a bit. Maybe some Russian stock, eh?

OK, it's been long enough this season. The past few seasons have brought reports of significant supercedure, queen loss, drone layers, duds and worse. If you bought queens this year and put them in colonies with *only* foundation (tell which – plastic or wax), did you have a problem? Most likely they came in packages, but maybe not. Foundation rules out a contaminated brood nest they were introduced to, eliminating that variable.

We can, kind of, see if we brought in the problem then. Send me an email or a postcard telling how many you got, and how many crapped out. If you had 100% success, let me know. If you didn't, let me know. Let's see how many we can get for this. And no, I don't care where you got them. But if you tell me, tell the queen producer you got them from. Let *them* know. *That* will do the most good.

Tim Heitkam

LATE SUMMER REQUEENING

A challenge that we need to take.

Larry Connor

The Challenge of Late-Summer Requeening

Fall requeening is like filing your income taxes early. It is a good idea that nobody really ever gets around to doing.

An able beekeeper I know spent an entire afternoon one hot August day working through 10 colonies while looking for the queens. Much to his frustration and wounded pride, he found none. The colonies were close to their peak population for the season, the bees were older and wiser and more likely to defend their heavy honey loads that were stored in the supers. It was not one of the beekeeper's best days.

Queen producers talk eagerly about selling Summer and Fall queens, but many of them employ queen banks which store the queens over the Summer in colonies where 60 to 120 queens are housed in cages in queenless colonies which are supplemented with emerging brood and fed huge amounts of syrup to stimulate holding conditions. I have used many queen banks, and I believe the longest I banked a queen in Florida was about nine months, and the queen was introduced successfully. But many queens die in queen banks. The workers try to sting queens through the cages, they tug at their foot pads and reduce the queen's foot-print pheromone production. In addition, recent work with pheromones shows that these banked queens just shut down pheromone production, a factor that impacts upon their acceptance in their target colonies.

So, the beekeeper doesn't want to mess with late Summer requeening, and the queens may not be up to speed. What are we to do?

In Theory ...

The theory goes like this: Young mated queens

introduced in late July to early September after the nectar flow (depending on where you operate your bees), will brood heavily and increase the number of young Winter bees. Winter bees are bees that do not rear brood in the fall and are filled with fat cells that ensure good brood rearing in the Winter and rapid Spring buildup. The queen is younger and produces more Spring brood, and she is less likely to swarm.

Larger numbers of young bees ensure that the colony will have plenty of bees to cover stores during Winter cluster. A larger cluster will reach from the area where brood rearing is underway to the stored pollen and nectar. If this does not happen the colony may die as the Winter cluster compresses during cold snaps.

This is what I surmise happened to a friend's colonies this Spring. He lost 80% of his colonies, and I will not mention his name. In Connecticut last Summer, it was cool and wet. So cool and wet that the bees had poor forage and many colonies need a lot of stored food in the Fall. Unfortunately, they also needed a boost in August and early September while they were producing Winter bees for the Winter. Because pollen supplies were low and the nectar flow non-existent, the colonies apparently entered Winter with small numbers of new Winter bees. In January, they began brood rearing, but during a severe cold snap in early February, the bees compressed their cluster size away from their food supply and they died. They had their heads into the cells in a textbook starvation pattern. Honey was located just a few frames away.

There is an optimum number of Winter bees for survival. Some Italian strains produce too many Winter bees (a common complaint beekeepers made about



A queen removed should be dispatched.

the Starline during late Fall flows) and they consume too many stores over Winter. Colonies with small numbers of Winter bees may survive the Winter in some years, but not the ones with prolonged cold. Unfortunately, I suspect the "optimum number" varies from location to location, and from season to season.

To recap, later Summer requeening should produce:

1. Larger number of Winter bees
2. Queens with better Spring laying and
3. Colonies less likely to swarm in the Spring.

When You Absolutely, Positively, Must Requeen a Colony in August-September

We have all had large mean colonies we want to requeen. We have put it off and now it is August and we are afraid that we may have a very unpleasant time of it. How does one requeen a large, defensive colony?

1. Move the colony 20 or more feet and put a dummy hive to capture the field force. Give them a box of old tough chewy combs to work on and keep them busy. If you move the bees less than 20 feet, these bees may find the colony in spite of your best efforts. Combine the bees later, or hit them with soapy water and end their misery. Yours too, perhaps.
2. Separate all boxes with a queen excluder (duct-tape any holes) and leave it alone for four or more days. *IF* this mother-of-all-mean-bees is still laying, she will be confined to one of the boxes on the hive if there are no holes in the excluders or the boxes...
3. Carefully remove the frames from the box with eggs and inspect, looking for the queen. As you remove one frame, look at the face of the next frame in the colony for the queen. If the queen is a *runner* (mothers-of-all-mean-bees somehow always are), this will give you an early glance at her thick abdomen as she flees your gaze. You then get to play Indiana Jones as you chase after the queen as she runs from frame to frame. Hav-

ing a second person look at frames also helps, sometimes: I have a record of five Ph.D. beekeepers searching for a queen without success. That fact was never published, and their names are protected.

4. If all this has failed, consider shaking all the bees through an excluder. Make up a deep box with a queen excluder fastened securely to the bottom of the box. Shake the bees one frame at a time and watch for the queen as you do. Check each frame for the queen as you set it down and go to shake the next frame. Smoke the bees down, through the excluder. You should end up with nothing but drones and the queen.

Requeening While Removing Honey

For larger operations employing bee blowers for honey removal, and for smaller operations up to an extensive challenge, it is possible to requeen while removing honey supers. So put on your bee-proof suit, because bees will be crawling everywhere, and get ready to pull honey and requeen colonies.

This works for beekeepers in northern areas that pull honey in late July to late August, and southern beekeepers that pull honey in August or September. If procrastination leads to honey harvesting in October or November, skip this section, because it is then too late to requeen.

