MAY 1996

Bee Culture

Bee Culture

THE MAGAZINE OF AMERICAN BEEKEEPING

MAY 1996 VOLUME 124 NUMBER 5

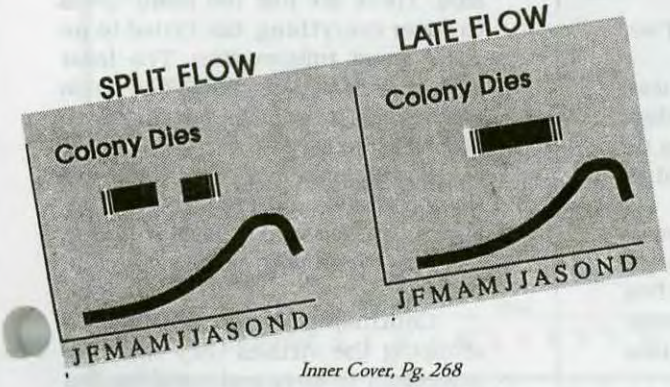
FEATURES

COVER

Jay Miller's great-grandfather started Miller Honey over 100 years ago, but Jay, and his brother John are taking the family business into the next century.

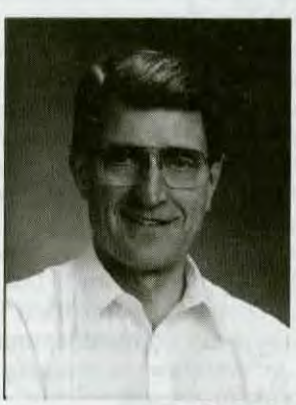
photo by Lynn Tilton

DEPARTMENTS



Inner Cover, Pg. 268

COLUMNS



JOHN ROOT
Publisher

KIM FLOTTUM
Editor

Some good, practical information on *Varroa* biology has come out recently that, when coupled with some already-known bee biology offers real hope in better control of *Varroa*, and coincidentally, tracheal mites.

It all has to do with the timing of your controls, and the way you think about bees. You may not like this. In fact, you may not like this at all, but to keep bees now requires a different way of thinking.

Starting in early spring, as early as you can get in put grease patties on your colonies. Or, replace those you left on all winter. You want fresh patties on all year long for tracheal mites. Patties work. They don't give complete control, but they do keep populations low. Recent research has shown that the best time to control tracheal mites in a colony is early spring. Knocking down an existing population then keeps them at less than economic levels all season. Keeping patties on the rest of the season holds any invasion in check. Menthol works where the temperature cooperates, but up north that's questionable. Use TM in patties early to help stress. Pull TM and menthol before your flow starts.

A one-time treatment would do it if reinfestations didn't occur. And reinfestations seem to occur with increasing frequency, bringing all manner of baggage – more tracheal and *Varroa* mites, viruses, AFB . . . So, keep the pressure on tracheal, all year long.

This is also the time to check for *Varroa*, and this is where the first controversial part of this program comes in. Checking for *Varroa*, and interpreting the results can be difficult. Using an Apistan strip and sticky board, the ether roll or tobacco smoke techniques are all methods you can use along with checking drone brood.

I suspect you'll find some trace of *Varroa*. Maybe not, but probably. It does depend on how you test – the two-day strip is better than ether, which is better than tobacco. But time and energy and opportunity will dictate which you use. No matter, whichever you use, use it all the time, and use it correctly.

Quickly. Two-day strip test – insert one or two strips in the center of the brood nest for two days with a protected sticky sheet on the bottom board. Count mites. Ether roll. Use a quart jar, scoop a 100 or so bees off the comb in the center of the brood nest (don't get the queen), squirt in some ether, roll and shake and look for mites on the side of the jar. Tobacco. Put three or four handfuls of pipe tobacco in your well-burning smoker, puff 10 or 12 good puffs in the front and the same in the top (put in a sticky board first), close up the colony for a half hour or so, then check the board. Drone brood. Uncap some, look for *Varroa*.

So you'll either find mites or not. How many did you find? Two, 10, 50 – or, hardly any, some, lots.

Now, look at the set of charts at the end of this article. You need to know when your honey flow starts, if there are any dearths, when it picks up again and when it ends. Since you can't have strips on during a flow you need to treat at exactly the right time to control *Varroa* mites, *depending on your flow!*

There's two schools of thought here. One says, "Treat as soon as you find even a single mite in only one colony". The second says, "Don't treat until there is an economic population present, then treat every colony." To date there are no reliable numbers on what is an 'economic' population, or even how to evaluate a population depending on the sampling technique used.

If you're a gambler, or have a feel for how many *Varroa* you have by checking brood, ether roll or strip test, you can wait until whenever and treat. Personally, I advise against it. The population grows rapidly, and a week or two delay (weather, vacation) would spell disaster.

Look at the honey flows. Yours is there – early, mid, split or late. Then look at the top row and the line depicting *Varroa* populations. (This curve *may* be steeper than actual growth cycles, depending on strength of initial infestation.) See why your colony died last year?

The second row shows what happens if you treat at the most vulnerable point in the growth cycle of the beast, when the population begins building at a geometric rate. Hit 'em then, and they don't come back.

The third row shows a more realistic pattern. The *Varroa* population is hit in the Spring, then the colony is reinfested, the population (and virus) rebuilds and the colony crashes in the Fall. Sound familiar?

Rethinking Your Schedule
An Integrated Control Program for Tracheal & *Varroa* Mites

The bottom row shows some scenarios on treating twice when a colony is reinfested.

Let me reinforce something, before we go further. These charts are based on some solid evidence, some broad generalizations, and some educated guesses. There are still lots of holes in the *Varroa* cycle, but more is known (especially from Europe) than I thought. Honey flows are generalized. There are just too many areas to cover everything, but I tried to include most information. The least known area is what does *Varroa* do *after* a treatment, along with growth after reinfestation.

So remember to test. No matter the technique used, use it often. Early spring, midsummer, late summer. Keep in touch with what's going on inside.

Controlling *Varroa* is critical in stopping the viruses they activate, (especially in larva and pupa) leading to BPMS and colony collapse. How-

Continued on Page 310

Reader Assistance

To subscribe to *Bee Culture* remove or copy the form below, fill it in and return it and your remittance to the address at the bottom. Please allow 3 - 5 weeks for your first copy to arrive. And Thank You!

☐ Please Renew ☐ New Subscription ☐ Send Sample

☐ **2 Years (24 issues) - $30.00** ☐ **1 Year (12 issues) - $16.50**

☐ **2 Years (Foreign) - $48.00** ☐ **1 Year (Foreign) - $26.00**

Airmail on Foreign Subscriptions Available on Request. Find my enclosed check, or charge to my Credit Card. Call for information on back-dated subscriptions.

Name _____

Address _____

City _____ State _____ Zip _____

Phone # _____

Please check one.

☐ Visa ☐ MasterCard ☐ Discover

Expiration Date

KEEP IN TOUCH
1-800-289-7668 Ext. 3220
FAX (330) 725-5624 or
E-Mail – BCULTURE @ AOL.COM

ADDRESS CHANGE

If you are moving, please fill in the form below so we can process the change without undue delay. Also, if you have 2 addresses during the year (i.e., winters in Florida and summers in Connecticut), let us know which months you spend where and we can pre-program your address change so you will find us waiting when you move – No Delays, No Fuss!

FOR PERMANENT CHANGE:

Name: _____

Old Address: Street _____

City _____ State _____ Zip _____

New Address: Street _____

City _____ State _____ Zip _____

FOR TEMPORARY CHANGE:

Name: _____

Address No. 1: Street _____

City _____ State _____ Zip _____

Circle Appropriate Months: J F M A M J J A S O N D

Address No. 2: Street _____

City _____ State _____ Zip _____

Circle Appropriate Months: J F M A M J J A S O N D

Bee Culture is available on microfilm from: University Microfilms, Inc., 300 N. Zeeb Rd., Ann Arbor, MI 48103

Bee Culture
THE MAGAZINE OF AMERICAN BEEKEEPING

Publisher ..... **John Root**

Associate Publisher ..... **Robert Stanners**

Editor ..... **Kim Flottum**

Production Coordinator ..... **Kathy Summers**

Photo Reproduction ... **Moonlight Graphics**

Circulation & Advertising ..... **Dawn Feagan**

Publications Assistant ..... **Mary Weigley**

Contributors ..... **Richard Bonney**
Roger Morse
Richard Taylor
Mark Winston
Clarence Collison
Ann Harman
B.A. Stringer

Subscription Information
United States, one year, $16.50; two years, $30.00. Newsstand price: $1.95. All other countries, (U.S. Currency only), $9.50 per year additional for postage. Send remittance by money order, bank draft, express money order, or check or credit card. Published monthly. Change of Address: Return form on this page. Articles are solicited. Opinions expressed by the authors are not necessarily those of the publishers.

Advertising
For information on placing display advertisements, contact our Advertising Dept. 1-800-289-7668. Ext. 3220

Postmaster
Please send form 3579 to: The A.I. Root Co., 623 W. Liberty St., Medina, OH 44256 Tele. 330-725-6677.

Circulation Figures reviewed monthly by Deloitte & Touche, CPAs, and are available on request.

The A.I. Root Co., Publishers
623 W. Liberty Street
Medina, Ohio 44256

ISSN 1071-3190

Second Class Postage Paid at Medina, OH and additional offices.

KEEP IN TOUCH

Write: Editor, 623 W. Liberty St., Medina, OH 44256
FAX: 330-725-5624
EMAIL: BCULTURE@AOL.COM

MAILBOX

Equipment Notes

It's been awhile since I bearded the lions in their dens, but here goes. In the February issue I found a number of items needing comment. The first is by David Eyre who was not afraid to speak out against some of the equipment foisted on beekeepers by manufacturers only because it was invented by Langstroth. Agreed it was the best at the time, but little has been done since by the manufacturers. I don't know what Mr. Eyre's design is but it may encompass some of the ideas which I use on and in my hives. The Langstroth hive and frames as made by Dadant, Root and others is a perfect haven for wax moth larva. Removal of the wedge at the top and one of the bottom bars denies two places for the larva to pupate in.

This has nothing to do with Eyre's article but with the manufacturers who refuse to change their designs when it is obvious the article in question is not serving the purpose for which it was designed. The article referred to is the metal frame rest, which some makers call metal rabbets. The "rabbet" is the notch on which the frame rest is fastened. Unfortunately the frame rest which is there to prevent propolizing the frames to the "rabbet" does not serve its purpose because it is designed and fastened incorrectly. It should be installed so the metal surfaces cover the rabbet so the frame tops will not be propolized to the rabbet. As presently designed it does not prevent propolization of the ends of the bars to the wood. Present frame rests can be used to cover the "rabbet" but the edge that extends off the "rabbet" must be peened over the edge. The Root & Kelley frame rests are notorious for providing space for the wax moth larva to hide and pupate under the top bar ends. A better metal frame rest, which would really serve the purpose would extend over the top edge of the box, cover the rabbet and be fastened again below the rabbet on the inside.

For those who use wax or plastic foundation, the foundation may be stapled at the top and bottom. This also gives the bees at least four more rows of cells to use. I now use plastic netting which is stapled to the frames on which the bees draw perfect combs.

I agree with Bonney that the entrance feeder is pretty much a joke and top feeding is the most efficient, but not over the hole in the inner cover!

Bees feeding, in addition to producing waste, also produce water which rises and collects on the bottom of the inner cover. When it becomes heavy enough it gives the bees a cold bath which could be fatal. A better method is cover a couple of sticks on the top bars with newspaper crumpled around it. A good feeder is a gallon plastic milk jug with about 20 or 30 holes placed in the side with a push pin; not a thumb tack or small nail. The initial holes should be very small, just large enough to permit the syrup to seep through; they can always be made larger. This jug will permit the use of a 5-11/16" box to be placed around it. If you are using an inner cover and telescoping cover, place used beer bottle caps between them. This will permit moisture to escape, as well as provide an upper entrance, which is more important in the winter than the summer. Caps should be placed open side up so ants and wasps don't nest in them. You will also find, in the summer, with good top ventilation, your bees will not have to waste time and effort fanning at the front entrance.

Vic Blazevic
Little North Mountain, VA

Good Crop, Good Salesman!

A few years ago I wrote of the arrival of two colonies of honey bees, compliments of my dad. I wrote subsequently of a yearly harvest of one five-pound jar of honey. I did do better the following year, 140# of honey, no swarms, and the joy of eating my own honey on English muffins.

Last year was hot, remember, very hot. In this area of Wisconsin you couldn't find an air-conditioner except by three-month waiting period. But the bees were in their glory. I had two survivors and bought two packages. I split the strongest survivor to bring the colony total to five. The weather produced a tremendous first crop of alfalfa. Many acres directly adjacent to my yard were left in full bloom for weeks. By second crop the apiary was beginning to look like Manhattan under construction. Again full blooming alfalfa in scores of acres within feeler range of the hive entrances. I went as high as eight and nine supers on each hive. They were filling them up so fast, for me and my dad, we considered early extracting. With enormous self-control, and the hope a couple weeks wouldn't matter, we waited. The weather turned foul and an extra eight to 10 day wait for conditions to improve probably cost some surplus, but I ended with 701# from four colonies and a split.

I brought the honey from the extracting house, 10 60# jugs and assorted jars, and my wife said, "Now, what are you going to do with all that honey!" "Sell it." I replied, challenged by my own words. I had a few customers from a year ago, and I attacked the phone book for anything that looked like a possible outlet. I learned in my years as a cabinet maker not to say "It wouldn't work!" to myself, so I'd call or stop in at grocery stores, health stores, food co-ops and the like. I brought 12 oz. embossed canning jars to work. My wife's dad has a hardware store and as a bit of a joke invited me to bring honey there, and since last September a case of 2# every two weeks has gone in the

Continued on Next Page

MAILBOX

bags with light bulbs, drywall screws, and pipe dope. I've sold in sizes from 8 oz to 60# containers and have established regular agreements with several stores for future harvests.

Ya gotta understand, I've always been a good salesman though the profession never appealed to me. About an hour ago I received a call for 75 to 100 60# pails a year! I had to bow out, but, I tried to hook the caller to a bee man with several thousand colonies. So I have one 60# jug left and it's March; six months to harvest. My dad got around 4000# from about 30 hives. He sold his in 55-gallon drums when the wholesale price went up, but has a few pails he can sell me to get through. He's always been nice like that.

Winter's been terrible. I lost four out of five. Dad is down to three or four from near 30. I hear similar results from others. It seems the prices for honey will go up, but if we'll be able to take advantage of it the Lord only knows. In the meantime I read the memories in my bee diary and marvel at what may be a once in a lifetime experience.

John Kopecky
Reedswille, WI

Soybean Light

Regarding Brad Kurtz's article in March 96 *Bee Culture*, my contention is a majority of my bees work the many nearby soybean fields as I don't see them working local clover, annual flowers or wild flowers to any extent. If this is true, soy beans provide an excellent nectar source as my producer hives averaged 145 lbs. plus. It is light and of excellent quality based upon consumer comments, though when asked of a source I declare it to be weed honey. I would like to see an article regarding the quality of honey from specific nectar sources such as soy beans, locust trees, basswood, etc. of the midwest.

Robert Rauch
Higginsville, MO

Bee Art

This is a letter of thanks to all of the people that responded to my "plea" for BEE art that I could put into my computer. I received at least a dozen letters that contained pictures of bees or bee related objects. Again, thanks, and I hope that I will be able to help someone else should they need it.

Dan Brown, P.O. Box 3252
Port Angeles, WA 98362-6280
(360) 452-6280

YUGO Data

Responding to your question regarding ARS queens – I have eight hives of bees, four of which are Italian, two are Buckfast and I had two hives which I had taken out of buildings which turned out to be African cross. After being stung up pretty well each time I worked them I ordered two ARS queens from Blue Ridge Apiaries. I introduced these the 15th of May of 1995. By the end of July both were loaded with bees although they crashed after the honey flow – both wintered very well and came out the strongest of the eight hives this spring. I plan to use all ARS queens but wish there were more suppliers. We are experiencing a severe drought in south and central Texas. So don't know if we will get a honey flow or not at this point.

Stanley Stehle
Schertz, TX

•

Your March issue is the best in years, keep up the good work. Also, I agree with your assessment of scientific researchers and biologists in the November 95 issue. Although, guest writer R. Greenler gave a polite partial rebuttal in this issue.

In reference to Mr. Burchett's questions about the ARS-Y-C1, I have ordered five 3# packages of YUGOS the last three years. They are gentle, little or no burr comb, have clean top bars and no propolis. They don't produce as much honey as the Italians and have to be watched closely in the Spring or they will swarm for lack of space.

The YUGOS will have food and brood chambers packed full of honey (except about three or four frames of brood and pollen) come Spring time. They winter VERY well, and I don't treat for Tracheal but use Apistan in the fall.

My sources in the past have been Howard Weaver & Sons (Morris) who is out of business now, Taber's in CA, Hardeman's in Mt. Vernon, GA and Honey Land Farms in FL.

I keep from 25 to 30 colonies and like the YUGO very well. I will trade a little honey for the ease and gentleness! I have ordered six more 3# packages from Hardemans again this year.

D.B.
Austin, TX

Import Law Needs Changing

One of many concerns I have as a bee breeder in the US is that we do not have access to the work being done in other parts of the world with regards to bee stocks. We may be suffering economically due to losses of colonies that may have been prevented if we had access to other stocks.

I've received requests from many parts of the world for Starlines for honey production, but there has been demand from South America for the ARS Y-C-1 Yugo stock. It seems a shame we can not use stocks from other parts of the world, while they have access to the improvements in stock we have made. This is due, I understand, to a law against the import of foreign races of bees dating back to 1922.

I understand that the importation of bees has many hazards – mites and other things we do not have here but, I can not understand why in 1996 after over half a century of Instrumental Insemination that we are not allowed to at least import semen from areas of selected desirable stocks(i.e. from Italy, France, Austria). It would seem to me that we should at least be able to import semen from the gene pools of the bee stocks that we now have.

My main point is this, practical bee research is a precious commodity and it is extremely expensive. Why should we limit ourselves to the resources that we have here in the US. We need not be so arrogant to think that if some one else

MAILBOX

develops a bee resistant to mites or a better honey producer that we can do the same. Even if we can, at what cost in time and resources?

Please do not misunderstand my motives. This is not a slight to anyone in Government or the research community. It is an issue that needs to be addressed by American beekeepers. This law needs to be modified to allow the importation of semen. It would allow for joint research projects between countries working with same stocks. The benefits would be many and the draw backs few.

An example of an import program that has worked is the Buckfast program. There are Buckfast cooperators in at least three countries that I know of, Canada, Germany, and the US. Remember, we can not import Buckfast stock from Buckfast Abbey as it is illegal to import stock from Europe. We are not able to participate in the Buckfast program without going thru Canada. The other program which comes to mind is the ARS-Y-C-1 Yugoslavian stock. As you can see the importation of bee stocks can be very rewarding.

I would be very interested to hear any and all comments on this issue as it is something that needs to be addressed by the US. beekeeping fraternity. I am interested in how others feel on this subject.

Dean M. Breaux
Exe. Vice Pres. , Hybri-Bees Inc.
11140 Fernway Lane
Dade City FL 33525
(352) 521-0164
E-mail Hybribees@aol.com

Mineral Nutrition

I have observed that bees gather around puddles in animal yards or suck sweat off your hands.

My reasoning is they are either short of minerals or salt or both.

