

LOCAL
HONEY



Bee Culture

THE MAGAZINE OF AMERICAN BEEKEEPING

OCTOBER 2001 VOLUME 129 NUMBER 10

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Subscription Information

U.S., one year, \$20; two years, \$38. Newsstand price: \$2.50. All other countries, (U.S. Currency only), \$10.00 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), October 2001, Volume 129, Issue 10, is published monthly by The A.I. Root Co., 623 W. Liberty Street, Medina, OH 44256. Periodicals Postage Paid at Medina, OH and additional mailing offices.

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 A.I. Root Co., 623 W. Liberty St., Medina, OH 44256

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What better advertisement for your honey? Roadside stands can be a bonanza for Local Honey Sales. See page 33.

photo by Ann Harman

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Bee Go - Everytime

After 40 years I found that there is a simple way to remove a swarm high up in a neighbor's tree that they don't want any cutting of limbs. This limb was the size of my leg. After setting the hive below and with a ladder and broom, I was able to remove about a third to the hive below not knowing if the queen was still up there or down below. As the bees on the ground go into the deep, they soon set up a loud buzz (no queen). I happen to have some Bee Go in the truck. So I thought if I use some just above and below the bees on the limb, not on the bees. They sure didn't like it at all up there. They soon joined the bees below. The only thing to remember is first have some of the bees in the hive below, that buzz is their calling card.

Rudy Steele
Buckley, WA

Tew Is A Hit!

Dr. Tew, I have been a reader of your articles in *Bee Culture* magazine for sometime, but have not been compelled to write you until I read your article in the July 2001 issue. Your list of observations and experiences when working a hive really hit home. I have experienced all 10 of your observations to some degree, some more than others. It's funny how so many of your observations are made worse by perspiration.

I've only been beekeeping for three years, so I'm still very much a neophyte when it comes to my knowledge and experience. However, anyone who has worked a hive of bees in the middle of the summer in the northeast can attest to your experiences.

Beekeeping is inherently a sticky, hot, smelly and messy operation but rewarding at the same time. It's a pleasure to hear someone say how much they enjoyed the honey from my hive. It makes the hard work worth it!

October 2001

MAILBOX

Thanks so much for your articles and bringing humor to our beloved hobby.

James W. Murray
Assistant Vice Chancellor for
Enrollment Services
State University of New York

Honey Wars

The web page listed here (www.iowa-counties.com/historical/honeywar.htm) describes the "Honey Wars" between Iowa and Missouri which I thought might be of interest. In spite of being beekeepers and hailing from Iowa and Missouri my husband and I had never heard of this story until this spring.

My favorite part was about the contingent of militia who went off to do battle with six wagonloads of provisions - one of food and five of booze!

Hope you find this of use.

Gloria Hall
North Bend, WA

Hard On The Eyes

The print size in *Bee Culture* is already small enough. Actually a bit too small for me.

However, the print size beginning on page 41 of the August, 2001 issue is just too small. I don't believe that I am the only person whose eyes are getting old. In fact I bet that the majority of your subscribers are getting on in years.

Give us a break and use larger print.

Fred G. Deer
Cary, NC

Imacloraprid

I continue to be perplexed and intrigued regarding the concern over the insecticide Imacloraprid sold as Gaucho, Provado, and Admire. The concern in France over the seed treatment Gaucho on sunflowers causing problems

with bees seems inconsistent with widespread use of this product on cotton in Arkansas. I am not sure if the concern in Canada has been with Gaucho or Provado. Some Gaucho has been used as a seed treatment on cotton in Arkansas for years. However, widespread use of Provado has occurred the last two seasons in Arkansas to control heavy aphid problems in cotton. This season very limited amounts of Provado or other treatments for aphids have been required. The last two seasons we have seen excellent yields from cotton honey in our area. Last year in fact set a record for the average yield per hive statewide. A major percentage of honey produced in Arkansas is cotton honey, only behind soybeans in quantity.

As an extension agent I find it difficult to believe that the seed treatment Gaucho would be so effective that it causes problems with bees. It certainly does not hold up long enough to control aphids in cotton by the time extra floral nectaries begin producing nectar. This is usually seven to 10 days before first bloom and about 50 days from planting. Foliar treatments might cause different results. However, most cotton the last two seasons was treated with Provado (a foliar treatment) about the time nectar secretion began and bees began to actively forage cotton fields.

I would estimate that over half the acreage in Craighead County (100,000 total acres) was treated in 1999 and over 70 percent in 2000 with Provado. Remember these were both excellent years for honey production in our area. A high concentration of commercial beekeepers have yards all over the cotton producing area of this county and Northeast Arkansas.

I do know that when foliar applications of Furadan have been applied to cotton to control aphids, bee kills are common when this material has been widely used.

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MAILBOX

Many farmers would prefer to use Furadan due to the lower cost compared to Provado. Due to label restrictions Furadan was not used in eastern Arkansas this season. Imachloraprid products are very safe to humans compared to Furadan. They are so safe that they are widely used to control parasites on cats and dogs.

It is possible that this product works differently on sunflowers or other crops. However, in my experience it would be rare for a seed treatment or infurrow treatment of a product applied at planting to cause problems with bees even if highly toxic. By the time the crop begins bloom little if any should be expressed in the above ground part of the crop. While I understand that many beekeepers have a concern with these insecticides I believe good unbiased data is needed before passing judgement. A whole line of products are being developed with similar modes of action, low toxicity to humans, and targeted to limited pests. These type products are certainly better for the environment, humans, and bees compared to broad spectrum products such as Furadan that wipes out everything in the field. Centric received a label this year and is very similar to Provado. My question is do these products actually cause damage to bees and if so under what conditions? I believe in cotton the answer is no. They have been used for several years and on a very high number of acres the last two years in Arkansas. What about other crops?

Steve Culp
Jonesboro, AR

Honey Board Or Not?

It is time to start discussing the National Honey Board continuance referendum scheduled for February 2002. There is a lot of negative sentiment about the Board being expressed. The honey bee industry clearly has some major problems to resolve. Before one automatically assumes the National Honey Board has not and

will not solve any of our problems I'd like to bring up some points for our consideration.

First of all, if we do away with the Honey Board, who will be there to protect the good name of honey? Will the presidents of our national organizations be manning the hot lines 24/7 to answer media questions and provide a source of reliable information on any local contamination story, or some other media expose? It is no accident that there is basically only good news about honey bees in the press. The Honey Board's readiness plan has kept positive, factual information available to the media, and has sidetracked every potentially damaging story. Do you think the Honey Board hasn't helped you? How many of your customers would you lose if the press was full of negative articles and misinformation about bees and honey?

Many beekeepers assume that if the referendum fails, a better board will be formed quickly. The National Honey Packers and Dealers Association does plan to form a new honey board if this one is voted out. Beekeepers would not be able to vote on the formation and structure of their board, and producers would not be represented on the governing body. The NHPD has already stated they would not be interested in continuing some parts of the current Board. No attempt would be made to tell the pollination story, nor to connect consumers with local sellers of varietal honeys, for example. Assessments would be paid by the packers directly. But if you think that the assessments would come out of the packer's profit margin and not be reflected in lower prices to the producer, well, you probably believe in Santa Claus, too. No representation, and we'd pay anyway.

I think we need to think very carefully before we discontinue the National Honey Board.

George Hansen
Colton, OR

Honey Board Challenge

When elected Chairman of the National Honey Board last June, I was well aware of the challenges

which lie ahead for our industry. The economic conditions of the past few years have not been good in the beekeeping/honey industry or agriculture as a whole, but I see great opportunities ahead for the future provided that we continue to work together as an industry. Even though I am NHB Chairman, the thoughts presented here are solely my own and not necessarily those of the National Honey Board.

I believe that one must be an optimist to remain in the beekeeping business today, and a vision of the future is necessary in order to fuel this optimism. What is your view of the future? Do you envision yourself remaining in the beekeeping/honey business in five years? Ten years? Will the honey market be any different five or 10 years from now than it is today? Will honey be increasingly used as a health aid and/or medicine in addition to being a gourmet food ingredient? I believe the honey market can improve and expand into these areas and even further, if we as an industry continue to work toward those ends.

There are many people in the industry who believe that it is necessary to protect and promote our product and industry through the activities of the National Honey Board. Some believe that the industry would be better off without such a research and promotion program. Others think the work of the National Honey Board is good for the industry but they don't want to pay for it. Unfortunately, the truth of the matter is that there is no "free ride." We will have the opportunity to vote in a referendum during February 2002. This vote will determine whether the National Honey Board will continue to work for the betterment of the industry. There are a number of issues we must seriously consider before casting our ballots in February, and I will begin to address some of them here.

As a business person, it is wise to step back and assess the goals and priorities of one's own business on a regular basis. It is prudent for the industry to reassess its goals and priorities as well. Let's back up a few months and take a look at the areas industry leaders decided were the major priorities of the honey industry during the first of two roundtable meetings sponsored by

MAILBOX

the National Honey Board.

PROTECT THE WHOLESOME IMAGE OF HONEY If the image of honey were tarnished it could be disastrous to the entire industry and it might take years to recover from a "health scare" type of incident. Apple, berry, melon, and cranberry growers can attest to that. The NHB Readiness Plan (formerly called "crisis management") has been activated on numerous occasions over the past several years in order to help assure that the pure, wholesome image of honey is maintained.

PROMOTION OF VARIETAL/REGIONAL/U.S. HONEY The National Honey Board continues to fund research and educate consumers about the different varieties available in the U.S. with over 300 varieties produced in the U.S. alone, there are great opportunities for sales of varietal honey throughout the country and abroad. The National Honey Board's "Honey Locator" service on the web (www.honeylocator.com) provides consumers with information about many honey varieties including the honey supplier. It also allows honey producers to get the word out to a large audience that they have honey for sale. If you have honey to sell and have not yet listed your business on the "Honey Locator," you may either call the NHB office or download a listing request form at www.nhb.org.

ADULTERATION Industry leaders have indicated a great deal of concern remains that honey adulteration may be a serious problem. The National Honey Board continues to fund research aimed at finding new and better methods of detecting adulterated honey.

PRICE CANNIBALISM Price cannibalism occurs when someone obtains new customers by undercutting the existing supplier's price. The effect can be a rapid downward spiraling of the price of honey. This is a major reason that honey prices dropped precipitously from the record 1996-97 levels.

INDUSTRY COMMUNICATIONS

The roundtable group realized that many industry problems are exacerbated by a lack of communication, and the group felt that the roundtable was an excellent forum for communicating concerns among all industry segments. The NHB continues to be a means of industry communication through the newsletter, web site, and other avenues.

HONEY BLENDS/MARKET INNOVATION The National Honey Board has always endeavored to find new uses for honey in the marketplace. Much NHB research has focused on increasing honey use as an ingredient in a myriad of manufactured foods. Since mid-1997 however, the emphasis has been expanded to include examination of traditional and potential new uses of honey for health. NHB research conducted in recent years has discovered properties and/or compounds in honey that aid in digestion, muscle recuperation after workouts, increased athletic endurance, and much more. Honey's traditional role as a medicine is being re-evaluated and there is a great deal of optimism that new medicinal markets will be developed, especially for varieties of honey that exhibit high anti-microbial qualities. The National Honey Board is currently examining a number of U.S. honey varieties for anti-microbial, anti-oxidant, and other properties.

It is obvious that the NHB is addressing these priority issues in a substantive manner (except for price cannibalism, where it is prohibited from doing so). While the NHB cannot be involved in sales or pricing, it strives to add value to honey by finding new uses and functional properties. My optimism for the future is bolstered by the fact that the National Honey Board has such a dedicated, professional staff working on these issues for the betterment of our industry.

I will explore possible alternatives or improvements to the National Honey Board in the next issue. In the meantime consider the following questions:

Should we expect that the honey market will "take care of itself" and that we will always be able to sell our honey, or is research and promotion a necessary part of our future?

Is product differentiation (i.e. varietal research and consumer education) a good idea or should honey merely be bought and sold as a commodity?

Is a producer-dominated board like the NHB necessary to guide U.S. honey producers to a more prosperous future?

I will discuss these and other pertinent issues next time.

Gene Brandi

Los Banos, CA

Beekeeper and Chairman NHB

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INNER COVER

This past August I was at the Western Apicultural Society meeting in Corvallis, OR, listening to Dr. Eric Mussen talk about drug resistance in American foulbrood. His presentation was eye-opening for many, and I summarize it here because he had much to offer.

Drug resistance is the natural or acquired ability of an organism to maintain its immunity to or to resist the

effects of an antagonistic agent, e.g. a drug (Physicians' Desk Reference).

There are over a million bacterial cells in one foulbrood-infected larva. These cells can and do share extrachromosomal "plasmids" for resistance. This is called "conjugation" and genes are transported through "pili" or small hairs.

Selection for drug resistance is actually eliminating all of the susceptible population. In this case, the drug currently in use is oxytetracycline hydrochloride, with the trade name Terramycin®. We have used only this single drug for decades, following the loss of sodium sulfathiazole. Using a single drug can and often does hasten selection for resistance.

There are two critical components for selecting for resistance. First, the success of the antibiotic in eliminating susceptible bacteria. *The more potent the antibiotic, the higher the selective pressure.* Second, *the longer the exposure continues the quicker selections occurs.*

For decades Terramycin has been used routinely in powdered sugar. Each treatment (three are required) consisted of 200 mg of active antibiotic per colony. Usually, the powder, and the drug are totally consumed in a few days by nurse bees if the powder is placed on the top bars of the frames near the youngest brood. Using this technique no residues of Terramycin could be found in adult bees, royal jelly, or larvae after 30 days. This was a "quick in, quick gone" treatment and resistance developed very slowly to the antibiotic. Either the bees ate it and used it, or the powder became moistened, caked and was no longer active. The half life of moistened Terramycin is only 26 hours at brood nest temperatures.

However, with the development of the "extender patty" beekeepers were given a tool that allowed the extension of the active life of Terramycin in the hive. Adding vegetable shortening prevented the Terramycin from becoming moistened, and eliminated the need to make three visits to a colony to administer the drug. Control was excellent, as reported by beekeepers. Had beekeepers used 600 mg (3 x 200 mg), that would have been totally consumed in 30 days, the end result would have been the same as with powder.

Enter tracheal mites. As many as 50% of U.S. colonies died when these mites came to the U.S. in the mid-80s. "Grease patties" were found to keep tracheal mite populations subdued if the patty was present, and in contact with the cluster, year 'round. Grease patties are simply extender patties (3 parts sugar:1 part vegetable shortening) without the antibiotic. Many beekeepers routinely used extender patties (with antibiotic), instead of just grease patties, to keep tracheal mite and AFB levels subdued. In a number of cases

this led to year 'round exposure of the bees, and any AFB present, to the antibiotic. Uncontrollable AFB became routine. Recall the statement above - eliminate the susceptible population, and prolonged exposure both lead to the development of resistance. Using extender patties year 'round did both, very well as a matter of fact.

Future Control? Lines of bees resistant to AFB, using hygienic behavior really helps, but it is not the best that can be found, at least so far. Breeders can't use AFB infected colonies to test this behavior on, therefore any tests are not against real-world situations.

New antibiotics will be registered for AFB control however. Tests have shown that the absolutely most potent antibiotic against *Paenibacillus larvae* is rifampin, but this drug is reserved for human tuberculosis control. Other studies have shown the efficacy of tylosin, and similar studies with lincomycin show excellent results in controlling AFB. Both are in the registration process.

If either, or both of these drugs are registered, they must be used intelligently. Using them in a "dust" is the best way to go. Using these drugs in extender patties should be extremely limited, kept to the same regimen as when using powdered sugar. Using these in syrup should be discouraged, since tylosin and lincomycin persist in syrup, like "sulfa" This means that honey contamination would most likely occur, and resistance, because of prolonged exposure, will again occur.

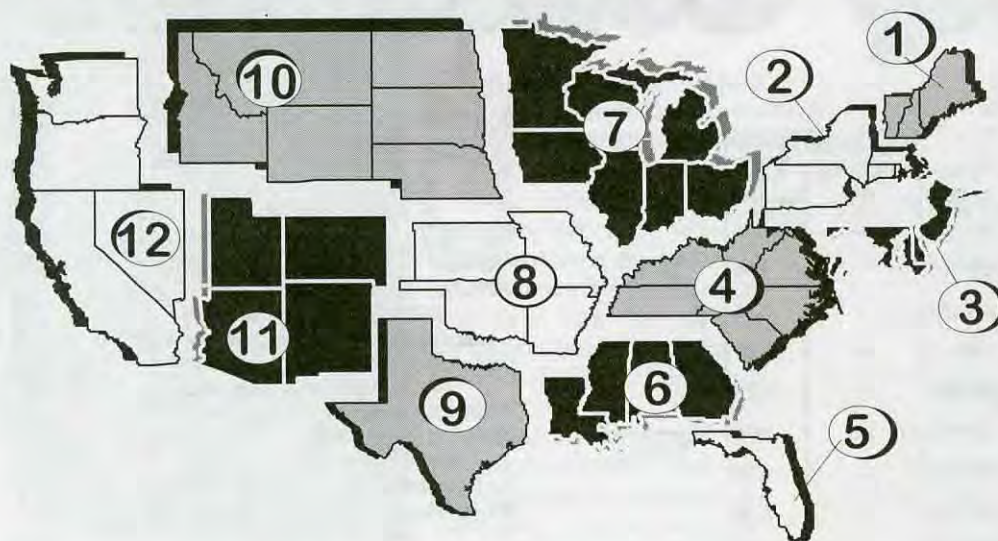
Parting words from Dr. Mussen... Dose is less important than time of exposure when considering resistance. Remove patties after 30 days, no matter what. If grease patties are important, use oil and sugar only. Remove any extender patties after 30 days, especially this winter, and next year. (Comments taken from a talk given by Dr. Eric Mussen, WAS meeting, Corvallis OR, 2001).