Obtain queens from a local source, if possible. I encourage all area beekeepers to support one or more beekeepers up the challenge of producing queens and queen cells in the Summer. This should be an excellent time to raise queens in northern states; the queens should be well fed and fully mated. Moreover, these queens, even if grafted from 'foreign' stock from a southern or California breeder, will mate with local drones, creating a colony that should carry some genetic information favoring local specialization. In other words, if you use drones from colonies that have survived your Winter and Spring build-up conditions, chances are they will contribute favorably to the success of these locally-produced queens.

Likewise, if a local beekeeper

grafts from queens from the best colonies in his or her operation, it is quite easy to produce drones from Russian, SMR or other stocks and incorporate these genetic traits on the drone side of the cross. Get out the drone combs ahead of time!

Most important, these queens should be fresh (not held in banks for more than a few days to a week or so), and laying when obtained from the queen producer. Northern queen producers usually use three to five frame nucs for mating (often with just one or two frames of brood), and the queens are often in these units for several weeks before they are harvested so the units are self-perpetuating. This is ideal for the buyer, for any drone layers, or poor egg-laying patterns are rapidly apparent. If you have time to visit the queen producer, offer to help pull the queens from the nucs. What better way to see what potential these queens might have? I suspect that the queen producer will sell more queens that way.

Back to the bee suit and bee blower. Staple a section of queen excluder at the entrance of the hives you are requeening. With the locally produced queens safely in the apiary and out of the sun, systematically blow all the bees out of the colonies you're harvesting honey from. It sounds simple, but is it not. It is hot sweaty work. Bees will be everywhere, finding any uncuffed pants leg or hole in the bee suit. As you put the hive back to-

How can you tell if she's the one, if she isn't marked?



Continued on Next Page



Requeening with queen cells is favored by some. It's pretty easy.

gether, install a queen with a push-in cage over emerging brood. Use queen candy in the cage tube so the queen will be confined for at least two to four days. That is usually a long tube and stiffer queen candy than many of us routinely use.

After the honey is loaded on the truck and the load covered, the bees should have settled a bit. Return to the front of the hives and find the old queens. Some beekeepers just pinch off their heads, others drop them into a vial of alcohol for show and tell at the local schools. Don't forget to restock the observation hive with one of these queens.

Remove the queen excluder and let the drones return inside the hive.

Check the colony for acceptance in about seven to 10 days. Have extra queens on hand for any introduction failures.

What to Ask the Queen Supplier

If you are unable to find a local source of queens, you will need to find a supplier who will answer some basic questions:

1. Are the queens you are sending me from a queen bank or from mating nucs?
2. If they are banked, how long have they been banked?
3. What is your policy on queen replacement if there is more than 10% introduction failure? Use a conservative push-in cage introduction method to increase queen acceptance.
4. What blood-line is the queen from, and was the drone in the mating area?

Using Local Queens from Nucs

Like early filing of taxes, we all have read that we should keep ten percent of our colonies in nucs during the Summer. Make up the nucs as you find colonies with extra brood and bees, and that are likely to swarm. Install a queen cell from your own bees or from a local supplier. If you have 20 colonies in an apiary, you should have two nucs holding mated queens. This can also be an excellent way for you to sample different queen suppliers and get the queens laying *before* you put the queen into a colony! Anything you can do to minimize queen failures in small units will save you time and probably mean more honey in the long run.

As you work the bees during the Summer, watch for the colonies that are not keeping up with the rest in the yard. These colonies should be requeened, even during a honey flow.

The queen in the nuc should be caged, perhaps using a push-in cage. An alternate method is to use a cylindrical or similar cage (plastic or wire mesh) that confines the queen for introduction. Install the queen on or next to brood and leave the queen confined. Return in four to seven days. If the bees are covering the cage and curling their abdomens, this is not a good sign, for this is classic balling behavior. On the other hand, if the bees seem to be feeding the queen normally through the cage screen, you can walk the queen out of the cage, ever so gently. If the bees essentially leave the queen alone, gently put the frame with the queen into the hive and close up the colony.

Depending on the time of year, you either want to re-cell or requeen the nuc or combine the nuc with a colony. Some beekeepers add the entire nuc to colonies, repositioning frames so brood frames are together and not split in the brood nest.

If it is early enough in the season, you may want to restock the nuc and introduce another queen or queen cell.

Using Queen Cells

Requeening with queen cells is very popular with certain beekeepers. One group puts a ripe (ready to emerge) queen cell into the top of

each colony during the nectar flow. They claim that the young queen replaces the old queen in many cases. This may be using the superscedure mechanism in colonies and be quite successful. It is hard to believe that any harm is done by adding a cell in this way.

Other beekeepers report that queen cells introduced into queen-right colonies are just destroyed by the queen or by the bees. This may be a factor of the type of nectar flow, the strength of the flow, the genetic make-up of the bees, and/or the degree of relatedness of the bees and the queen in the cell.

If you requeen with cells in colonies with marked or clipped queens, it is good evidence if you have a fresh unmarked or unclipped queen laying when you return to the hive. I am sometimes afraid that beekeepers think they have seen a requeened colony, when they may be looking at natural summer superscedure. How would they know?

Unrelated Stocks

Unrelated stocks are harder to requeen. If you requeen Italian bees with an Italian queen or cell, there is *usually* a better acceptance than when you requeen with a completely unrelated stock.

In Florida we had one inbred line that could only be introduced into colonies that had that line in their pedigree. Otherwise we had close to zero acceptance of these queens. The line was a cornerstone of the Starline hybrid, and thus pretty important, but the line came from Carniolian stock from the 1940s. It had been inbred and outcrossed several times to maintain vigor. Along the line, it was quite different than the other lines in the cross (a key part of making hybrids), and the bees knew it! We kept plenty of colonies with this cross in their genetic make-up to ensure acceptance.

I hear stories like this about many bee strains, especially Russian queens (although I have yet to work with them). **BC**

Larry Connor is owner of Wicwas Presse, New Haven, CT where he edits and publishes books on bees and beekeeping - LJConnor@aol.com or www.wicwas.com.