The USDA put out a report in 1988 or '89 stating that our land is 88% depleted of minerals and that land farmed 200 years may be 100% depleted of trace minerals.

The plants bees gather nectar from grow on depleted soil. How else can the bees forage be anything but depleted also?

I have tried some experimental projects that didn't work and some that did.

I tried one teaspoonful of Real Salt (a natural mineral salt) to two gallons of syrup. They ignored it almost completely. I cut it down to 1/4 teaspoonful per two gallons and they lapped it up.

This amount will vary according to the location, fertility, or depletion of the soil and the amount of rainfall.

The reason more people haven't tried feeding salt is because it isn't recommended or they haven't thought about it. We feed our livestock salt.

I've had beekeepers mention feeding salt but no scientific data has been published to my knowledge.

I believe a part of our bee problems stem from a lack of nutritional support. Just as in humans when the immune system is functioning properly seldom are we sick. I believe this will hold true for bees as well.

James Hagemeyer
Madisonville, TN

•

I've found a medicated feed supplement for cattle that the bees actively work throughout the season. They need something in there, I would suppose. I am adding this to my grease patties on a trial basis. Maybe some research is needed here to determine the mineral or minerals the bees need. They get this from the feed troughs, anyway, so I may as well feed it.

Michael Meyer
Springfield, MO

Wooden World Comments

The article by Richard Bonney (Wooden World II) is excellent with a lot of work and thought involved in different wood goods from different manufacturers and assembly. However, since folks are continually critical of me and my beekeeping I am a bit critical of a few of assembly ideas. These are itemized.

Inner covers: Except for use with bee escapes to remove bees form supers they are useless. During cold weather they snap off and bounce in the air followed by the bees ready to sting. Better and cheaper are empty plastic 100 lb. fertilizer sacks, burlap sacks or scraps of carpet cut to fit, all of which can be pulled back exposing as much comb and bees as the smoke and you can handle.

Frame nailing and assembly: The ninth nail Bonney talks about does no good, but the 4-3/4 inch nails put through the shoulders of the end bar help prevent the shoulders splitting off when stuck with propolis and add much strength. In 25 years I have added wood dowels cut to the same length as the end bar and glued into drilled holes top and bottom. This adds a lot of strength to the frame especially if a mouse chews through the end or bottom bar. I do not use foundation in most of my combs but I do not recommend that practice to beekeepers in general. However if a person desires to place foundation in a frame with dowels it is no problem if the wax is warm and the wood is too. Use of the wood dowels is not original with me, I got the idea from L.L. Langstroth who used something similar.

Steve Taber
France

Quality Pays

If you care for your equipment the equipment will care for you. I purchased my first five hives in 1975. We painted the parts with a high quality paint. Today, 21 years later I still use that equipment.

I repaint about every four years and all hives are on a stand.

This Spring my kids will be constructing their own hives (ages 8 and 10). I will insure that they use only top quality products.

So as we say "The basis is not only a good bottom board but also a solid foundation."

Any reader who would like to share their first years of beekeeping with my boys please E-mail us.

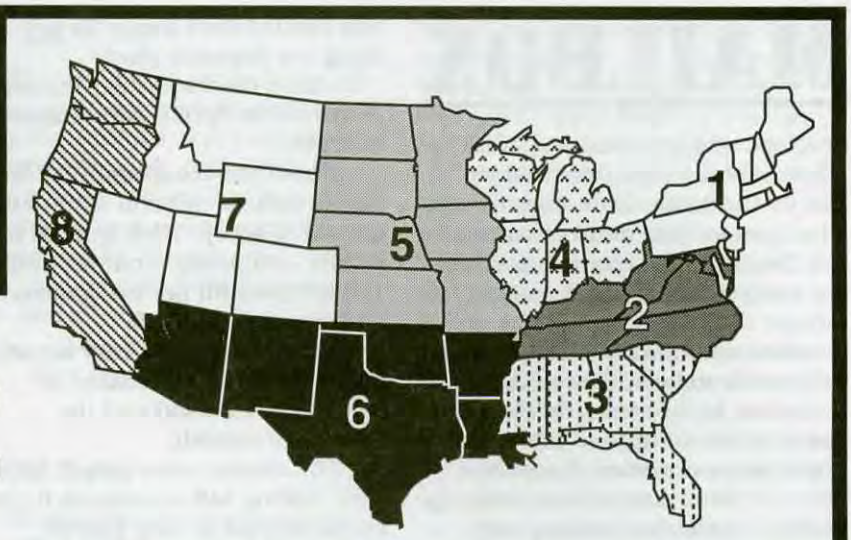
Bill Dorrity
West Enfield, ME
bdorrity@telplus.net

MAY
Honey Report

MAY 1, 1996

REPORT FEATURES

Prices shown are averages from many reporters living in a region, and reflect that region's general price structure. The Range Column lists highest and lowest prices received across all regions, from all reporters.



	Reporting Regions								Summary		History	
	1	2	3	4	5	6	7	8			Last	Last
Extracted honey sold bulk to Packers or Processors									Range	Avg.	Month	Yr.
Wholesale Bulk												
60# Light	45.61	48.00	45.80	58.93	51.96	42.75	48.50	46.50	39.00-66.00	50.87	47.98	41.55
60# Amber	44.19	52.94	46.00	58.93	50.00	39.25	47.25	44.00	35.00-66.00	50.30	45.61	39.93
55 gal. Light	0.73	0.55	0.78	0.85	0.85	0.57	0.72	0.70	0.55-1.23	0.76	0.67	0.56
55 gal. Amber	0.69	0.55	0.70	0.82	0.78	0.61	0.68	0.66	0.50-1.08	0.71	0.62	0.53
Wholesale - Case Lots												
1/2# 24's	24.14	26.48	20.80	25.67	26.81	23.95	25.50	23.85	20.40-35.00	25.03	22.50	21.69
1# 24's	34.09	34.53	32.80	38.08	33.85	32.95	34.05	34.00	31.20-43.20	35.25	32.57	31.32
2# 12's	31.79	32.08	35.90	37.27	31.35	29.00	32.25	30.00	27.00-47.76	32.94	30.89	28.71
12 oz. Plas. 24's	29.89	31.68	32.29	32.82	26.66	27.00	28.98	28.40	24.00-41.90	30.97	29.02	26.49
5# 6's	33.21	34.50	36.70	37.66	33.00	28.50	30.75	32.50	28.50-41.80	34.84	31.78	29.77
Retail Honey Prices												
1/2#	1.45	1.56	1.80	1.45	1.23	1.74	1.29	1.26	1.09-2.50	1.48	1.52	1.38
12 oz. Plastic	1.82	1.89	3.00	1.85	1.54	1.74	1.87	1.78	1.33-3.00	1.86	1.74	1.62
1 lb. Glass	2.16	2.26	2.80	2.23	2.06	2.04	2.22	1.91	1.75-3.59	2.20	2.00	1.86
2 lb. Glass	3.66	4.03	4.26	3.93	3.44	3.40	3.42	3.70	2.09-5.39	3.78	3.43	3.19
3 lb. Glass	4.59	4.94	5.67	5.00	4.25	4.16	4.65	4.76	3.50-6.33	4.79	4.59	4.46
4 lb. Glass	5.77	6.10	6.00	6.75	5.49	5.39	6.12	5.60	5.39-8.15	6.12	5.62	5.66
5 lb. Glass	6.93	7.71	6.90	7.05	6.04	6.07	6.97	7.34	1.49-9.99	7.33	7.08	6.73
1# Cream	3.10	3.46	4.35	2.31	3.11	2.65	2.87	2.11	1.99-7.99	3.07	2.57	2.50
1# Comb	3.51	3.26	3.00	3.95	3.20	4.50	3.75	3.60	1.95-5.00	3.70	3.35	3.20
Round Plastic	3.10	3.00	3.51	3.25	2.60	4.20	3.51	3.35	2.29-5.00	3.23	3.05	3.01
Wax (Light)	2.17	1.69	2.27	2.85	1.75	1.77	1.95	2.28	1.25-4.05	2.21	1.88	1.75
Wax (Dark)	1.76	1.54	1.78	2.00	1.80	1.33	1.80	2.05	1.00-3.25	1.80	1.54	1.39
Poll. Fee/Col.	31.01	22.34	32.50	32.50	32.00	10.00	35.00	31.33	10.00-55.00	32.66	30.25	28.94

MARKET SHARE

Colonies in the north about half gone. Bee suppliers in the south running late. Honey supplies gone or going. Imports not showing up at expected rate. Drought in the southwest, cold in the north, freezes in southeast. On the bright side, *Varroa* can be controlled, legally. Honey prices still going up, and will stay there. Used equipment again on the market, and cheap. Biggest class of new beekeepers in 15 years showing up at associations. The future is bright!

Region 1

Prices on retail moving up, finally, but bulk steady to lower, probably unavailable. Demand decreasing a bit as warmer weather moves in. Losses being counted, and they are high. 50% average, 80% not uncommon. Replacements hard to get.

Region 2

Prices steady to down a bit, especially in bulk. Demand steady, especially retail, with those prices steady to increasing. Colony conditions not great, but better than last year, at 10-40% losses reported.

Region 3

Wholesale down, retail up – similar pattern to much of the country. Prices being passed along to consumer. Late freeze and cool, wet spring have slowed build-up, along with ruined pollination crops. Colony conditions good to excellent.

Region 4

Late, late spring has held things back all the way around. Prices steady, but fluctuating. Losses high, very high, with 50-75% not uncommon. Replacements hard to get. Demand steady at retail, slowing at wholesale.

Region 5

Prices still climbing retail and wholesale, but cold in north has slowed buildup. Southern areas about on schedule. Losses high in north, about average – 15-30% in south. Demand still strong retail and wholesale.

Region 6

Prices steady at retail and wholesale. Demand steady. Colonies in good shape, but dry weather not a good sign. Losses marginal for the most part.

Region 7

Prices and demand steady, but moving around a little bit. Summer crops promise to be good, colony losses about average and mood generally upbeat. Now, will the pesticide applications rain on the parade?

Region 8

Prices gradually, and continually increasing as shortages become more and more keen. Pollination business good, but chaotic, even more than usual, as beekeepers torn – pollinate or make honey? Smart ones don't break contracts. Colony conditions generally good, and getting better. May have another bumper crop.

Guest Editorial by Susan Cobey

1922 Bee Law Needs Revision

The beekeeping community needs to take a more active role in selective breeding to address current industry problems. This will minimize the use of chemical controls which will reduce the risk of contamination of hive products. The importation of desirable foreign stocks could enhance such programs. The purpose of the Honey Bee Act of 1922 is largely outdated with the establishment of tracheal mites, *Varroa* mites and African Bees in the U.S. A revision of this law is needed to permit the safe introduction of proven stock.

The Problem: Chemical mite control has a limited future with many potential problems.

Mite problems are compounded by the fact U.S beekeepers have only one approved chemical control, for *Varroa* mites (Apistan) and for tracheal mites (menthol). But Fluvalinate (Apistan) resistant *Varroa* mites have already been reported in Italy and there is indication of tolerance in France and Germany.

The use of chemical controls raises other issues. In the evolutionary race, mites have the advantage of a faster rate of adaptation compared to honey bees.

The Solution: Developing mite resistant stocks can reduce mite problems.

Selection for tracheal mite resistance has already been successful. Selection for *Varroa* resistant stock is more difficult because of its relatively short association with *Apis mellifera*.

To minimize, and perhaps eliminate chemical use in colonies we must select productive honey bee stock that use several defense mechanisms against parasitic mites. Selective pressure may push *Varroa* into being a less damaging pest, as we see in Brazil and on its native host, *Apis cerana*.

Developing mite resistant honey bee stock is expensive, and resources are limited. The U.S. beekeeping industry can benefit from work accomplished abroad. For this reason, research institutions and commercial queen breeders should have access to genetically improved stock.

I have always been interested in legally obtaining *A.m. Carnica* stock from its native homeland. Recently I had the opportunity to see various stocks in Germany, Austria and the Czech Republic.

Dr. Friedrich Ruttner stated that *A.m. carnica* colonies demonstrated the ability to recognize and destroy *Varroa* mites on the average of 10 out of a 1000 colonies. Ruttner and Hanel, in1992, found that of the stock selected in Austria, 12 of 700 colonies showed a slower *Varroa* population growth rate. It was determined that 30% to 50% of mites had been physically damaged by worker bees. Ruttner also said, "Alois Wallner has colonies surviving for five years without treatment! The number of colonies which are allegedly resistant is constantly increasing."

Dr. Vladimir Vesley, director of the Bee Research Institute, Dole in the Czech Republic wrote to me in 1995 and said that, "*Varroa* resistant bee breeding programs continue on a broad scale. The work is long term, but we have found bees with high ability to harm active mites. Results from here as well as from Austria show that Carniolan bees may be very useful for this breeding type."

But importation is only a first step in a long process. To be accepted these stocks must be evaluated under local conditions and proven to be mite-resistant as well as productive and commercially viable.

When stocks are found to meet these criteria, the real work will begin - a program of stock maintenance.

Programs must continually place selection pressure on the stock if traits are to be maintained. A large gene pool to minimize inbreeding problems coupled with the ability to control matings as needed. This is an expensive, long term commitment.

Because of this, beekeepers have not fully realized the benefits of genetically improved stock because of the complexity and cost of breeding programs. No stock is genetically "fixed" without continual manipulation.

Recently, it appeared that interpretation of the 1922 Law was being relaxed with the apparent approval of a permit to a commercial interest. This has been revoked. In response to this, a request by the New World Carniolan Bee Breeding Program was submitted to import honey bee semen. The motive was to improve and diversify the genetic background of the stock, along with looking at resistance to *Varroa* mites. The permit was denied. This raised complex issues and confusion indicating a need to revise the law and clearly define a set of criteria for importation.

Importing honey bee semen is safe and effective and should be reconsidered. The risk of introducing parasitic mites and disease is eliminated, and we have the technical ability to analyze stocks to prevent introduction of undesirable genes.

A clear set of guidelines detailing the conditions under which foreign stocks are to be imported, evaluated, maintained and released is needed, as well as the ability of the recipient beekeeper to evaluate and maintain and propagate the stock. A panel of queen breeders, industry leaders, university scientists, and USDA/ARS researchers should be formed to develop guidelines and act in a supervisory role.

Viable breeding programs are essential to the future health of our industry. For this reason, the current law should be revised to permit controlled testing of foreign honey bee stocks. Industry leaders need to work with USDA/ARS personnel in an effort to rewrite the laws and develop a protocol to import stock in a reasonable and safe manner. BC

Susan Cobey, Ohio State University, Dept. of Entomology, 1735 Neil Ave., Columbus, OH 43210
Tel.(614) 292-7928 • FAX (614) 292-2180

Roger Morse

Research Review

"A good hive stand can go a long way in reducing stress and disease in a colony."

I think we cannot write too often or too much about the value of keeping colonies of honey bees in sunny locations, on hive stands and off the ground. The best apiary site slopes to the east or south. Selecting good locations for apiaries has become more important since the coming of the three new diseases into North America: chalkbrood, tracheal mites, and *Varroa* mites. There are several excellent research papers that tell us why it is important to help colonies keep dry and warm.

Honey bees control the temperature of the brood nest, the compact area in which brood is reared, not the whole of the inside of the hive warm. However, if the hive is damp in some part, then the whole hive interior will be affected. The brood nest temperature fluctuates one to three degrees, but ranges from 92 to 96°F. The fringes of the brood nest may be a little cooler than the center, and it is on the edges of the brood nest that you sometimes see some brood that has been killed by chilling because of a sudden drop in the outside temperature at a time when there were too few bees to protect the brood.

Spring is especially hard on bees. Colonies are stimulated to rear a greater quantity of brood at this time of year because of the increasing day length, spurts of warm weather, and especially, a good pollen flow. It is in the Spring that several of the lesser diseases show themselves; nosema, European foulbrood, sacbrood and chalkbrood are much more common at this time of year.

In 1934, in Switzerland, Dr. Ann Maurizio studied the development of the fungus chalkbrood in honey bee larvae. Her research is as important today as it was 60 years ago. She wrote that the growth of chalkbrood was blocked by the maintenance of a normal brood rearing temperature. If the brood is chilled for a few hours, the fungus will start to grow, and may kill larvae. Maurizio's research was supported by that of Bailey (1967) who found that he, too, could force the growth of chalkbrood in the guts of worker honey bee larvae chilled for only a few hours.

More recently, we have seen the report by Dr. Medhat Nasr in Ontario, Canada, that states that tracheal mite-infested worker bees cannot respond rapidly to sudden changes in temperature. If the temperature drops too rapidly on a Fall evening, there can be widespread chilling of the bees and the brood, and this can bring about the death of the colony.

Other common diseases of honey bees, including European foulbrood, nosema and sacbrood are seen much more in the Spring than in the Summer and Fall. This suggests that these diseases, too, are more prevalent under damp, wet conditions, but they have not been studied in the way that chalkbrood has been investigated. The subject of the benefits of nest temperature control is discussed by Seeley (1985).

What is a good hive stand?

Any solid object that gets the colonies' bottom boards six or more inches above ground is a good hive stand. In Florida, I use cement blocks and two by fours pressure treated with a wood preservative. In New York State, I use six-inch-high wooden hive stands made with pressure-treated lumber. Ants are a serious problem and will sometimes invade and kill colonies of bees in Florida. I place a small amount of an insecticide, usually Diazinon, under the cinder blocks to reduce the ant population.

Continued on Next Page

RESEARCH ... Cont. From Pg. 277

Other advantages

In many ways, honey bees are little different from people. There is nothing like a bright, sunshiny day to get them out of bed and working in the field. Hives that are in full sunlight and have their entrances clear of grass and debris will get their foragers working earlier in the morning and later in the evening. A hive that is warm and dry will need fewer bees involved in nest temperature control and will therefore have more field bees.

In Winter, it is important that bees take flights every few weeks to void fecal matter. Again, colonies that are warm and dry and in sunny locations will be better able to take advantage of the sunshine on marginal days when they might not otherwise fly. Hive stands are helpful in a variety of ways.

References:

Bailey, L. *The effect of temperature on the pathogenecity of the fungus,* Ascosphaera apis, *for larvae of the honey bee.* In Insect Pathology and Microbial Control. van der Laan, Editor, Amsterdam. 1967.

Maurizio, A. *Chalkbrood of honey bees (translated title).* Archiv fur Bienenkunde 15: 165-193. 1934.

Seeley, T.D. *Honeybee Ecology,* Princeton University Press, Princeton. 1985.

? DO YOU KNOW ?

Anatomy & Physiology

Clarence Collison

In order to understand honey bee behavior and basic bee biology, it is important to have some understanding of honey bee anatomy and physiology. Regulation within the individual bee is controlled by hormones and the central nervous system. External stimuli reach them through the senses of sight, smell, hearing, touch and taste and release behavior patterns. In addition, there are several activities controlled at the colony level, that are not evident at the individual level.

How well do you understand bee behavior and physiology ? Please take a few minutes and answer the following questions to determine how well you understand these important topics. The first twelve questions are true or false.

Place a T in front of the statement if entirely true and F if any part of the statement is incorrect. (Each question is worth 1 point).