The dose/exposure/contamination scenario above is exactly the same thing

Continued on Page 38

Resisting Resistance; Doin' TV

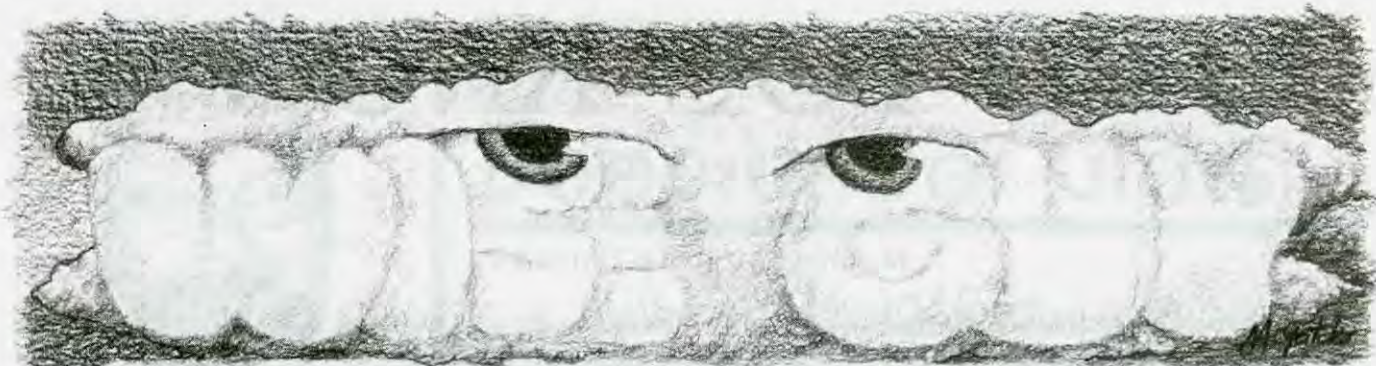
OCTOBER - REGIONAL HONEY PRICE REPORT



Reporters this month and a year ago this month, were surveyed to determine the extent of problems caused by several factors. They gave a value of 1(one) for extremely problematic, to 12 (twelve) for no problem at all. We averaged the values for each region, and for all regions for all problems. The lower the number, the greater the problem, in the region and overall. We also measured demand for honey - 1 being strong demand, 3 being no demand. These averages are listed in the far right column. Note changes within regions, and the change in some problems across all regions.

Region	Tracheal Mites		Varroa		AFB		Res. AFB		EFB		Chalkbrood		Skunks		Bear		Prices		Demand	
	'00	'01	'00	'01	'00	'01	'00	'01	'00	'01	'00	'01	'00	'01	'00	'01	'00	'01	'00	'01
1	6	6.2	1	10	12	10	12	5.5	12	11	9	10	12	10	8	8	12	6	1	2
2	7	6	5.2	2.7	6.7	8.8	11.3	9.5	10.2	11	6.2	7.8	6.7	6.8	7.5	8	5	8.8	2	1.8
3	10	5.5	11	5	6.5	12	12	7	5.5	6.5	5	8.5	1	8.5	12	7.5	5.5	7.5	2	1.5
4	6.1	7.4	4.3	3.8	7.9	6.8	11.1	11.7	9	11.6	8.4	10.8	7.1	9	11.8	10.6	5.7	7.2	1.7	2
5	8	3.5	2	3.3	9	7	12	3	12	8	12	7.5	12	12	12	12	2.5	2.3	3	2
6	9.7	6.5	6.3	3.8	9.3	8.7	11.3	10.3	10.7	11	10	11	12	12	12	12	4	4	1.7	1.8
7	6.5	6.9	4.9	4.9	8.3	7.4	8.9	8.5	9.1	9.8	7.8	9.1	8.1	9	10.1	11.7	4.6	5.1	2	1.9
8	7.3	8.8	4.9	7	8.3	11	10.3	12	10.3	12	6.7	10	9	12	12	12	4	7.3	2.3	1.8
9	10.2	10.1	7.4	4	9	9	9.6	9.9	10.8	11.8	10.6	9.8	11.4	10.9	12	12	6.6	6.1	1.2	1.8
10	6	7.3	5	4	8	9.7	12	9.7	12	11	8.5	7.3	4	8.7	12	12	3	6.3	2.5	2
11	8.7	6.7	3.7	4	7	8.3	11.7	11.5	10.3	11.7	9.7	9	9.7	8.7	8.3	8	8.3	7.3	2	2
12	5	7.5	3	4.3	6.3	6.5	10	10.8	10.7	11.8	9.7	8.5	9.7	9.5	9.7	12	4.7	4	1.7	2.5
Overall	7.4	6.9	5	4.7	8.1	8.8	10.6	9.1	9.9	10.6	8.4	9.1	8.3	9.8	10.4	10.5	5.1	6	1.9	1.9

Reporting Regions														History		
	1	2	3	4	5	6	7	8	9	10	11	12	Summary		Last	Last
													Range	Avg.	Month	Yr.
Extracted honey sold bulk to Packers or Processors																
Wholesale Bulk																
60# Light (retail)	68.98	68.75	63.00	72.00	75.00	68.33	62.89	60.33	76.67	60.00	83.33	66.50	40.00-100.00	68.26	67.49	69.00
60# Amber (retail)	67.60	65.69	59.00	71.33	64.50	67.00	63.57	60.00	70.00	62.00	78.33	52.50	39.00-100.00	64.32	66.86	65.45
55 gal. Light	0.68	0.73	0.75	0.74	0.60	0.74	0.66	0.75	0.65	0.70	0.77	0.79	0.45-1.50	0.65	0.65	0.66
55 gal. Amber	0.62	0.70	0.68	0.73	0.55	0.64	0.62	0.68	0.61	0.68	0.64	0.74	0.40-1.50	0.60	0.65	0.64
Wholesale - Case Lots																
1/2# 24's	28.50	28.65	31.59	31.81	31.59	25.83	27.98	31.59	29.95	31.59	25.00	34.70	12.24-42.00	29.19	30.16	28.95
1# 24's	42.33	39.39	48.00	45.09	48.00	44.50	40.40	42.80	44.39	42.00	48.00	49.20	32.40-60.00	43.34	43.85	42.93
2# 12's	38.09	38.34	46.80	42.27	46.00	36.30	37.01	41.00	39.70	31.80	44.00	40.33	29.40-52.58	39.34	39.02	39.69
12 oz. Plas. 24's	35.45	34.22	45.60	35.18	30.00	38.93	34.28	36.00	37.28	35.40	40.00	38.27	26.40-48.00	36.93	36.07	36.22
5# 6's	41.03	40.41	57.00	45.65	44.86	42.00	39.23	39.00	43.80	37.50	42.00	36.00	31.50-67.50	42.37	42.87	42.23
Retail Honey Prices																
1/2#	1.82	1.65	2.83	2.17	1.19	1.55	1.63	1.66	1.73	1.49	3.50	1.74	0.95-3.00	1.76	1.81	1.71
12 oz. Plastic	2.35	2.40	2.90	2.51	2.50	2.30	1.96	2.23	2.52	2.18	3.50	2.09	1.39-2.99	2.23	2.39	2.19
1 lb. Glass	3.05	2.58	3.00	3.42	2.88	3.01	2.39	2.78	3.19	2.52	3.73	2.97	1.58-4.00	2.68	2.76	2.75
2 lb. Glass	4.55	4.29	4.80	5.88	4.17	4.67	4.09	4.76	4.98	3.91	4.62	4.57	3.19-6.00	4.41	4.54	4.58
3 lb. Glass	6.36	6.47	7.80	7.17	6.50	7.40	5.57	6.50	7.15	5.19	5.63	6.02	3.99-10.00	6.26	6.09	6.13
4 lb. Glass	7.70	6.73	8.71	9.34	10.00	7.03	7.67	7.98	7.35	8.71	8.71	8.20	6.00-10.00	7.90	7.74	7.25
5 lb. Glass	9.44	9.45	11.00	10.60	10.77	8.00	8.91	10.96	9.00	7.90	11.45	8.32	2.50-12.50	8.66	9.47	9.45
1# Cream	3.46	3.84	4.25	3.77	4.25	3.60	2.77	3.05	4.25	3.04	4.53	3.06	2.13-5.50	3.27	3.15	3.16
1# Comb	4.50	4.04	3.60	4.59	5.18	4.10	4.24	4.18	5.18	5.18	5.83	4.50	1.95-6.00	4.22	4.29	4.31
Round Plastic	3.68	3.11	3.60	4.00	3.92	3.75	3.60	3.74	4.99	3.92	5.00	3.85	2.50-5.00	3.79	3.67	3.71
Wax (Light)	2.47	2.58	2.30	2.91	2.09	2.18	1.92	1.95	2.28	2.09	2.18	2.25	1.05-5.00	2.47	2.05	2.22
Wax (Dark)	2.29	1.96	2.08	2.37	1.77	2.00	1.88	1.00	2.00	1.77	1.63	2.13	0.95-4.50	2.18	1.14	1.93
Poll. Fee/Col.	37.72	40.50	35.00	38.20	35.00	37.33	40.25	40.00	29.33	37.96	50.00	39.33	20.00-55.00	36.87	38.48	38.50



Where do we go from here? The honey industry is getting some price relief at the producer level thanks to anti-dumping activity and the people marketing honey should be taking their increases also. If honey marketers believe their own message now would be the time to get rid of the poorer non-domestic grade of honey they are blending with our honey and "Protect the wholesome image of honey."

How can we protect that image? How can we keep good quality U.S. honey on the shelves and in industrial uses? One way is the following. Let's compromise or let's trade. Trade what you ask? Let's trade our position in the Farm Bill (or our lack of position) and tell the House and Senate we won't be back if you pass a law that prohibits the blending of honey from one country with honey from another. Also, the country of origin must be printed as large as the word honey on the front label. Nor can honey be blended and sent to this country in that fashion either.

How can this be done? I can't give you the answer now, but we could find it with 1¢ per pound provided by honey producers and honey packers. If we took some of the money now given to the Honey Board and turned it into true research of our product and then the rest for enforcement to punish the violators it would stabilize our market. If there were punishment that involved time in prison or a percentage of your gross sales (such as 40%) to go to the new honey enforcement agency, then there would be a reason to do this whole thing right.

If this industry wants to survive it needs stable prices and I don't mean at the 45¢ level. We need stable prices today of 75¢ per pound and we need to see annual upward adjustments.

I believe that money spent on this type of "promotion" would have a direct link to the whole industry starting to make money. Please don't confuse this idea with the quality assurance referendum that failed with the National Honey Board. This program would be well defined, plus it would bring a product to the public that they expect and want. Also, this program would return money to all aspects of our business to include the marketer and the producer. Plus it would not rule out importers if they had products to sell. Without a doubt it would create more demand for certain honeys and the return to the producer would be greater.

Why do packers blend honey? To make a superior product average by adding an inferior product in order to make the maximum profit, that's why. The industry including the National Honey Board, has done a poor job of promoting honey. A smart marketer sells the distinct produce he has, such as blueberry honey or clover honey or sunflower honey to the industrial user and in the package it would appear as *Clover Honey Cheerios* and not just honey. The name is sold, not the product. We have allowed the public to be deceived into believing that honey is honey is honey. We know it is not.

If we want stable honey prices we cannot allow blending of honey to take place. If we had stable prices the largest impact would be expansion by domestic producers. There are 2,000,000 or so hives of bees in the United States. Of these about 1,600,000 are used for honey production, the rest for pollination, queens and so on. We produce about 200,000,000 pounds of honey per year. If you apply the 80-20 rule, then 80% of that 200,000,000 pounds is produced by 20% of the beekeepers. That 20% is committed to the industry and if you show them

an opportunity for a profit in their business you will see expansion. If that expansion was even 5% per year, for 10 years of only the top 20%, in the 10th year we would have 2,482,125 hives producing 310,000,000 pounds of honey – from only the top 20%. If everyone in the industry got into the act it appears that the hive count would be increased by another 650,000 to 700,000 hives and the honey production would increase by 40,000,000 to 50,000,000 pounds. If all this came true we would be looking at a 350,000,000 to 400,000,000 pound domestic crop.

Is this idea better than a government program that gets renewed (or not) every so often? You need to decide that for yourself but if we had a 25-year window to develop our business and expand our business the total honey industry would flourish. Not only would the honey industry grow we would get more chances for pollination as we could and would have more bees available for that use. The queen and package producers would expand right along with the honey producer and see greater profits. And there would be new honey packers and marketers appearing because with growth comes new ideas, new players, and some will enter at the lowest level and take the product all the way to the buyer.

What do we do? If history tells us anything we don't continue to do what we are currently doing because we are failing as an industry. If you want to continue to plug along as we are, be prepared for a future of uncertainty. Let's change.

Wise Guy

? DO YOU KNOW ?

Raising Queens

Clarence Collison

Mississippi State University

At the recent EAS beekeeping short course there was a great deal of discussion concerning the quality of queens that were available last Spring. Northern beekeepers were extremely unhappy with their lack of success in installing these queens from the south and having them build up rapidly into strong productive colonies. A few of the queens failed to lay eggs and super-

cedure rates were extremely high. Many factors affect the quality of queens and it was an extremely cold spring in the south this year which undoubtedly had some impact on queen rearing.

Please take a few minutes and answer the following questions to determine how familiar you are with factors that affect queen quality.

The first thirteen questions are true and false. Place a T in front of the statement if entirely true and a F if any part of the statement is incorrect.

1. ___ Queen cells should be handled with great care at all times.
2. ___ When larvae between 3 and 4 days old are transferred from worker to queen cells, adults produced have characteristics intermediate between those of queens and workers.
3. ___ Queens take annual mating flights to replenish their sperm supply.
4. ___ When a mated, laying queen is removed from a mating nuc and placed in a queen mailing cage, she will continue to lay eggs for a period of time.
5. ___ Young bees raise better queens than old bees.
6. ___ Cell builder colonies can be either queenless or queenright.
7. ___ Queens are sexually mature when they emerge from the queen cell.
8. ___ Honey bee queens are unable to feed themselves.
9. ___ If you dequeen a colony and let the bees raise their own queen from the brood present, they will normally select the youngest larvae present.
10. ___ Starter hives or swarm boxes that receive newly grafted queen cells may be either open or closed (allowing or not allowing flight).
11. ___ Both queens and drones mate more than once while they are on a mating flight.
12. ___ Queen honey bees are usually sold as young mated adults that have been laying eggs for a few days.
13. ___ Egg development within the ovary occurs within tubes called ovarioles and each egg takes approximately seven days to mature before being laid.

(Multiple Choice Questions, One Point Each)

14. ___ Developing queens are in the larval period for approximately 5.5 days. The larvae receive royal jelly for ___ days.

- A. 3.0
- B. 4.5
- C. 6.0
- D. 5.5
- E. 4.0

15. ___ Which of the following characteristics would you use to best judge the quality of the queen?
 - A. Amount and pattern of brood
 - B. Size
 - C. Color
 - D. Nervousness on the comb when the colony is open
 - E. Temperament of the colony
16. Name two materials that queen cell cups are made from. (2 points)
17. Name two reasons for priming a cell cup prior to grafting into it. (2 points)
18. Describe the ideal conditions of a starter hive that receives newly grafted queen cells. (3 points)
19. In a queen breeder hive, explain why the breeder queen is confined to a single comb each day. (1 point)
20. What is the procedure and advantage of producing double-grafted queens? (2 points)

ANSWERS ON PAGE 46

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Mark Winston



Bees Under Glass

“By the early 1990s rearing methods finally had been developed, and a few companies began producing bumble bee colonies for sale.”

I have been fortunate to see bees under all kinds of conditions, orchid bees foraging in the dense tropical jungles of South America, bumble bees flying during snow storms in high alpine regions, and honey bees reluctantly nibbling at kiwifruit blooms in New Zealand. Recently, however, I've become familiar with a particularly unexpected habitat for bees to forage in, greenhouses where acres of tomatoes are being pollinated by managed bumble bee colonies.

Tomato pollination by bees is unusual in itself, because tomatoes are self-pollinating and each flower is perfectly satisfied to use its own pollen to set fruit without the help of bees. However, tomatoes are one of the self-pollinating plants where the marketable qualities of its fruit are enhanced by bee pollination. Tomatoes have hundreds of seeds, and fruit size, symmetry, and commercial grade improve with each seed that is fertilized. Tomatoes also thrive under hothouse conditions, with a warm artificial climate and carefully managed water and nutrient regimes.

Greenhouse growers discovered early on that tomato quality could be improved by pollination, and hired employees with hand-held vibrators to individually buzz each flower. The labor required to accomplish this task every day was formidable, with thousands of flowers needing to be hand pollinated in the 10-20 acre greenhouses that have come to

characterize this high-value industry.

Laborers filled the houses each day, travelling up and down the rows on electric carts to do a job that bees had spent millions of years evolving to accomplish with consummate skill. Even at minimum wage the cost for this pollination service became a significant component of a grower's expenses.

Bees weren't used because honey bees had a reputation for not working well under glass, no one had succeeded in rearing bumble bee colonies commercially to provide a sufficient supply, and other managed bees like leaf cutter bees and orchard mason bees were only available for short intervals during the year. Nevertheless, the possibility of using bumble bees was attractive, since they vibrate blossoms to dislodge pollen and this buzz pollination is perfectly suited to the morphology of tomato flowers. Bumble bees seemed to have excellent potential to take over from manual vibrators if the rearing problems could be solved.

By the early 1990's rearing methods finally had been developed, and a few companies began producing bumble bee colonies for sale. The price initially was high, up to \$600 U.S. per colony, but today has dropped to about \$130. Greenhouse growers world-wide have switched almost completely to bumble bees, using two to four colonies per acre, with a colony lasting for 8-12 weeks.

The cost for this pollination service is still considerable but has turned out to be cheaper than hir-

ing humans. Further, the bees do a better job, consistently producing larger, higher-grade fruit than two-legged pollinators with vibrating wands can induce. The lower cost and higher fruit quality resulting from bumble bee pollination has been a significant factor in the explosive growth experienced by the tomato greenhouse industry in the last decade.

And it went well until the late 1990's, with growers in eastern North America purchasing colonies of the eastern bumble bee species *Bombus impatiens* and those in the west using the western species *Bombus occidentalis*. *Impatiens* was easier to rear and many western growers would have preferred that species, but regulatory authorities in both Canada and the United States would not allow the eastern bees to be shipped west, where they were not naturally present.

Then disaster struck, the kind of catastrophe honey bee keepers are familiar with, colony collapse due to unknown causes. In this case it was only *occidentalis* that was affected, with colonies in the rearing facilities dwindling and dying to the point where the supply to western tomato growers was disrupted.

The reasons for the rearing failure may never be known with certainty. Some blame it on a nosema problem similar to the disease that afflicts honey bees, others have attributed the crash to a too-narrow base of genetic stock and nutritional deficiencies, or all of these factors may have been operating. Whatever the reasons, the greenhouse indus-

Continued on Next Page

“The gentle buzz of bees flying within this man-made environment provides an important reminder that however remarkable our human ingenuity has been in developing sophisticated agriculture, we remain dependent on the survival and health of the organisms we cultivate.”

try in western Canada and the United States, as well as in Mexico, was struck with turmoil and importation politics. The posturing and lobbying were reminiscent of the days when tracheal and varroa mites arrived in the United States, and Canada subsequently instituted quarantines and eventually closed the border to honey bees from elsewhere in North America.