RESEARCH REVIEWED

Explaining • Defining • Using

Steve Sheppard

"The feasibility of indoor Winter fumigation with formic acid . . . employing control measures for V. destructor during a highly vulnerable period of its life cycle (when honey bee brood is absent) seems intuitively attractive."

Formic acid is widely used by beekeepers to control the parasitic mite *Varroa destructor* in honey bee colonies. While a great variety of application methods are employed, they usually rely on the exposure of adult mites to formic acid vapors. Such exposure is diminished when a large proportion of the mites are contained within sealed brood. Therefore, formic acid treatments generally realize maximum effectiveness when the colony is broodless. In a recent report, Canadian researchers described an experimental test of formic acid fumigation used on honey bee colonies while in a broodless phase of colony life during indoor overwintering (Underwood and Currie, 2004).

The experiment used a total of 84 one story hives obtained from beekeepers in southern Manitoba. Prior to treatment, colonies were assessed for tracheal mite and *V. destructor* levels, *Nosema* spore counts, cluster size and hive weight. The colonies were divided into four groups of 21 colonies and placed in separate treatment rooms. One of the groups remained untreated throughout the experiment and served as the control group. The system for delivering formic acid vapors and for maintaining air flow and temperature was carefully detailed in the publication, but the fi-

nal result was that three treated groups (low, medium and high) received a 48 hour vapor treatment of approximately 12 ppm, 26 ppm or 41 ppm formic acid, respectively. Treatment occurred in late January and colonies remained in the indoor wintering facility until late March.

The researchers found that average daily mite fall was significantly higher in the high formic acid dose group than in the other two treat-



ment groups and the control group. Unfortunately, queen mortality (24%) was also significantly higher in the high dose group than either of the two other treatment groups (0%), or the control group (5%). Worker bee mortality was not significantly different among the treatments or between the treatments and the control group.

Nosema spore abundance decreased significantly over the winter in the high formic acid dose relative to the control group. In the control and medium and low formic acid groups *Nosema* spore abundance increased over the winter. Tracheal mite prevalence, colony weight, cluster size and winter survival were not significantly different between the control and any of the treatment groups.

The authors concluded that indoor winter fumigation of *V. destructor*-infested colonies was feasible. Although the high dose treatment

significantly reduced the mean abundance of mites, it also was responsible for a significant loss of queens. The authors suggested that use of a lower dose of formic acid for a period longer than the 48 hours used in the experiment may increase mite mortality and avoid queen loss. The decline of *Nosema* spore levels over the winter in the high formic acid group was offset by the increase in queen loss and the authors did not suggest that formic acid treatment was a likely candidate for *Nosema* control. The finding that tracheal mite levels were unaffected following formic acid treatment was somewhat surprising and the authors speculated that either the short length of the treatment period or the manner in which the tracheal mites were counted (no discrimination between live and dead mites) may have been responsible. Overall, the authors appeared to be optimistic about the prospects for the use of formic acid fumigation in northern climates where colonies are kept indoors, but they cautioned that more research was needed before the treatment could be used commercially.

While the widespread use of indoor overwintering of honey bee colonies is clearly more common in Canada than the United States, the research reported here may have alternative applications beyond indoor wintering facilities. For example, if the methodology of this treatment system is perfected, perhaps it might be possible to develop functional "fumigation warehouses" Such facilities could be used to treat colonies in commercial operations that are typically set out in holding yards in late fall for

a period before being moved to Winter yards or elsewhere to prepare for pollination. A single facility would be able to treat numerous bee operations and lend itself to cost sharing. In fact, the authors discuss the feasibility of adapting existing overwintering facilities to formic acid fumigation and suggest that combining the use of centralized application locations with the short duration of treatment actually would have safety advantages over the methods in current widespread use.

While the indoor fumigation methods described by Underwood and Currie have yet to reach a practical stage for either large or small beekeeping operations, their work provides stimulation for further research and methods development. In addition, employing control measures for *V. destructor* during a highly vulnerable period of its life cycle (when honey bee brood is absent) seems intuitively attractive. At the same time that the efficiency of contacting the parasite with harmful vapors is improved, expo-

sure of honey bee brood to formic acid is avoided. **BC**

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Underwood, R. M. and R. W. Currie. 2004. Indoor winter fumigation of *Apis mellifera* (Hymenoptera: Apidae) colonies infested with *Varroa destructor* (Acari: Varroidae) with formic acid is a potential control alternative in northern climates. J. Econ. Entomol. 97:177-186.

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There's A Bee In My Soup!

Gwen Rosenberg

I love being a beekeeper. Yeah, yeah, the bees are great and all, but what I really love is social interaction, not of the bees but the non-beekeepers. Of the non-beekeepers there are those who are fascinated by bees and gab your ear off for an entire evening about the properties of honey and so forth. Then there are the people who are simply terrified by bees, and anything associated with them. These folks have longwinded stories of childhood friends who were systematically hunted down and killed by a "swarm" of bees. Most people however, hover somewhere between natural curiosity and fear. Given my puckish nature I am powerless in resisting the urge to take advantage of my upper hand as a bee "expert," and have a little fun at the non-beekeeper's expense.

"No, No, I never get stung. I have real gentle bees....Dear Lord, It's an African killer bee!! Run! Run for your life it's too late for me - save yourself!"

I find most people enjoy a gentle ribbing about their bee phobias, I suspect because they are a little embarrassed about their fear of a teeny little bug. Most long time beekeepers have already discovered this sport, but the question I ask is - have you tried to profit from it? Why can't we have fun with this calling of ours? Why not revisit our middle school years and have a good guffaw over a silly prank and make a buck too? Therefore, I introduce you to a new line of products under the category of Bee Gags. These are not for the hardened beekeeper who is incapable of finding the humor in the victimization of others, but for anyone with a devilish streak and a

juvenile sense of humor.