1. ___ Nassanoff (Nasanov) glands are found in the worker and queen caste.
2. ___ Honey bee pheromones are secreted as liquids by exocrine glands and distributed as gases or liquids.
3. ___ Blood of the adult honey bee is responsible for transporting oxygen, carbon dioxide, nutrients, hormones and waste products.
4. ___ Juvenile hormones control metamorphosis and reproductive development.
5. ___ The primary purpose in developing two-queen colonies is to increase the amount of "queen substance" in the hive, thus reducing the swarming impulse.
6. ___ The presence of empty comb in the hive enhances the level of defensive behavior by a colony.
7. ___ Each pheromone produced by the various exocrine glands consists of several chemical components.
8. ___ The size of the queen's court (retinue) is greater during the winter than in the summer.
9. ___ Worker honey bees must have direct contact with a queen in order to inhibit ovary development in workers.
10. ___ Queen substance inhibits ovary development in workers but not in queens.
11. ___ Worker honey bees in the queen's court show special interest in her abdomen.
12. ___ Honey bees are warm blooded animals and because of this are able to remain active throughout the winter.

(Multiple Choice Questions- 1 point each)

13. Juvenile hormones are produced by the _____.
    A. Salivary glands
    B. Corpora allata
    C. Hypopharyngeal glands
    D. Koschevnikov gland
    E. Tergite glands
14. The predominant component of the mandibular glands of virgin queens and worker bees is _____.
    A. (E)-10-hydroxy-2-decenoic acid
    B. 10-hydroxydecenoic acid
    C. (E)-9-hydroxy-2-decenoic acid
    D. (E)-9 oxo-2-decenoic acid
    E. 8-hydroxyoctanoic acid
15. ___ In mated, laying queens the predominant component of the mandibular glands is _____.
    A. (E)-10-hydroxy-2-decenoic acid
    B. 10-hydroxydecenoic acid
    C. (E)-9-hydroxy-2-decenoic acid
    D. (E)-9 oxo-2-decenoic acid
    E. 8-hydroxyoctanoic acid
16. What two primary structures comprise the central nervous system of the honey bee? (2 points)

Please match the following chemicals, tissues, and structures with the appropriate life process, function, or behavior. (1 point each). A. Spiracles B. Releaser pheromones C. Malpighian tubules D.Glycogen E. Rectal pads F. Diaphragm G. Ostia H. Glucose I. Trehalose J. Plasmatocytes K. Proventriculus L. Primer pheromones M. Hemoglobin

17. ___ Carbohydrate reserve stored in the tissues of bees.
18. ___ Five pairs of openings, with one-way valves, which allow blood to enter the heart.
19. ___ Class of pheromones that cause an altered behavioral activity at some future time.
20. ___ Sheets of very thin membrane within the upper and lower parts of the abdomen that are responsible for setting up blood circulation inside the abdomen.
21. ___ Function in the control of salt and water balance.
22. ___ Cells that circulate within the blood or adhere to tissue surfaces where they ingest dead bacteria and dead tissue cells.
23. ___ Carbohydrate reserve present in the blood of bees.
24. ___ Class of pheromones that trigger an almost immediate behavior response in receiving individuals that is mediated wholly by the nervous system.

ANSWERS ON PAGE 309

Mark Winston

The Death of Canadian Research

Bee research in Canada may not be dead, but it certainly is gravely ill. In case you forgot, this is the research community that brought you indoor overwintering, the use of formic acid to control tracheal and *Varroa* mites, improved outdoor wintering methods, the OAC pollen trap, successful methods of package bee management, major advances in honey bee, leaf cutter bee and bumble bee management for pollination, and countless other innovations used in today's beekeeping world. Canada, like the United States, has a fine tradition of basic and applied bee research. However, our university and government institutions have taken funding cuts so severe in the last year as to threaten the existence of an entire research community.

The attrition of Canadian bee research positions began a number of years ago, when Agriculture Canada did not fill two of its five positions upon the retirement of senior personnel in Ottawa. At that point, Canada was left with three research scientists and their technicians located at the Agriculture Canada Research Station in Beaverlodge, Alberta, and four university-level faculty positions, two at the University of Guelph, one in Manitoba, and my own position at Simon Fraser University. In addition, many college and provincial government personnel managed to become involved in research projects because grant money was readily available.

Today, of the seven government and university positions we had last year, only five are left. Two of the three Agriculture Canada scientists were told to take early retirement, and their positions are history. Further, each of these positions had a technical support position along with it, and these technicians also are toast. Finally, I am not aware of a single college or provincial government employee who will be conducting any type of bee research in 1996.

Positions don't tell the entire story; grant money for research has dried up due to reductions in government budgets that view research as an expendable commodity. In 1993, Canadian bee researchers received $315,000 (U.S.) in funding to conduct research. These funds went toward student stipends, equipment, supplies, travel and technical help, all necessary to accomplish a research project. Our projection for 1996 is only about $95,000 (U.S.), and the vast majority of these funds are concentrated in British Columbia, whose economy is more robust than the other Canadian provinces.

The cause of this research disaster is not hard to figure out. The Canadian government has overspent its budgets for years, and today's fiscal climate of restraint has little room for bee research. We are a small industry that is not particularly effective at lobbying, and so, we are viewed as being expendable during budget-cutting exercises.

However, another and more significant factor in the disappearance of grant funds is a changing philosophy in our provincial and federal governments concerning how research should be funded. In theory, there still is considerable research money available from the government today, but it comes with one major catch. Government will only provide funding if industry supports a proposed project with real dollar contributions. It is a simple matter to obtain matching contributions from both provincial and federal governments for that industry funding, often tripling or even quadrupling industry dollars. Without that initial industry contribution, there is very little funding available for bee or any type of research in Canada today.

One reason this situation has become so problematic in Canada is that our beekeeping industry does not have a tradition of providing substantive funding for research. This is not to say that Canadian beekeepers have never funded any bee research, but the dollar value of their contributions to date has been miniscule relative to the real costs of conducting research. In contrast, other countries in the British Commonwealth, such as New Zealand and Australia, have long had levy systems in place to provide funding for governments to match. In those countries, grant funding has consistently hovered around $300,000 per year in the 1990's, and their research communities remain fairly healthy.

Is any of this important, and if so, what should we do about it? I obviously have a bias that bee research is worthwhile, but it remains to be seen whether the Canadian apicultural community will agree with my advocacy of the benefits of bee research by contributing major funding toward our research programs. Even in this difficult climate, however, there is much that we in the research community can do to maintain strong research programs and to continue our most important task, training students.

"We are a small industry that is not particularly effective at lobbying, and so, we are viewed as being expendable during budget-cutting exercises."

One thing I hope to accomplish is the establishment of a Canadian Bee Research Fund (CBRF) to support bee research. This fund would be supported by beekeepers' contributions, which can be set up in a tax-deductible charity. In order to raise $150,000 per year, Canadian beekeepers would need to contribute about one-half of a penny per pound of honey produced. Put another way, a beekeeper who received $100,000 for his honey would contribute $300 to the fund. Even the most cynical of observers would have to admit that the significance of bee research for practical beekeeping would be worth at least that paltry sum. Further, we would use those beekeeper contributions to solicit matching government funds, at least doubling or tripling beekeeper-generated dollars. Finally, the CBRF would be administered by a joint committee of the Canadian Honey Council and the Canadian Association of Professional Apiculturists, so that beekeepers would have an equal voice in how their contributions were spent.

We also need to expand our repertoire of industry contributors to extend far beyond the relatively poor beekeeping industry. For example, I now have funding from the British Columbia Blueberry Council to investigate blueberry pollination, which I hope to triple through matching grants from provincial and federal government levels. Another novel funding source for my laboratory is a private company interested in developing neem for use against honey bee pests. With funding from this company and also from the B.C. Honey Producers Association, I can parlay $12,500 in annual industry contributions into a $40,000-per-year research project. Our work with honey bee pheromones has led to research funding from a Canadian company that markets these substances for beekeeping and pollination uses, generating additional research funding. Other novel sources for industry funding might include the food industry that uses honey in products like cereal, candle makers who use beeswax, and the health products industries.

Those of us who train students also must recognize that very few of our graduates will find work in apiculture. In response to that reality, we need to provide training broad enough so that our students will be competitive for a wide range of positions in agricultural, government, industry and academic fields. Few of my own graduate students have ended up working in apiculture, although all of them did their thesis research on bees. For example, two of my former students obtained jobs as Agriculture Canada Research Scientists, one working on pesticide resistance in fruit crop pests and the other on blueberry pest management. Another Ph.D. graduate is a college teacher instructing in courses such as introductory and invertebrate biology. A fourth former student now directs a program in Alberta evaluating the ecological impact of aspen plantings for forestry, while yet another student is a molecular biology technician. For my current crop of students, I doubt whether more than one or two of them will end up working with bees, yet they all are contributing to beekeeping now through their thesis research.

The issue of diminishing government funding for bee research is not an isolated phenomenon. Scientific and trade journals in virtually all fields are full of the same concerns about maintaining a vibrant research community in the face of falling dollars. I believe very strongly in the value of science to society, but we also must recognize that there are limits to what society will pay us to indulge our curiosity. Taxpayers are interested in relevance for their tax dollars, and our task as scientists is to convince our constituents that the work we do delivers good bang for the buck.

While all bee research ever conducted has not necessarily been useful, or even interesting, a stroll through almost any beekeeping journal does provide ample evidence of the valuable role research has played in the past and present of our industry. However, the future of bee research, at least in Canada, will not depend on warm, fuzzy feelings about how useful bee research has been in the past. Rather, the survival of apicultural research will depend on whether beekeepers are willing to pay for it. BC

Mark Winston is a professor and researcher at Simon Frazer University, Burnaby, B.C., Canada.

MILLER HONEY

Even Stronger After 101 Years

Lynn Tilton

One of the nation's largest and oldest honey producers concentrates on the care of 11,000 colonies having produced more than a million pounds of honey in 1995.

"We've done very little honey packing since we sold our Florida operation," said Jay Miller during a visit to Miller's honey house in Blackfoot, Idaho. Jay and brother John are the fourth generation to head up this longtime family operation. Not only is Miller one of the oldest family firms in the honey industry, but it's one of the largest. Furthermore, it was founder Nephi Miller who invented migratory beekeeping.

"My great-grandfather took bees from Logan, Utah, down to San Bernardino early in this century," Jay explains. The secret to success there was that Nephi was able to show growers that having his bees in their almond orchards was a true win-win situation. Increased almond production far outstripped the rental fees charged by Miller. And getting into a warmer climate helped this early-day Intermountain West honey producer to have his hives at full strength when the honey flow began back in the mountains.

Miller's concern bought its Florida operation in 1987 in order to get larger by diversifying, by offering more services and products than before. Miller's then sold it in 1991 to Dave Langsdon. "We sold because we felt there were too many packers in the market. Frankly, when you're competing as a family firm against such giants as General Mills or Kellogg, it's better to concentrate on pollination and production."

The Blackfoot, Idaho crew.

Today their migratory plans ensure that the bees are kept busy for more of the year than is possible when they stay at home awaiting the alfalfa nectar flows. And, they put 95 percent of what they produce into drums to send to independent packers. "We use about 5 percent of production for friends, to trade for site rentals, and the like," Jay, 37, said.

He also notes that he hasn't all the detail on the decision to return solely to production because he'd been back with the operation just 18 months at the time of the interview.

With a degree in marketing, Jay worked in other businesses, but now applies the lessons he learned to this family operation. He added that packing tied up the assets too much, that by concentrating on production, Miller's could do what it's been doing so well since 1894. "Last year, we harvested nearly a million pounds of honey, with 9,500 hives. This year, we have 11,000 hives when you include the branch here in Blackfoot and our other branch in Gackle, North Dakota.

The move also allowed Jay and John to buy the operation from Neil, their father. "It has allowed us to concentrate on better pollination. We had 3,000 hives on pollination contracts. This year we more than doubled that to 7,000 hives.

The main crop they pollinate is almonds in California, but they also pollinate some cherry, and are looking at other crops.

They sell their wax in bulk, with as much as 15,000 pounds produced in a year. Again, the move to sell in bulk rather than marketing the wax on their own is to give Jay and John sufficient management time to concentrate on production. "Because we sell in bulk, we don't have to worry about lots and lots of retail details. We sell our wax to Myers in South Dakota, which is set up for handling bulk wax. With 11,000 hives, we have

Jake Van Order unloads frames to uncap.

Jason Parris loads the uncapper.

our plate pretty full just in pollination contracts, in honey and wax production."

Since the focus is on production, pricing is vital. As Jay sees it, the average beekeeper is too eager to sell and will accept prices lower than necessary.

"Each beekeeper must learn how to best his production," Jay added. He then gave three rules to live by.

"First, don't fudge on weight." True, the receiver should be checking weights. But the second time he gets a light barrel, he'll believe it was no accident and he'll find another source for his packing shed.

"Second, be close on color so your grades match his." If there's a question about which grade to give it, go with the lower number.

"Third, make friends with your buyers; understand their problems." Ultimately, the businessman, whether he's a beekeeper or in some other industry, finds that friends tend to do business with friends.

The goal, then, is to be friendly, helpful and fully professional. He then quoted one of John's favorite statements: "The graveyard is full of indispensable people. We want everyone to know what we do and why, from yarding to shipping, from the hive to the drum."

This leads to improved communication. Thus, when there is a problem, the customer is more willing to work with the supplier than he likely would otherwise.

John, who also has been on the National Honey Board for the past half-dozen years, makes a one-on-one visit, in person or by phone, with each packer they deal with. "Because we've been packers we understand their problems," Jay explains.

The pollination side of the business is also demanding. For the migratory beekeeper, timing is crucial, and poor timing can lead to many problems. Because they concentrate on production, Miller's Honey Company is ready to move its bees from North Dakota and Utah into California to be ready for the almond blossom. "We have all bees in California by December 15."

It's 700 miles from Blackfoot to the California fields, and another 900 miles from Gackle to Blackfoot and keeping hives strong enough for pollination can be tricky. "It's a two-day drive from North Dakota to Blackfoot, then let them set until it's time to be in California. We strive to avoid getting to the almond yards until nectar flow." That's because northern-raised bees are still in hibernation. Should they get to California too soon, they break dormancy, yet there is nothing to eat except remaining Winter stores. While a smaller operation can supplement feed, when you multiply that extra expense per hive by those 7,000 pollination contracts, the numbers involved begin to resemble the national debt.

Miller's also makes sure each hive has five full frames of brood when they set up in the almond yards. They check for strength, watch for mites, and make sure each hive has an active queen. They also like to have two frames of honey stores. This ensures that the bees have sufficient honey to feed upon while doing their work on the almond blossoms. "You can have bees or honey, but not both," Jay continues, adding that weight

Continued on Next Page

The uncapping & extracting set-up.

Jay Miller inspects the crop.

MILLER ...Cont. From Pg. 283

and space is a factor in trucking large numbers of hives.

The almond nectar flow lasts from the first week of February until the second week of March. During that time, hive populations are increased enough that it's possible to split a strong hive the first week in April. Minimum strength for splits is three frames of brood in a regular hive body.

Come mid-May, it's time for these longtime migratory beekeepers to return their hives either to Blackfoot or to Gackle. "We'll bring five North Dakota loads here in mid-May, then send them on to their final destination the first of June," Jay continues, adding that this gets the Gackle colonies back in time to take full advantage of alfalfa nectar flows.

They also have 75 alfalfa locations in Utah, with 30 of those sites on the unmanagered Federal Conservation Reserve Program (CRP). Ground on CRP tends to provide a long blossom flow, whereas hay ground is cut when bloom is 10 percent. "If we get 90 pounds per hive on active hay ground, we're really pleased," he added. Extracting can begin as early as July 20.

When asked what is his strategy for finding potential yards, Jay smiled, then added, "What a beekeeper really needs is a farmer with an alcohol problem. The beekeeper makes more money because that kind of farmer tends to let his alfalfa get further into bloom before he does anything." He emphasizes that there aren't many such farmers in his region of the country. "Many of those got phased out in the '80s when farming really got competitive."

Jay suggests that a migratory beekeeper must beware that he doesn't move his hives too many times. "You don't make money when you're moving bees. Moving disrupts their cycle, and it takes time for them to recover from a move. This means a beekeeper needs to find locations that will last a long, long time. With alfalfa, we can keep bees in the same yard from mid-June until the first of September."

Then comes Fall management. Jay explains that's when Miller's separates out the "dinks" or weak hives, as well as the drone layers. That's when a keeper can fumigate diseased hives, thus preventing the further spread of problems. That's when the

John Miller, the California connection.

keeper makes sure each hive is strong enough to withstand the coming Winter. This thorough check is less disrupting than over-frequent hive top-popping.

In November, Miller's sends letters to the almond growers, making sure they can bring in the bees. "We let them know we'll see them in January to set up the almond pollination contracts."

As with any other business, a wise beekeeper knows what's happening to those involved in his production chain. The November letters help Miller's prepare for any changes, to find other yards, or to increase yard size on specific locations. Planning helps Miller's fine-tune the operation, which also helps to strengthen the bottom line.

The discussion turned to pricing. Jay emphasized that a beekeeper, regardless of size, can sell for a profit only when he knows what his true costs are. After all, should honey be sold for a cent a pound less than it costs to produce, that operation becomes a money-loser, more of a charitable organization than a real business. And such an operation doesn't survive many years by selling at a loss.

"We know what all our costs are. Dad always knew the cost per hive, and he always attended the California almond growers; convention and was part of the program for developing the pollination prices." He adds that California beekeepers also try to factor in a profit margin for pollination. "That's so we can be in business next year."

Since the focus is on production, Miller's likes to check each hive at least every 15 days during the flows. Entrance checks help ensure the early discovery of problems without needlessly disrupting the strong, problem-free hive. "We get around pretty well to all the yards, even those 120 miles away," Jay continues. "During the flow I'll travel 2,500 miles a month."

But there is not the time to pop the lid on each and every hive in a given yard, so the strategy is to select 12 to 15 representative hives in a stand of 80 to open up. This helps give an accurate representation of how a specific yard is doing, ensuring there are no unexpected problems and that there is plenty of space for stronger hives to move into, yet not too much space. After all, another se-

Neil Miller, father of John & Jay.

cret to longtime success, especially for a larger operation, is to control inventory costs as closely as possible.

Another crucial factor is the quality of the help. Miller's honey house crew of eight has an average of eight to 10 years experience. Many began as summer help while they were still in school. Jay continues, "We can extract 700 hives' worth in a good day. An eight-man crew can prepare 24 drums of honey for their packers in just one day.

Another strategy is to take off honey only when the super is ready for processing." We don't like to disrupt hives during production, so we leave anything that has fewer than three fully capped frames per super. We don't like to stack any higher than three or four supers, either, and will go down to two supers later in the season."

This strategy ensures that honey is ripe, that disruption of the hive is minimal, which is another way to maximize production. It also keeps super inventory and off season storage space manageable. At the same time, the goal during the final gather is to leave enough stores to get the bees through the next almond pollination.

Jay then noted that the challenge is to enlarge the operation to exceed the 10,000 hives his father had. "We're looking to increasing our pollination, with Washington apples on that plan. We have 11,000 hives now, as I said, but John and I are working to increase those numbers."

Jay can tell any beekeeper that if one is to carry on with a family tradition, then one must get larger, especially when the operation must support two families instead of just one. In this case, both increased numbers as well as increased weights are the two keys for our company to survive its the second century. BC

Lynn Tilton is a freelance agricultural writer, and former beekeeper, from Hereford, AZ.

DO I NEED TO MAKE A BUSINESS PLAN?