The issue was not supply, since the bumble bee rearers were capable of providing sufficient *Bombus impatiens* colonies to service the entire North American industry. Rather, the concern for the government regulators was that *impatiens* might escape if shipped to the west, become established and possibly displace local bumble bee species, including *occidentalis* and a few dozen other species native to western North America. The dilemma was sharp and clear: risk the possible establishment of a non-native species of bumble bees, with unknown consequences, or force greenhouse growers to return to the unprofitable method of hand vibrator pollination.

The rhetoric was vivid but given the economic importance of the greenhouse industry the conclusion inevitable. Temporary permits were issued to allow *impatiens* to be shipped west, and although *occidentalis* rearing facilities have recovered *impatiens* remains available to western growers. *Impatiens* may or may not ever become established in the wild, but for issues where unknown ecological consequences are weighed against known and computable economic damage, the commercial interests almost always will carry the day.

I was struck with a number of questions that arose from this situation. The first was that the tomato

greenhouse industry in my province of British Columbia is a \$200 million industry, and yet their success was dependent on only one species of insect, *Bombus occidentalis*. To reduce the industry's vulnerability to future disruptions in pollinator supply, we initiated a large greenhouse pollination project in collaboration with the B.C. Hot House Growers Association. The objective was to investigate alternative pollinators and develop methods to enhance the effectiveness of the bumble bee pollinators they already were using.

In this case alternative means honey bees, and to our surprise we discovered that there was relatively little published research on greenhouse tomato pollination with honey bees. We have been pursuing this project for two years now, and have developed some confidence that honey bees could supplement or replace bumble bees during winter months if a similar emergency develops again.

Bumble bees remain the better pollinator bee for bee because honey bees do not buzz flowers and thus are not as effective individually as bumble bees. Also, honey bees are problematic during the summer because they prefer to leave the greenhouses and forage outside, where there are better nectar sources. Nevertheless, honey bees can provide a reasonable pollination service for at least part of the year if bumble bees become unavailable.

I also was struck with the lack of management applied to bumble bee colonies once they arrive in greenhouses. Our studies so far have indicated that many colonies barely maintain their adult populations during the two-three months they are in greenhouses, workers drift frequently between colonies, a

significant number of workers forage outside similar to honey bees, and virtually all colonies are infected with nosema, although it is not yet clear whether this has any impact on colony growth or pollination efficacy. We are working with growers to develop better management systems so that they can get full work value from the colonies they purchase.

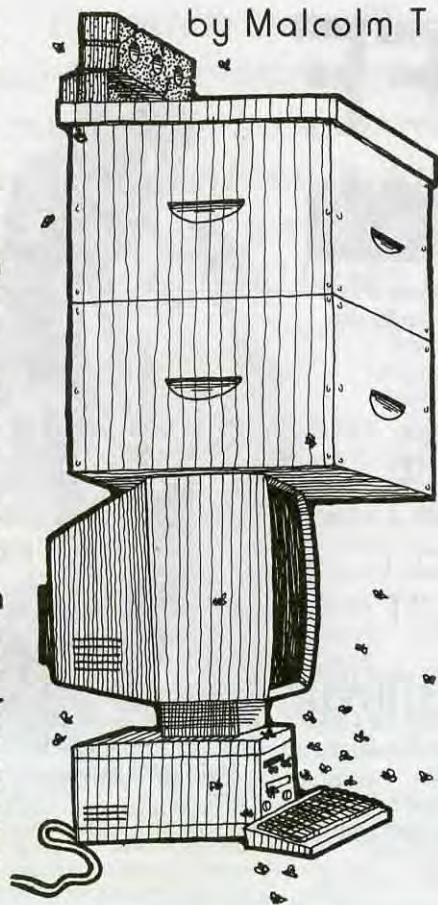
A third issue that has disturbed me is our inability to advise government regulators or growers of the consequences if *impatiens* escapes and establishes western populations. We know little about the distribution and abundance of local bumble bee species, and even less about the climatic, nutritional, parasite, disease, and competitive factors that determine fluctuations in bumble bee diversity and abundance. The tomato greenhouse pollination crisis highlighted the importance of old-fashioned, field-focussed natural history research in our current era of grind-it-up, laboratory-centered molecular biology. We still need to know what is occurring with natural populations, since even contained farming under glass can have significant impact on wild organisms outside of greenhouses.

The opportunity to work in the artificial ecosystem created in hot houses has been illuminating. The gentle buzz of bees flying within this man-made environment provides an important reminder that however remarkable our human ingenuity has been in developing sophisticated agriculture, we remain dependent on the survival and health of the organisms we cultivate.

Commercial pollination is a partnership between humans, bees, and plants. It is to our own peril to forget that even high-technology agriculture depends fundamentally on fuzzy flying insects that provide the essential link between man and fruit. **EC**

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

by Malcolm T Sanford



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Another resource is a **newsletter**. The latest edition describes a short course given with an Integrated Pest Management focus for the northeastern region. **Back editions** are also linked to the site. There is also a link to Dr. Scott Camazine's program at Pennsylvania State University described on his **Web site**, which is complementary to the MAAREC program and **links** to publications found there. Dr. Camazine has provided **slide presentations** of several talks given since 1996, including an especially noteworthy account of how **tracheal mites** are thought to affect honey bee colonies.

General information about IPM is found in a dizzying array of resources on the World Wide Web. Perhaps the most complete compilation is the **Iowa State University IPM Index**. This is an alphabetical listing. It begins with AgNIC (Agriculture Network Information Center) a guide to quality agricultural information on the Internet as selected by the National Agricultural Library, Land-Grant Universities, and other institutions. Searching this site for "Integrated Pest Management" reveals abstracts of nineteen sites. Perhaps most significant is **Radcliffes IPM World Text Book** at the University of Minnesota. This electronic textbook of Integrated Pest Management (IPM) features contributed chapters by internationally recognized experts. The project is co-sponsored by the **Consortium for International Crop Protection (CICP)**. Radcliffes Text Book also points to **other sites** on the Web of interest. The final entry at the Iowa State index is for X, a site that concentrates on **Xyella fastidiosa**, a bacterium causing a lethal disease of grapevine, spread by certain kinds of leafhoppers known as sharpshooters.

Beyond compilations of sites and documents like the Radcliffe's book specific resources for individual organisms such as the Xyella site are also abundant. For apiculture, probably the most apparent sites continue to be those providing information on Varroa mites. I wrote about the **Varroa hub Web site** in **March 1999**. Since then it has been redesigned. Links are now arranged in sections including mite biology, treatments, secondary pathogens, mite tolerance-resistant research and articles. Significant contributions include **Coordination in Europe of research on integrated control of Varroa mites in honey bee colonies**, a publication of the Commission of the European Communities and Jack Griffes' **Honey Bee Improvement Program** that takes up Brother Adam's challenge: "Breeding a Varroa mite resistant strain of honeybee."

The latter is a case study in bee breeding that started in early 1993, one that appears to be similar to one described at the 2001 Eastern Apicultural Society (see article elsewhere in this issue) developed by **Dr. Medhat Nasr**, now at Rutgers University. According to

Integrated pest management or IPM is defined in many ways. Some definitions are described in an article found elsewhere in this month's *Bee Culture* describing a symposium on the subject at the Eastern Apicultural Society (EAS) meeting at Cape Cod, Massachusetts. In that article, Maryann Frazier's description of the **MAAREC Web site** is found. This electronic information site on the World Wide Web is perfectly positioned for delivering IPM information about beekeeping.

Another treatment of this electronic resource was published here in **December 1999**. At that time, the IPM aspects of the site were not emphasized, although the resources available that are important to this technology were documented. There have been several changes to the site since. A printed resource, *Honey Bee Parasites* is now available for \$9.00. "This handy guide identifies and describes treatments for most of the problems commonly encountered by honey bee keepers. Featuring over 100 full-color photographs, it includes sections on *Varroa* and tracheal mites, hive beetles, bee lice, bears, and skunks, as well as diseases such as American and European foulbrood, Nosema, and others. Also included are lists of apiary inspectors and chemical treatment products. Spiral bound and printed on durable 4-by-8 stock, this 88-page reference will prove indispensable in the field. Code Number: AGRS-78. Cost: \$9.00. To order please print and fill out an **order form** and mail it to the Publications Distribution Center, The Pennsylvania State University, 112 Agricultural Administration Building,

Mr. Griffes, "Our bee breeding goal is honeybee stock which has under 20% annual loss rate (all causes) while being totally untreated for either of the very troublesome parasitic bee mites, known commonly as the Varroa mite and the Tracheal mite. We started with a stock base that had apparent Tracheal mite resistance. We are currently simultaneously selecting for Varroa mite resistance, high honey production, superior over wintering, and disease resistance. We can see definite improvement. We also fully realize that the high level of genetic resistance we want is probably going to require another 10-20 (or more) years of hard work, with God's help along the way. We are always looking for dedicated beekeepers that both believe genetic resistance is the long term solution to our mite troubles AND are willing to work at developing genetically resistant stock. If you are one of the few that will not only accept but thrive on such a difficult challenge then hop on as a HIP Cooperator. We hope you do."

Even within categories, there may be electronic resources dedicated to more narrow subjects. An example is Dr. Zachary Wang's **mite zapper** reported elsewhere in this issue with reference to the Eastern Apicultural Society (EAS) meeting. As described at this site, "Dr. Huang's Mitezapper is composed of electrical resistance elements implanted in the drone combs. Beekeepers simply need to hook up the two electrical terminals located outside the hive to a 12 volt battery for 2-3 minutes. The electrical resistant elements in the comb heat and kill both the mites and the drone pupae. It is even possible to regulate the temperature to kill mites only and not to harm the drone larvae, if drone production is desired. A patent application has been filed by Michigan State University."

Web sites specifically targeting other specific diseases and pests of honey bees are not yet available, but maybe soon. Possible candidates include, the foulbroods, wax moth and small hive beetle, although descriptions of these are found tucked into other web sites, most notably the **MAAREC** site described above and the **ARS Bee Laboratory** in Beltsville, MD.

Examples of other targeted sites include **tree fruit** IPM in the west at Washington State University, **Veg-Edge** (vegetables in the Midwest), Canadian **stored product** insects and others. Most of these are academic sites sponsored by Universities and other institutions of higher learning. However, the burgeoning IPM interest is also inspiring private enterprise. Thus, **Insect Investigations Limited** specializes in product development and testing; perhaps this firm will be interested in Dr. Huang's mite zapper? The company has tested electronic fly and mosquito traps among **others**. It is not strictly private, being also partly owned by Cardiff University.

IPM Consultants are also hanging out their virtual shingles. An example is Conrad Bérubé of **Crop Island Management**, which employs the following traditional steps in IPM according to his Web site:

Monitoring: The key to IPM is frequent and regular monitoring (sampling) of the subject crop and its potential pests – and an intimate knowledge of the life-cycle of those the pest species most likely to threaten your crops.


Decision-making: Control measures are warranted

only when pest numbers are found to be greater than the economic injury level – the "break even" point at which losses incurred by pest damage is equal to the cost of applying a control method. Island Crop Management consultants are experienced in the principles and practices of IPM including the various thresholds determined for agriculture in B.C.

Action: Island Crop Management personnel can assist you by recommending control measures, when they are required. Through the regular monitoring service we provide, control measures can be applied as soon as a problem is detected and when the pest is in its most vulnerable life-stage.

Evaluation : Island Crop Management consultants re-examine your crops after control methods are completed to ensure that the control was effective."

IPM is not just an agricultural technology. There's plenty of opportunity to use it in urban entomological applications. A most interesting site is one focusing on **IPM in schools**. Besides the usual definitions, the site has information for administrators and parents about how to get IPM implemented in their schools.

To conclude, the World Wide Web is the perfect medium for IPM. It provides information in all the phases of the technology from pest identification to monitoring populations to treatment so that appropriate decision-making can take place. Not only is it more comprehensive, but this electronic technology is also more flexible, an extremely important component of IPM, which as Dr. Dewey Caron said in his presentation on the subject at the Eastern Apicultural Society (EAS), does "not come in a bottle" and must be continually monitored and re-evaluated. 

Dr. Sanford is retired Extension Specialist in Apiculture, University of Florida. He publishes the APIS Newsletter: <http://www.ifas.ufl.edu/~mts/apishtm/apis.htm>



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IPM



EAS

Malcolm T Sanford

Some six hundred beekeepers of every description attended the Eastern Apicultural Society (EAS) in Cape Cod, Massachusetts at the Massachusetts Maritime Academy (MMA), hard by Buzzards Bay and the famous Cape Cod Canal. The meeting included the popular EAS short course and examination for Master Beekeeper, as well as the annual business meeting and various symposia and workshops. The latter were dedicated to the late Richard Bonney who recently died and sadly was unable to see his dream of EAS 2001 in New England come to fruition under the auspices of the beekeepers of Barnstable County. Dick was the author of several beekeeping publications, including *The Aware Beekeeper*. In one issue of that publication, Mr. Bonney quotes from Mark Twain, "One of the brightest gems in the New England weather is the dazzling uncertainty of it." This statement appeared to be eerily prescient as during the meeting the area sweltered in an abnormal heat wave with highs approaching 100 degrees F. It also seemed fitting to describe the subject of one of the most popular symposia at the conference, and arguably its theme, integrated pest management or IPM.

Uncertainty plays an important role in developing any integrated pest management (IPM) system. As the moderator of the symposium Dr. Dewey Caron of the University of Delaware put it, IPM does not come "packaged in a bottle." It is a technology that like the weather must continually be monitored for its inherent variations. IPM is really a decision-making process, which allows for pests to be handled in a more rational and smarter way, he concluded.

A fuller definition was provided by Dennis Van Englesdorp, Apiculture Extension Associate at Cornell University. "IPM is lowering pest populations while minimizing eco-

nomic, human health and environmental risk." It is not "anti-chemical," as these materials are also considered to be an important component of the technology. The "P" in IPM stands for a whole host of things, including pathogens, parasites, pests and predators, Mr. Van Englesdorp said. The technology is based on a flow chart that begins with identifying the problem organism (perhaps most important), followed by learning its life cycle (exploiting the weaknesses found therein), determining injury level (monitoring populations that are constantly changing), applying treatment when necessary and continuing to reevaluate its effectiveness.

"Uncertainty plays an important role in developing any integrated pest management (IPM) system."

Mr. Van Englesdorp concentrated on the first two IPM steps in honey bee maladies, identification and life cycle determination. He showed the group slides of various bee diseases, asking the audience to identify and provide a description of the life cycle of each. For example, translucent larvae showing distinct tracheae, were concluded to be affected by European foulbrood, a non-spore-forming bacterial disease that attacks young larvae, whereas calcareous pupal mummies were determined to be affected by a fungus, *Acosphaera apis*, which causes the disease known as chalkbrood and usually affects pupae.

Dr. Medhat Nasr, formerly employed by the Ontario Beekeepers Association, and now on the faculty at Rutgers University provided a discussion of what is probably the best-documented IPM program in North

America that actively involves beekeepers. Over ten years time, he has directed an effort that screened for tracheal-mite-resistant bees in Ontario, Canada. As a result, selected bees have an average of only one mite per bee, a level considered more than adequate because it is well under any population that is considered harmful to colonies. Such a low "threshold level" allows for infestation by tracheal mites, while at the same time not demanding chemical treatment, the goal of any IPM effort.

Another part of the program developed by Dr. Nasr includes screening for hygienic behavior. It is estimated that this has resulted in breeder queens that are over 75 percent "hygienic," meaning they produce offspring that routinely remove damaged and/or diseased larvae from a colony. Hygienic behavior was first used in bee breeding by Dr. Walter Rothenbuhler, who concluded it was a recessive trait not found in all honey bee populations, but could be selected for using bee breeding through instrumental insemination. The practical result of this is that each season Ontario beekeepers are selling 12,000 of these queens to their members and exporting some 3,000 to the United States.

IPM is an intelligent way to look at pest management, Dr. Nasr, concluded. It is long term, and examines the real costs, risks and benefits that are likely to be involved. It is an alternative to the current system, which he described as a "scary and ugly life-support system," that relies strongly on pesticides. The downsides of chemical treatments are clear, he said. They include not only risks of collapse of control mechanisms, as has now happened producing antibiotic-resistant American foulbrood and fluvalinate (Apistan®)-resistant *Varroa* mites, but also increase potential for colony

Continued on Next Page

"Selected bees have an average of only one mite per bee, a level considered more than adequate because it is well under any population that is considered harmful to colonies."

and honey bee product contamination.

Dr. Diana Sammataro, now a research associate with Pennsylvania State University, discussed the strategies and tactics of IPM. Again, she emphasized the decision-making aspects of the technology, suggesting various techniques, that when taken together, can produce an effective program. These should all be safe, profitable and environmentally friendly, and have one goal: to decrease the pest population, reducing its threshold level through monitoring. Although this might be applied to any pest, Dr. Sammataro concentrated on *Varroa* mites as her example.

Several ways exist to monitor *Varroa* populations, Dr. Sammataro said. These include the ether or sugar roll for adult bees and the capping scratcher for brood. Another is determining either the natural mite drop onto a sticky sheet and/or one provoked by a number of agents such as insecticides and smoke. With all of these, a certain number of mites collected (threshold level) would be necessary before chemical treatment (action) is called for. Unfortunately this can only be a "guestimate" because the number is not only based on specific conditions, but also may change over time. It is a moving target and one best determined by every beekeeper based on the specifics of their operation and region.

The next step is to determine what tactics one might employ when a damaging number of mites is found, Dr. Sammataro said. These include, cultural, physical, genetic, biological and finally, chemical treatments. Again, the integrated part of the IPM name suggests that any and/or all may be called upon at any particular time. Cultural controls seek to interrupt the mite life cycle at certain points (considered a major area to exploit). This is done by either manipulating frame and cell size (controversial) and/or con-

fining and/or replacing the queen. Queens must be marked, Dr. Sammataro emphasized, to determine whether they could have been replaced by swarming and/or supersede then they can be caged or artificially confined by splitting a colony.