My first successful Bee Gag was at Ohio's Medina County Fair last year. We had candles and candy and a million different shades of brown honey but we didn't have anything very funny. After an initial prototype and repeated market testing (mostly on my in-laws) I developed the "Africanized Honey Bee." It simply consisted of a nondescript little brown envelope with the words "Common Name Killer Bee Queen." On the back I put, in red letters, right where you open it the word WARNING. I could barely contain my hysterics when my first victim...er...customer approached. He was about 10 years old and full of curiosity about bees and beekeeping. I knew it was only a matter of time before his little eyes zeroed in on the brown envelope I strategically placed about kid-eye-level.

"Is this a real killer bee?" Oh, I assured him it was and to be extra careful with that little package.

In hindsight I think I might have suggested he not even open it at all if he was afraid of bees or has a heart condition (that kind of talk always heightens kiddies' curiosity). Sure enough he cautiously opened the bag and released the terrifying sound of a hundred killer bees masterfully reproduced with a bent wire, a washer and a rubber

band. Luckily it is not medically possible to "bust a gut" laughing because the paramedics had their hands full at the crash up derby in the grandstand. As with the victim of most pranks, his embarrassment subsided as soon as he found someone else to laugh at - his mother. I made a killing on kids trying to scare their mothers. If there is such a thing as karma I'm really going to get it when my kids reach junior high. All day long the bee barn was full of kids scaring their parents and paying me a buck each to do it.

This initial success with my Killer Bee really got me thinking - thinking of other ways to make a dollar on goofy bee themed items. Unfortunately, no venture capitalist has approached me yet to fund my Bee Gag business, so many of my greatest ideas exist only on the drawing board. My lack of fortune however, is your gain - so for the advancement of pranksters everywhere I present my greatest bee gag ideas. Feel free to use these as your own.

All I ask in return is that you remit 60% of your gross sales to me on a quarterly basis.

This first novelty, my personal favorite right after the "Killer Bee" is called the "Beard-O-Bees." Imagine the

looks you would get at the next block party when you arrive wearing what looks to be a swarm of 50,000 bees on your face and neck. I liken this to the beekeepers equivalent



of the Grocho Marx glasses. Simply hook the "beard" around your ears, fluff the bees a few times and you are dressed to impress. I could even expand on the Bee beard and go for the literal "Bee Suit." Marketing this little brain child of mine would be a piece of cake with the tried and true celebrity endorsement. No, no, not those phony Hollywood types. I'm talking about beekeeping celebrities. Anyone who has ever flipped through the pages of the Guinness Book of World Records as a child would surely recognize Don Cooke, from Ohio, the legendary bee beard champion. A Don Cooke model "Beard-O-Bees" would sell itself to every child who ever found him or herself daydreaming of one day being in the center of a swarm of honey bees. I could even produce different models of his victorious beards. The kids could collect them like trading cards. Maybe the 1982 model would be the coveted limited edition beard with dark Carniolan. Sadly, Mr. Cooke is no longer with us, but I imagine other beekeeping celebrities would probably want in on this goldmine.

This gag is so versatile it actually straddles the novelty/costume barrier possibly even opening up the lucrative Halloween market for the first time. It's hard to convince kids that a beesuit is especially spooky, but add the "Jim Tew Limited Edition with Russian Hygienic Beard-O-Bees" and you're looking at taking best of show in the costume parade. Middle school teachers across the country will be working overtime taking "Beard-O-Bees" away from hyperactive children who, regardless of the number of times they see it will all crack up at the sight of little Tommy with bees on his face. I'll have to mask my true identity as the inventor of "Beard-O-Bees" when Tommy's mom realizes she paid \$50 to get his 6th grade school picture complete with bee beard. But there's plenty of time for threats on my life later.

The next gag shares the hilarity of the swarm but is really geared more for the sneaky practical joker who prefers to observe the prank rather than participate. This one I call, or would call if I found cheap labor and a few thousand lifelike imitation honey bees, the "Pocket Swarm." Small enough to fit into a

The more expensive "Pocket Swarm" actually buzzes.

pocket (of a bee suit of course), but once unfurled this instant swarm can be adhered to any surface. The fun is endless. I can picture roving gangs of senior beekeepers creeping around the subdivisions sticking "Pocket Swarms" to cars, houses, dogs, or playground equipment then shrinking into the shrubbery to watch the ensuing hysteria. Personally I'd like to see my fancypants neighbor, who has been making a scene at the zoning commission, finding his barbeque invaded by a "swarm" of bees. This gag's a sure winner. It has all the promise of the fake dog poo but re-invented for the mischievous beekeeper. What about a hide-a-key swarm for the lamppost? What's a more convenient spot for the spare key but dangling from the gutter above the front door? Or hang it off the car for an instant theft deterrent. Most of those wimpy criminals out there aren't afraid of dogs, but if you've got a realistic swarm of bees protecting your property you could cancel ADT home security altogether. It's a gag with real potential. I might even stash my jewelry and birth certificate in one for safe keeping. The more expensive model of the "Pocket Swarm" would have special micro-chip technology to produce a realistic buzzing sound. This little prank could really provide some fun - just be sure your practical joke doesn't end up with you in jail, or on the run from Tommy's mother. Perhaps a disclaimer would be in order here but let's consider my final gag instead.

My last bee themed novelty has a simple premise and untold number of possibilities. In fact, I find it hard to believe I'm the first to think of it. Behold the single lifelike fake bee! I definitely need a more concise name though. How about "Bee Scared!" It sounds too simple to produce a really belly busting laugh but place it on the shoulder of a child or dramatic great aunt and that's entertainment. Place one *inside* the veil of your assistant beekeeper and learn some new dance

moves, or simply shove *half* of a fake bee into your brother-in-law's turkey sandwich at the family reunion. This is the casual practical joker's joke because it's easy to use and portable. It's also inexpensive. Buy a few hundred of these bees and keep them in the glove compartment for practical jokes wherever you go! I might even spin off this dandy of an idea and start marketing "King Bees." What bee inspector could resist covertly placing a "King Bee" into a new beekeeper's hive? I can hear the conversation now:

"What? Sure there's such a thing as a king bee! Can't you see his little crown?" Hazing by beekeepers can be so cruel.