William Smith

Yes; with the emphasis on MAKE. It is the PROCESS OF MAKING the business plan that is important for the small business owner, or owner to be. We usually think of a business plan in connection with obtaining financing, the sale of a business or a business start-up. The business plan should also be a vital tool to the operation of the business, no matter what kind or size of business it is. The planning process provides focus:

* On operations – What business are we really in?
* On marketing – Who are our customers – What should our market be?
* On the product line or services provided – Are we doing all the things our customers expect from us?
* On management and personnel needs – Have we planned for hiring the right people when needed? Do we have a management succession plan?

This article is not about the mechanics of making the business plan. There are many good books, brochures, seminars and workshops for this. You can visit your local Small Business Development Center for free assistance paid by your tax dollars. The focus here will be on the benefits to you, the small business owner, of making a business plan on a *regular recurring basis.*

The normal business planning cycle is the year. Is it necessary to do a business plan each year? Of course not. But, after going through the process every couple of years, you may find you want to go through the process every year. The key is to ask the tough questions regularly!

What business are we really in?

"The only constant in business is change." That may be a cliche but it is also true. For this reason, the question must be asked regularly as each new round of planning begins. When change is rapid, it is even more critical. Are you aware of the newest technology and how your competitors are using it? Are you sure who your competitors are? Have new competitors appeared? Why? What has changed to cause their entry into your business?

Answers to these questions should give you a strong basis upon which to develop a workable answer to the overall question. They will also tell you whether you need to adjust your vision and mission statements (assuming you have written them down in earlier planning sessions). A clear, refined and simply stated mission statement and/or vision for your business provides the focus every business needs.

Who are our customers?

Have you attempted to define, in writing, who your customers are, lately? Or ever? You might be surprised. Have you asked them, lately, why they chose you (your business) to provide their product or service needs? Have you asked them what else they would like you to provide? How many dollars of sales have you been missing? Have you asked any non-customers how you might serve them? How about former customers? Can you identify them? What efforts do you make to know the name, address, telephone number or other information about your customers? Do your competitors gather and use this information?

Technology has made this data collection much easier and much more important. What steps have you taken, lately, to be in step with the latest customer contact techniques available to your industry? This may be traditional direct mail or telephone . . . but, it may require the use of the Internet or other electronic contact processes. Are you ready?

What should our market be?

This should be a conscious decision, not a by-product of other activities. Evaluate alternatives carefully. Some markets are too costly to enter. Other markets must be entered for the firm to remain competitive and viable. Only you can make these critical decisions, based on careful analysis of the best information available. You will never know for sure, of course. You must make each individual decision based on your experience and the best information you can gather.

Look for niches, for instance. Are there special groups of customers you can reach and serve better than anyone else: What resources would it take? What return would you expect? What are the risks? Why not do it?

Are we doing all the things our customers expect from us?

Meeting your customers' needs does not happen overnight. It requires continuous improvement, modification, and creativity in all processes (and products) of the firm. Recognize that you will not meet all

"Give it a try this year. You may be surprised at what it does."

needs all the time . . . but, this is no reason not to make the effort, over and over again. "What have you done for me lately" is, indeed, application in this context. If you don't get the job done, a computer will. We all know it is much easier, and less expensive, to maintain a customer than to acquire a new one. Customer satisfaction should drive most business decisions.

Have we planned for hiring the right people when needed?

In order to grow and meet customer needs, it is essential to have the right people working in the business at the right time. This takes planning to assure that the best people available are selected, hired and trained in a timely manner. Even more important is treating current employees in such a way as to maximize customer satisfaction. Ongoing training and fair compensation are minimum requirements. Research demonstrates a direct relationship between satisfied employees and satisfied customers.

Do we have a management succession plan?

I know you don't want to think about it. However, you must. Many interests are depending on you over the long haul as well as tomorrow. Accidents happen. What happens to family, employees, customers, supplies, investors, and other stakeholders if you are no longer able to make these decisions? Have you considered who will carry on the business? I hope so. Developing talent should be a critical element of the job description of every manager. Develop a management team. Involve key employees in critical decisions. It will help today and, prepare for tomorrow.

Do I need to make a Business Plan? I hope you now agree that it is a good idea and you pledge to give it a try. Your plan need not even be complete, or pretty, the first time through. Begin asking the tough questions and developing the best answers you can, today. Implement as much as you can. On the next pass, you will accomplish more and feel even better about it. And feel better about your business, too. Just do it. BC

William L. Smith, Ph.D. is on the management faculty of the School of Business at Emporia State University and Director, Center for Business and Economic Development.

BEEKEEPING BUSINESS 101

Every business, every industry has it's own specific and exacting tricks and techniques that must be mastered to be successful. Beekeeping is no different. But even before these are considered, far more fundamental decisions must be made.

The following is based on the precept that you wish to change your situation – you want to produce more honey, bees, wax, pollen, propolis or whatever; or you wish to produce products other than you are now; or change the proportion of your product mix; expand your existing markets; focus your markets; concentrate on production, packing, sales or some combination; begin or increase pollination sales; begin or expand equipment sales; begin or expand selling or producing peripheral products. For any of these you need to know where you are . . .

First, establish the following very firmly in your mind. Where am I now? Where do I want to be? How will I get there?

Write those three questions down somewhere, then put that piece of paper where you see it everyday. Don't forget it.

Where are you now?

1) Equipment owned:
   - Number of operating colonies
   - Extra supers, bottom boards, tops, etc.
   - Transportation and moving equipment
   - Extraction and wax processing equipment
   - Bottling and storage equipment
   - Honey house, processing facility

2) Products produced, or able to produce:
   - honey, comb honey, crystallized honey, cut-comb honey, honey stix
   - wax processed, bulk, finished (molded, candles, etc.)
   - pollination
   - propolis – bulk, cleaned, extract
   - pollen – bulk, cleaned
   - bees, nucs, queens

3) Markets:
   - back door
   - farmers market (seasonal)
   - farm stand (all year)
   - gift store, tourist shop
   - retail – grocery, health food, etc.
   - wholesale, mail-order
   - bulk to bakery or packer

The second step is where do I want to be? Or, put another way, what do I want to do? If you can't sell fish to a pelican maybe going retail isn't your best choice. Or, if you can make honey out of fence posts, maybe production is your bag. Maybe you can expand retail sales if you have more sizes available, different colors or flavors, a fancier, or less fancy label. Sales might increase if you have related products – cosmetics, candles, honey stix, wax blocks, pollen . . . whatever.

And finally, how much of this am I getting into? Full time? $20,000/year? $5,000/year? Break even? 10,000 colonies and 10 full time employees? Migrating to three states every spring for pollination? Packing and not producing? Running an equipment supply and/or manufacturing business? Producing queens and packages and nucs? 25 colonies instead of 10 and selling what you can't giveaway at the Saturday morning farmers' market? Supply 10 local grocery stores? Two local health-food stores? All year? Part of a year? What do you want to do?

How do I get there? Investing in growth takes money, from somewhere. Expanding takes time, from something. Figuring costs, alternatives, time tables, loan costs and the like takes simple equipment (pencil and paper) and hard decisions.

Your business plan will answer these questions. Where are you now? Where do you want to be? How will you get there?

Just do it.

ECONOMICS 101

IT COSTS MORE TO IGNORE THAN TO CONTROL

Ann Harman

"Nice! But I can't afford it," – You may mutter while standing in front of a sleek, shiny Jaguar. But don't mutter this as you stand in front of your beehive contemplating all the treatments it needs to survive.

Survival today calls for strategy. What can you do to minimize bee losses, which actually mean loss of money in your pocket? Some things we can do are not new; they are simply good beekeeping practices, but we have been able to exist quite well without paying too much attention to them.

First, and perhaps most important, is to maintain strong colonies with young queens. In addition, anything that can be done to lower stress to the colony will help. For example, maintain the apiary and the equipment in good condition; provide ventilation, but give protection from cold, damp winds. Make certain the bottom board is dry by tilting the hive forward (lifting the back up) an inch or so. Keep mice out with a good wire excluder. Food stores must be monitored, not only for Winter, but for periods of prolonged rain or drought.

If you suspect mites in one hive, all hives must be treated. In spite of heightened awareness of mites, the threat of American Foulbrood is still with us. Don't overlook that. Nosema also has been ignored recently. Perhaps it has become the "unseen" disease, but it does weaken queens and workers and makes the colony much less efficient.

Treat! Treat for nosema, *Varroa* mites and tracheal mites. For all three of these conditions, the correct dosage and timing of treatments need to be made. The labels, actually the instructions, must be followed. After all, somebody else has worked out the optimum treatment. Why not let the research colonies be sacrificed instead of your own?

Whether you have two hives, 200, 2,000 or more, you need to consider a number of factors before you say keeping bees has become too expensive. The results may surprise you.

We'll start at the beginning. You may want to look around for a pencil and your handy pocket calculator. Don't run away now because the calculator is going to do the work for you. None of us likes to multiply by awful numbers like 23 or 267. Ready?

You have just lost a colony. Mites are a good possibility. But was that colony weakened from nosema? Was the colony a victim of Bee Parasitic Mite Syndrome? Never mind exactly what caused its death. It may be impossible to determine why it died, and it doesn't matter at this time anyway.

Now write down here just how many hives you have lost: _____. You will be needing this number to tailor the following information to your honey bee operation.

At this point, a decision has to be made. Are you going to give up? Or are you going to continue keeping honey bees? If you are going to quit then you don't have to read further. We'll miss you in the beekeeping community but we hope you change your mind someday in the future.

But if you plan to keep going in the hope that things will get better, here's what you need to consider.

Your losses: your honey crop for the year and/or your pollination fee for the year. Calculating those losses is easy:

$ amount of honey crop (Lbs.of honey harvested X $/lb.) plus pollination fee/colony x number of hives lost (see above) = total $ lost.

This amount, plus investment in woodenware and other equipment, would be your overall loss if you decide to quit beekeeping.

Since you are not going to quit, you now have a couple of choices to replace that dead colony. You can buy a package with queen or you can split one of your remaining colonies.

Suppose you choose to purchase:

$ cost of one package to you (about $30 + postage) x number to purchase (see above) = cost of replacement.

We have now considered the sum of money that colony death has removed from our pockets. Next, we will take a look at what it would cost to keep that colony healthy and prevent its death.

Varroa treatment: A strong colony may well need four strips per treatment, and recommended treatment is twice a year (see *Inner Cover* this issue).

$ your cost of one strip of Apistan (about $1.75) x 8 strips x number of colonies (see above) = total cost of *Varroa* treatment.

Add to this the cost of making some grease patties out of granulated sugar and solid vegetable oil for tracheal mite treatment. These patties are on the hive for 12 months of the year.

$3 for one hive for 1 year x number of colonies = $ cost of patties.

If you choose to add Terramycin to some of those patties, we can estimate six feedings per year at approxi-

mately 10 cents per feeding for a total of $.60 added to cost of patties for each colony.

Menthol works in some places, and if you choose to use it, two treatments per year are suggested.

$ your cost of one menthol treatment (about $2.00) x 2 treatments x number of colonies = $ cost of menthol treatment.

Finally, for optimal health of the colony, we will feed Fumadil-B for Nosema. The recommended treatment is twice a year (Autumn and early Spring).

$ your cost of one treatment of Fumidil (about $1.65) x 2 feedings x number. of colonies = $ cost of Nosema treatment.

Now you need to add up your costs for treatment for *Varroa*, tracheal mites, Nosema and the rest. Compare this total with that of your losses. This comparison should indicate that treatment to maintain strong, healthy colonies is definitely worth every penny spent.

To run a colony and not treat is far less cost effective than treating. And, although your figures may be less (probably not more, we figured high). the difference is money in your pocket.

Basically, using our figures below, not treating your three colonies saves you $75.00 *this* year. But it will cost you *at least* $275 *next* year, if you stay with three colonies. You don't need that pocket calculator to figure which plan is best!

What does the future hold? Will we have to continue treatments for mites? Some answers are good, some not so good. We are looking at possible *Varroa* mites resistance to Apistan, either naturally occurring or beekeeper-induced through improper use. That's not good. However, new treatments are forthcoming in the near future. That's good. Also good is the fact that the honey bee scientists are working hard to understand the relationships of mites and viruses and the mysterious Bee Parasitic Mite Syndrome.

Since you don't want any new information to pass you by, stay current. Subscribe to the beekeeping journals. Your local and state beekeeper organizations will be announcing new developments. So will local and state apiary inspectors plus the Cooperative Extension Service. Keep the yearly April issue of *Bee Culture* handy to refer to "Who's Who in Apiculture."

And above all, be optimistic. Your bees will appreciate that. BC

Ann Harman is a long time beekeeper, author, vice chairman of the Eastern Apicultural Society, and budding economist from Flint Hill, VA

Let's see for sure. Start with replacing three colonies, and some good estimates. (Yours may be less!)

1. **Honey**
   60# honey/colony x $.80/lb. x 3 colonies = $144.00
2. **Pollination**
   $40 rent/colony x 3 colonies = $120.00
3. **Replacement Costs**
   $30/3 lb. pkg. and queen + $13.00 postage/pkg. x 3 packages = $129.00
4. **Apistan**
   8 strips /colony x $1.75/strip x 3 colonies = $42.00
5. **Grease**
   $3/colony x 3 colonies = $9.00
6. **Terramycin**
   $.60/colony x 3 colonies = $1.80
7. **Menthol**
   $2.00/colony x 2 treatments x 3 colonies = $12.00
8. **Fumidil**
   $1.65/colony x 2 treatments x 3 colonies = $9.90

	3 colonies	1 colony
Lost Income =	$144 - $264	$48 - $88
Cost to Replace =	$129	$43
Cost to Keep Healthy =	$74.70	$24.90

(This figures out to cost about 32 lbs. honey/colony.)

EXAM TIME

You need to check from top to toenails once in awhile. Here's how.

Roger Morse

You should make a thorough examination of your colonies three or four times each year. In between these times it is sufficient to make certain that some pollen laden bees are entering the hives since bees in colonies that are gathering pollen are *usually* healthy and normal. Colony entrances may also be checked for excessive debris indicating something is wrong and is being torn apart inside of the hive such as by a mouse. I also check for chalkbrood mummies on the bottom board entrances since these are easily seen and chalkbrood remains a serious problem in some parts of the country. Colonies with chalkbrood mummies at the entrance should be marked for requeening or combining with other colonies.

You check for three things when you make a serious examination of the inside of the colony: condition of the queen, pests and diseases, and honey.

The queen

You do not need to find the queen to determine if she is good or bad. In fact, little can be determined by looking at a queen herself. When you want to know the quality of a queen you check her brood pattern. Queens lay eggs in ever expanding concentric circles. The brood area should be compact and only a small number of cells within the area where the queen is laying should be empty. Within the brood nest super the brood nest itself takes the shape of a ball or football with the outer frames containing less brood than is found in the center combs. Not more than one cell in 25 should be empty; there are 25 cells per square inch. In a good colony, brood of a like age should be next to brood of a similar age; eggs should be next to eggs. Larvae next to larvae, and pupae next to pupae. There should be only a few cells of pollen and/or honey in the center of the brood nest. Colonies with queens with poor brood patterns should be marked for requeening.

Part of checking the queen in a colony is to make certain that she has room to lay eggs. Congestion or crowding of the brood nest may lead to swarming and thereby a loss of bees. Queens like to expand their brood nests in an upward direction. A queen hesitates to expand her brood nest sideways though she may be forced to do so. The danger is that if there is not sufficient room for the upward expansion of the brood nest the swarming impulse may take command.

Be ready when you leave. Have all your tools and equipment, notebook, medications and the rest. A 5-gallon pail makes transport easy.

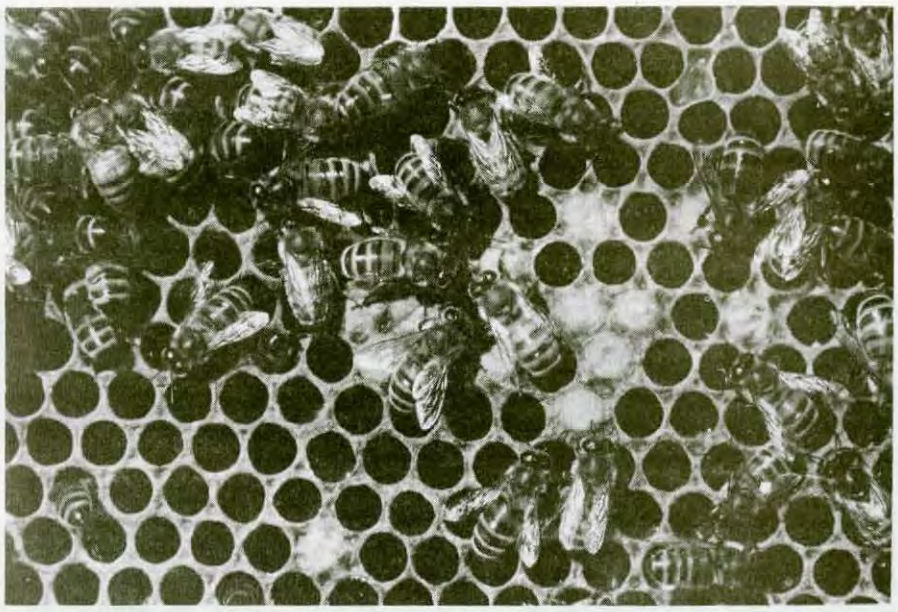
Diseases

There are a number of abnormalities to look for when examining a colony. For example, the adult bees in a colony should have most of their hair. Dark, shiny bees with little hair may be suffering from a virus. The eggs should be upright in the bottom center of the cells and there should be only one egg per cell. The exposed larvae in a hive should be glistening white. Larvae that are any other color may be diseased. The capping over brood should be more or less the same color. They should be convex, more or less light brown in color and certainly not sunken, perforated, or dark.

There are many books and bulletins with pictures of healthy and diseased brood. It is important to build a good library for reference. A collection of pictures showing normal brood is helpful. Some diseases, especially American foulbrood and *Varroa* disease, are far more dangerous than others. However, all diseases can be harmful. A fact we have learned in recent years is that while a colony

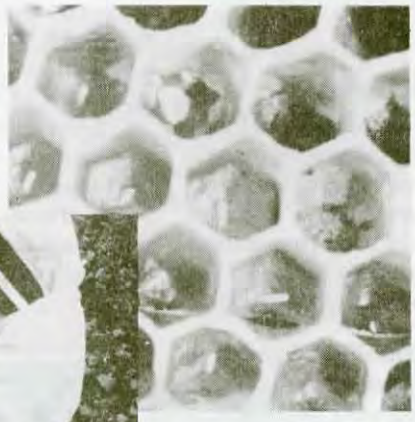
Start by watching the front door. What kind of activity do you see? Foragers going in and out? Pollen carried in? No activity? Dead bees in front? Only a few guards at the entrance? What can you determine about the inside, by watching the outside?

First, remove a frame near the edge, then loosen and slide 2-4 frames into the space opened. The first frame removed should be from the brood nest, near the center of the box.



You may see the queen (though it's not necessary) surrounded by her court, laying eggs, or running across the comb.

may survive when it has only one disease, that when two diseases are present the problem is always more than twice as bad. At one time many states had apiary inspectors who helped with bee disease recognition and control but there are fewer inspectors today than at any time in the past 100 years. It is increasingly up to beekeepers to inspect their own colonies for disease and to take the steps necessary to control those that appear. Many beekeeper's associations give lectures and demonstrations on bee disease recognition. I encourage beekeepers, especially beginners, to join their local associations for the sake of learning about diseases.