Physical controls, Dr. Sammataro said, involve dislodging *Varroa* mites from adults using essential oils, smoke, powdered sugar or other materials, including pesticides. The use of the screened bottom board, in conjunction with these techniques is also becoming more used. This prevents mites from returning to the colony. A classic frame manipulation technique induces drone production through inserting drone-sized foundation. Since *Varroa* preferentially parasitize male brood, this can become an efficient way to trap the mites. The brood, along with mites, is removed from the colony, reducing eventual mite population levels. Using heat to preferentially kill *Varroa* is also a possibility, but one that is not easily employed and has high risks. This technique is being exploited using a new device that was described later in the symposium.

There are several ways that queen genetics can be manipulated, Dr. Sammataro said, such as using "hygienic" stock (already discussed above with reference to Dr. Nasr's program) or populations that have a tendency to limit or suppress mite reproduction (so-called SMRD bees). Imported (Russian) stock as well as that found naturally (survivor colonies in the wild) might also be exploited. This can be done without knowing the specific mechanism involved, which might include a mix of grooming behavior and/or length of the post-capping stage (the shorter this is, the fewer mites that are produced). The genetics of the mites themselves can also be exploited in this regard. It is now known that *Varroa* is a complex of a number or species, varying greatly in a num-

ber of characteristics, including attraction to brood and reproductive efficiency.

Chemical control comes in two flavors, Dr. Sammataro said, the hard and soft. The former includes the traditional ones using fluvalinate (Apistan®)- or coumaphos (CheckMite+®)-impregnated plastic strips. Soft chemicals are the organic acids (formic, lactic, oxalic) and essential oils (thyme, origanum, bay). The latter appear to be less effective than the former, but have a rightful place in the arsenal of weapons a beekeeper might choose within any IPM program.

Finally, there is biological control, Dr. Sammataro said. Although this is a major component of many IPM programs involving the control of pests in other systems, *Varroa* appears to be well protected from any natural enemy as it is found inside a honey bee colony. One possibility brought to this author's attention is that a specific fungus has been found that attacks *Varroa*, according to A. Melathopoulos, B. Ruzicka and J. Gates in Canada. Their paper, "Can You Make *Varroa* Sick?" appears in *HiveLights* (November 2000, pp. 15-16), the official organ of the Canadian Honey Council.

The problem with a good many of these tactics, Dr. Sammataro concluded, is that many are not being studied intensively. They can in many cases provide only a window of opportunity that is full of uncertainty as part of an IPM program. Most useful so far have been the chemical, cultural and physical controls. However, there is reason to be hopeful that some of the others will be more available in the future.

Dr. Zachary Wang at Michigan State University is looking carefully at cultural control. He presented for the first time an apparatus he designed known as the mite zapper. This is a frame of drone foundation liberally laced with wire. The apparatus takes advantage of two facts, that drone brood is more attractive to mites and mites are temperature sensitive. The idea is to attract the mites to the drone comb (a natural preference) and then heat and kill them by applying electrical current to the wires. The electricity can be triggered without opening the colony and may be applied over and over, both

"The Mite Zapper takes advantage of two facts, that drone brood is more attractive to mites and mites are temperature sensitive."

of which reduce time and labor that the traditional drone trapping method requires.

As with any new device, there are some continuing challenges to overcome with the mitezapper. The first prototype took a long time to produce heat through resistance in the wires, although it was discovered that the bees would build drone comb on the wired foundation and the mites would invade the resultant cells and die from the heat. A latter design reduced heating time significantly, but continued to melt the wax cells. Thus, Dr. Wang concluded, that heat-resistant plastic foundation might be necessary. Field tests must also be implemented to determine if bees will remove "cooked" pupae and how much time will be necessary in between heating sessions. He is looking for investors who might wish to prototype this invention, which has its own web page at <http://www.mitezapper.com/>

The final presentation of the symposium by Maryann Frazier at the Pennsylvania State University concerned a vital part of IPM, developing and disseminating information on the techniques mentioned above. This is the idea behind the Mid-Atlantic Apiculture Research and Extension Consortium or MAAREC. According to Ms. Frazier this is the genesis of a group effort and is collaborative among a number of eastern states. Those contributing to MAAREC are in agreement that beekeepers must reduce their reliance on chemicals and that IPM is not an "easy" method and requires better techniques.

MAAREC is implemented through a web site, Ms. Frazier said, based at Penn State University <<http://maarec.cas.psu.edu/>>. According to the site, "A working group has been established with representation from the beekeeping associations, departments of Agriculture, and land grant universities from each of the following states: New Jersey, Maryland, Delaware,

Pennsylvania and West Virginia. In addition the USDA/ARS (Beltsville Bee Lab) is also an active member of the organization. This working group identifies research and extension priorities for apiculture in the Mid- Atlantic Region, reviews research and extension proposals, reviews progress of the research and extension programs, and assists in obtaining funding for the apiculture and extension and research effort."

The MAAREC site includes all the tools necessary to help beekeepers develop their own IPM programs, including extensive resources on pest and predator identification and life cycle, implemented through slide sets and computer (Powerpoint®) presentations. Information found at the MAAREC Web site means that beekeepers can indeed find future hope in combating pests and predators by reducing reliance on pesticides through integrated pest management. Electronic references on this fast-changing emerging technology are found in the column, "Beekeeping in the Digital Age" elsewhere in this issue of *Bee Culture*. **BC**

Dr. Sarford is retired Extension Specialist in Apiculture, University of Florida. He publishes the APIS Newsletter: <http://www.ifas.ufl.edu/~mts/apishtm/apis.htm>



New To The U.S.

The Handmade Candle. Alison Jenkins. 80 oversized pages, 9" x 10", hard cover, color throughout. Available from the A.I. Root Company \$25 U.S. postpaid (foreign extra).

Over 21 different types of candles are featured in this exceptionally well done book on making candles. Not all are beeswax, but almost all could be. Examples are Frosted cubes, tapered, crackled, pillars, Rotho-esque, embossed, stones, mirrored, covered, scented and many more.

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Originally published in England, the text is easy to read and well designed. The stunning colorful photos highlight many of the techniques described and make using this book even easier.

If you make candles for fun, or for profit, from beeswax or any wax, this book will be used again and again.

Kim Flottum



Bee Culture's Beeyard

Coming Home To An Overgrown Beeyard

I've been sitting here for a few minutes trying to think how to word my opening comments. Nothing clever comes to mind so I guess I'll just say it outright – I have been traveling since mid-July and it is now late August. The *Bee Culture* yard is not particularly impressive looking right now. Though all of my recent traveling was directed toward beekeeping, and though I am a better beekeeper for having made the trips, my home yard is not better for me having been away. The grass needs cutting. There are still a few supers on and I need to review the condition within each colony.

The Satellite Yard

You may recall that I bought two 5-frame nucs stocked with New World Carniolans (NWC) last spring and put them at a different location. I set the two colonies up nearer to my home (which is normally a certain death for beehives. "*The cobbler's children always need shoes.*") The fact is that I have not done much with these colonies. Though everything needs doing at once, I felt that these colonies needed particular attention. Though they are healthy, productive colonies, I don't know the mite status of them.

No surprise to see that they had needed more space in weeks past. In my defense, I didn't have a particularly good spring and am only now coming out of a typical July/

August drought. They really hadn't needed all that much more space.

Good Queen Producers

I have gotten good queens from many producers in recent years so when I say that the New World Carniolans are nice gentle bees, you should not take that as an advertisement but rather an observation. It was pleasurable to work these bees



Two 5-frame nucs purchased last Spring.

(though getting the heavy, crowded colony open was an expected hassle.)

The bees are dark with light stripes, are gentle on the comb, and were not aggressive. Though summer is not over, they still had a high brood population. As is the usual case when I have minimal involvement with them, the bees looked pretty good.

But not perfect...

Bee Lice (*Braula coeca*).

Though the hives looked good and were prospering, they had stories to tell. The telltale capping tunnels of bee lice were present – not in great numbers and not causing an obvious problem, but certainly worthy of a comment here.

The bee louse (or *Braula*) is a wingless fly having a maggot stage (comparable to the honey bee larvae) that tunnels about just beneath the cappings of the comb. I have seen these tunnels several hundred times, but I have never seen an adult in the hive. As *Varroa* became a problem, I mistakenly thought I would see dead adult *Braula* due to the insecticidal effects of fluvalinate used to control mites. In fact, I have never heard a single report of *Braula* being found on the bottom board after having been exposed to a miticide.

The only time I am aware of a problem caused by the bee louse tends to be unexpected. When comb honey is entered in honey shows, the judge should penalize such entries having these tunnels for they will leak (seep?) honey through the openings leaving a sweaty look on the comb.

Varroa

I went straight to the bottom board of both colonies to have a look for mite fall (or natural mite drop). I



Carniolans on a brood frame.



Bee louse tunnels on capped honey.

didn't see any recent mites, but there were easy signs of propolized *Varroa* all about. I admit that I have never specifically looked for mites in this condition and could have easily overlooked them if I had not expected them to be in the hive.

What should I have done?

I found a previously opened box of Apistan® strips in my shed that had fallen behind some of my clutter. The shed is hot during the Summer and the strips were several years old, but otherwise in good shape, enclosed in the inner wrap and out of the light. I had no idea of their potency. What should I have done? Use the recommended number of strips? More? How many? Just toss the box in the trash? The fact is that the label does not answer all questions all of the time. The lesson is don't lose the box in the first place.

The Swarm Saga.

When I opened the second hive I noticed some old swarm cells. I made the quick mental thought that these cells could have been from seasons long past or from this past summer. I continued my investigation of the colony. The second colony was weaker than the first, but I was not surprised. Drifting could easily account for the difference. Otherwise, the colonies were twins. I exchanged positions of the hives in order to equalize the two colonies' populations. I put a couple of blocks under each colony (making a mental note that I had written entire articles on hive stands in previous editions and now I am using blocks - due to time constraints), closed

up both colonies, moved to the shade and wiped the sweat from my glasses.

The yard you will never see.

As I sat there regarding the scene and feeling good that I had finally worked these colonies, I had the passing thought that I should look at some old equipment that was essentially abandoned at another spot a few hundred feet away. Early last spring, there was a piddling colony there in overgrown weeds. The equipment was old, the colony was weak and my energy was short. I never attended to the colony. This equipment is classic beekeeper junk. It should be discarded, but so many things need to be done, that I just never have given it high priority. So it sits, rotting.

I was surprised to see that the colony was still alive. I had guessed that it would have long since died. Something didn't seem right. I was hot. I had finished my assigned tasks and was not looking for any more bee work, but this situation called to me. (What does one call a thought before it is a conscious thought? As I opened the hive, I began having these "part thoughts") "Could this be the swarm that left the other hive?" As the top came off, I was met by bees and wax moths - wax moths everywhere. A closer look at the bees - dark shiny bees - whereas the small colony originally had yellow Italian bees, told me that this was the escaped swarm from the hive I had just worked. I began clearing up the mess realizing that my bee work for the day had only just begun. The detail about this wax moth battle is explained in a fur-

ther article in this issue of *Bee Culture*. What a mess!

The Tennessee Yard.

From Tennessee my brother, Dwight, has told me that the crop year was pretty good. Supers are still stacked on and honey needs to be extracted. All things considered, he is pretty happy with things there.

The Tennessee Yard Layout.

Dwight has about fifteen colonies in several locations. His home yard is scenic, sitting just beside a creek behind his house. Though pretty, due to the steep stream bank, the yard requires a bit of effort to get to.

The bees are a general mixture of packages, established hives, and queens from various producers. The colonies are, for the most part, healthy and yield a good crop of Tennessee honey most years. The yard is in the Franklin area near Interstate 65.

My brother, Dwight.

My brother has a strong background in beekeeping. For many years, he ran the American Bee Supply Company, a subsidiary of Dadant and Sons, Inc., but that company no longer exists. Since I intend to use this Tennessee location as a "warm climate" yard about which to write, I thought you might need a bit of information about the beekeeper and his bee operation.

His Bees.

As in most other locations, *Varroa* continues to be a problem and he struggles to control them using current integrated pest manage-

Continued on Next Page



Propagated Varroa mites on the bottomboard.



The home Tennessee yard.

ment techniques (IPM). He sent photos of bees with misshapen wings – a common sign of *Varroa* predation. When to treat? As do you and I, he struggles to know when to treat and with what control material.

Insecticide Kills.

Presently, he is dealing with a light pesticide kill – probably resulting from his neighbors controlling flower garden pests. Pesticides are

like American foulbrood – an old friendly enemy. It is annoying to assemble, paint, stock, manage, and otherwise baby beehives only to have the bees killed by something as common as homeowner-applied pesticides. As advanced as we are in beekeeping, I am forced to admit that we have never – not once – eradicated a single bee malady. We just keep adding to our list of beekeeping concerns.

The BC Yard

Well, I am off to the BC yard to see what adventures can be found there. I have no doubts there are some. If my plans don't change, I will be in Uganda for the month of September for bee work. I'll tell you about that later. **BC**

Dr. James E. Tew, State Specialist, Beekeeping, The Ohio State University, Wooster, OH 44691, 330.263.3684, Tew.1@osu.edu

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Bill Truesdell

There is a knock on the door.

Usually detective, spy or war novels begin that way as a portend of disaster. You know nothing good is on the other side. In this case you are right. It is the local Codes Enforcement Officer informing you that a complaint has been lodged against you as a beekeeper. Your hives are not in compliance with the City's Land Use Code. You will not be dragged off to the Police Station, but in a much smaller way, you feel like the hero in that novel; no good has come from opening that door.

What you do now will determine if you are allowed to keep bees where you may have been keeping them for years without a complaint. But for years you lived in a rural neighborhood, and the suburbs have crept in and your area has been rezoned from rural to residential. You learn that a newcomer to the area lodged the complaint. They are "allergic" to bees and consider your bees a nuisance. So they contacted the Codes Officer and he/she determined that Agricultural business are not allowed in the new zone. Or he cited you for having a nuisance on your property, also not allowed by the code. And you are to comply with his finding or you may appeal his decision before the Zoning Board of Appeals, if it is a codes violation, or go to court, if it is a violation of the law.

Remember, you are the hero of this novel and heroes do not give up. They fight and, at least in novels, persist and win. In real life, so can you. But it will take your time and effort to do so.

(What follows will fit many localities. Usually only a name change is involved, since the function of either

the governing body or the appropriate code or ordinance is the same. However, just as "All politics is local," the same applies to the local laws governing the use of your land.)

What can you do?

Do your homework. Ask for a copy of the "Land Use Code" (it may be called different things in different States) or the Law or Ordinance that you are cited for violating. Get a copy of the Comprehensive Plan, or the blueprint for the city/town's future land use.

If the complaint is inconsistent with the ordinance, the ordinance or the complaint may be invalid. A good lawyer might settle the problem quickly without going to court.

The section that you have been cited for violating may have nothing to do with keeping bees or animals but be fairly nebulous, such as a nuisance. Look up the definition in the code of what constitutes a nuisance or whatever terms are used in the citation. Your activities may not apply. Even if they do, there is case law that frees bees from being a nuisance but does not free the beekeeper if they have handled the bees poorly and created the nuisance.

If it is a zoning violation determine if your activities are grandfathered. Often they are and you should be able to continue beekeeping in that area. If not, then determine the nature of the violation and check all the definitions that apply Grandfathered will also be defined. Generally it is a use of the land that was permitted before the new Code took effect but is not permitted now. You may have to prove that you had bees on the property before the new Code and had the necessary per-

mits, if they were required. You will also have to show the use has not been expanded since the new Code went into effect, since expanding a "non-conforming use" is also in violation of the Code if no permission was obtained. So you may win and lose at the same time, by being able to keep bees but on the scale you had before the Code came into effect.

After reviewing the Code, determine if you are up to presenting your own case or should hire a lawyer. Most of the time you are in violation of the Land Use Code and have to appear before the Zoning board of Appeals. If you are in violation of a law and have to go to court, then hiring a lawyer is the best route. Even so, you will soon find you are the expert and will have to educate your lawyer, especially on stings, allergies, yellow jackets vs. honey bees, bee flight, pollination and your management techniques that keep the bees calm.

The Comprehensive Plan is useful to check the Code against the Plan and see if there are conflicts. If you can show conflicts, you have an excellent chance of winning your case.

There is usually a lot of case law on violations like yours. The Codes Officer may have it and could let you see it. Case law can also be found in Law Libraries at nearby colleges as well as the Internet. The State might have their statutes on their website (as Maine does). Sometimes there is State law that preempts local zoning ordinances.

Get your terms down. Definitions are critical.

For instance, are you cited for running a business? The Code will have the definitions of many different busi-

nesses. Find where you think you best fit. The easiest way to show you are not running a business is your tax return. How do you report any income? If you use Schedule C then you are running a business. But you are probably not commercial. Check the Land Use Code and see just what the definition of Commercial is. If there is not one, then check a good dictionary and pick the one that is most in your favor. Commercial usually means that it is your primary business and also denotes the kind of business run out of a building dedicated to just that use. A farm could actually be out of the definition of commercial in the Code but come under another category. Look at all the definitions that apply, including farm, business, home business, hobbies, etc.

Check your surroundings.

For instance, if your beekeeping is a business, look at other activities in your area and show they are similar to what you are doing in a business sense, for instance artists who derive an income from painting in their homes and selling the paintings. Small repair shops. Plumbers and electricians who use their home as an office. There are a variety of small business' that are run out of the home that are thought of as commercial but are not commercial. The more examples of people engaged in these similar activities, the stronger your case. Are there other agricultural activities in your area? Kennels? Stables? Anything dealing with animals or farms? Every example helps to show you have been singled out.

Prepare to appear.

Understand that even though the members of ZBA may be your friends and neighbors, it is a quasi-judicial body and its rulings carry the force of law. Its job is to hear cases brought before it and determine if there is or is not a violation of the Code. If you appear before a Planning Board, they are not under the same legal restrictions of the ZBA.

Understand just what you are appealing. Usually it will be the Codes Officer's decision. Find out what is involved in appealing the decision and how much time you have. You will want as much time as you can get to be fully prepared for the hearing.

Often the ZBA will be in a no-man's land where there may or may not be a violation and they must decide. It is up to you or your lawyer to convince them that you are in the right. One key in all Zoning Law is that the ZBA should, in cases of ambiguity, lean in favor of the landowner. Bring that up in your discussion.

The Codes Officer may have cited you because there is ambiguity in the Code and he needs clarification from the Board. You may not be happy being a test case, but you are in a good position to win if you present a solid defense.

They have not made up their minds beforehand. They may have opinions, but seldom are they fixed and can be convinced, with rational and quiet argument, that you are in compliance with the Code. In fact, it is illegal for them to decide the case before hand or even discuss it among themselves before they meet.