This gag could also be used for more sinister intentions. Ever lose out in a bidding war over a piece of real estate? Not if you've just sprinkled a few dozen "dead bees" around a suspicious hole in the interior foundation wall. Reserve a seat for your wife at the next outdoor sporting event by placing a few "bees" on the seat. People are terrified of bees so why not use this to your advantage. Ok, Ok, too evil? Think of the gleeful hysterics of your children or grandchildren finding a "bee" frozen in an ice cube you just placed in their lemonade, or a playfully positioned bee in the flower arrangement of a loved one. Think of your own gags for this little gem and live up your next county fair. Get a few good laughs at the expense of others - your inner 12-year-old child will thank you for it.

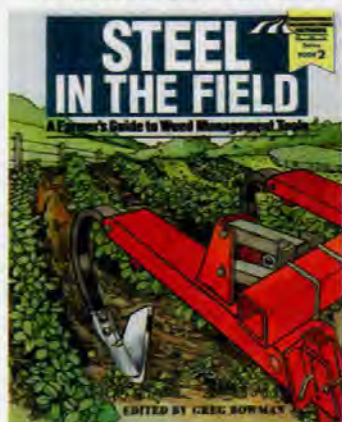
These are just a few of my great ideas for fun and profit from people's innate fear of stinging insects. I share them with you first off in the hopes that some Texas-millionaire-venture-capitalist type will back the Brinks truck up to my door so I can conduct some serious research and development. Short of that, I will feel satisfied if someone out there in beeland pulls off one of these practical jokes in the name of good fun and remits that 60% so I can buy some more equipment. **BC**

GLEANNINGS

AUGUST, 2004 • ALL THE NEWS THAT FITS

Growing Bee Plants

WEEDS ALWAYS A PROBLEM!



We all know that May flowers follow April showers. Savvy farmers know that April showers also invite unwanted guests – weeds!

Weed control demands time, labor, and expense for every farmer, every year. As weeds grow increasingly resistant to herbicides, many farmers are considering alternative strategies to improve weed control, cut costs, and reduce risk. *Steel in the Field*, published by the Sustainable Agriculture Network, features strategies for managing weeds while reducing – or eliminating – herbicides. SAN is the national outreach program for the USDA/CSREES-funded Sustainable Agriculture Research and Education (SARE) program.

Highlighted weed management strategies include:

- * Delaying planting to give the crop the advantage;
- * Keeping weeds on the defensive with crop rotations;
- * Disrupting weeds with strategic tillage;
- * Tolerating weeds that don't impact yield.

"This book addresses the four main concerns farmers have about mechanical weed control: cost, effectiveness, dependability, and soil impact" said Joe Johnson, an agronomist at Mississippi State University. "The field equipment sections are the most descriptive I have ever seen."

Updated in 2001, the 128-page *Steel in the Field* combines farmer experience, commercial agricultural engineering expertise and university research into a practical guide for cutting weed-control costs through improved cultivation tools, cover crops, and new cropping rotations.

Twenty-two farmers share their struggles and successes with tools, weeds, herbicides, and cropping systems. In fact, this book is a must for anyone looking to reduce or replace pesticide inputs.

To order *Steel in the Field*, send \$18 plus \$3.95 s/h to Sustainable Agriculture Publications, 210 Hills Building, University of Vermont, Burlington, VT 05405-0082. Place credit card and discounted volume orders by calling 802/656-0484.

ORGANIC NEWS

The latest edition of the Organic Trade Association's (OTA) *What's News in Organic* newsletter (Issue 28, Summer 2004) is now available in pdf form on OTA's web site, at http://www.ota.com/whats_news/Issue28.pdf.

Issue 28 reports on: The increasing U.S. sales of organic products; highlights from a State of the Science Review entitled

Minimizing Pesticide Dietary Exposure Through the Consumption of Organic Food; news briefs concerning organic agriculture, research, and products, as well as environmental and health news.

Please notify Lori Wyman at [OTA\(lwyman@ota.com\)](mailto:OTA(lwyman@ota.com)) if you have difficulty accessing this publication, or if you would prefer to receive a copy through the mail.

Dr. Lila de Guzman

AIA EXCEPTIONAL SERVICE AWARD 2003



The Apiary Inspectors of America presented Dr. Lila de Guzman with the 2004 Exceptional Service Award for outstanding work in apiculture research at a February Social of the Capital Area Beekeepers Association in Baton Rouge.

Dr. de Guzman, who was born in the Philippines, came to the U.S.

to work at OR State University on her Masters of Science degree in 1986-89. There, she worked with Dr. Michael Burgett, studying the biology of two external *Acarapis* species.

She then obtained a Doctorate degree at LA State University, where she studied the tolerance of the Yugoslavian honey bee to *Varroa destructor* and *Acarapis woodi* in comparison with other selected stocks in a project with the USDA-ARS Honey Bee Laboratory in Baton Rouge. Her work showed that the stock was resistant to *Acarapis woodi* to a degree that beekeepers would not normally have to treat colonies to control this parasitic mite. She also documented a measurable degree of resistance to *Varroa destructor* in the stock.

Working as a post-doctoral student at the USDA-ARS lab in Baton Rouge, she studied the genetics of *Varroa destructor* and was the first to discover that

Continued on Next Page

USDA ALLOCATIONS FOR MARKETING

Agriculture Secretary Ann Veneman announced fiscal year 2004 allocations totaling \$161,267,500 million to 71 U.S. trade organizations to promote U.S. agricultural products overseas under the Foreign Agricultural Service's (FAS) Market Access Program (MAP). Foreign Market Development (FMD) Co-operator program and Quality Samples Program (QSP), according to a USDA press release.