When examining a frame, stand with the sun, or light, to your back, coming over your shoulder. When correct, you will be able to see to the bottoms of the cells. Look for eggs, larva and signs of disease.

Honey

A colony of honey bees in one or two boxes should have a minimum of 10 to 15 pounds of honey in reserve *at any time.* Of course, in the fall in the north a colony needs *60 or more pounds* but when I say 10 to 15 pounds I am thinking of the active season when bees are rearing brood and the population is expanding. It takes about a cell of pollen and a cell of honey to grow a worker bee. It is important that brood rearing not stop or be interrupted because of a shortage of honey such as may occur in the spring when there are several days of rain in a row, or the Summer when a nectar dearth may occur.

If bees have an adequate supply of honey they will spend more time foraging for pollen. In most parts of the United States we worry less about a pollen shortage than we do a honey shortage but it is dangerous for me to be too rash in making this statement. Bees can live on the protein reserves in their bodies for several days but not for weeks. Ask your fellow beekeepers if pollen shortages occur in your area. Pollen supplements and substitutes are available from several of the bee supply companies. I am interested in the fact that more and more beekeepers are feeding these to their bees in the spring.

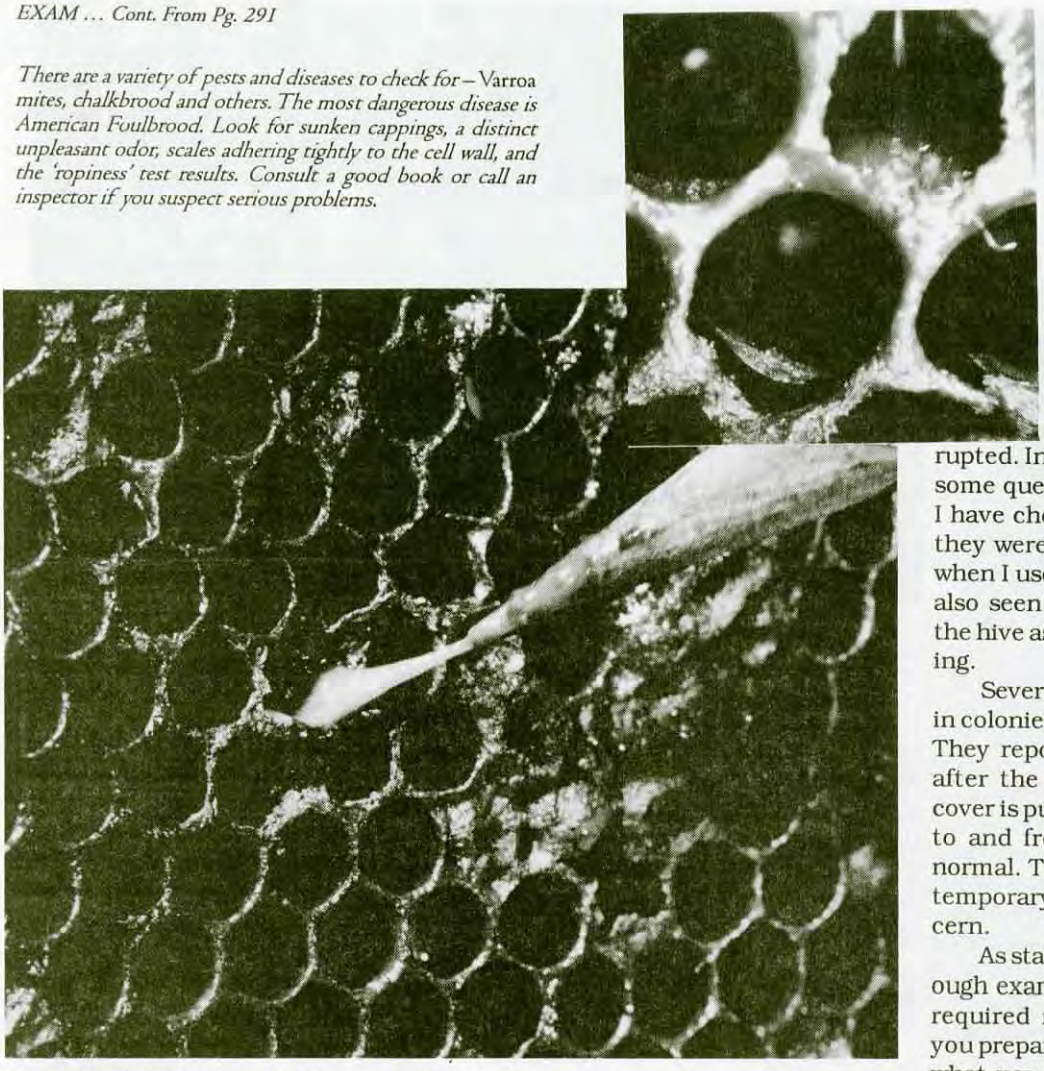
How much food reserve a colony needs is not an easily answered question and, as before, I can make only general statements. The chief point is that you must not let your bees be short of food if you are to grow colonies that will produce a maximum honey crop by the end of the season.

Checking Frames

When you open a colony, you first remove and set aside those supers without brood. When you reach the brood nest super(s), the first frame to remove is the one that is covered with the fewest bees. This is usually one of the side combs. To determine the true condition of a colony it is usually necessary to check only two, three, or four frames. However, the frames you examine closely must be

Continued on Next Page

EXAM ... Cont. From Pg. 291



There are a variety of pests and diseases to check for – Varroa mites, chalkbrood and others. The most dangerous disease is American Foulbrood. Look for sunken cappings, a distinct unpleasant odor, scales adhering tightly to the cell wall, and the 'ropiness' test results. Consult a good book or call an inspector if you suspect serious problems.

those containing brood. After removing the first frame you move quickly to the most active part of the brood nest by loosening and carefully sliding a group of combs into the space created by removing the first comb. A reasonably thorough examination of a colony should not take more than two to three minutes. If you observe experienced beekeepers you will note they may take even less time. With a little experience you will find you too can check these three factors, the queen, the brood, and the food level, at one time.

Is this disruptive?

Opening and smoking a colony, as well as removing frames for examination, obviously disrupts colony routine. However, how serious the disruption may be has been researched and the adverse consequences of an inspection are not serious. Smoking, especially, disrupts the sensory system and as a result the smoked bees cannot detect alarm odor even if it is released. Hive temperature control and brood feeding are also disrupted. Interestingly, I have watched some queens continue to lay eggs as I have checked the frames on which they were working. This occurs only when I use only a little smoke. I have also seen many queens run all over the hive as a result of excessive smoking.

Several people have watched bees in colonies following an examination. They report that about 30 minutes after the colony is closed and the cover is put back into place that flight to and from the entrance appears normal. Thus, the disruption is only temporary and is not of serious concern.

As stated at the beginning, a thorough examination of a colony is not required routinely. However, when you prepare for one plan ahead. Know what you will be looking for, where you will probably find it, and what to do if you don't. Have all the necessary equipment, medications and supplies at the ready and know exactly how to use them.

A few thorough exams during the year are all you need to do to maintain a healthy and productive colony. But you need to do them at the right time, and take appropriate actions based on what you find. BC

Making Cut Comb Honey?

BUILD A SPACER

Roy Hendrickson

One of the difficulties in producing cut comb honey is getting the bees to cap the outside comb face next to the super wall. This is particularly true in areas with stop-and-start honey flows such as those found here in Northeastern Ohio and in many other areas where frequent weather variations create a similar situation.

The longer a partially capped super remains on the colony, the more likely propolis and travel stain will accumulate on the already finished combs. As a result, the quality of the finished product, its salability, declines.

One common solution is to interchange the outside and center combs to facilitate the capping process. Another common practice is to remove the partially finished supers and sort out and return the uncapped combs to be completed by season's end. If all the comb honey is produced in the home apiary, or just up the road a piece this procedure may work out well. If, however, the comb honey yards are some distance out, lots of time will be wasted on extra trips, not to mention that actually spent on switching combs. Additional problems can also occur. If the combs being switched don't interchange well, poor-quality cappings or bruised comb can result, again lowering the quality and salability of the finished product.

A simple, practical solution is to install spacer (follower) boards in the cut comb supers. This involves removing one, or perhaps two combs and adding either a fixed or removable spacer to each super wall. The number of combs removed and the actual thickness of the board itself is determined by the desired thickness of the finished combs, which in turn, is determined by the type of container or packaging being used.

Spacer boards can be manufactured from a wide range of materials, from standard three-quarter-inch lumber down to one-eighth-inch masonite. Dimensions compatible with the desired frame spring, along with cost and availability of material will determine what is used.

Generally speaking, the standard bee space should be maintained between the spacer and inside super wall. If necessary, some liberties with the bee space can be taken on the wider side. However, if the supers are left on too long in a good flow, honey and wax can end up in the too-wide bee space.

I prefer the fixed spacer, but removable versions work just as well. A removable spacer would allow the super to serve double duty as an extracting super or Winter food chamber if necessary.

Why or how do spacer boards work? As I see it they accomplish three things. First, they force the remaining frames toward the center of the colony where the upward flow of heat is greater. Second, they provide for better ventilation, thereby allowing the bees to ripen the honey in the outside combs in less time. Third, they allow more bees to cluster or remain in the supers. My experience indicates more bees in the supers equals less finishing time, assuming honey flow conditions are adequate.

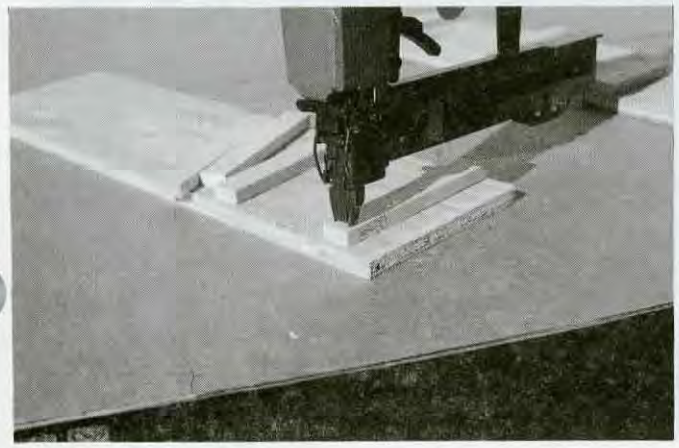
One thing is certain; spacer boards work. They work so well that I generally find that the best quality comb honey comes from the outer three combs on each side of an eight-frame super.

Finally, I'll add a general disclaimer. Spacer boards, while beneficial for my conditions, might not be necessary or even advisable for areas with dependable, long-duration honey flows. Furthermore, they probably won't help much in areas not well-suited for comb honey production. For anyone producing cut comb honey in areas in between those extremes, spacer boards might offer considerable benefit. They are certainly worth trying. BC

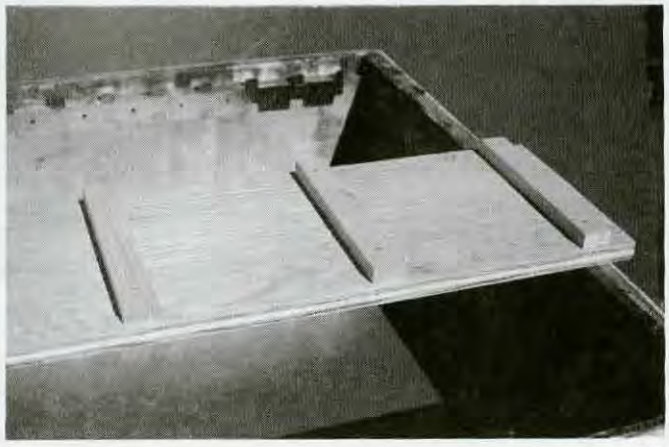
Roy Hendrickson produces excellent cut-comb honey in northeast Ohio.

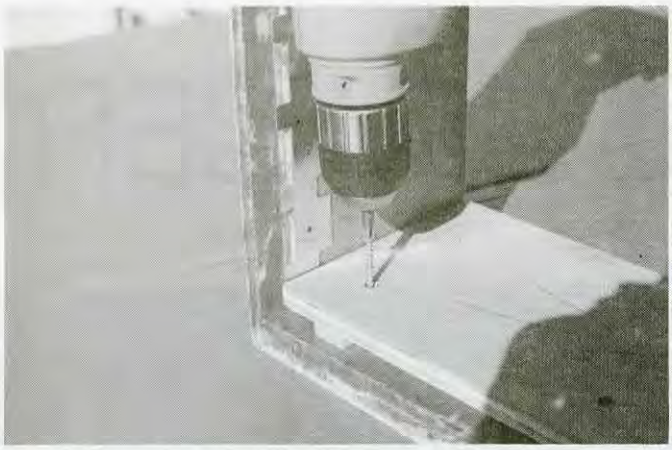
Continued on Next Page

Fasten the 'spacer' to the 'board.' The thickness of the two combined should be 'about' one drawn comb thick or less – certainly not more. Measure carefully.

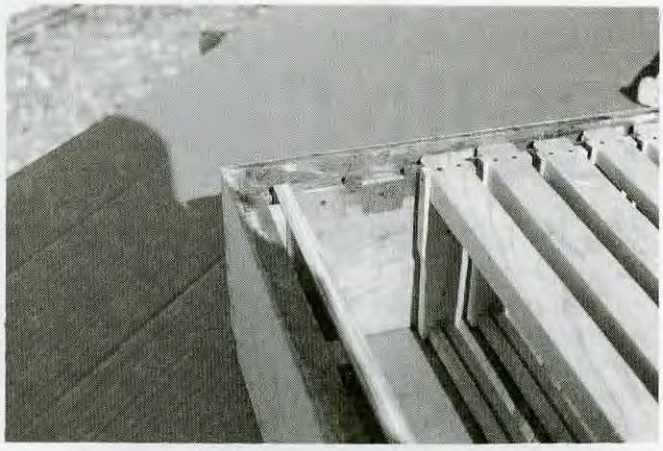


The finished spacer board. Some make sure the spacers are a bit shorter than the board to allow bee passage.





Fasten the spacer board to the side of your super.



The spacer board in place.

Note the space between the spacer board and the adjacent frame.

A 10-frame super using eight frames and two boards.

Richard Bonney

FUME & ESCAPE BOARDS

It's a little early perhaps to think about harvesting the crop, but as with so much in beekeeping, those tasks that are so far in the future today have a way of arriving tomorrow. It's nice to be prepared. The first step of that harvest can be a challenge – getting the supers off the hive while leaving the bees safe behind. We have a variety of methods to do this, each with its own equipment, adherents, and sometimes problems and we have already examined what is probably the most basic method, shaking and brushing, in an earlier article (Shaking and Brushing, Bee Culture, August 1994.) Now we will go a step or two beyond.

The only equipment required for shaking and brushing is a bee brush. The two methods discussed here each requires at least one additional piece of equipment – either a fume board or a so-called escape board. We will look at the fume board first.

One of the factors to be considered when selecting a method of super removal is the location of your hive. Is it conveniently nearby on your own property, or is it at some remote site requiring time and transportation to get to it? If time and distance are involved, then ideally you would like to make one trip, remove the honey, and be done. The fume board makes this possible.

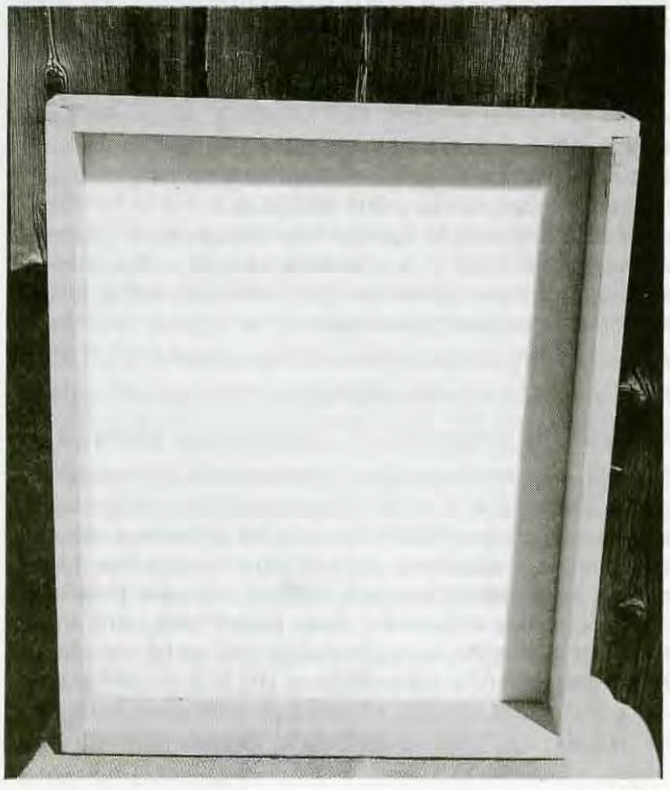
What is a fume board, and how is it used? The term 'board' is something of a misnomer. In construction it is a shallow box two to three inches deep, with length and width the same as a super – 16 1/4 inches by 19 7/8 inches. In use, the inside of the box is sprinkled with a foul smelling chemical (butyric anhydride, available under at least two different brand names in the beekeeping catalogs.) The box is then inverted over the super to be emptied of bees. The odor will drive the bees down and out of the super and into the super or hive body below. That is the quick and easy description. As with so much in beekeeping, we do need to think about this and do it right to make it all work.

First, the weather. No matter what method is used, it is always easier to remove supers when the bees are preoccupied with a nectar flow. Then, with a fume board, the chemical works best on a warm day. So, plan to remove your honey on a warm, sunny day before the end

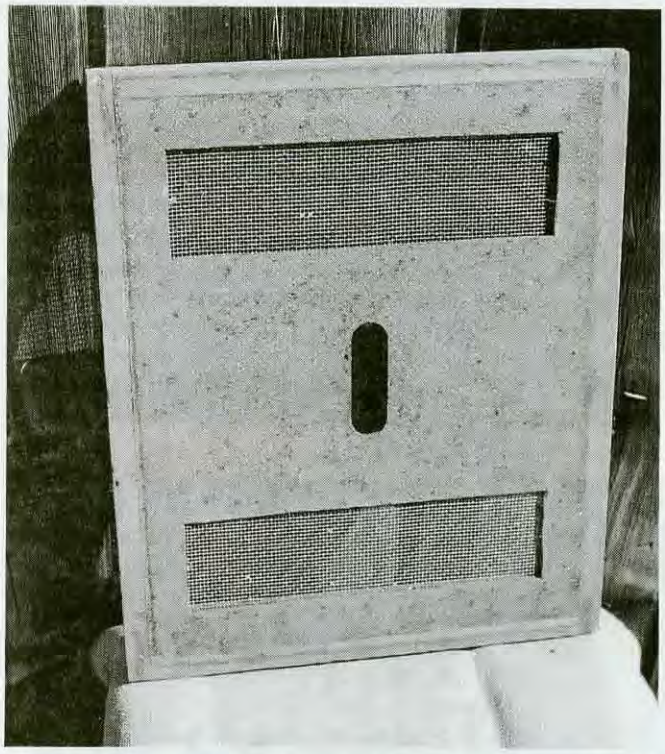
Continued on Next Page

A coat of flat, black paint on the metal top of this fume board will make it work more efficiently.

The underside of the fume board is lined with a single layer of flannel, which will absorb and then release the chemical repellent into the super below.