They want facts to hang their decision on. So come prepared to talk to them about allergic reactions to bee stings, the value of bees, all the things mentioned already. Also why you are in compliance with the code or if you are grandfathered and why. You will have to prove you were keeping bees before the Code changed. Written records are a solid support along with neighbor's verbally confirming your beekeeping. Get the dates straight.

They want to hear from others.

i. If the issue is with the quality of your operation elicit help from your neighbors who have been in the area as long as you and approve of your beekeeping. Ask some experts, such as the State Bee Inspector or a Master Beekeeper or President of either the State or your local beekeeping organization. They can comment on your management techniques as well as the law and how it applies to beekeeping in other areas of the State. *Bring a crowd.* The Board will be influenced by the support for your cause. But prep all the speakers before hand. Make sure they are not shouters or abusive. It is exceptionally effective if they can speak to different aspects of the case, so there is not the repetition of "he is a good neighbor" but *how* you are a good beekeeper- providing water, fly paths, screening, etc. (The Eastern Apicultural Society has a

handout "Beekeepers and their Neighbors" by Dewey Caron, which is excellent and will help in showing your good beekeeping practices, as well as some good case law.)

ii. If the issue is a use violation then the use is either allowed or it is not. But your neighbors may have similar uses that will show that you are the exception by being cited. Even though the issue is not your beekeeping practices, still have your neighbors bring out in their testimony that *the use is not intrusive* and fits in with the neighborhood. In fact, they love the bees because of their pollination, gentleness, etc.

Find out the order of business of the ZBA from the Codes Officer. Determine how you want to present your case within that framework. I conduct hearings by allowing the plaintiff to state their case and then be questioned by the board and then by the public. Then those in favor of the plaintiff are called to testify and then those opposed. In each case I



Scott Davis, the codes officer in Bath, ME

allow questions from the Board. The Board then can close the public part of the proceeding and argue the case. Some chairs will keep this portion open to the public, as I do, but most close it, so your case must be made before the Chair closes the public part of the hearing.

If the Board is professional, the members will cover all the points of the violation and discuss their reasons for siding with or against either you or the Codes Officer. You may want to volunteer clarifications but do not get involved with arguing with the Board. You had your chance

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THE BATTLE FOR THE HIVE: Wax Moths vs. Honey Bees

James E. Tew

The Beekeeper's Trash Pile

I'm not proud of it but since misery loves company, I suspect many of you have a bee equipment trash pile, too. A pile of trashed bee equipment seems to go hand-in-hand with an experienced beekeeper. The longer one keeps bees, the greater the trash pile. You know the look

weeds growing through old, collapsed equipment – that could, in a desperate moment, be restored to but probably never will be. It's too much effort and new equipment is cost competitive. So this stuff sits around waiting for a day that will never come.

The Swarm

In another article in this magazine, I briefly discussed the surprise swarm that left a single-story colony that was in my backyard. The swarm (I estimate 3-4 pounds of bees) found my pile of junk equipment and set up housekeeping. I thought you might be interested in the struggle that ensued between the bees and wax moths – both wanting the hive at the same time.

The Old Equipment

Truthfully, this had already happened before in the same old equipment. Last Spring I noticed flight activity from a colony that had died several years before. The weeds were high, the equipment was essentially abandoned and the swarm appeared to be small. It didn't look too promising. I made a mental note to check the colony later. Later never came.

I had just completed working two splits that I bought as nucs last spring. They were not in my main yard and had been somewhat ignored. As Autumn approached, I felt an increased need to be certain that things were going well enough that the two splits would survive the winter. Happily, the colonies were in good shape, as was discussed earlier in another article.

After finishing with the two splits, I remembered the old equipment a few hundred yards away in which the small swarm had taken up residence. Though tired, I went to have a look – fully expecting the colony to be dead. It wasn't. That's

strange. In fact, the colony had made a bit of a recovery and was showing good flight. Something didn't feel right. The bees were very dark while the previous bees were much more yellow. As I opened the hive, I thought, "Maybe they had requeened themselves." I heard the gentle roar of bees up top, as the outer cover broke loose. The inner cover was another story. It was soundly stuck down. Only by prying and cajoling could I get it loose and then I knew why it was so obstinate. Wax moth webbing was holding it firmly in place. The bees were in one side while the wax moths were in the other throughout the hive. This was obviously the swarm that had departed from my undersupersed spring split. I couldn't help but wish they had stayed put.

The Mess

What a mess. Did I mention last Winter's mouse nest that was also in the hive? Some frames were clearly allocated to the bees while other frames were clearly allocated to the wax moth. Then there were



Neglected equipment in need of repair.



An old beehive with equipment in need of repair.



Bees and wax moths living together.

many frames that were allocated to neither and for which both sides were fighting. Where frames had been reclaimed from the moths, cocoons were covered with wax, propolis and misshapen comb. The equipment was mostly rot and broke apart easily. The mice, to no surprise, had built a large condo last season in the bottom deep and had chewed through several bottom bars and end bars.

Wax moths, in all stages, were



A mature wax moth larva about one inch long sitting atop its excrement.

present. Some were crawling about while others were spinning cocoons. I went about scraping and plucking cocoons from frames and walls of the equipment. There was no good place to work so I scraped where I was standing. It seemed that all I scraped from the equipment got stuck on the bottoms of my boots. It was hot, but this colony could use some help. I was clearly on the side of the bees.

The Clean-Up

I accepted the fact that my afternoon was far from over. I continued to break the colony apart – at every point removing wax moth co-

coons and finally the mouse nest in the bottom. Everything was mercifully stuck together with propolis and wax moth webbing. Old frames broke rather than be removed. I continued to work and sweat. Much of the work required that I remove wax moth cocoons individually. Broad surfaces, like inner covers, could be scraped with the hive tool. Though I was hot, I kept my cool. The colony had swarmed due to my negligence. I was lucky to have the bees at all. I kept telling myself that. It didn't help much.

As wax moths tunnel about through the comb, they encounter wooden hive parts. Sometimes they will cut coves in characteristic shapes while at other times they will cut right through the wood piece. Characteristic marks were throughout the hive. These signs are typical in old well-used beehives.

A Bit of Wax Moth Biology

Wax moths are common degraders of old comb. In a sense, they provide a service by destroying such comb that could harbor diseases. But what a mess they make. In warm climates, the moth can survive as adults and be active in colonies year-round. In colder climates, they don't overwinter and die back. They must re-migrate north to colder areas each year. If conditions are right, wax moths, in low populations, are present in most colonies but the bees

suppress and control the wax moth population. Many times, wax moth eggs are laid outside the colony near a crack. The small stage of the larvae (1st instars) can easily crawl through the crack, chew through the propolis seal and gain entry to the colony. The obvi-



Wax moth burrows cut into the hive wall. Cocoons have been removed.

ous entrance is not the only way wax moths invade a hive.

The eggs are small and inconspicuous. As in honey bees, eggs hatch into the infamous larva that causes so much hive damage and then pupate in the white, tough cocoons. From there adults emerge and the sequence begins again.

Galleriasis - A Unique Wax Moth Situation

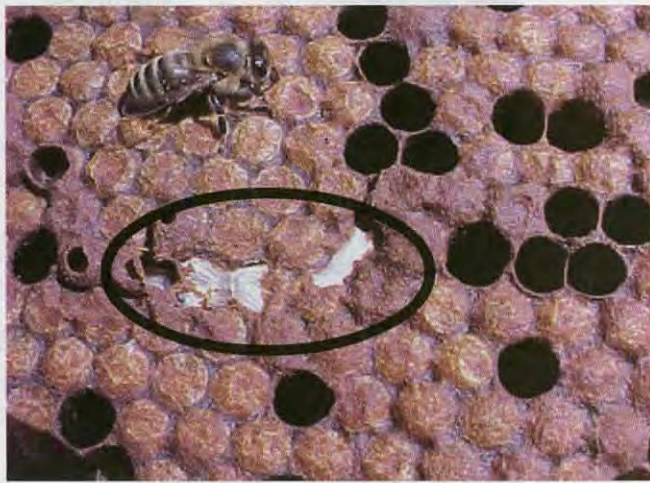
An occasional condition that can occur during a heavy wax moth invasion is the peculiar instance when several fully developed bees are fully uncapped but are unable to emerge from the cell. The number of bees affected can vary from one to many.

The problem arises when tunneling wax moths either burrow through or near developing pupae. The cocoon webbing literally ties the developing bee into the cell. Even though they struggle mightily, restricted bees are confined to the cell

Three fully developed worker bees affected by Galleriasis.



Continued on Next Page



The area within the circle shows the effects of a tunneling wax moth.

A wax moth larva exposed when the damaged cappings are pulled back.



and finally starve.

If observations are made early enough, an obvious thinning of the brood capping can be seen. If this thinning is peeled back a developing wax moth larva is usually, just beneath the surface.

There's not much you as the beekeeper can do for these unlucky bees. By the time you see the situ-

since the remaining two had high wax moth populations, I set them on edge on some nearby equipment hoping that the exposure will stop their development – or at least keep them out of the hive.

The Bottom Board

When a preemptive wax moth attack is fully underway, a great amount of excrement and comb detritus accumulates on the bottom board. It is the garbage heap of the hive. Within that mass were even more wax moth larvae trying to make a go of it. Additionally, scavenger beetles were seen either in adult or developing stages. Within this hive, I



A scavenging beetle larva on the bottomboard.

ation, bees have usually been damaged for life. However, you can get a bit of satisfaction from opening the cells and destroying the larvae within.

Wax Moth Control

The only control chemical is paradichlorobenzene (PDB). Coldness controls wax moth populations if one has access to walk-in coolers. It has been reported time and again, that wax moths don't like light and air flow. I have heard accounts of beekeepers who set supers on end around the loft of a barn with the hay doors open. Since the bees will never use four deep hive bodies, and



The restored hive – but still healing.

noted several species of scavenging beetles. The destruction of the colony and its stores are a feast for many degrading insects. I also noted the carcasses of *Varroa* mites, which no doubt, killed the original small colony.

All in All

For the most part, the swarm was holding its own against a large, developed wax moth population. There is a good chance the bees would have won – especially if it had been just a month later. I put in Apistan® strips. So here's the situation, I now have a strong population of New World Carniolans, headed by a vibrant, one-year old queen in some terrible equipment. Though I am responsible for the situation, I hope my assistance was beneficial to the colony. I should note that I never saw the queen; indeed, I didn't even look for her. I suppose there is a chance she is on the ground somewhere, but I hope that both she and I were luckier than that.

An Admonition

Just because old beekeeping equipment accumulates and many of us have it around, we should not. It drives regulatory people crazy. It is a source of contamination of American foulbrood and possibly other diseases – plus it is just plain unsightly. Burn the stuff up or dispose of it in a landfill, but none of us should just let it sit as I have done. Now having said that, old equipment brought out of semi-retirement can be made into a bait hive for just such swarms but without the comb. Don't expect a swarm to move in every year, but the occasional swarm may justify a final use for junk equipment. **EC**

Dr. James E. Tew, State Specialist, Beekeeping, The Ohio State University, Wooster, OH 44691, 330.263.3684, Tew.1@osu.edu



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ZONING ... Cont. From Pg. 27

to present your case. You may tip the balance against your case by alienating the Board.

The Chair should summarize the points brought up by you, the Codes Officer and the Board as they deal with the appeal. Either the Chair will call for a motion or a Board member will make the motion to either uphold the Codes Office's decision or support your appeal.

If the ZBA decides against you, you can appeal, usually to Superior Court and usually within either 45 or 30 days, depending on the statute. The Chair of the ZBA will inform you of your appeal rights, as well as anyone who disagrees with their decision and who has appeared before the ZBA. ZBA's are overturned if they do not do the legal work needed during the meeting or if their decision is not based in law. When you go through the case law, you will find that the number of cases that are overturned are fairly high. It is usually because the ZBA relied on feelings and not the law. But if they do it right, they will usually be upheld in their decision.

If the Board decides in your favor, if you are still not done, for you should insure that it does not happen again. There are model ordinances for beekeeping in residential areas that your State Beekeeping organization should be able to provide you and will work with you in implementing it in your town/city. Make the law be the protector of your vocation/hobby and not prohibit it.

But, if you did that beforehand, you would never have had that knock on the door. **EC**

Bill Truesdell is a hobby beekeeper and Chairman of the Bath, Maine Zoning Board of Appeals.



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ROADSIDE STANDS

Ann Harman

You have undoubtedly noticed seasonal roadside stands as you drive along some roads and have wondered if one of these stands would be interested in your honey. Are these roadside stands a good opportunity for you or not? That's a good question. Many have signs that proclaim the assortment of goods carried, and it seems that jams, jellies and honey are always lumped together. Probably because you put these on toast, or are homemade, or come in glass jars.

Let's take a drive and find the possibilities and pitfalls of roadside stands. We'll take our journey on a highway that leads through a tourist area. Here, a small village becomes a center of roadside stands for tourists heading for a national park and some nearby famous caverns. In Winter almost all of these stands close, giving the area back to the resident farmers.

An assortment of signs outside of a building indicates our first stop. Although a sign says "OPEN," only one car to be seen, and no activity. No people. Is it really open? My watch says 1:30 in the afternoon and there is certainly traffic on the highway. It can't be too early, so here goes, through the door and into the building. Straight ahead are the shelves with honey. Bins of vegetables occupy the center of the room. The

honey is sporting a large custom label with the name of the farm – Muskrat Haven. But the label also says "Packed for..." a definite clue that this honey could come from anywhere.

What opportunities does this

flowers. Will this stand be of value in promoting your own honey? No. But that may not be important to you.

A further drawback to this particular stand is that every time I have driven by it the sign says "open" but no cars are parked in front. Few customers? Could this be much work for few sales?

A few miles down the road several large signs proclaim "HONEY" along with other items. The stand is actually on a small side road about 1/3 mile from the highway. The farm road passes through an apple and a peach orchard. Four single-deep hives are sitting by the side of the road. From the coating of bees on the outside they would appear to be overdue for more room. Are these the source of honey listed on the signs? Probably not, but maybe.

I was right. At the end of the lane are two small shops – one has fruits and potatoes. The other contains the honey and a remarkable, large assortment of flea market items. This honey certainly has strange companions. Unfortunately the three cut-comb sections are badly granulated. The bottled honey was not from a local beekeeper but rather from a large packer.

Would such a stand be a suitable place for your honey? Not re-



The sign says open.

roadside stand offer? Well, since someone packs the honey, there is a possibility that you could offer the same service but with varieties, such as locust, Summer sweet clover and even mountain meadow

Continued on Next Page



Honey & Cider & a big sign.

ally. It could be too easily overlooked in the surroundings, reminiscent of a white elephant sale. Furthermore the owner seemed to have plans of having his own honey from the four hives. At least those hives are pollinating the apple trees nearby.

Back on the main highway we'll go a short distance to a small stand run by a cheerful man in need of a clean shirt and a shave. This honey definitely has the look of being from a local beekeeper. The small label, printed on an ancient computer in need of a ribbon or cartridge, indicates it was packed for the stand owner.

Honey is really featured at this stand since a large round "table" (made from a cable reel) is sitting in a prominent place in front of the main stand. Here is an opportunity for your honey if you don't mind being the packer. Your sales approach will be made with a nicely designed label, one that will impress the stand owner. You may have to share the shelf space with the other packer for a while. But good presentation of your product should win customers.

Now we are actually entering the village and the assortment of roadside stands increases both in number and in variety. Some, of course, are selling baskets, mugs and lawn ornaments. But some are selling honey.

Here's one, complete with a clucking chicken scurrying away

behind the counter. The stand can only be described as haphazard in design and construction. Perhaps this approach gives the impression of "farm stand" to city folks out to visit the park. However the honey is from that same large commercial packer. Probably best to drive on.

In a very short distance we come upon another haphazard stand. Here the honey is in the dark because the stand owner has not turned on the few electric lights. But there is enough light to see that this honey also is from the same large commercial packer.

Is there no local honey? Well, one more stand to go before the highway starts up the mountain. Here the honey is displayed in several places, mingled with a few antique somethings Honey is displayed prominently on a funny little shelf sporting two small American flags. And honey is found on some shelves off to the side with some curios for



Honey... and a flea market?

A sign out front, but not much on the shelf.





Definitely low-key, but lots of product.

company.


This honey is from a local beekeeper! The stand owner is quite proud of that fact and explains that other stands nearby don't have local honey. He seems quite happy to promote a local beekeeper's honey.

However, he may be unwilling to add another beekeeper's honey as competition.

This small tour of roadside stands points out some possibilities and some definite drawbacks. You want to promote the good image of

honey. But poor display will not help. So it is necessary to search out the roadside stand owners who are interested in working with you. The stand does not have to be elegant but it does have to have a way to display honey prominently.

Unfortunately labeling is not keeping up with the times. Does a poorly labeled jar promote the good image of honey? Never. If you are going to approach a roadside stand owner make certain that your product is labeled well, especially if it has to compete with jams and jellies.

Take a tour of the roadside stands in your area. They may not offer anything but seasonal sales from summer to late autumn. But honey will sell well, especially as the days get cooler. Enjoy your trip. You may even discover something to buy. 

Ann Harman is a sideline beekeeper, and an international marketing consultant.

Be careful when the sign is bigger than the display.



Prices can be good at roadside stands.





You Know What I Think?

BUY U.S.A.

I've been hearing a lot of talk about this subject of late, and I have to admit that it sounded pretty good to me. Then I overheard some fellows talking and wondering just how effective it would be. Their opinion was that we had to do something, even if it was wrong. That really got me to thinking. I just don't believe we can afford to do something wrong! We need the best minds in the industry to get together and make sure that what we do is RIGHT!

I'm old enough to remember when the unions were promoting this idea because all the clothing companies in the Carolinas were going under because of imported clothing. I thought that sounded pretty good back then, too, but I didn't pay any attention to where my britches were made. Now there are no clothing factories in the Carolinas that I know of. They all went bankrupt! If we follow their leadership is that where we are headed?

I think that the American Honey Producers are the main ones promoting MADE IN THE USA. Now I think this is a marvelous organization and the leadership they have shown in pushing through the Anti-Dumping Suit cannot be applauded enough. But I'll bet you a new shiny penny that a lot of their members drive imported trucks. But the most amazing thing is that I have been told that when they had their recent convention down in Texas that they had a bee supply manufacturer from New Zealand displaying his wares and making sales. In addition to that, they sponsored a shopping trip down to Mexico! Boy 'O Boy. Now is that a MADE IN THE USA believing bunch? If they don't practice what they preach can they really

expect honey consumers to?