Market Access Program Allocations Fiscal Year 2004 are as follows: AK Seafood Marketing Institute \$2,969,653; American Forest & Paper Assn. \$7,147,112; American Peanut Council \$1,265,673; American Seafood Institute \$94,354; American Sheep Industry Assn. \$285,358;

American Soybean Assn. \$4,230,302; Assn. of Brewers \$101,607; Blue Diamond Growers/Almond Board of CA \$1,515,075; CA Agricultural Export Council \$1,014,110; CA Asparagus Commission \$237,383; CA Cling Peach Growers Advisory Board \$344,917; CA Kiwi-fruit Commission \$125,814; CA Pistachio Commission \$892,327; CA Prune Board \$2,162,873; CA Strawberry Commission \$627,309; CA Table Grape Commission \$2,276,479; CA Tomato Commission/FL Tomato Committee \$548,825; CA Tree Fruit Agreement \$1,571,463; CA Walnut Commission \$2,971,836; Cherry Marketing Institute \$135,420; Cotton Council International \$9,899,373; Cranberry

Continued on Page 59

Oops! False Alarm NZ MITE SCARE AN ERROR

The great South Island Varroa destructor alert appears to have been caused by a foul up at a laboratory.

The Ministry of Agriculture has called in an independent auditor to review testing protocols at the ministry's national plant pest reference laboratory after it was confirmed a probable cross-contamination bungle triggered two South Island Varroa scares.

New Zealand has been desperately trying to prevent Varroa crossing the Cook Strait and reaching the South Island from the now infested North Island.

But the effort appeared to have failed after a single Varroa mite was first found at an apiary in Oxford, north Canterbury and then another at Murchison, about 80 miles southwest of Nelson city.

Murchison beekeeper Ricky Leahy was the latest to feel the impact after the mite was found on the outside of a plastic ziplock bag containing "sticky boards" from his hives.

The bag was stored in a freezer at the laboratory underneath a bag containing samples from a North Island site that had tested positive.

"They retested us and found negative Varroa," he said. "It sounds more and more that it was

a mix-up in the lab."

But Leahy is still waiting to see if dozens of his hives will be destroyed. The ministry said it could not exclude the possibility that there was an incursion at Murchison. It said it was still deciding what course of action it would take.

Meantime, testing continued of samples within six miles of the Oxford detection. The laboratory has checked 2,486 hives without a positive result and had about 800 more to test.

But officials said even though the single mite was found inside the ziplock bag, it appeared increasingly likely the original positive test was also the result of cross-contamination.

One theory is that the miticide strips distributed to beekeepers by the ministry were contaminated.

The ministry had been issuing sterilized, previously used strips but now has revised its procedures and is only handing new ones.

"Whatever's happening in Oxford is something of reasonably low probability," ministry Varroa program coordinator Paul Bolger said. "We've still got our fingers crossed it will turn out to be a false alarm." — Alan Harman

Heine New Chairman NHB ELECTS NEW OFFICERS

Lee Heine of Hillsboro, WI was elected Chairman of the National Honey Board at their June 26 annual meeting in Washington DC. Bob Coyle of Bellevue, WA and Clint Walker III of Rogers, TX were elected Vice Chairman and Secretary/Treasurer respectively. Bonnie Woodworth of Halliday, ND and Tom Hamilton of Townsend, MT complete the Executive Committee positions.

Incoming Board members, George Hansen of Colton, OR and Nancy Gamber-Olcott of Lancaster, PA were seated as members. Outgoing members, honored at a luncheon for their years of service, were Wally Diehnelt of Ashippun, WI and former chairman Gene Brandt of Los

Banos, CA (Brandt will continue on the Board as Ex-Officio).

Chairman Heine has been a beekeeper for 26 years, currently managing 700 bee colonies for honey production and pollination services. He is past president of the Wisconsin Honey Producers Association and past chairman of the National Honey Nominations Committee.

Reappointed members and alternates are: Producer Region 2: Thomas H. Hamilton of Nampa, ID, member. Producer Region 3: Bonnie Woodworth of Halliday, ND, member and Larry Bermel of Java, SD, alternate.

The members' terms of office begin immediately and end March 31, 2007.

Label Issues Critical PESTICIDE INSTITUTE FORMED

Recently, Dr. Dan Mayer, Dr. Jerry Bromenshenk, and Dr. Colin Henderson at the University of Montana formed an institute to continue and enlarge on their previous work on the effects of pesticides and other toxic chemicals on bees. Together, we have some 80 years research and extensive experience on pesticides and environmental effects on bees and plant communities.

The institute incorporates both laboratory and field research designed to meet rigorous scientific and analytical standards. We conduct both laboratory and field research on the effects of pesticides on bees and conduct our research following EPA protocols and Good Laboratory Practices (GLP). Our laboratory and research facilities employ state of the art technology and equipment. We have the capability and experience to perform research worldwide.

Our principal mission is to investigate and disseminate information on pesticides and environmental hazards to North American honey bees and other pollinators. Besides basic research, we offer training and provide consultation/expert services to interested clients, and work toward providing better technologies for the assessment of the effects of environmental stressors and label registration of pesticides.

Housed at The University of Montana, the Institute will conduct basic research and provide extension services to researchers and agriculture. It is closely affiliated with Bee Alert Technologies, Inc.; a Regentially-approved Montana business, holding licenses to extend and develop technologies emerging from bee-related research conducted at the University. This

alliance of a University for basic research and a closely aligned, but independent private business, allows the flexibility to meet a variety of different client needs, including the need for proprietary testing and expert services related to environmental/agricultural litigation.

ROLE IN BEEKEEPER ISSUES:

Bee kills from pesticides applied to agricultural crops or forest plantations continue to be problem for many if not all beekeepers. It is relatively easy to document huge kills that occur periodically. However, our research has shown that almost every colony suffers to some extent from pesticides. There is a real need to pinpoint these problems for the health of the beekeeping industry, which we are in a position to do. There is a need for more research on the effects of pesticides on bees. Due to budget constraints at the Universities and Federal Labs, the University of Montana is the only laboratory with extensive experience and capabilities to conduct this research and properly disseminate the information to beekeepers and policy makers.