This triangular escape board, shown upside down, serves the same purpose as does a conventional Porter bee escape in an inner cover. But it seems to do it better.



The screened inserts in this modification of a conventional escape board addresses one of the often expressed problems – that the bees are slow to go through because they don't know where they are going. This board helps correct that purported problem.

FUME & ESCAPE BOARDS ... Cont. From Pg. 295

of the nectar flow.

Next, recognize that the chemical has limited powers. It will drive the bees from one shallow or mid-size super in perhaps 10 to 15 minutes, sometimes faster. It probably won't empty two supers at once, at least not in any reasonable time. Plan to remove that top super as soon as it is empty of bees (or almost empty) and then move the fume board down to the next level. You may find it necessary to brush a few bees from the frames before you are completely done.

A caution is in order here. At least one formulation of this chemical is truly foul smelling. After you have unsealed a new bottle, do not store it in the house, and do not spill any on your clothes or you may not find yourself acceptable in polite company.

A fume board is a relatively inexpensive piece of equipment to buy. It is also very easy to make. I have used two different versions, the difference being in the large surface where the chemical is applied. But first, let's construct the basic box. A piece of pine, 1" x 3" x 70" , will suffice for the four sides. Cut this to length so as to give two pieces 16 1/4" long and two pieces 18 3/8" long. Nail or screw them together with butt joints to give a frame 16 1/4 x 19 7/8 inches. If you prefer more substantial joints, modify the lengths of the four sides to accommodate whatever style of joint you select. However, a fume board receives limited use over time and that use is not stressful. I have found butt joins to be adequate. Once the frame is assembled, we have a choice for making the fifth side – that is, the bottom of the box.

For the first version, obtain a piece of absorbent fabric at least 16 1/4" x 19 7/8" . Diaper material and flannel work well. Staple this fabric over the previously constructed frame to make a bottom to the box. Then, take a thin piece of sheet metal – aluminum or tin – of the same dimensions as the frame and staple or nail it over the fabric. Such material is available at hardware and building supply stores. With the metal in place, version one of is complete. The alternate version uses a sheet of 1/2 inch thick insulation board or homosote in place of the fabric and sheet metal combination.

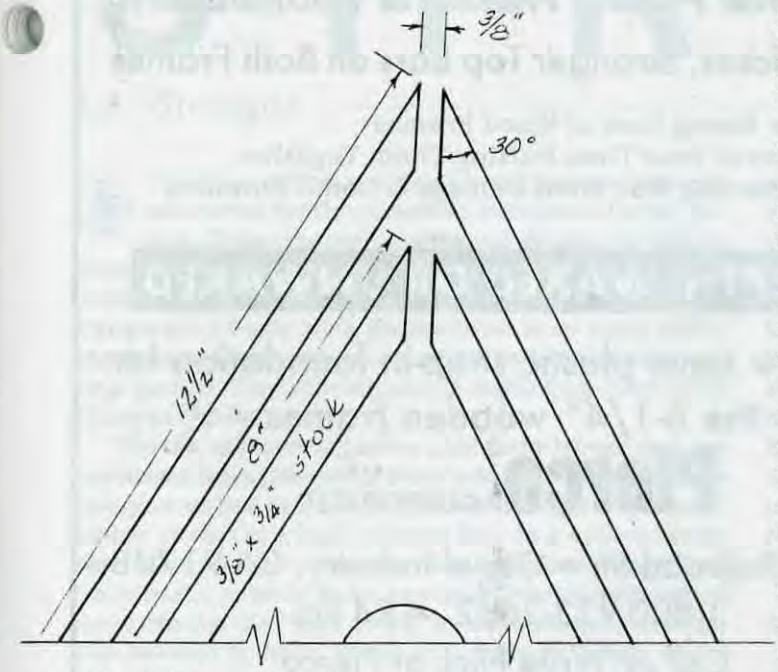
In use, a quantity of the chemical is sprinkled onto the fabric or the insulation board, depending on which version you use. For the exact amount to use, check the label on the bottle, but it is on the order of a spoonful or two. Depending on the number of supers to be removed, it may be necessary to add more chemical as you progress, but, when overdone, you will watch bees leave your hive in droves. Not good!

In both versions, paint the outside surface of the

Fixing Porter's Escape

Beekeepers have used Porter bee escapes for many years, but frequently we hear complaints that they don't work. It is true that sometimes they don't, but one of the potential problems is easily avoided. Disassemble the escape and inspect it, even when brand new. Be sure the internal springs are properly adjusted and free to move. The spacing between the tips should be about 1/8 inch. This is enough to encourage a bee to push on through from one direction but not enough to allow a bee to return. With use these springs can go out of adjustment, and in a worst case can become jammed with propolis or even a dead bee.

To disassemble, just slide the two parts of the escape apart lengthwise. If the bees have not propolized the escape excessively, it should come apart easily.



Details of corners of triangles.

metal or the insulation board black to absorb sunlight. The heat will make the chemical more effective.

I have used both versions of the fume board as described here. Both work, but I prefer the fabric and sheet metal version. The insulation board tends to absorb the chemical into its depth and is a little less effective. The fabric has no depth and the chemical remains right out there on duty.

Since fume boards are so easy and inexpensive to make, perhaps you will want more than one, assuming you have more than one hive. Then you can be working your hives in multiples. Removing honey is one of those beekeeper actions that can trigger robbing. If you keep all the hives preoccupied with their own problems at the same time, robbing becomes much less likely.

Escape boards are a different approach, and of course, almost every beekeeper already has one. If you have a standard inner cover with an elongated hole in the center, you have a basic escape board. Just add a Porter bee escape and you're in business. To use it, slip the board in between the upper brood chamber and the lowermost honey super. Be sure there is no upper entrance to the supers. If there are any questionable cracks or crevices, tape them up. Then go away and come back in about 24 hours. If all goes well, most if not all of the bees will have exited the supers through the escape and will be in the hive bodies below. If all goes well.

What can go wrong? Several things. First, if there is any brood in the honey supers, the nurse bees will stay. Then, the Porter escape may be out of adjustment or otherwise not working properly, either preventing the bees from passing through or allowing bees to return to the super. Finally, you may not have found and blocked every possible way for the bees to enter the supers. They will find them, though.

So, let's say it didn't work. Assess the situation and do whatever is necessary. Maybe all it will take is a little brushing to get rid of nurse bees and you're done, or maybe you must adjust the bee escape, or block some more entrances. Do whatever it takes, and then go away for another 24 hours. But remember, if it didn't work, you must do something. Simply leaving it for another twenty-four hours isn't the answer. Find the problem.

Assuming that all goes well, when you return after twenty-four hours you will find the supers empty, or containing only a very few bees. If the latter, brush off those few bees, remove the supers, and get them covered and away from the bee yard quickly.

The Porter bee escape and inner cover combination has been around for a long time, but so have other escape board models. One in particular, the so-called triangular escape board, is one of these. Although I don't know its origin, I know it is old. Several years ago I found a version of it in an attic among some old beekeeping equipment. It was obviously old. However, the triangular board does not seem to have been well known until it showed up in the Betterbee, Inc. catalog a few years ago. Now it appears in several catalogs.

The triangular board is used in just the same way as is the conventional board, with the same twenty-four hour interval and the same cautions, except that there are no moving parts, no little springs to get out of adjustment or jammed open or closed, as can happen with a Porter escape. In concept, the triangular escape is a simple maze – simple for us, that is, but it confounds the bees. Furthermore, the bees seem more willing to use this model. One reason put forth is that because of the hole in the board the bees have a much better sense of where they are going when they move through it, and they can move through without obstruction. With the Porter escape it is something of a blind passage, and they must force their way through the springs.

The one problem that some beekeepers have had with this board results from placing it on the hive upside down. The open, unobstructed hole must be on the *upper* surface. The screened maze must be on the *under side*. (The photograph accompanying this article shows the board upside down for clarity.)

A triangular board is easily constructed. Start with an existing assembled inner cover. Additional materials are 5 feet of 3/8 x 3/4 inch wood, and a piece of screening cut into an equilateral triangle about 12 1/2 inches on each side. Screening may be 1/8 inch wire mesh or conventional window screen. Cut the wood to give six pieces, three of them 12 1/2 inches long and the other three 8 inches long. Cut the ends to give a 30″ taper, as shown. Fasten these six pieces to the inner cover to give 3/8 inch spacing at each apex of the two triangles where bees will exit. Staple the screen in place and you're done.

The dimensions used in making a triangular escape, and even the specific design, are not critical. Many variations are possible. However, if you make a triangular board and vary the design, do maintain the 3/8 inch exit holes through the pointed arrangement at the apexes of the triangles. This is what confounds the bees.

If you have any dissatisfaction with your present escape board, do try a triangular model. Just be sure it is right side up. BC

Richard Bonney is an Extension Educator for the state of Massachusetts. He is a regular contributor to these pages.

S·H·R·U·B·S

B.A. Stringer

Planting a shrub is a step toward permanence and an anchor for the moveable members of your garden. Flowering and ornamental shrubs can also be attractive sources of nectar and pollen for honey bees. Commonly used as hedges, barriers or screens, or for softening wall or fence lines, shrubs come in so many different sizes and forms, there are bound to be some that suit your garden. The difficult part is making up your mind which to choose!

Shrubs are woody plants, that grow by putting out new stems from their older wood and from the base. They can grow as low as a bottom board, or higher than your wildest dream of a high-stacked hive in a superb honey year. Many of these versatile plants produce showy flowers or fruits, or both, so let's consider a small selection of those shrubs that look lovely in the landscape and are also beloved by bees. When bees begin to forage again, after Winter loosens its hold, the Flowering Quince (*Chaemomeles* sp.) is one of the first blooming shrubs to offer them nectar and pollen. Whether you know them as Japanese Quince, *Japonica* or *Cydonia*, these deciduous shrubs are of cast-iron constitution and easy to grow in a wide range of situations. Their new leaves are tinted with red, and the flower color range includes pink, white, orange and scarlet, depending on the cultivar. Most are thorny and twiggy, useful as hedges and barriers. They may be pruned at any time to tidy them up. Budding branches brought inside in very early Spring will bloom on a warm, sunny window sill. Single-flowered varieties are most attractive to honey bees, and these bushes may be buzzing with both bees and hummingbirds throughout the bloom period. If you are interested in both Spring and Fall bloom, you may wish to try "Hollandia," a tall shrub with vibrant red flowers. If spikiness is a problem, there are a couple of notable thornless varieties, the tall "Red Ruffles" and "Stanford Red" (2-3 feet). One particularly striking variety which grows to six feet or more is "Toyo Nishiki," which has pink, white, pink and white and solid red flowers all on the same branch. Widely adapted because of their tolerance to heat, cold and drought, *Chaenomeles* (pronounced Keno-ME-lees) hybrids will thrive with average watering and full sun. They are busily worked by bees and hummingbirds and are also favored sites for bird nests.

Cotoneasters are among the most useful and varied shrubs for the home garden. Very attractive to honey bees, the nectar is produced copiously, and the plants also yield ornamental berries and form decorative growth. Cotoneaster species comprise a large group of deciduous and evergreen shrubs, most of which flower in late Spring-early Summer, and there is most likely a species which would fit in your garden! Two to pursue are the evergreen Rockspray Cotoneaster (*C. microphyllus*), with tiny leaves and a herringbone growth pattern, and Rock Cotoneaster (*C. horizontalis*), a deciduous low-growing and adaptable rock-cover. These shrubs are easy to grow, thriving in most sites and soils. Flowers may be inconspicuous, but the bloom time will be obvious to you when you see and hear the bees on the bushes.

If your site requirements call for hardy, tough, spiny shrubs, you could consider barberries, which are excel-

Continued on Next Page

Cotoneaster divaricata produces nectar, and later, berries for birds.

Calluna vulgaris, one of the many heathers, is attractive to bees, and gardens

lent nectar and pollen producers. Different species of *Berberis* may be evergreen or deciduous, and most produce yellow or gold flowers in early Spring. The Darwin Barberry, *B. darwinii*, has evergreen holly-like leaves and gives an exuberant display of golden flowers in the early Spring, about the same time that maples bloom. The berries are dark blue and popular with birds. A deciduous species, the commonly planted Japanese Barberry (*B. thunbergii*) has deep-green foliage that turns a spectacular red in Fall in a sunny site. Its berries are bright red.

One of the best shrub selections for cold-Winter areas is the Pyracantha or Firethorn. These, like barberries, are fraught with spines, but this doesn't deter bees from collecting both nectar and pollen from the masses of white fragrant flowers in Spring. Several varieties of Pyracantha are available, all with glossy green leaves and bright fruit. They need full sun and a place where the soil dries out somewhat between waterings. The hardiest is *P. coccinea* "Lalandei," which forms a rounded bush to 10', or which may be grown against a wall to show off its orange berries.

Heaths (Erica) and heathers (Calluna) are pleasant garden companions which, in combination, may bloom for you and your bees all year round. Let's look at the similarities of these two genera, and their differences. Both produce nectar and pollen in their plentiful, small, urn-shaped blossoms. Both heaths and heathers need acid soils and excellent drainage, and do best in full sun. The selection of heaths is extensive, as they derive from hardy species native to Europe, frost-tender species from South Africa, and Mediterranean types that are intermediate in hardiness. On the other hand, all of the garden heathers stem from the single species *Calluna vulgaris*, the Scotch Heather of the British moorlands.

Nurseries carry a large selection of heaths for you to choose from. This small sampling of the many species and varieties may get you started. *Erica carnea* "Springwood" is one of the hardiest, blooming in very early Spring. It forms a low, spreading mound and is available with pink or white flowers. *Erica vagans* "Lyonesse" flowers from mid-Summer through Fall, grows to 18 inches and is considered by many gardeners to be the best white Cornish heath. *Erica lusitanica*, Spanish heath, is a feathery-foliaged shrub growing 6-12 feet which is suited to less severe Winters. It blooms profusely with small pinkish-white flowers from January through March.

Heather, or Lina as it is known in Britain, is the source of a jelly-like honey that does not crystallize, a property called thixotropy. However, when heather is grown on a garden scale, it is unlikely that this property would af-

Barberries are excellent nectar and pollen producers, but have a thorny side.

fect your honey crop. Choose taller varieties for background plants and cut flowers, and low-growing ones for rock gardens and ground covers. Individual cultivars of heather generally flower for about two months and may be combined with heaths for bloom around the calendar. Flower color ranges from white through pinks and purples. One popular tall, white variety is "Mair's Variety" (to 3 feet) which blooms from July to September. The mid-height "David Eason" (18 inches) has reddish-purple flowers in October and November. There are also mat-forming varieties such as "Dainty Bess" (August - September, lavender) and "Nana" (July- September purple), to name but a few varieties of this versatile plant. Deciduous barberries interplanted in a bed of heather add interesting lines and bee forage.

Hebes are evergreen shrubs which bear white, purple or blue flower spikes much sought after by bees for the nectar. Sometimes called "Shrubby Veronicas," Hebes (pronounced HE-bees) are native to New Zealand and need full sun, good drainage and adequate water to produce their Summer bloom. Many species and varieties have been propagated, resulting in a selection of growth forms. They are not all hardy, so check with your local nurseries, gardening friends and botanic gardens to find out which grow best in your area. Take care to select the healthiest-looking plants when you purchase them, as the shrub can be susceptible to fusarium wilt. Signs of this disease include dying leaves and brown inside the stems. Because the disease remains in the soil, do not replant a Hebe in the place where one died. Boxleaf Hebe (*H. buxifolia*) makes a nice low hedge covered with white flower clusters in early Summer. This plant is widely adaptable and can take some extremes of heat and drought and cold. For foliage interest, the red-edged leaves of *H. pinguifolia* are a handsome foil to its fat white flower spikes in early Summer. This species is quite hardy and makes an attractive counterpoint to blue-flowering plants such as *Lithodora*. Another striking variety is Hebe "Autumn Glory," a knee-high mound which bears short clusters of dark purple flowers in late Summer and Fall.

Tolerant to sea coast winds and salt, *Escallonia* secretes abundant nectar and some pollen which attracts honey bees. These shrubs are native to South America, mainly Chile and Peru, and are mostly evergreen unless temperatures dip to 10-15 degrees. Freeze damage may be pruned off, and the plants will recover the same year. *Escallonias* grow fast, are tolerant of a wide range of conditions, and are easy to grow. Best conditions for them would be full sun at the coast and part shade in hot, dry situations. They bloom prolifically in Summer and Fall, bearing white, pink or red flowers. The hardiest species is *E. virgata*, which grows head-high and is partly deciduous. Its flowers are rose or white. Taller, upright shrubs, *E. rubra* make good hedges, covered in red flowers in late Spring to Fall. Keep in mind that if the hedge is sheared, some of the bloom will be lost. Probably the best known *Escallonia* is "Apple Blossom," providing a Summer-long display of pink buds opening to pale pink and white flowers. Growing in an elegantly arched form as high as five feet, this is a selection of *E. langleyensis*, itself a cross between the above two species.

One of the most valuable shrubs for long, late bloom is Abelia. Both nectar and pollen are gathered by bees from its plentiful pink flowers during its bloom from Summer through Fall. The shrubs are easy to grow, even on heavy soils, as long as there is good drainage. Plant in full sun or part shade for best bloom and most bee activity. They leaf out late on their graceful, arching branches, and may be propagated easily from cuttings taken in late Summer. The most readily available nursery stock is derived from Glossy Abelia, *Abelia grandiflora*. The variety "Edward Goucher" grows to about 5 feet and is a constellation of pale lilac flowers through late Summer. Although temperatures around zero may freeze it to the ground, the shrub will generally begin regrowth in early Summer of the same year. There is also a low-growing variety, A.g. 'Prostrata,' which looks very attractive as a ground cover or bank planting.

Flowering shrubs come in a wide range of sizes and forms, providing bloom in almost any month to attract your bees and delight your eye. Even small yards has room for these three-dimensional bee banquets. BC

B.A. Stringer grows her plants and writes about them from her home in Blodgett, OR.

Ann Harman

Home Harmony

Cooking With Honey Wines & Honey Beers

You can pretty much put away your honey jars for this month's cooking. Instead, reach for a bottle of mead. Mead making is getting quite popular, as is making beer with honey. Both can be used in cooking. After all, mead is a wine, so many recipes using wines or beer are easily adapted to meads and honey beers.

Both commercial meads and homemade meads come in the entire range from sweet to dry. In addition, meads can be flavored: Metheglin is mead with the addition of herbs and spices; to make pyment, grape juice is added to the honey before fermentation; if you add spices and herbs to the pyment, you have hippocras; cyser is the mixture of honey and apple juice; and finally you can have sparkling mead - mead that resembles champagne. Beekeepers who are making mead sometimes use fruit juices other than grape or apple. Don't worry about all the fancy names. Just use the mead that seems suited to the recipe.

One important thing to keep in mind - if you are going to cook with mead and honey beer, or other wines or beers for that matter, the mead and honey beer must be drinkable and good. The kitchen is no place for a wine "that's gone bad" or a beer that "tastes weird." You can be certain that any bad taste will adversely affect the finished dish. Go pour the bad stuff in the compost pile!

If you are using mead in recipes that specify wine, look for recipes that call for white wine. Red wines have a robust flavor, so recipes designed for those would not be as effective when made with mead. Chicken recipes frequently use a white wine. Dry wines complement meats and sauces. Sweet wines work very well in desserts. Marinades for meats use dry wines. A semisweet or sweet mead can be used in a wine punch, but be careful that the punch does not become too sweet.