You know what I think? I think there is a whole generation of honey buyers who have never eaten anything but imported honey. They were raised on it and to them it tastes good. They buy imported grapes, imported cars, imported clothes and imported TV's and they don't believe it's any good unless it is imported. And I think this industry needs to be awful leery of putting all our eggs in this one basket. But then I'm just an old dummy, so what do I know.

•

HONEY BEE GENITICS

I've been reading a lot lately about HONEYBEE GENITICS. There are some researchers trying to breed hygienic bees and there are others who are working on mite resistant bees. Now I think that's good. And I think it needs to continue. I wish we had more resources that could be devoted to HONEYBEE GENITICS. But I think these researchers have been a little over zealous in the claims they make about their projects. Their stock doesn't deliver what they promise. I don't know of a resistant stock that has been released yet that a commercial beekeeper has considered worth a dime!

It seems our researchers start off selecting for a single trait and ignore all other traits. In talking to some of them they have said, "We have to develop the trait we want and then we can add other desirable traits afterwards." They wind up with a bee that is resistant to something, but it's either mean as all get out or you have to feed it through the honey flow to keep it from starving to death.

I remember when Dr. Bud Cale

developed the first Starline hybrid. It was highly resistant to American Foulbrood. But it was mean and not a good honey producer. Beekeepers didn't like it. I remember when he conducted a survey at a Federation meeting to find out what beekeepers wanted in a queen. Honey production was the number one trait and gentleness was second. He shifted his focus to those traits and the Starline hybrid became a success.

This will be the first year the industry has had access to pure (or nearly so) Russian queens. Last year they were half breeds and the reports were mixed. This year the SMR stock will be available. I hope both of these stocks will break the mold and be acceptable commercially. But I am concerned about the image that is being portrayed for them. Especially the SMR stock. Dr. Rinderer has said that the Russian stock will still require treatment, just not as often. But the SMR stock claims to be 100% *Varroa* mite resistant. That is a dangerous claim to make. Somebody is going to sue somebody if they find one mite. We have some beekeepers that will bite the hand that feeds them. They have done it in the past. When researchers promise more than they deliver it makes beekeepers doubt all researchers.

You know what I think. I think all researchers working on HONEYBEE GENITICS need to reverse their selection process. I think they should select for honey production and gentleness and THEN add any other traits. But then again, I'm just an old dummy, so what do I know. **BC**

that can happen with both Apistan and Checkmite+ used to control *Varroa* mites. If you put in strips this fall, and forget to remove them for the entire winter, the length of exposure is grossly overdone and you will select, rapidly, for mites that are not harmed by these compounds. Moreover, this prolonged stay in your hives, nestled right in there with the combs, will add levels of pesticide to your wax that will make them a toxic waste dump, chemically speaking. Wax will and does absorb both of these compounds and stays there after melting and being made into foundation, candles or whatever. How much coumophos do you want in your next batch of hand cream?

In August the U. S. Supreme Court voted 6 to 3 to uphold an appeals court ruling that determined a 1990 mushroom marketing order was unconstitutional because it violated the free speech rights of the plaintiffs. This action has put in question the constitutionality of all marketing orders, and several (beef, pork, citrus), are already exploring the ramifications relative to their respective boards. The National Honey Board also falls under this umbrella and the American Honey Producers has linked up with some of the original mushroom people to explore what will happen if the NHB is challenged. In the mail section this month there are two letters in support of the NHB when the continuing referendum comes up in February next year. All the support in the world may not make a gram of difference if the court ruling holds up for the NHB and it's violation of free speech. The AHPA hopes the decision on the NHB comes soon, because there is a refund involved if it is found in favor of the AHPA. But I suspect appeals by AMS (Agricultural Marketing Service) will slow any refund opportunity until the referendum, then it's all a moot point.

Fox TV out of Cleveland has a show on in the morning where the host goes to someplace different everyday to see how things get done. He visits all manner of places, chats with interesting people, does dangerous stunts, has a lot of fun doing it, and is pretty entertaining in the

process. His little bits (he does four, three and a half minute segments each morning, between 6:00 AM and 8:50 AM which comes to 14 minutes spread over nearly three hours), are all at the same place each morning.

He was here in June visiting our candle factory and became interested in doing something with bees (I wonder how that happened?), and since then we have been trying to get our schedules to match. It finally happened early one morning in late August.

Our Medina County Beekeepers Association maintains a beeyard on some of the back property of the Root Company. We have a dozen or so hives, sometimes more, often fewer, for our club to use for show and tell, to make honey to sell at the fair, and to have for demonstrations for new members, and field days for the club. It's a bucolic setting, in the corner of a large field with woods on two close sides making a neutral and non-distracting background. Perfect for this TV thing.

The trick is, as always, planning to get the absolute most out of those four very short segments. The show's host has the philosophy that his guests will show what they think is important for whatever it is they do. He allows a lot of latitude, as long as it doesn't become one long commercial for a business or political message for those kinds of groups.

So, in the first segment (remember, three and a half minutes), we put together all the regular tools beekeepers use protective gear, hive tools, smokers, brushes and the like. Showing and explaining all of those in that short time takes some practice so you get it all in. And it all needs to be there to show.

Second segment. Using the tools. Buzz, our group's nearly-commercial beekeeper opened and examined one of the colonies, showing brood, honey, pollen, workers, drones, queen, frames, wax, propolis, and all the rest of the stuff in a hive. Next. Harvesting. Now we know beekeepers don't normally extract outside (although they once did), but we were in a one-shot location so had no choice. We brought a tarp, a small two-frame extractor, uncapping fork and pan and some extra frames of honey. We extracted four or five frames before the actual

event so there would be some honey in the bottom. Then, for the camera, did a quick uncapping and spinning, opened the gate and the host got to taste honey right from the comb.

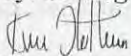
Finally, products from the hive. We had all manner of honey varieties on hand, light, medium dark, different flavors, creamed honey, creamed with fruit, comb honey, pollen, wax candles and more. We quickly described the source of each, how and why they were the way they were and how good beeswax candles were and thanks and good bye. All of these each three and a half minutes.

The message here is not how to do TV. The real success, and it was by all accounts, was in the preplanning. What will you do, how will you do it, what will you say, what props do you need, what can you do shortcutting the time, what doesn't need to be seen to be explained, what absolutely needs to be seen to be understood and how will it all come together.

As I said, I had worked out the schedule with the host. Then, the rest of us got together and got all the stuff together to make it work. Four people worked on the segments so each had to know what was going to happen, in what sequence and who was going to do what. Lots of equipment and hive prep had to be done to make sure we had everything we needed (think pail of water to wash up with in the field after extracting), and then make sure by having just a bit more than you think you will need...like bee suits for the camera man and the host.

If you get a chance to do something like this don't be afraid to ask questions beforehand so you can look as good as you can. There's nothing worse than the "Well, it's too bad I didn't bring a ... whatever, 'cause I could have shown you how it works" Talk to the host of a show, or a reporter to try and find out where they might want to go. The old Boy Scout saying...Be Prepared...goes a long way in making you look good, or you'll end up with just another average story.

Enjoy the fall weather, the crisp leaves, the geese V's and cleaning out the gutters. Hive tools work well for that chore by the way, as long as they are sharp.

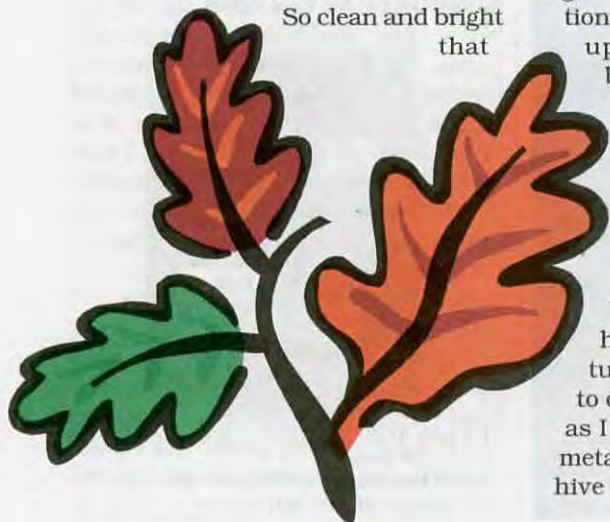

BEE CULTURE

SEAS

Richard Flanagan

It was a day like any other day; leaves were falling upon a cold Autumn ground. The air was crisp, refreshing and filled with the sounds of migrating birds. A perfect day to "winterize" the hive. I had planned to clean up and prep my hive for the winter months. All the harvesting of honey was complete. The medicine was administrated and the entrance reducer was in place. All I had to do was to check for ventilation for the hive. Being a newcomer to beekeeping I read and reread of the importance of maintaining your equipment and hives, especially during the winter months. Many a day was spent at the public library checking out books on bees; so much so that the librarian had come to know of my new hobby of beekeeping. In my readings I had picked up helpful hints by seasoned beekeepers telling of ways to become more efficient in beekeeping habits. Early on, one sounded very interesting, 'Paint your hive tool a bright color' The reason being it would be easier to see if it fell in the green grass among your hives. My hive tool came with the equipment I ordered with my first hive. It was bright, shiny and metallic in color.

So clean and bright that



I was almost afraid to get it dirty while checking my hive.

I quickly ran into my garage, (future honey house?), to look for old used cans of spray paint. Pink, white, pink and more pink were the only colors available. I had earlier used them to paint my two young daughters' bikes. I grabbed the white can and shook it with all my might...empty! I slowly turned to the three cans of pink spray paint left standing on the shelves. Pink hive tool? What would the other beekeepers say if I showed up with a pink hive tool? Would they laugh? Would they even take me serious as a future beekeeper? I stood for a long time with one hand holding the hive tool the other the \$.99 cent can of effervescent hot pink spray paint. My wife, who had ventured out into the garage, broke the silence by asking why I looked so confused. Slowly and with a somber voice I explained my predicament. She with the wisdom of the ages said, "Oh go on paint it pink, who would care or even notice? Your friends? The Bees?"

I grudgingly agreed and began to spread out newspaper on the cold cement floor in preparation of spraying the hive tool the color of carnations. When behold! My eyes fell upon a large unused can of bright golden spray paint hidden among the pile of scrap wood in the corner. Yes! Yes! Gold spray paint. Yes, gold, bright, shiny everlasting gold. The sought after metal of kings and gods alike. Gold, the color of perfect honey. Yes, I would paint it gold, honey gold, golden gold, Autumn gold. My hive tool seemed to quiver and my hands trembled as I sprayed coat upon coat of the metallic color of the sun upon my hive tool. Days later, I used the

new golden hive tool with pride. The bees sensed it and seemed to bow as the golden tool moved over their domain. I could have sworn that even the queen in all her majesty looked envious at the new addition to my bee equipment.

Now months later in the cool of the autumn day I was using the hive tool. Slightly worn, its color was no longer bright but now a soft hue of its previous golden splendor. Drat! My hand slipped and within a split second the hive tool bounced off the hive body arcing end over end into the setting sunlight. It landed with a thump among the leaves and small twigs of my back yard. I sighed, and put down the hive lid to search for the wandering tool. Unfortunately the autumn leaves were brown, yellow, red, and, yes, gold. Now instead of being a delight, my eyes worked against me to hide my missing tool. After a few frantic minutes of searching, I found the tool now covered with leaves twigs and pieces of dirt stuck to its sides. It looked old and tired. It seemed to age quickly losing the splendor of its previous golden reign. Later, as I sat in the garage cleaning the equipment I could have sworn that I heard my wife saying, "Pink, not gold, would have been easier to find" My neck stiffened in defiance. No! Gold was the color! I went to re-spray to bring back its golden luster but the can had disappeared and only pink cans stared back in longing desire to bond with my hive tool. A lesson, learned, perhaps. All I know is the honey was the same whether or not the tool was pink, green, or striped. All that mattered was that I had learned and was still learning the profession of Beekeeping. **EE**

Richard Flanagan keeps bees and enjoys Autumn in Charlotte, NC.

ON S

Don Rewa

Standing on the cleared ground inside the compound, I was enclosed inside a fortress of snow. The ridge of snow encircling the area from the house to the barn fashioned an unbroken barrier. But a half-mile away there were honey bees that hadn't been looked at in over a month. Were they still alive? How had they survived the Winter storms of November and December? I had to find out. Leaving the protected bastion, I climbed up and over the mountains of snow and began the trudge through the field three feet deep with snow. A hundred yards into the trek I was exhausted, each step cutting through the unbroken snow. The only sound I was aware of was that of my breathing and of the snow crunching under my boots.

Two crows perched at the top of a shagbark hickory tree quietly watched. I'm sure they couldn't figure out why I just didn't take to flight and avoid the deep snow. One of them even showed me how by lifting off and flying south into an elm tree at the edge of the wood lot overlooking the apiary. Unfortunately, all I could do was *wish* I could fly over the fluffy, deep, white stuff.



I had time to take in the scenery. The sky above me was a pale blue, loosely strewn about with wispy, gray clouds. Ahead the sky grew

bright near the white horizon where the golden December afternoon sun gave my unprotected eyes reason to squint. I was submerged in a deep field of soft, sparkly white snow. The wind-blown pattern etched on the crusty surface was like the sandy bottom of Lake Michigan along the shore in the Summer-time. I was aware of no breeze and the air was cool and fresh. Though, I was rapidly heating up

on the inside; my shirt beginning to stick to my back under the several layers of clothing.

I entered the wood lot through the underbrush and was instantly relieved and my pace quickened through the now only-ankle-deep snow rather than the knee-deep drifts I had been battling. Entering the refuge and walking unencumbered through the secluded Sitka spruce alleyway, I welcomed the retreat.

A quiet Winter apiary is solemnly picturesque. Each hive was immersed in a swirling mound of snow and was capped with a soft, white dome nearly two feet high. As I drew close, I noticed that the snow was blemished here and there with fallen honey bees now slightly sunken half an inch below the snow's surface. Cleansing flights can be deadly in December!

I brushed the thick snow away from the entrance of the first hive and cleared away the ice and debris with a broken stick. I then took off my hat and glasses and pressed

my ear against the side of the hive. I was able to hear the hum of a healthy hive of honey bees waiting for Spring. This exercise was repeated for each of the next three hives but unlike the others, the fourth and last had no dead bees near the entrance. Anxiously I walked over and bent down next to the hive and pressed my ear



against the cold wood. The only sound I heard was that coming from the traffic along the nearby county road. No sound came from within the box. Mournfully, I opened the cover and discovered a small clump of dead bees wedged inside a few frames on the very top super another small clump of dead bees in the super just below. For some reason, the bees were not clustered together and this had caused them to succumb to the frigid, Michigan Winter. Though I do not know for sure, I'm guessing that tracheal mites caused these bees to break out of their Winter cluster and pay the dearest price.

Three months to go. Will any of the remaining hives survive?

On my way back across the fields the sun continued to set lower in the western horizon casting a golden hue over the soft, white surface through which I walked. Any deformity in the otherwise smooth surface became highlighted by the sun's gold profile. Like the bees I too wait for Spring. But while I wait, I'm happy to enjoy a quiet walk in Michigan's Winter wonderland. ☐

Don Rewa and his bees survive Winter in Grand Rapids, MI.



Richard Taylor

My Honey House

The beekeeper's precious retreat is his honey house, but unlike a beeyard, this curious structure and its contents are a constant invitation to intrusion. People assume that its owner could not possibly be doing anything of importance in there and feel quite free to come and go as they please, some to ask questions, some to buy honey, but most just to talk. Sometimes, of course, they are welcome, but most of the time I want to be alone there. When I am in my honey house it is likely to be either the scene of intense activity, which I can ill afford to interrupt, or a place for pattering and pondering, which one can hardly do in concert with others. Beekeeping stimulates more profound woolgathering and concocting of schemes than any pursuit I know of. To do it properly and fruitfully, one must be solitary developing a detached and serene spirit.

My own beloved honey house, unlike so many of the outbuildings that evolve to that use at the hands of beekeepers, was actually built to be a honey house, according to my own specifications and plans. It cost rather little, since it is no more than a neat frame structure erected on a concrete base, but over the years much has been added inside and out. It now wants very little either in beauty or utility. Flower boxes grace the windows, and each Spring I put petunias in them. At the same windows green shutters, picked up at the village dump and repaired and repainted, give the structure a homey look. Morning glories climb to the roof each Summer on one side, and just beyond these my herb and vegetable garden blooms and fruits.

On the other side the birds' nest in the now overgrown honeysuckles, and an aged clematis spreads itself over the side of the adjoining shed that I build onto the honey house for super storage. Of course the structure is too small, 18 by 12 feet, with the attached shed for super storage measuring only six by 12. But everything is compact and well organized, so that I am able to do what I want to do quite efficiently.

One end is my shop, where I repair hives, clean things up, make things, and in a word, putter. A beekeeper needs rather few woodworking tools, which for me is fortunate, as I have a limited skill with anything more complex than a hammer or saw. Still, necessity does enlarge one's creative powers, and I have sometimes stood in astonishment to see what my hands have wrought. There is for example, a fine little buzz saw, made up from an arbor I picked up for two dollars, a blade, a discarded kitchen table and an old washing machine motor. It is adequate for whatever extensive sawing is required. In my shop there are cigar boxes by the dozen, odds and ends of other containers I have picked up, whose contents and accumulations of the years are known to me alone and would be unfathomable to the rest of the world. Old bookshelves and cabinets provide storage for assorted tools and implements, soldering materials and a fairly large collection of old smokers, most of which need repair.

It is a nice place to be. My friendly radio keeps me company when I feel the need of it, and of course be silenced the moment that need ceases. My little potbelly stove is there, acquired as a luxury, I thought at the time, but it quickly proved its worth. It burns wood and banishes the chill of a fall day in minutes, not only warming the shop

and its proprietor, but lifting my spirits as well.

The other end of my honey house, which takes up a bit more than half of the total space, is devoted entirely to equipment for spinning out, straining, storing and bottling honey, and to molding the beeswax resulting from this operation. As tanks fill with honey, small plastic pails fill from the drizzle of melted wax, resulting in neat stacks of wax blocks as the honey spinning progresses over the course of many days. The wax is worth far more than the honey, pound for pound, but the amount of it, although considerable, is small in comparison to the tons of honey.

The honey house goes through a regular cycle as the year advances, its operations harmonizing with the orderly stages of work in the yards, which is rather the same every season. The cycle begins in the spring, when the hundreds of supers stacked away in the shed are distributed over the course of several weeks to the hives. Each hive eventually receives three supers — perhaps only two for a few backward ones, but sometimes four for what I call the "busters" These do not go on all at once. The second super goes on when the bees have begun to fill the first in earnest, then the third when the second has begun to fill. Everything must be done in an orderly way, taking account of the development of the colonies and the waxing and waning of the early honey flows.