The bee caution statement on the pesticide label, the interpretation of that statement and the research necessary to generate that statement has become a hodgepodge of a shaggy dog story. There is a real need for credible leadership from the beekeeping industry and the scientific field to deal with this issue at the state and national level. These issues have been mired in the mud for several years now. However, with your help, we are ready, willing and prepared to deal with these issues in a favorable manner for beekeepers.

Guzman ... Cont. From Pg. 57

Varroa from different origins had different levels of virulence for *Apis mellifera*. In doing so, she set the ground work for the determination that the genus Varroa has several species, only one of which (*Varroa destructor*) is a problem for *Apis mellifera*.

Most recently, she has been a member of the group in Baton Rouge working on Russian honey

bees. In addition to working on the selection of the most Varroa resistant queen lines, she studied the tolerance of Russian honey bees to tracheal mites, finding most but not all Russian queen lines highly resistant. This has allowed the group to select breeder stock for resistance to both mites while selecting for honey production.

NEW LIDS

New specially designed metal closures for European honey and jam producers have been developed by Crown Closures Europe, an affiliate of Philadelphia-based Crown Holdings Inc.

The company said the concept will help companies achieve greater cost-effectiveness while ensuring complete air-tightness.

Crown said the concept offers medium and small producers high-performance lids without the need to invest in customized metal closures.

Custom designed for honey, Maya, is a gold-colored closure decorated in a honeycomb pattern with drawings of honey bees. The colors for the background and drawings were selected to coordinate with the product and accentuate its natural appeal.

Melifruit is a collage of

brilliantly colored fruits on a light blue background, offering jam makers a look that is supposed to represent freshness and purity.

The Maya and Melifruit closures are available in 63- and 82-mm Regular Twist Step and Regular Step Button. The button in the center of the closure performs as a safety barrier, popping up when the seal is broken. Crown said the closures also offer excellent reclosability.

Crown said the closures offer exceptional oxygen barrier performance for long shelf life. They are suitable for hot, cold, and aseptic filling processes and can be applied either by hand or machine.

Crown manufactures the Maya and Melifruit closures at its facility in Aprilia, Italy.

— Alan Harman



Vodka Production

BEES WIN AWARD

New Zealand manuka honeybees have been recognized for the first time at the highly prestigious Salon International de L'Alimentation (SIAL) International Food Exhibition in France.

The bees that exclusively collect raw ingredients from the fragrant blossoms of the Manuka tree to produce a rich Manuka Honey essence have won a gold medal for their 42 Below Manuka Honey Vodka.

The company said, with tongue in cheek, that it was a huge morale boost for the bees that manufacture honey under any conditions, don't really get paid and often die on the job.

The gold medal will be collected on behalf of the bees by

New Zealand gin and vodka maker 42 Below Ltd. chief executive Geoff Ross at the SIAL International Food Exhibition in Paris in October.

"This win boosts the prestige of our brands in the eyes of key sales agents, distributors and buyers in our new and developing export markets," Ross said. "Winning gold at the Salon International de L'Alimentation has meant resounding export success for previous winners."

Executive chairman Grant Baker said the gold medal and two other recent European awards should provide the company with European opportunities "that are not dissimilar to those that have driven better than expected growth in the U.S. market."

OBITUARIES

William Conley, 88, who kept bees and counseled Boy Scouts in Berea, OH while he was employed as a physicist at NASA died in June.

He was a beekeeper for more than 30 years and had served as president of the Cuyahoga County Beekeepers' Association as well as treasurer of the OH State Beekeepers' Association.

After he retired from the NASA Lewis Research Center in 1974, he was a bee inspector in southwestern Cuyahoga County for 20 years. He gave talks at the Cuyahoga County Fair. He and his wife, Betty, were named OH State Beekeepers of the Year, 1990 and Honorary Life Members, 2000.

He served in the Army Air Forces as a meteorologist during World War II, and then he went to work for the National Advisory Committee for Aeronautics, the forerunner to NASA.

He was born in Kentucky. He married Elizabeth Morgan in 1942. They bought a home in Berea when they moved to Ohio.



Paul Axel Johnson of the House of David, Benton Harbor, Michigan, passed away June 29.

The leading figure in Southwestern Michigan beekeeping for many years he was a member of the Michigan Beekeepers Association and a life member of Indiana Beekeepers Association. Several IBA members will remember Paul's presentation at the first IBA state meeting at Gary in 1998; he was helpful in other ways in IBA's startup and eventually took out a life-time membership in the association.

At the House of David in Benton Harbor where he lived for 52 years, Paul managed the apple orchard and cider mill, served as its Secretary and was director of the Trailer Park.

Born to Axel and Henny (Erickson) Johnson on August 29, 1927 in Seattle Washington. He attended Washington State University where he received a degree in Horticulture and later served in the U.S. Army as a Food Inspector. He married Lily Robertson on May 2, 1967; she preceded him in death May 11, 2001.

Paul is survived by his sister Doris (Donald) Underwood of Mesa, AZ, his brother Glen (Barbara) of San Antonio, TX and his brother-in-law Willie Robertson of the House of David, Benton Harbor.