If you are baking a ham that you are basting with a ham glaze, add some mead to the glaze. Sprinkle spongecake or poundcake with a sweet mead, let it soak in well, then top with drained canned fruit or fresh fruit. Sprinkle with a few chopped nuts and a custard sauce or whipped cream. That is a good way to use up dry cake. A cheese fondue recipe calls for white wine - a dry mead is a great substitute.

Beer can be used in fritter batters and in marinades. Beer also gives a nice flavor to bean, cabbage and vegetable soups. Use 1 cup of honey beer for every 3 cups of soup. You want to add the beer just before serving, but be certain to warm the soup, but not boil it, after adding the beer.

BEEF BAKED IN BEER

Here is a wonderful, easy recipe for beef and beer. Serve the stew with some nice, fluffy, mashed potatoes and either a green vegetable or a salad.

3 pounds bottom round, cut in 1-inch cubes
salt, pepper, flour
5 large onions, thinly sliced
1 clove garlic, minced or pressed
1 small bay leaf
1/2 teaspoon crumbled rosemary
12 ounces honey beer
2 tablespoons red wine vinegar or honey vinegar
1 teaspoon Dijon-style mustard
chopped parsley for garnish

Sprinkle cubed meat with salt and pepper, then lightly coat with flour. Mix onions, garlic, bay leaf and rosemary. Alternate layers of the onion mixture and beef cubes in a casserole, beginning and ending with onions. Pour beer over. Cover and bake in a 350¡ oven for 4 to 4-1/2 hours, until meat is very tender. Mix in vinegar and mustard. Taste and add salt if needed. Sprinkle with parsley and serve. Makes 6 to 8 servings.

Elegant Meals With Inexpensive Meats
ed. Ortho Books

HOT DOGS SIMMERED IN BEER

Hot dogs are always popular, so here's a quick recipe for hot dogs cooked in beer.

2 pounds hot dogs or other smoked sausages
1 to 2 cans honey beer
2 large onions, sliced
2 large carrots, sliced
1 teaspoon Worcestershire sauce

Place hot dogs in large saucepan. Add enough beer to cover. Add remaining ingredients. Bring to a boil, lower heat and simmer gently for 5 to 10 minutes, depending on size of sausages. Serve on toasted buns or as a main dish with sauerkraut. Yield: 6 to 8 servings.

Secrets Of Beer Cookery
United States Brewers Association, Inc.

MEAD CHICKEN

Now let's reach for the dry or semi-dry mead. We'll use a sweet mead later.

4 whole chicken breasts, cut in half, or equivalent chicken pieces
4 carrots
1 onion
salt and pepper
1 chicken bouillon cube
1 wineglass mead

Slice onions and carrots and line a baking dish. Put chicken on top of vegetables. Sprinkle herbs (your choice), salt and pepper over chicken. Mix bouillon cube with a little warm water. Add to mead, stir well and pour over chicken. Cover and bake or microwave until done.

Bunratty Mead Recipe Folder

ONE GOOD HOUR

Franjo Goluza

They think a common housefly looks like a honey bee. They react with frenzied starts whenever there's a buzzing sound about their heads. They turn and run, slam doors, cower behind sofas, topple chairs. They are known to resort to violent hand waving and on occasion, screams. Blowing seems to be rather popular, too. They will take any action to stop the chimera in their midst.

Sound familiar? Well, reactions such as these are not uncommon in this writer's experience when one mentions owning a beehive, allergic friends aside. Most winged insects in fact, including houseflies, suddenly turn into threatening creatures intent on a single thing: causing humans torturous, mind-numbing pain.

For most people, a little education will overcome any fear of bees and beekeeping. For other people – the blowers, the runners, the violent hand-wavers the process of turning an aversion is a little more difficult, but by no means impossible. How successful one is depends upon the method used.

One technique psychologists have been particularly successful with is a form of therapy known as "Exposure Therapy." Using this technique, a timid person is quite simply, ". . . exposed to the feared situation or object so that they can see that no harm befalls them. [Then] the fear gradually fades."

In other words, one really has to get an apprehensive person involved in beekeeping. Again, the question "How?" Well, the first rule is to go slowly. A bee-shy person needs reassurance and time to build confidence, not only in the bee-tender, but in the equipment that is going to take that person into the bee yard.

That's where you can begin in earnest. Bring out your bee supplies and include one or two bee suits, hive tools, some honey and beeswax, etc. Then, clear an area in your home, the kitchen table, for instance, and place your supplies on it.

When you've done that, find two clear glass jars. Place a small drop of honey in the bottom of one jar. Then, punch a couple of holes in the lid. Now go fetch a few bees and place them inside, covering the jar. This first jar will allow your friend to view live bees (three or four bees are quite enough) with no harm to the bees, or to the viewer. The other jar will be for viewing dead bees. Collect two or three and place them inside. Finally, obtain a small magnifying glass. Now you're ready to invite your friend over.

When your friend arrives, have him or her sit at the table for a few minutes while you prepare a couple of honey drinks. This will give the person time to browse over some of the equipment and to take in the aroma of honey, beeswax, pollen and propolis permeating the room. This is important and part of the process of exposure. The more familiar a person is with something, the less reason he has to fear it.

Once the person has had an opportunity to be near the fragrance of bees and equipment, bring out your jar of dead bees and lay the bees on the table. Have your friend place one bee in the palm of his hand or, at least, look closely with the magnifying glass. Then, describe the bee's physical features to him. Go into some detail about each physical attribute, but focus on the sting, the primary object of the person's fear, most of all. Examine it closely, but don't let your friend overemphasize the sting's potential to inflict pain. Once your friend has had a good look, concentrate on other, less threatening physical attributes, like the pollen comb, the proboscis, etc. Try to deflate the person's view of the bee as a creature intent on causing, ". . . torturous, mind-numbing pain . . ." (if that is indeed the person's view) and try to put forward a more balanced picture of the bee as a vital link in nature's intricate web of life.

The time should then be ripe to bring out a few live bees. Hopefully, the bees are calm, suckling honey in the bottom of the jar. Have your friend take another close look while the bees are at their best. Details are important to them: The color, size, shape and behavior of the bees will make a difference, hopefully a favorable impression. Afterwards open the kitchen window, take the bees out of the jar and place them in your palm. If your friend wants to wear a veil

Continued on Page 306

Richard Taylor

Bee Talk

"Bee Clubs serve very valuable purposes for members - education, fun, sharing experiences and friendship."

Mid-March is the worst time of the year to be trying to write about bees. Deep snow covers everything. It has been a Winter of the most unremitting cold that I can remember. There have been only a couple of days when the bees could fly. It is too early to know how they have wintered, but I am not optimistic. By the time anyone reads this, however, the dandelions and fruit trees will be in bloom and another busy year will have begun. Things will begin happening very fast, very soon. But at this point, I don't know just what will be happening. All we know is that this year, like every other, will be different from all the rest.

So maybe, having nothing else to talk about for a few more weeks, this might be a good time to say something about beekeeping clubs or associations.

I've learned quite a lot about these organizations, going here and there talking to bee clubs. One thing I've learned, and it seems to be an inflexible truth, is that the farther I travel to address beekeepers, the more I am assumed to know. If I am invited to some distant state, then I find myself treated like some sort of royal presence, as though I must be about the smartest beekeeper on this earth. It is quite different if I am invited to some neighboring county, where I am seen as just another local beekeeper, hardly worth the meager cost of my transportation. This is, of course, a familiar fact about human nature – that, as we have all read in the scriptures, "a prophet is not without honor, except in his own country." Of course, it is not unpleasant to be treated as if I were more important than I really am, but it makes me a little uncomfortable too, for I can't help thinking that the people around here, who know me well, must surely have a more accurate idea of me as a beekeeper than those far away.

I do love talking with beekeepers. They are mostly interesting and wonderful people who, of course, share my passion for beekeeping. I have, in the course of doing this over many years, made some observations on what it takes to have a really good and vigorous beekeepers' club and, for whatever they are worth, I shall pass them along.

I've noticed that the really successful bee clubs always seem to have one or two dominant personalities who sometimes hold offices in the associations and sometimes do not. They possess a kind of good-naturedness and enthusiasm that is infectious, injecting life and interest into the meetings. Now, of course, there is nothing a bee club can do about this; you are either lucky enough to have such people, or you're not.

There are some things, however, that a bee club can do to promote its success. Probably the most effective of these is to have auctions. The members are urged to scrounge through their stuff for anything that would be of interest to a beekeeper and donate it to the club. By auctioning off these items, a club can raise money for the treasury, for engaging future speakers or whatever and, even more important, these events stimulate interest in the club itself. I have never seen this fail. People love auctions and the chance to pick up a few bargains. I was once invited to a meeting in Indiana where the hall was packed with beekeepers. I could see no special reason for this, as it was not a populous area, but it turned out that the attraction was the auction that was scheduled for that day. They auctioned everything from second hand bee equipment to potted plants, some of these having only a remote connection with bees. And the audience loved every minute. I was further told that a few years before, this same club had been able to attract only a dozen or so members to the meetings. However, since they began conducting annual auctions, they regularly attract big crowds, even when there is no auction and, of course, the sales have greatly strengthened their treasury.

I brought this idea home with me and it is succeeding in our bee club here, too. Auctions bring out the crowds! If I were to give you just one idea for strengthening your beekeepers' club, this would be it.

Raffles can also be used to create interest and enthusiasm in your club. It has long been my custom to conduct raffles myself whenever I am invited to speak. I offer prizes, most of them having no very great value, but then there is always some grand prize contributed by a bee supply company as a public relations gesture. A raffle such as this takes only a few minutes and generates a great deal of excitement. With tickets at a dollar apiece, the club treasury is enhanced by maybe one or two hundred dollars, depending on the size of the audience, and the winners will glow with joy, while those who did not win have the satisfaction of having contributed something to the club.

Continued on Next Page

BEE TALK ... Cont. From Pg. 305

An annual dinner is still another worthwhile event. Probably the best way to do this is to have everyone, or every family, bring a dish to pass. This automatically results in a vast choice from lots of good cooking, and people love it. The cost is not great, and it is spread out over the whole membership, which is much more economical than having the dinner catered. The members all bring their own table service, then help themselves to the baked beans, escalloped potatoes, meat loaf, cake and ice cream – whatever. This always works; everyone looks forward to it, even the family members who have little interest in bees. But, I have learned, if you combine such a dinner with an invited speaker, then the speech should come first. When everyone has eaten heartily, especially late in the day, they are not in the mood to listen to anyone give a speech.

Another thing I learned, long ago, is that the responsibilities of a club should be spread out among the members. They should not all be borne by just one or two. Different members, or committees, should handle such things as inviting speakers, scheduling meeting times and places, nominating officers and so on. This method of operating a club gives a larger number of people a feeling of participation, and along with this goes a heightened interest in the club and its success.

A few other things are fairly obvious, though not always feasible. If yours is a large club, for example, it is very worthwhile to have an annual honey show with good, competent judging and prize ribbons. If it is a small club, this does not work so well because the same people win the ribbons year after year. And the club should have a written constitution, defining the roles of the officers, when they are to be chosen, and so on. Still another fairly common undertaking of bee clubs is to sponsor beginner courses in beekeeping.

Those are a few of the ideas I have picked up here and there. I think that bee clubs serve very valuable purposes, not the least of which is education. One learns an awful lot by going to bee meetings, especially a beginner. Even an old-timer like me learns a lot by seeing what the others are doing and picking up neat tricks that they have learned. And, on top of all this, there is the sheer fun of being with other beekeepers who, however little they may have in common otherwise, all share a love for this engrossing craft. BC

Comments and questions are welcomed. Use address below (not Medina) and enclose a stamped addressed envelope for response.

Richard Taylor is a philosopher & lifelong beekeeper who lives in the Finger Lakes region of new York. You can reach him at Box 352, Interlaken, NY 14847.

ONE GOOD HOUR ... Cont. From Pg. 304

as you do this, fine. Reassure your friend that there is nothing to be afraid of. Then, tell the person how it feels to have a bee walk on your hand. This action should relieve any tension the person has built up since you opened the jar. Then, watch together as the bees fly out the window. This should draw a smile or two.

After that, you'll want to talk about the equipment. Go through each piece thoroughly, especially the bee suit, veil and gloves. Emphasize that your friend is literally impervious to being stung. (Timid people don't like surprises in the beeyard; if they get stung first time out, you'll probably loose a potential beekeeper for good.) To be sure no stings occur, have the person wear loose, lofty clothing underneath the bee suit and personally "batten down the hatches" for him.

Then, ask the person out into the beeyard for one hour or less. That should give you enough time to go through a small hive thoroughly, and your friend will be comforted to know that he or she will be near the bees for only a short time. Also, make sure the hive you choose to go through is a gentle one.

If the person still has reservations even before he approaches the hive, have him stand back a few yards and watch as you take a hive apart. Let your friend take in the feeling of being near the hive. Gradually, ask him to step forward, reminding him often that the bee suit is impervious to stings. Tell him this is a very common method for many people to get used to being around bees, that what he is doing is exactly the right way to do this.

If done slowly, all these things should help alleviate *some* tension in the beeyard. It is not an easy thing to introduce a fearful person to honey bees; it just takes a little more patience and a little more work. The profits, however, outweigh the costs. Conversely, the future bee enthusiast's worries are laid to rest and so are some of the misconceptions and falsehoods that abound in this good-natured; but often frightfully misunderstood activity. BC

Franjo Goluza is a freelance writer, beekeeper, and beekeeping introduction specialist from Victoria, British Columbia.

Questions?

Extender Patty Problems

Q **My bees will not eat extender patties, which I purchased from a supplier. What is the explanation for this? And how would I go about making my own?**

Robert Scott
Rock, WV

A Out of every dozen or so hives, there are usually one or two that more or less ignore extender patties, for reasons I do not know. Beekeepers who wish to formulate their own can find detailed instructions on the back cover of the February issue of this magazine.

Why Diluted!

Q **Why is it necessary to dilute honey to feed it back to the bees, since it is, undiluted, their natural food? In what proportions should it be diluted? And what kind of feeder should be used?**

Norman Miller
Loon Lake, WA

A Bees take undiluted honey very slowly from a feeder. To make it more easy for them to take it down, mix a small amount of warm water into it, just enough to make it flow easily; the exact proportion is not important. The best kind of feeder, I think, is a one-gallon glass, wide-mouth jar with several holes in the cover, inverted over the inner cover hole. It is not necessary to cover this over with an empty hive body. The danger of getting AFB by feeding honey back to the bees has been shown to be minimal. Fermentation may be more of a problem if the solution is not removed by the bees in a timely manner.

Swarm Call!

Q **You have spoken of using 1½ story hives, with the shallow story on the bottom. What do you do about reversing, as a means of discouraging swarming?**

Todd Farmer
Williamsport, MD

A This question gives me an opportunity to make an extremely important point, to wit: If you are producing extracted honey, I think you should use two-story hives, that is, hives consisting of two full-depth supers year-round, as this greatly facilitates swarm control by enabling you to exchange combs full of brood in one story for empty or near-empty combs from the other story, thereby maintaining an open brood nest. It also enables you to reverse the two stories to good purpose, as further swarm control. The only problem with a two-story hive is that beekeepers tend to overharvest them, leaving insufficient Winter stores. That type hive is too big for comb honey production, however. Thus the comb honey beekeeper, using smaller hives and seeking maximum colony strength, does have a serious problem trying to control swarming. There is little point in reversing when one of the stories is a shallow. About all the comb honey beekeeper can do to control swarming is split out nucs. The reason for having the deep story on top is to make this easier.

Chunk Honey

Q **Which is better for producing chunk honey, a single full-depth-hive with a shallow super over that, or a two full-depth story hive with the shallow super over that?**

Jeff E. Mignot
Osceola Mills, PA

A A small hive is better for producing comb honey of whatever kind, that is, a single-story, full-depth hive or a story-and-a-half hive, consisting of a full-depth super plus a shallow super, with comb honey supers going on top of that. If you super over a two-story hive, consisting of two full-depth hive bodies, then the bees tend to store the honey down below, in the second story, and are very slow to start working in the super, especially since the super contains only foundation. On the other hand, if you use a shallow hive, especially one consisting of only one full-depth brood chamber, then you are very likely to get pollen stored in the comb honey, which can make it unsalable. To prevent getting plugs of pollen in the comb honey, you should be sure there is honey down below, in the brood chamber. Using a queen excluder helps to ensure this.

Questions are eagerly welcomed. Send them to: Dr. Richard Taylor, Box 352, Interlaken, New York 14847 (not to Medina), enclosing a stamped, addressed envelope for response.

Answers!