Not much planning is needed here, however. My truck and trailer are loaded up with supers and these are distributed to the yards each weekend, as weather permits, and at the same time I deal with spring cleaning and swarming. It all works out about right. The combs are re-stored to the care of the bees before

Continued on Next Page

"Beekeeping stimulates more profound woolgathering and concocting of schemes than any pursuit I know of."

the wax moths return. By the time they get filled with honey, spun out and returned to the shed the season for the destructive wax moths will have passed.

After supering comes time for tidying up, restoring everything to order after it has been used and more or less dismantled the previous fall. With all my equipment back in shape, clean and shiny as a new penny, tanks and other containers covered with clean white cloths, I can step back and contemplate my orderly little plant, all ready to go on a new crop. Of course not for another year are things going to look quite that neat and orderly again.

The interlude between supering up and harvest is the time for repairing equipment and getting together those things you need. Each summer sees innovations and improvements, largely the product of my woolgathering. Frames broken and other pieces of equipment are taken care of, and my inventive schemes are carried out. It is a pleasant interlude, a relaxed one in which I can set my own schedule, and a valuable one.

I have always taken a deep satisfaction in putting to use something that has been broken or discarded as useless. Old frames salvaged from a hive whose combs have been riddled by wax worms or mice can be cleaned up with lye and put back to use as good as ever, thereby enlarging my honey crop without unnecessary expenditure. Old hives and supers, many showing the marks of considerable age, can be cleaned up and restored.

Odds and ends can be fashioned to whatever purpose my imagination has conceived - a new idea for a strainer, perhaps, or a rack for extracting frames. The possibilities seem endless as the years come and go. Now too is when the comb honey is harvested and made ready, when accumulations of beeswax scraps are melted down, and when the crystallized honey saved from the previous season is reliquefied and bottled to get my roadside stand into business ahead of the harvest. There is no rush here, no pressure, and whenever my chief impulse is simply to sit out with my bees, watching them come and go, I can indulge that too.

The operations in my shop and honey house are governed by three rules. The first is: No bees. They are rigorously excluded as not belonging there. Bees that get in are promptly removed. A few bees in the honey house are quite harmless, having no inclination to sting, but they nevertheless are a distraction.

The second rule is: No honey drippings on the floor. This rule requires special vigilance when combs are being spun out, but it is important, for general neatness as well as for ease of work. It is a constant d i s -

traction to step in honey, then track it about, stepping in it again. A couple of good big sponges and buckets of water solve this problem.

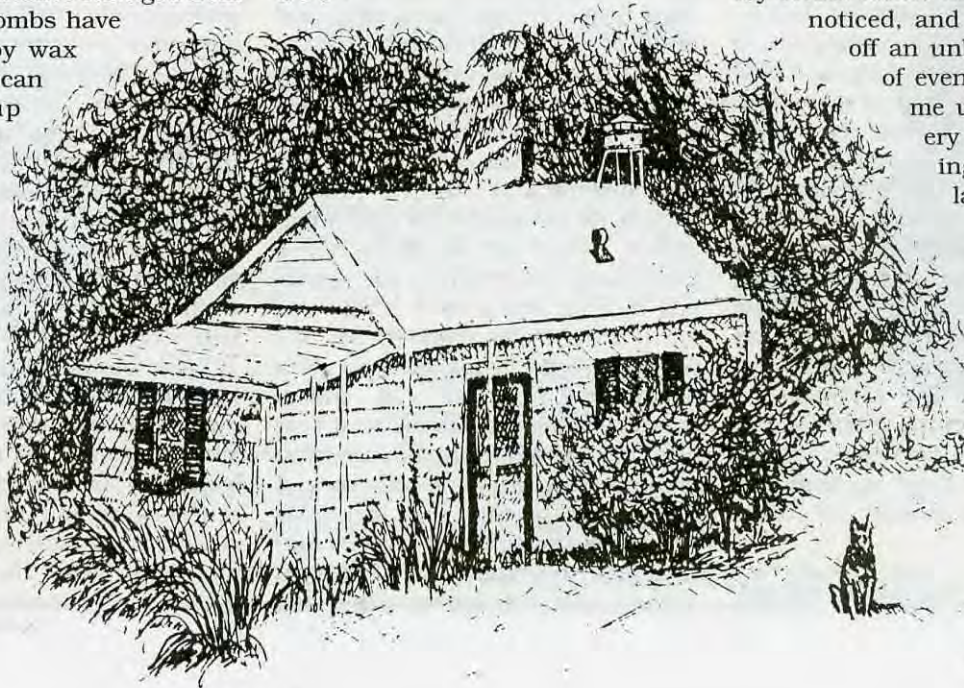
And the third rule is: No people. I think I love people almost as much as I love bees, but I do not love their species in my honey house. Under no circumstances may any caller be told as was once common, "You'll find him down in the honey hose" Instead, the visitor is announced to me there, and I decide whether to come or to have the caller sent on his way. It depends on how engrossed I am at the moment and also, of course, on whom the caller is.

There had always been a tacit understanding to the effect. My dear wife, for example, had long ago learned to knock tentatively when she came to the honey house door, knowing that an intrusion there does not always produce a cheerful greeting. But the rule was only loosely enforced until one disastrous July afternoon.

I was at work spinning out honey. All was going along well until my friend Osmo, a recent convert to apiculture, appeared at the door bearing the single super of honey from his single hive. In an expansive moment I had offered to spin this out for him. My honey house set-up would inspire questions from anyone of normal curiosity, but in trying to attend to the flow of Osmo's questions, I became completely distracted. I apparently stepped on the gas hose that feeds the burner to my steam boiler, shutting it off, un-

noticed, and thereby setting off an unbelievable chain of events, unknown to me until the discovery of their appalling consequences later on.

No sooner had Osmo left and my work resumed, that I was dumbfounded to behold in the doorway the smiling face of the president of the university where I occasionally




teach. He had chosen just this moment to see whether I might like to go sailing. I nearly dropped a heavy super on my foot. My venerable president, coming upon me as extractor, honey pump and uncapping machine were all going at once, with a great whirling and clatter remarked that I had a regular factory there. (I could not help wondering whether perhaps he was thinking that I could be using my time far better than at such folly as this.) (The next day, however, I got to thinking that harvesting a nice crop of honey is not half as frivolous as sailing around in boats.)

By the time I had shut down the motors to make conversation, chatted amiably, declined the sailing invitation and seen my second visitor on his way, the smell of gas led me to have a look under the steam boiler. Well! Because the burner had been inadvertently shut off when Osmo called, the boiler, in cooling, had sucked melted beeswax out of the pot into which the vented steam had been exhausting, drawn it all the way up the hose, through the uncapping machine, on through the rest of the hose and into the boiler itself! I could not believe my eyes! It took me a good hour to clear the system, and by this time I de-

HONEY HOUSE RULES:

1. No Bees
2. No Honey Drips
3. No People

ecided to leave the job for another day. Meanwhile, my third rule was delivered unto my family, with Mosaic finality and to the accompaniment of thunderbolts overhead: No people in my honey house - ever!

These are precious recollections. They bring a smile, even though the episode seemed horrendous at the time, years ago. Life is not always simple and easy - it would be monotonous if it were - and perhaps the good memories one can store away, of varied kinds, are really more lasting and more genuine than bank notes. Certainly, the more they are used the brighter they get, and they do not ever really get spent. 

Richard Taylor is a philosopher and lifelong beekeeper who lives in the Finger Lakes region of New York. He is the author of several beekeeping books.

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?Do You Know?

Answers

1. **True** Extreme care must be taken while handling queen cells. Queen development may be disrupted by heat or cold or by jarring the cells. A sudden jar of unsealed queen cells may dislodge the larvae from their beds of royal jelly, and the wings and legs of pupae in older cells may be injured. A comb containing queen cells should never be shaken if the cells are to be used.
2. **True** The differentiation mechanism associated with the development of a larva into either a worker or queen begins with the hatching of a fertilized egg and is not complete until after 3 or more days. The transfer of a larva between 3 and 4 days old from a worker cell to a queen cell, results in an adult with characteristics intermediate between those of a worker and a queen.
3. **False** About one week after emerging from a queen cell, the queen is ready to leave the hive and mate with several drones in flight. She may go on two or three mating flights in a period of one or two days. Queens start to lay eggs about 2 to 3 days after the last mating flight. Once egg laying has commenced, she will never mate again and only leaves the hive to accompany a swarm or during absconding.
4. **True** A mated laying queen continues to lay eggs for 24 to 48 hours after being confined in a queen mailing cage. She will start to lay again within a few hours to several days after she is introduced into a colony. What becomes of the eggs that are in the process of being formed when a queen is caged or deprived of her regular food (royal jelly) is still a matter of conjecture.
5. **True** An abundance of young nurse bees is a primary requirement for the production of high quality queens. These nurse bees are needed to provide a surplus of royal jelly and proper care for all queen cells being developed. Older populations of bees are unable to supply adequate amounts of royal jelly.
6. **True** Colonies used for the purpose of building queen cells can be either queenless or queenright. In queenright units, the nurse bees must be concentrated in the cell-building area, and separated from the queen and young brood. Both types of cell builders must be strong with bees of all ages and especially strong in nurse bees. Each must be abundantly provisioned with honey and pollen.
7. **False** Virgin queens do not become sexually mature until the fifth or sixth day after emergence.
8. **False** Isolated queens can feed themselves on sugar candy and survive for many weeks, but queens in colonies seldom, if ever feed themselves.
9. **False** One disadvantage of permitting the bees to select their own larvae from which to produce queen cells is that the bees will select some larvae which are too old to produce the best queens. Queens produced from the oldest larvae will be the first to emerge from their cells and will destroy all other queen cells present.
10. **True** Starter hives or swarm boxes that receive newly grafted queen cells may be either open units allowing free flight or closed units.
11. **False** A queen normally mates with 7 to 15 drones on one or more mating flights, whereas drones mate only once. During the mating process, drones are instantly paralyzed and die within a matter of minutes.
12. **True** Queens that are sold individually or those that are shipped with package bees, will be mated and will have started laying eggs prior to being placed in the shipping cage (Benton queen cage).
13. **False** Individual egg cells start developing in the tips of the ovarioles (egg tubes) and reach the oviduct in two to three days, at which time they are ready to be laid.
14. D) 5.5
15. A) Amount and pattern of brood

16. Beeswax
Plastic
17. Aid in the removal of the young larva from the grafting needle. Prevent the drying out of the young larva before being returned to the care of bees in the starter colony.
18. Overabundance of young nurse bees
Queenless
Abundant supplies of nectar and pollen
19. By confining the queen to one comb each day, there is a large quantity of similar aged larvae ready for grafting three days later.
20. Double grafting is a technique in which the larvae grafted into queen cups are discarded after 24 hours and replaced with new larvae of grafting age. It is believed that the second larva will be better fed due to the royal jelly that is already present in the cup and a larger, better queen will develop.

There were a possible 25 points in the test this month. Check the table below to determine how well you did. If you scored less than 12 points, do not be discouraged. Keep reading and studying- you will do better in the future.

Number Of Points Correct
25-18 Excellent
17-15 Good
14-12 Fair

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

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GLEANNINGS

OCTOBER, 2001 • ALL THE NEWS THAT FITS

TX Sets The Standard

RED IMPORTED FIRE ANT RULES OUTLINED

Bill Sandige (CA Dept. of Food and Agriculture) in mid-August indicated in a discussion with Joe Traynor, a CA pollination broker, that this year's draconian RIFA (red imported fire ant) rules (no second chances) would be modified.

The tentative new rules: If only one or two ants are found at the NM-AZ border, the load could proceed to the Needles station (at the AZ-CA border) where it could be disassembled – at a designated lot at Bullhead City, AZ near Needles – steam cleaned, reassembled, then allowed to pass into California (providing it passed inspection at the Needles station).

This is essentially a return to the rules that existed prior to mid-January 2001 (at which time a "dirty load" that passed AZ inspection was found to be badly infested upon arrival at a CA almond orchard).

Mr. Sandige is under considerable pressure to keep additional RIFA out of CA (a \$40 million RIFA budget adds to this pressure). Some within the Dept. don't want any changes to last year's "death sentence" rules and point out that no other commodity is given such a break as that outlined above. Mr. Sandige, however, is aware that this year's last-minute rules change inflicted considerable pain on a number of beekeepers and almond growers.

Mr. Sandige is familiar with TX rigid pre-departure rules (helped in good part by the February 28 San Antonio, TX meeting, organized by Texas A&M and Texas beekeepers) and that such rules should preclude

a repeat of last year's "dirty load"; this load (from LA) had numerous dirt mounds and at least one dead-out containing RIFA. Beekeepers from RIFA states other than TX will be given close scrutiny (perhaps such beekeepers should encourage their states to adopt Texas-like rules).

Mr. Sandige has spent considerable time and effort in recent weeks in securing the "safe haven" cleaning area in Bullhead City, AZ. He has arranged for the site to be treated for RIFA after any bee load is disassembled and steam cleaned.

Some details still need to be worked out: 1) A forklift (and operator) to unload trucks for steam-cleaning at the Bullhead City site (if truck drivers are unable to do so). 2) Steam cleaning equipment (and operator).

Mr. Sandige indicated that a local beekeeper (in the Needles area) may be interested in doing the above (for a fee). Beekeepers would be required to provide a steam cleaner (perhaps rent one locally).

Mr. Sandige said that in early September he would be meeting with John Caravetta (AZ Ag Dept.) to finalize RIFA rules for 2002. Some written rules should be available from the CDFA by October and should be along the lines of those outlined above.

Note: all loads will be subject to a final RIFA inspection at the final destination (CA almond orchard) as they have been in the past.

Mr. Sandige 916.654.0312 or Mr. Caravetta 602.542.0996 can be contacted if further information is needed.

SHB IN MO

Small hive beetle, *Aethina tumida*, has been confirmed from a hive in Jefferson County, MO. The beekeeper had started several new colo-

nies from package bees received in the spring of 2001. The single adult beetle was submitted to me by the alert beekeeper.

State Department Had Input?

ARGENTINE INVESTIGATION SUSPENDED

The U.S. Department of Commerce and the government of Argentina have reached an agreement that would suspend the investigation into the alleged dumping of Argentine honey in the United States and the alleged unfair subsidies paid to Argentine honey producers and exporters.

According to a DOC official, the subsidy agreement calls for a quota limiting honey imports from Argentina to 27,000 metric tons (about 59.5 million pounds) per year. Based on National Honey Board assessments, imports from Argentina averaged 53.8 million pounds from 1995 through 2000, when a record 98.9 million pounds were imported. In the period January-June 2001, the NHB shows 53.6 million pounds imported from Argentina.

The antidumping agreement is a cost-based arrangement in which Argentine producers, middlemen, and exporters will report their costs quarterly to the DOC. A standard profit margin will be added, and the DOC will set a minimum export price for the subsequent quarter.

The suspension agreements will have a five-year term. The petition-

ers in the case, the American Honey Producers Association and Sioux Honey Association, were not involved in the negotiations on the suspension agreement and did not favor settling the case in this manner.

The Chinese government did not seek a suspension agreement in the antidumping case that is on going against Chinese honey exporters. In an earlier action, the DOC reduced its preliminary antidumping margin against one of the Chinese exporters involved from the initial 38.96% down to 22.05%. In addition, since the new margin is lower than the threshold 25% for assuming that the exporter had knowledge of dumping, the DOC dropped its allegation of critical circumstances on that exporter.

According to NHB assessments, imports from China averaged 27.04 million pounds from 1995 through 2000, when the total imported was 53.5 million pounds. Through June, the 2001 imports totaled 44.9 million pounds.

The final determination on the Chinese antidumping case is expected in November.

TUCSON'S WEBSITE

On July 27, it was learned that the Global Entomology Agriculture Research Server (GEARS), run by the ARS Carl Hayden Bee Research Center (CHBRC), Tucson, AZ, has been reviewed and approved by Science NetLinks for use in classrooms. GEARS is now featured among the recommended "Online Resources" on Science NetLinks, a comprehensive homepage for science educators that was created by the American Association for the Advancement of Science. GEARS, visited several thousand times each day, provides

huge collections of information and a variety of links to other sites. From the composition of honey to the latest on bee basics, GEARS provides a variety of apiculture tidbits. Software developed at CHBRC pertaining to the biology of honey bees, pollination, and the business of beekeeping are available on the site. The Internet Classroom section of GEARS divides resources into those which are appropriate for adult or higher education and those which are targeted to the K-12 population. GEARS was the first Internet site in ARS.

Consumers Pay The Price

POLLINATOR LOSS COSTS \$\$

A way to measure the economic effect of the world's pollinator shortage has been developed in Canada.

University of Guelph environmental biologist Peter Kevan said there is a growing global scarcity of bees and insects required to produce most of the world's fruits, nuts, grains and vegetables.

He said it was logical that crop production and world commodity markets would be affected by the lack of pollinators and that it would be possible to attach a dollar amount to the losses.

"Nonetheless, there is little information on how the shortage is affecting the costs of food production," he said. "There must be economic implications, and we should be able to figure out what it is costing the consumer, who is benefiting from the losses and who is not."

Kevan and Prof. Truman Phillips of the Dept. of Agr. Economics and Business developed a model that can be used to measure some of the economic effects of pollinator deficits on traded commodities such as fruits and vegetables.

The model is complex and takes into account variables such as the product, whether the country is an exporter or importer, trade situations and market conditions.

The researchers were able to make

some preliminary tests of the model by using data collected from several commodities.

Kevan said the bottom line was clear.

"The economic impact of pollinator declines show that, in all cases, the consumer is hurt," he said.

"These are just the minuscule beginnings. There simply aren't the data or information to show what the economic impacts are. But those we have indicate serious problems for world food supply, security and trade could be in the offing if current declines in pollinator abundance, diversity and availability are not reversed."

Kevan said the global pollinator shortage is the result of a series of complicated factors that go beyond a simple lack of bees – but that is where the problem starts.

"The changes in agricultural styles, chemicals and pesticides have taken a tremendous toll. And even if the pollinators survive, there are fewer places for them to live. Most of their natural places – holes, logs – have been cleaned up. Their natural habitat was gone a long time ago."

Kevan said he hopes the model will at least prompt some interest and further investigation into both the lack of pollinators and the economic effect of the shortage.