Allocations ... Cont. From Pg. 57

Marketing Committee \$745,726; Distilled Spirits Council \$62,276; FL Dept. of Citrus \$4,776,799; Food Export USA Northeast \$5,578,103; Ginseng Board of WI \$5,418; HI Papaya Industry Assn. \$9,435; Hop Growers of America \$90,448; Intertribal Agriculture Council \$415,415; Mid-America International Agri-Trade Council \$7,145,583; Mohair Council of America \$67,114; National Assn. of State Depts. of Agriculture \$1,587,075; National Confectioners Assn. \$1,205,523; National Dry Bean Council \$519,638; **National Honey Board \$116,285**; National Potato Promotion Board \$2,705,406; National Renderers Assn. \$364,691; National Sunflower Assn. \$867,957; National Watermelon Promotion Board \$133,952; NY Wine & Grape Foundation \$181,007; North American Export Grain Assn. \$95,022; Northwest Wine Promotion Coalition \$465,848; Organic Trade Assn. \$250,063; Pear Bureau Northwest/CA Pear Advisory

Board \$1,688,041; Pet Food Institute \$912,048; Raisin Administrative Committee \$1,988,790; Southern U.S. Trade Assn. \$4,951,225; Sunkist Growers, Inc. \$1,996,471; TX Produce Export Assn. \$73,239; The Catfish Institute \$305,895; The Popcorn Board \$258,792; U.S. Apple Assn. \$376,931; U.S. Dairy Export Council \$2,661,598; U.S. Grains Council \$5,036,065; U.S. Highbush Blueberry Council \$96,509; U.S. Livestock Genetics Export, Inc. \$909,483; U.S. Meat Export Federation \$10,674,318; U.S. Wheat Associates \$2,507,098; USA Dry Pea & Lentil Council \$461,235; USA Poultry & Egg Export Council \$3,167,558; USA Rice Federation/U.S. Rice Producers Assn. \$2,972,700; WA State Fruit Commission/CA Cherry Advisory Board \$884,823; WA Apple Commission \$2,565,044; Welch's Food \$590,557; Western U.S. Agricultural Trade Assn. \$7,063,750; Wine Institute \$4,101,783.



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When a cool evening wind blew the bees home early, I knew they'd stay snug in their hives all night. I mused that I might lay my pillow against one of the landing boards, and that the little darlings' humming would lull me to dreamland under the stars. But it looked like it might rain, so I pitched my tent instead.

It was the end of May, and I was on the first leg of a two-and-a-half-day beekeeping odyssey. The sun was already low when I arrived at the Elk River Valley, up by Steamboat Springs, Colorado. There'd been a problem last year with a bear in this yard. I put up a woven wire fence and connected it to an electric charger and solar panel. It ought to stop a bear, but you never know. I figured I'd work the bees in the morning.

I'm leasing bees from Jack this Summer. They'd finally gotten moved back to their Summer yards after pollinating the almonds in California. This was my first trip to this particular location. The landowners live across the road. I wanted to introduce myself, but when I finished the fence, I thought it might be their suppertime. But then if I waited, it might be their bedtime. Unsure what to do, I retired for the evening.

To be perfectly honest, I wasn't totally comfortable with my decision to sleep with the bees. It occurred to me that if the bear smelled honey, I'd be right at the source. Still, I'd be safer inside the electric fence than outside. But I felt like one of those guys who goes down into the deep in a shark-proof cage after they chum the water with blood.

My \$10 sleeping bag that I bought at the grocery store would have been the perfect size for a Cub Scout. The only way I could cover my shoulders was to sleep curled up. When I woke up, it felt like it had been a long night. I thought it must be nearly dawn, but when I looked at my watch, it read 10 p.m. I turned on my flashlight and read an article about pest management strategies for *Varroa* mites. I almost finished it.

Just outside the tent, the fence charger "snap-snap-snapped" reassuringly all night long. I wondered about African campers who ring their campsite with fire to keep away the wild beasts. I thought about a young local journalist who went to Africa to seek adventure. Out in the bush, he at first thought it odd when his guide slept in the Land Rover. In the middle of the night, he heard lions padding through the camp. I dreamed that my tent touched the electric fence, and that I could feel electricity tingling in my toes. I didn't dream about the bear.

In the morning, ice coated the tent walls. Clouds and wispy strings of mist hung low over the wide valley, and the fields shimmered white with frost.

I got up early. My beeyard campsite was on a gentle sagebrush-covered hillside in full view of the ranch house across the road. When I performed my morning ablutions, I appreciated the privacy afforded by the shelter of my flatbed Ford, and I was glad I'd thought to bring a shovel.

By the time I finished supering the bees, the rancher came by on his four-wheeler. He introduced himself as "Doc," although he said he wasn't one. He peppered me with questions about honey bees and couldn't have been friendlier.

Later, when I used the phone at his house, he said, "You should have stopped by last night. You could have slept in the bunkhouse."

It's a little backwoods by the big yard over by Hayden. They raise chickens, sheep, goats, ducks, geese, turkeys, and dogs - lots of dogs. Critters wander around everywhere.

You see a lot of sheep guard dogs in this country. Mainly they're Great Pyrenees, Akbash, or Anatolian Shepherds. They're all big white dogs, and they're mostly friendly when they're not defending the flock.

As I introduced myself to the owner, a wolf-sized dog nuzzled my hand. I said, "What kind of dog is that, anyway?" The man said, "Three quarters Anatolian and one quarter Pyrenees. No wait, I guess he's two thirds Anatolian and one third Pyrenees."

I didn't dispute the math. I said, "What breed do you like the best?"

The man said, "The Anatolian. They're the best bear fighters."

I said, "Excuse me, but I thought you just said 'bear fighters.'"

The man said, "Sure. This guy will take on any bear. Bears don't come around here."

The wife said, "They might come around, but they don't leave - not alive."

This sounded to me like a good place for bees. And camping.

Pointing to a big sad-eyed dog with swollen teats, the woman said, "That Pyrenees bitch killed 15 of my chickens last night. Fed them to her pups."

"Oh," I said.

The man said, "We hauled a road kill deer up by the bees - for the dogs - but I don't think they'll bother you tonight."

I said, "They won't bother me. I like dogs."

Three off-white pups rolled in the dirt at our feet. The wife said, "I've got two more litters. Do you need a dog?"

"Got one," I said. "But thanks, anyway."

As I got ready to head up to the beeyard, the woman looked at me hopefully. I guess she figured she had me hooked. She said, "When you leave, you be sure and take one of those pups."

Ed Colby

Bees In The Night

BOTTOM BOARD