Richard Taylor

?Do You Know? Answers

1. **False** The Nassanoff (Nasonov) scent gland is found in adult worker honey bees on the dorsal surface of the 7th abdominal segment but is absent in queens and drones.
2. **True** Honey bee pheromones are secreted by exocrine glands as a liquid and transmitted as a liquid or gas.
3. **False** Honey bee blood transports nutrients, and hormones to the bathed tissues and waste products to the excretory organs and serves as a reservoir of food materials. The blood is unimportant in the transport of oxygen and carbon dioxide, as the honey bee has a separate respiratory system.
4. **True** Juvenile hormones are found in larvae, pupae and adult honey bees. Within the brood stages they promote growth and development (metamorphosis) and in adults they are responsible for regulating sexual development and maturation.
5. **False** While the levels of "queen substance" found within the hive are believed to influence the swarming impulse, the primary purpose in developing two-queen colonies is to boost honey production in areas with an intense nectar flow. Establishing these 2-queen units about 2 months before the honey flow produces large populations of bees to take advantage of the nectar flows.
6. **True** The presence of empty comb within the hive enhances the level of defensive behavior. Unidentified pheromones in empty comb apparently lower the threshold of response to intruders. Colonies housed in hives with large areas of empty comb respond to disturbances twice as fast and sting twice as much as colonies with little empty comb.
7. **True** Extensive research has shown that bee pheromones contain many chemical components that have not been totally identified or functions determined yet. At least 13 different chemical components have been identified from queen substance and 7 components to the Nassanoff pheromone.
8. **False** Many factors affect the size of the queen's court in relation to her activities, age, and physiological condition. Usually eight or more worker attendants are present when a queen is stationary, but they tend to lose contact as she walks rapidly over the comb. An average of 6.2 attendants has been recorded when the queen is moving, increasing to 8.7 when she is laying an egg and 10.8 when she is stationary. The size of the court diminishes when the queen is old and laying unfertilized eggs. It also diminishes in the Fall with the decrease in egg laying and remains low throughout Winter.
9. **True** Research has shown that direct contact with the queen or with workers that have contacted the queen is necessary for inhibition of worker ovary development. When a colony is divided by a single wire mesh screen, ovary development will not occur in either part with or without the queen. When a double screen is used so that bees in the queenright and queenless parts cannot contact each other, the ovaries of workers in the queenless part will develop.
10. **True** While the pheromones associated with the queen's mandibular glands are effective in inhibiting the development of worker ovaries, the ovaries of a queen honey bee develop normally. Even the injection of the pheromone into the queen's blood fails to influence ovary development. Apparently the queen has the ability to deactivate the effect of the pheromone in some way.
11. True Pheromones from the mandibular glands are important in eliciting the formation of the court (retinue) of workers around the queen. Bees in a queen's court also show special interest in her abdomen as well. Another pheromone is secreted by the tergite glands located on the abdomen. The queen's mandibular gland secretion attracts workers at distances of several centimeters, the secretion from the tergite glands is only effective if workers make direct contact with the pheromone. This pheromone has the function of stabilizing the court once it is formed.
12. **False** Even though insects and honey bees are cold-blooded organisms, through social, colony-level homeostatic adjustments they are able to regulate temperature. This behavior allows them to remain active throughout the winter unlike other insects.
13. B) Corpora allata
14. A) (E)-10-hydroxy-2-decenoic acid
15. D) (E)-9 oxo-2-decenoic acid
16. Brain and ventral nerve cord.
17. D) Glycogen
18. G) Ostia
19. L) Primer pheromones
20. F) Diaphragm
21. C) Malpighian tubules
22. J) Plasmatocytes
23. I) Trehalose
24. B) Releaser pheromones

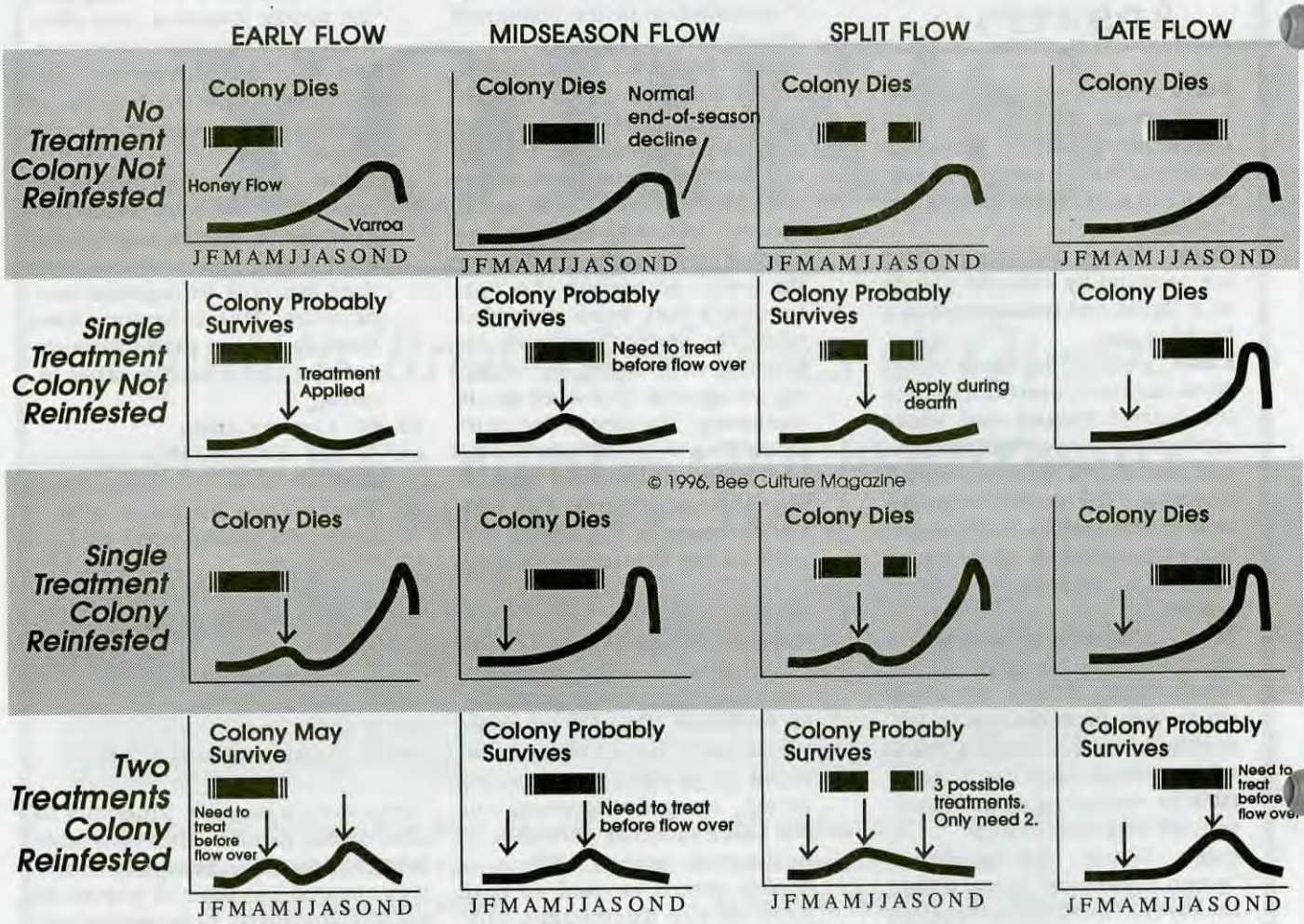
There were a possible 25 points in the test this month. Check the table below to determine how well you did. If you scored less than 12 points, do not be discouraged. Keep reading and studying- you will do better in the future.

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

INNER ... Cont. From Pg. 268

HONEY FLOWS AND VARROA GROWTH CYCLES

SCHEDULING TREATMENTS FOR SURVIVAL



ever, adults, too suffer from *Varroa* activated viruses, some of which can kill an adult in three days. There is no alternative. Infected adults infect brood that dies. End of story – end of colony.

Another trick is to make summer splits and requeen. Strong colonies, after a honey flow can be divided into two or maybe three smaller units. Putting brood, nurse bees, honey, pollen and a new queen into a new box accomplishes two things. First, all the older, tracheal mite-laden bees are left behind (and should be dispatched), reducing that population significantly. Second, by requeening you produce a break in the brood cycle, which has its own rewards. The brood cycle break enables clean up, and healthy brood to be produced later. And, I'm serious about dispatching those old bees, a somewhat controversial stand, I admit. But those old bees, once past a honey flow, contribute little to the welfare of the colony, and, it appears may be harboring lots of potential problems.

Of course you bring *Varroa* with the young bees and brood so treatment is absolutely required, but you needed to treat the original colony any way. There are fewer adult bees to treat, and the brood cycle has been altered so that gives you an advantage. Add a TM extender patty now if you like. You'll have a strong, healthy colony going into winter. And, either you left enough feed, or let them keep the fall flow so they'll be heavy going into winter.

There are other techniques being used to consider. Frames of drone brood (if you can find it) removed reduce *Varroa* infestations; plastic foundation seems to have an effect; small cell size has been reported effective in reducing stress and controlling all manner of problems. All of these help. Some aren't realistic from a time and honey flow viewpoint. But whatever you use, used in concert with the bees, the honey flow and the mites puts you ahead.

An integrated approach to pest control, using existing and legal methods requires knowing the biology of the pest, the host and how these work together so you select the most effective and efficient control.

For tracheal and *Varroa* mites you need to know their respective life cycles, the weak points in those cycles, control timing, honey flows and bee and brood cycles in a colony.

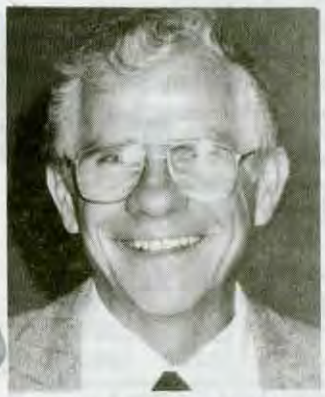
Monitor your colonies, anticipate the infestation cycles and plan accordingly. The future holds resistant and tolerant races of bees, several families of chemical controls, management techniques for avoidance, exclusion and escape – but this season, it's treat or die. The choice is yours. Butthere's enough information to make it through .

Kim Flottum

Gleanings

MAY, 1996 • ALL THE NEWS THAT FITS

37 Years At Michigan
HOOPINGARNER TO RETIRE



After 37 years at Michigan State University Roger Hoopingarner has decided to retire and start his terminal consultantship year on July 1, 1996.

"I would like to hope Apiculture and the beekeeping industry are in better shape because of my efforts than if I had not been here. If all goes well this year we should have solved one of the most devastating problems to beset the industry in this century. We should have a *Varroa* mite resistant strain of bees for release some time late this year," he said in a letter to Michigan beekeepers.

As a major fruit producing state, MI has become more and more dependent upon pollination of these crops by honey bees. Without the development and expansion of this service, a $700 million dollar fruit industry would essentially collapse. Over the last 129 years apiculture at MAC, MSC and MSU has materially helped build this fruit industry. The first entomologist at MAC was an apiculturist, A.J. Cook, who was hired in 1867. "It is my hope this long string of Apiculturists will not stop, as I think too much of Michigan's agriculture is dependent upon a strong and well developed beekeeping-pollination industry," he added.

"Personally, I may find it difficult to stop doing all of the things that I have been doing. As I have been asked to speak at many meetings throughout the country this past year, and was the U.S. Professional Apiculturist's representative to Canada in January. I should finish up my first book later this year and that will keep me busy in the short term. I also plan on doing other consulting, writing and speaking," Hoopingarner added in his letter.

"I am not going to leave Michigan as it is much to nice a place to live. I hope to find a little more time to work in my wood shop, and continue to keep the Lonesome Hive and go to beekeeping meetings. I would hope that I can be of service to the beekeeping community for the rest of my life, as bees and beekeeping have been very good to me."

PESTICIDE USE

California and Florida use the highest levels of pesticides per acre.

Florida: 25,662 pounds per acre on 2.1 million acres.
California: 21,054 pounds per acre on 7.2 million acres.
Illinois: 2,318 pounds per acre on 23.3 million acres.
Indiana: 2,563 pounds per acre on 11.8 million acres.
Michigan: 3,181 pounds per acre on 6.9 million acres.
Wisconsin: 1,762 pound per acre on 8.0 million acres.

– National Center For Food and Agriculture Policy

Progress Slowing
AHB NEWS & RESEARCH

AHB progress is slowing. The Africanized Honey Bee (AHB) showed up in California amid much fanfare in October, 1994, but the spread of the AHB has generally been much slower than expected. According to UC Davis researcher Dr. Robert Page, "The reason for its slow progress is still unknown.

Page is visiting Germany for a year as an Alexander von Humboldt Research Prize Awardee. But, he is still keeping on top of the latest AHB developments in California, via the Internet, as well as making periodic visits to administer his grants which include monitoring AHB activity.

Page conducted a survey of the Imperial and Coachella valleys in March to determine the extent of the infestation, using a mitochondrial DNA diagnostic that was developed by UC Davis and is now used by the California Department of Food and Agriculture.

Why has the AHB moved so slowly since invading California? No one really knows, admits Page. "It could be due to the effects of *Varroa* mites on feral colonies or the dry, hot desert regions are slowing them down because of the difficult environment," he says. "Perhaps, the AHB are reaching their natural ecological limits. Hopefully, our surveys will help us determine the cause of the slowed spread."

The past two months were important in helping researchers determine the nature of the infestation. "The swarming season gets underway in Southern California in March or April," notes Page. "Last season was less productive in terms of AHB finds, than I expected. If it is the same this year, then I will think the spread of the AHB is in serious trouble."

The first AHB stinging incident in California was recorded on November 28, 1995, when two tree trimmers working near the Colorado River in the town of Blythe were attacked and stung more than a dozen times each.

The attack occurred in a stand of cottonwood trees about three miles east of Blythe as the men worked to clear branches away from a power pole. The men, one of whom was stung 25 times and the other 15 times, had to run more than 200 yards to escape.

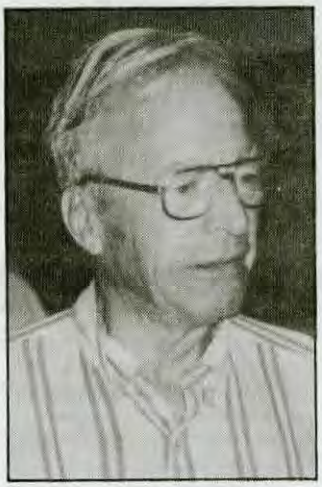
The attack followed two significant developments in the spread of the bees. In October, county agricultural officials reported that a swarm of AHB was discovered near the Salton Sea, the first time the bees had turned up in the Coachella Valley. At the same time, Imperial County officials found an established nest of AHB in which bees were breeding and making honey.

A more recent find was reported on Feb. 9 in the Imperial County town of Seely. Tom Eichlin of the CDFA's Pests Diagnostic lab reported residents found the newly established feral nest in a tree and tried to burn them out. "Amazingly, no one was stung," he reports. The bees later clustered nearby and were destroyed after a sample was taken for analysis.

Then in March, the Almond Board of California awarded three honey bee research grants. The first, for Robert Page, for $18,000 is for continuation of this AHB work and its affect on the Almond crop. Another, for $11,82- went to Robbin Thorp to continue his studies on pollination, honey bee foraging and alternative pollination for almonds. Marla Spivak, Brian Smith and Sue Cobey received $12,500 toward their project on developing an integrated pest management program for mite pests of honey bees.

Mraz To Speak

APITHERAPY AT VIRGINIA EAS



The American Apitherapy Society will sponsor a workshop at this year's Eastern Apicultural Society (EAS) Conference in Harrisonburg, Virginia. The Bee Venom Therapy (BVT) workshop will be held July 31st, from 8 a.m. to 12 p.m. Two of the leading experts in the field of BVT, Amber Rose and Charles Mraz, will lead the workshop.

Ms. Rose, LAc., L.C.S.W. and author of "Bee in Balance," has been a healer all her life. As her psychotherapy practice alerted her to the value of acupuncture, Amber Rose's acupuncture experience led her to BVT. It is the combination of pyschotherapy, acupuncture and the remarkable healing power of the honey bees that has guided her to speak across the country on BVT.

Mr. Mraz, a Master Beekeeper, world-renowned speaker, father of Apitherapy and author of "Health and the Honeybee" will speak on his experiences. Mr. Mraz has pioneered the use of bee venom to treat autoimmune diseases, particularly arthritis and multiple sclerosis. Charles Mraz has over 60 years experience with BVT and has advocated its benefits to the medical establishment and the press for more than 30 years.

AIA HOME PAGE

AIA now has a home page. AIA can be found on the World Wide Web at: http://www.mda.state.mn.us/docs/aia.htm. Check it out and let Blane know what AIA members would like to see in the site.

USDA NEWS

ISIS, the Online Public Access Catalog (OPAC) of the National Agricultural Library (NAL), the largest agricultural library in the world, is now available over the Internet at teinet address <opac.nal.usda.gov>. The catalog can be searched Monday through Saturday from 6:00 a.m. to 9:00 p.m., EST. ISIS contains two agricultural databases, the NAL Online Catalog and the Journal Article Citation database. Internet access to these resources will help to meet a critical need for agricultural information worldwide. The NAL Online Catalog and Journal Article Citation database is updated daily by NAL and contains the most current bibliographic citations for books, reports, maps, periodicals, audiovisuals, CD-ROMs, electronic media and other material being added to the NAL collection. The National Agricultural Library is part of USDA's Agricultural Research Service.

•

Agriculture Secretary Dan Glickman was pleased that the farm bill conference committee completed work on the 1995 Farm Bill (march 21). However, Secretary Glickman said, "I believe Congress' final farm bill has a lot of problems. I remain concerned about the dissolution of the safety net that protects farmers and rural America during lean times. I still have reservations about making large payments to producers regardless of market conditions," With reluctance, Glickman recommended to President Clinton that he sign this bill. Glickman commented that he was pleased to see strong research and trade titles, an extension of the nutrition safety net and the Fund for Rural America.

•

World sugar production and consumption for 1995/96 are forecast at 119 and 118.1 million metric tons, raw value, respectively. The implied surplus has shrunk from December's estimate of 1.3 million to about 900,000 tons. The apparent recovery in consumption is supporting prices, which have remained relatively firm despite the big increase in production. Countries in which consumption is forecast up strongly from last year include the Russian Federation, Brazil, China, the United States, the Philippines, and Indonesia. After two years of decreased consumption, world sugar consumption is forecast to rise a robust 3.5 percent, compared with an average of only one percent for the previous five years. The world sugar production estimate is up 2.7 percent over last year and tops the previous record of 116.5 million tons in 1991/92.

Display Index

To Market, To Market

Kathy Grazi

The police officer couldn't keep a straight face as he watched my husband, Mike, and about a dozen other adults try to eat lemon meringue pies with their hands tied behind them. How did he end up with pie all over his face in the middle of the busiest street in town? A wet Spring and a hot Summer, resulting in the biggest honey crop we've ever had.

My husband and I are small-scale beekeepers, and before last year, we've never had a problem giving away all our honey to friends and relatives. We started last season with seven hives, though bears reduced us to four. But by the end of June, we knew we were going to have to do something with the extra honey, and thought we'd try the local farmers' market.

Farmers' markets are gaining popularity in cities and suburbs. Shoppers like to be able to buy the freshest produce possible directly from the growers. We knew our raw honey would fit right in, so first we tried to get a vendor to buy our honey for resale, but when that didn't work out, we decided to rent a space and sell it ourselves.

We were only going to do this once, but our overachieving bees and the fun we had brought us back two more times. The last time was during an annual celebration by the city that included a parade and a pie-eating contest.

We sold enough honey to cover the expenses of our hobby for the year, but we were surprised by other benefits of selling our honey at a farmers' market. Getting up early on a Saturday morning was refreshing. The sunrises were beautiful, and the lack of traffic at that hour was a pleasant experience. The best bonus was the sense of community formed by the regular vendors. We'd wander over to each other's booths to inspect wares and visit throughout the day. A big chunk of our profits went to buying fresh fruits and vegetables from every vendor, especially when corn was in season.

The farmers' market also turned out to be a good place to market to specialty stores. We sold a dozen jars of honey to a woman who ran a gift shop at a tourist attraction. The owner of a gourmet food store happened by, and we sold two dozen jars to her. Another shop owner called us a few weeks after our last time at the market to be put on our list for next year's harvest. We never had a list before!

The farmers' market moved our surplus honey faster than if we had just set up a roadside stand or marketed it by word of mouth. Although we don't plan to become a large-scale commercial operation, or even a medium-sized one, we are hoping that our bees go overboard with honey production this year so we can have a booth at the farmers' market again. It was fun.

Whether you have a thousand hives, or just a few, the farmers' market can't be beat for selling your surplus honey. Here are some hints if you would like to try a farmers' market.

1. Establish a good relationship with the owner or organizer of the farmers' market, and also with your fellow vendors.

2. Be a good neighbor. Make your table attractive, using a colorful table covering, posters, etc. This will enhance your display and get more people to stop by your table.

3. Try to situate your table next to a vendor whose product will complement your honey, such as bread, fruit or flowers.

4. Keep your area clean. Be cheerful and professional. Keep your change in your pocket. It's safer than a cash box and looks more "down home."

5. Let your customers know they are meeting the actual beekeeper and packager of the honey. Bring pictures of your hives and processing equipment and have samples available. Bring recipes, brochures and stickers to give out.

6. Be ready to answer questions and have anecdotes to tell. We keep pictures of some of the strange places our swarms have landed, and we take every opportunity to educate the public about benefits, behavior and safety around bees.

7. We gave away jars of honey to a nearby fire station, the owner of the farmers' market, and to our neighboring vendors for good community relations.

8. Keep a good variety of jar sizes and shapes on hand. Honey sticks were very popular, as were bears and larger containers, but we couldn't predict what would sell on a particular day.

9. Labels can bring additional business, so make sure your customers can contact you for more honey!

10. Farmers' markets are mini-communities. They are an opportunity to get away from the routine for a while, meet new people, and find new ways to market your honey. So, sit back, relax, and have fun!