HONEY PROGRAM IN FARM BILL

While Congress is on its August break, the national beekeeper organizations are planning their strategy to ensure that the honey loan program will be extended to cover 2001-crop honey – as well as subsequent crop years in the next Farm Bill.

Before the Congressmen went home, the beekeepers won a significant victory when the Honey Agriculture Committee included the honey program in their version of the Farm Bill, which will cover 10 crop years, starting with 2002. Initially, honey was omitted from a draft concept of the Farm Bill prepared by the Committee staff. This spurred the producer organizations into action, and a delegation from ABF, AHPA, and Sioux Honey went to Wash. to urge Committee members to include the program. They were successful in convincing Committee Chairman Larry Combest (R-Texas) and Ranking Minority Member Charlie Stenholm (D-Texas) to include honey in the bill they presented to the Committee for approval.

The Committee staff had rejected the honey program on the basis of estimated cost. To fit the program into the available funding, the committee cut the loan rate to 60 cents. The beekeepers felt it was more im-

portant to be included in the Farm Bill than to hold out for the 65-cent rate; they hope to get the rate increased further into the legislative process. In other respects, this is the same program as is currently in effect for 2000-crop honey: a marketing assistance loan with an LDP.

The Farm Bill is expected to reach the House floor shortly after Labor Day. Supporters say a challenge on the House floor is possible, and they urge beekeepers to contact their Congressmen to urge them to support the honey program. Contact with Senators is also needed, since the Senate Agriculture Committee is working on its version of the Farm Bill.

The beekeeper organizations hope to get the current program extended in the Agricultural Appropriations Bill to cover 2001-crop honey. They will be asking the House-Senate Conference Committee to add the honey program to the bill, since neither the House nor Senate versions of the bill include the program.

They ask that beekeepers be in contact with both their Representatives and their Senators urging support for the program.

To reach Congressman: Dial the House switchboard, 202.225.3121, and ask for his/her office.

New Book Out

NZ VARROA UPDATE

Another *Varroa*-infested apiary has been found south of the movement control line across New Zealand's North Island.

The *Varroa* was found in five of 21 hives at an apiary near Jerusalem about six miles south of the movement control line.

Other apiaries in the region were tested but no *Varroa* were found. Further testing is continuing.

The *Varroa* Management Group – made up of members of the Ministry of Agriculture and the National Beekeepers Association – was to meet to discuss North Island movement control options, including moving the line further south.

In August, an apiary about half a mile south of the movement control line tested positive for low levels of *Varroa*, the first find of the mite south of the control line.

The movement controls – designed to slow the spread of the mite – have been in place since April last year when *Varroa* was discovered in Auckland.

The movement control line runs from Taranaki to East Cape and restricts the southward movement of risk goods such as beehives and queen bees.

Association national vice-president Lin McKenzie said *Varroa* has to be treated as honey bees in New Zealand did not have any natural

defenses.

"They can't survive without some sort of intervention," he said.

The New Zealand Ministry of Agriculture expects a lot of overseas interest on a book it is publishing on the management of the *Varroa* destructor mite – previously classified as *Varroa jacobsoni*.

The 120-page book has been mailed free to New Zealand's 5,000 registered beekeepers.

The ministry has printed extra copies for sale in New Zealand and overseas and Agriculture Minister Jim Sutton said it was expected there to be considerable interest overseas as there were few books on *Varroa* management written in English.

The book was written by two apicultural researchers from HortResearch, Mark Goodwin and Cliff Van Eaton and has been extensively reviewed by *Varroa* experts in Europe and North America, as well as some practicing New Zealand beekeepers.

Sutton said the book, which cost about NZ\$70,000 to research, write, print, and distribute, was essentially a survey of world *Varroa* research and management practices. It made recommendations on *Varroa* management for New Zealand.

The First A.I. Root Memorial Lecture SAVANNAH'S STARS & THE ABF

When the American Beekeeping Federation convention meets in Savannah, January 16-19, 2002, beekeepers will learn what makes Georgia's first city one of the top tourism destinations in the nation. They will also be reminded why the ABF Convention is an annual "must" for many beekeepers.

Speakers include Patti Elzen, Marion Ellis, Jeff Pettis, Mark Feldlauer, Gloria DeGrandi-Hoffman, Greg Hunt, Keith Delaplane and many more.

A special event this year will be the first A.I. Root Memorial Lecture, delivered by Dr. Gary Shilling, noted author, speaker and financial advisor. See November *Bee Culture* for full story. Dr. Shilling's topic – *The Future Of American Beekeeping, Protection or Automation*, is exactly the right topic for the beekeeping industry. This will be a topic, and talk

you won't want to miss.

The Wednesday afternoon Special Interest Groups will allow the various segments of the industry to delve more deeply into their interests. The Saturday morning Educational Workshop will provide close-up looks at several areas of interest.

The convention will feature a pre-convention trip to Wilbanks Apiaries in nearby Claxton and a three-day post-convention bus tour through North Florida and South Georgia. That trip will feature bee-related stops as well as unusual "non-bee" stops.

For information on attending the convention or exhibiting your products and services in the ABF Trade Show contact the ABF Office, P.O. Box 1038, Jesup, GA 31598, 912.427.4233, FAX 912.427.8447, email: info@ABFnet.org; website: www.ABFnet.org.

AMBROSE HONORED



John Ambrose (left) receive his award from Irvin Rackley, past NCSBA President.

At the North Carolina State Beekeepers Association's (NCSBA) annual Summer meeting, Dr. John T. Ambrose was awarded the newly created highest award, Distinguished Service, as an expression of the highest honor and appreciation that can be given by the Association.

Presentation of this Distinguished Service Award recognizes Dr. Ambrose's accomplishments over the past 25 years while serving North Carolina State University as a professor and apiculturist. He has made extraordinary contributions to the beekeepers everywhere. Dr. Ambrose was the Extension Apiculturist from

1975-2001 and the NCSBA Executive Secretary from 1977-2001. During this time the NCSBA has grown from less than 300 members in 1975 to approximately 1500 in 2001. The local chapters have grown from five to 44, a tremendous growth in his 26 years with the association. He supervised the honey bee research of his many graduate students, dealing with honey bee pests, pollination and other related subjects. Dr. Ambrose has wholeheartedly sacrificed his talents and strengths far beyond the call of ordinary duty for over a quarter century to beekeepers everywhere.

HOUSEHOLD FOOD SPENDING

Average per-person total food expenditures, adjusted for inflation, declined about 7 percent between 1990 and 1998, from \$2,189 to \$2,037. This decline resulted primarily from the average at-home food expenditures per person declining by about 6 percent and the away-from-home food expenditures declining by about 8 percent. Price-adjusted food spending reflects changes in the real price of food as well as any quantity adjustments made by consumers. However, the national average masks the

fact that some population subgroups had significantly higher or lower food expenditures than average. For example, while total food spending declined for all demographic groups except female-headed and black households, these two groups still had the lowest per capita spending. In contrast to this, per-person total food expenditures were greatest for households in the highest income quintile, for one-person households, and for households with heads between 55 and 64 years of age.

POULTRY THREATENED BY AIRLINES

Northwest Airlines will no longer accept live poultry for the US Postal Service effective September 1, 2001. This will dramatically affect the ability of hatcheries and poultry breeders to conduct business and seriously impact their ability to distribute rare poultry breeds in an affordable manner. Murray McMurray, owner of Murray McMurray Hatchery, Webster City, IA, has been leading the effort to address this crisis. Northwest's decision is a serious blow to everyone involved with poultry. The USPS is

in negotiation with United and American Airlines, who do not currently transport live poultry, to do so. McMurray believes "there is a good chance these airlines will try taking live poultry." Despite this ray of hope, he said the USPS will soon issue a "huge list of cities" at which it will no longer ship or receive hatchlings.

If you are concerned about this and would like information please visit www.mcmurrayhatchery.com/takeaction.asp, and call or write your congressmen.

USDA Opts Out Of Storage Business REDUCE SUGAR INVENTORY

The U.S. Department of Agriculture today announced that it is taking additional steps to reduce its inventory of surplus sugar by implementing a Payment-In-Kind Diversion Program for the current crop.

The USDA's Commodity Credit Corporation has accumulated 741,148 tons of sugar under the current sugar price support program. Because of the nature of the product, there are fewer opportunities for use of this surplus than for other commodities. The CCC is incurring monthly storage costs of \$1.35 million on 446,594 tons of refined sugar and 294,554 tons of raw cane sugar.

The PIK Program will offer eligible sugar cane and sugar beet growers the choice of diverting from production a portion of their 2001 crop in exchange for sugar held by the CCC. Farmers can bid for this sugar in CCC inventory by offering to divert acres from harvest. The total diversion program will be limited to a maximum payment-in-kind of 200,000 tons of CCC-held sugar, and individual farmers will be limited to a maximum \$20,000 value in sugar. By reducing this year's harvest, the PIK Program will help reduce government inventory costs and alleviate the current sugar oversupply situation.

Sign-up for the program was in September. Individual producers con-

tacted local USDA Service Center or FSA County Office to obtain additional information, report the specific acres diverted, and for program forms. The amount of sugar in dollars per acre that the producer could generate will be computed for each producer, and each producer specified in dollars the amount of sugar the producer will take to divert the acres. Bids were ranked on the percentage that the second amount is of the first. The bids will be ranked so as to ensure that the 200,000 ton goal is not exceeded.

The Department plans to announce by September 28 which bids it will accept (by ranking percentage) subject to such additional eligibility criteria as also may apply to the program. Program agreements with full details are available from Farm Service Agency county offices after September 10 for those areas where the program will be made available.

The PIK program is authorized under the cost reduction options provided for in the Food Security Act of 1985. USDA's objective is to move this program toward a more market-oriented system that would reduce government involvement in the storage of sugar. Large publicly-held sugar stocks can have a distorting impact on the market and the sweetener industry as a whole.

HONEY BEES AS PESTS?

A proposal to declare wild European honeybees pests in New South Wales is causing concern and controversy.

The decision, due soon from the National Parks and Wildlife Service, would see feral bees targeted in an eradication program that would likely involve the use of poisons.

Beekeepers have warned that such a baiting programs would also kill managed and native bees and other nectar-eating insects. A number of native bird species catch honeybees as part of their diet and could be killed if they ate bees which had been poisoned.

If bees are declared a pest, apiarists would be banned from putting their hives on government land, including national parks and state forests sources of a lot of honey.

An independent scientific committee responsible for additions to the Threatened Species Conservation Act has made a preliminary decision to list competition from feral honeybees as a threaten to native

wildlife. It argues that feral bees inhabit tree cavities that could be used by native bees, mammals and birds.

The state apiarists association said an extermination program using poisons or pesticides would never be accepted because research showed native insects were also attracted to the bait stations.

Orchardists in the Blue Mountains outside Sydney depend on feral honeybees to pollinate their crops because the area has few managed hives.

Keeping unregistered bees has cost a New South Wales man A\$6,011 (US\$3,065).

Leonard Charles O'Brien of Tamworth was fined A\$500 and ordered to pay court costs of A\$58 and professional costs of A\$5,453.

The Apiarists Act provides a maximum penalty of A\$2,200 for keeping unregistered bees and a state department of agriculture spokesman said beekeepers needed to be registered to maintain effective disease control.

THE AMERICAN BEEKEEPING FEDERATION has many benefits to offer its members. Send for a membership packet of information today! Contact the American Beekeeping Federation, P.O. Box 1038, Jesup, GA 31598, ph. (912) 427-4233, fax (912) 427-8447 or email info@abfnet.org.

IRISH BEEKEEPING. Read An Bheacaire (The Irish Beekeeper) Published monthly. Subscription \$18.00/year, post free. Mr. Graham Hall, "Weston", 38 Elton Pk., Sandycove, Co. Dublin, Eire, email: Graham_Hall@dtti.team400.ie.

THE AUSTRALASIAN BEEKEEPER. Published monthly by Pender Beekeeping Supplies Pty. Ltd. Send request to: The Australasian Beekeeper, PMB 19, Maitland NSW 2320, Australia. Sub. \$US 27.00 per annum, Surface Mail (in advance). Payment by Bank Draft. Sample free on request.

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BOTTOM ... Cont. From Pg. 56

The girls laughed and clapped their hands. "I need a body." The bird demanded.

"Hand me another piece please," I croaked to Lindsay. She gave me her ball of wax. I jammed it onto the head and drew out a long skinny neck. "I'm a baby bird, a small naked baby bird pushed out of the nest by my cold hearted siblings." I pulled out a pair of little skewed wings and legs from the distended belly. The grayish translucent wax was remarkably life like, or more accurately death-like and the pallid creature in my hand almost whispered, "I am a dead baby bird. I've been dead for three days now." With that dying gasp the pathetic little bird lay cold and motionless, legs sticking up, neck twisted, and beak half opened. Lindsay and Kayla stared at it. Kayla gently picked up the wax bird and held it in her hand. *Behold, Death, thou remindest me why I never chose Art for a career. All my artworks looketh dead.*

"Does your Mom scream?" I asked Kayla, too late. Where she stood a second before a little cloud of dust swirled to the sound of air rushing in to fill a vacuum. "Well Lindsay, let's go find Kayla and your Mom"

The women chatted in the garden. Nancy was giving Alicia some spinach and a couple wheelbarrow loads of zucchini squash (free with

material, including question & answer section. For information or free copy, write to: AMERICAN BEE JOUR., Hamilton, IL 62341.

THE AUSTRALIAN BEE JOUR. Monthly, SeaMail \$35.00 (Aus.), AirMail \$50.00 (Aus.). Write to: Victorian Apiarists' Association Inc., Editor, Ms. Eileen McDonald, R.S.D. McKenzies Hill, Castlemaine, Victoria, 3450 Australia. Sample on request.

THE NEW ZEALAND BEEKEEPER. National Beekeeper's Association of NZ. Write for rates & indicate whether airmail or surface. NZ BEEKEEPER, Box 3079, Napier, NZ.

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the purchase of a 5 lb. jar of honey). Kayla showed the waxen bird to her mother. Lindsay and I heard a sound like a siren but instead of the pitch coming back down it went up and up until it was beyond the range of human hearing. Neighbor dogs began to bark, then whine and scratch on doors to be let into the house. I heard the crack of a pane of glass on one of the shop windows. I felt Lindsay's timid hand take mine and we walked very slowly toward the garden. "Your Mom does scream, doesn't she?" She nodded solemnly.

By the time Lindsay and I shuffled up to the group, Nancy had already soothed the troubled waters and Alicia was plotting how her husband would find the little dead bird, perhaps in his cereal bowl or laying on the floor of his office. We waved as the van pulled out of the driveway axles groaning under the weight of the zucchinis, Kayla clutching a five pound honey jar, Lindsay cradling the dead wax bird, and the baby drooling. Nancy gave me a dirty look. "Now Mr. Troublemaker, you can go back to work"

I waited until she was out of sight, then slipped into the shop. In the bucket in the sunlight a whole nest of dead baby birds called to me, "Make me, make me too!" **BC**

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It wasn't my fault. Sometimes apparently unrelated streams of events collide at a single point in the Time-Space continuum. They form something like a miniature version of the Big Bang. Even the most modern cosmological theories cannot predict the effects of these collisions. I can't help having an artistic gene, much less control it. And I had nothing to do with the woman who wanted to buy honey and brought her inquisitive and delightful little girls along.

Alicia* stood beside her van talking animatedly to my wife, Nancy* in the driveway. I poked my head into the van and said hi to the kids inside. The two approximately waist high girls asked if I wanted to see their baby brother.

"Does he bite?" I asked cautiously. You never know with baby brothers. Kayla* stuck her finger in his frothing mouth to show how safe he was. I gingerly patted his head, staying clear of the mouth area. Baby mouths are crawling with deadly germs. He was approximately the size of a small woodchuck, and must have been over two weeks old as his eyes were starting to open.

Be careful what you say about babies. I learned never to say, "Your baby's face looks like a beet" or "did the hospital forget to install a neck on this kid?" After my last trip to the emergency room, Nancy taught me what to say about babies:

"Very err...cute, I guess"

"Can I see your bee houses?"

"Huh?"

"Your bee houses - can I see them?" Kayla repeated.

"Well... sure, if you ask your mother first." I always enjoy showing my "pets" to anybody who will look. I must have blinked because Kayla disappeared right in front of my eyes - nothing left but a cloud of dust and the sound of air rushing in to fill a vacuum.

There was a tapping on the back of my knee. I turned and looked down. "Mommy says I can look if you come with me." Now Lindsay* was unbuckling her seat belt. "I'm coming too!"

So the two little girls followed me up the hill, peppering me with questions all the way. I opened one hive and they looked at the bees on the inside of the lid with terror and awe. The bees were not in the mood for much handling without smoke so I replaced the lid and we returned down the hill. The girls weren't quite satisfied with this cursory examination of the "bee house"

"Can we see some honeycomb? I've never seen any in my life!" Kayla pleaded.

Poor deprived Kayla. "I'm sorry," I replied, "It's all in the hives. The bees are filling it with honey right now." Then I remembered a bucket of scrapings in the shop. "Wait a minute. I can show you some comb, I guess. There's no honey in it, though."

The bucket was sitting in a sunny window. I pulled out a couple pieces of soft and slightly moldy grayish combs from among the pieces of old black wax.

"Can...can...I...can" Lindsay stuttered.

Kayla translated, "She wants to ask you if she can have some wax"

"Well, maybe a piece," I guessed her mother wouldn't mind.

"What do you do with wax?" Kayla wanted to know.

"Oh, I'll melt it down and maybe make candles or something." I really didn't want to explain the process of rendering

it and sending it to a wax foundation manufacturer.

"But what else can you do with?" Kayla was not satisfied with simple answers.

I sell some wax to art students at the local university. That reminded me what a child might do with a bit of wax. Little girls understand clay. I suppose they use clay in elementary school.

"I know what you can do with it. When it's warm you can mold it like clay." I took a piece of sun warmed comb and rolled it into a ball the size of a large marble.

Something happened in my brain at that moment that I can't explain. If you know an artist, ask them to describe what happens when the creative urge overpowers them. Some will work for days without eating or sleeping until they collapse. I am pretty successful at suppressing the artistic demon and can live a fairly normal, stable life with a real job. But suddenly that little ball of wax seemed to speak to me. "I'm a bird. Make me a beak." I pulled a cone out of the ball and split it in to an upper and lower beak. I poked two eyes into the sides with the point of a pen. And behold! I saw that it was Good.

Continued on Page 54

**Names may have been changed to protect privacy*

Dead Baby Birds

Peter Sieling

BOTTOM BOARD