GLEANINGS IN BEE CULTURE SEPT '88

BEE CULTURE

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"PAPA BEAR" 2-LB. DISPENSER— All new for 1988 is "Papa Bear." A new unique 2-lb. plastic squeeze bear ideal for honey-loving families. The large capacity eliminates the constant need of refilling. This heavy-duty plastic dispenser has detailed features and will be a great addition to any family's table. Allows you to sell more honey with less packaging cost.

M00276, 2 lb. Squeeze Bear with Cap and Collar,
(Order 6 minimum), wt. 2 lbs./6, ea. _____ **$ .51**

M00276, 2 lb. Squeeze Bear c/150 with Cap and Collar,
wt. 35 lbs. ea. _____ **$ .48**

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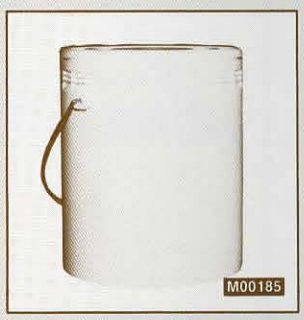

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SEPT. '88 CONTENTS

(ISSN 0017-114X) Vol. 116, No. 9
115 Years Continuous Publication by the Same Organization

Features

Articles

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NEXT MONTH

October — Autumn arrives in earnest this month, and with cool weather comes increased demand for our primary crop — honey. So next month we have an excellent piece on marketing. This article is the result of an extensive interview *Bee Culture* conducted with Cliff and Lois Sunflower, whose strategy of marketing through education has changed the way they sell honey — and will probably change yours.

And, it seems, reports of the 'Old Timer' having left for the great apiary in the sky were premature. He has a story for us next month, about winter (with a capital W), that we know you'll enjoy.

And finally, Steve Taber, a regular columnist for *Bee Culture*, is one of those celebrities that people love to love, or love to hate. We'll take an in-depth look into what makes Steve tick and maybe why it is you either love, or hate, Steve Taber.

October — the month of early autumn. Stay tuned for *Bee Culture*.

Harvesting, winter and Steve Taber — plus all the regulars that you've come to expect — every month!Δ

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Subscription Rates: United States, one year, $12.49; two years, $23.99. **Newsstand Price: $1.95.** Other countries including Canada, Pan American countries and Spain (U.S. Currency only), $6.00 per year additional for postage. Remittance should be sent by post office money order, bank draft, express money order or check. Published monthly. Discontinuance: Subscription stopped on expiration. Change of Address: Fill out and return form contained inside issue. Articles are solicited. Stamps should be enclosed to insure return of manuscript to author if not printed. *Opinions expressed by the writers in these columns are not necessarily those of the editors.* Advertising rates and conditions will be sent on request. Advertisers' Reliability: While the publishers do not guarantee advertisements in this journal, over the years very few complaints have been received. Microfilm copies available at: University Microfilms, Inc., 300 North Zeeb Road, Ann Arbor, Michigan 48103. Second Class Postage Paid at Medina, Ohio and additional offices.

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THE INNER COVER

Imagine That!

National Honey Month. Imagine that, a whole month to honor honey; to harvest honey; to bottle, sell and make money from — honey.

Imagine That!

The National Honey Board has done much for the image of the product we produce. We, or rather those who pay the bills for that group, are getting their money's worth. The old adage "You get what you pay for", is proven again.

The fact that the Post Office is issuing a new honey bee stamp this month is coincidental, I think, but it couldn't have been better timed.

A new stamp, issued the first week of National Honey Month.

Imagine That!

•

One can bask in this attention, for there will be attention to honey and it's by-product beekeeping this month. There will be National press releases and local media coverage, recipes in newspapers, and probably 15 or 90 second spots on national news shows.

It's fun being in the spot light, even if its only for a month.

It sure beats a sharp stick in the eye, as the saying goes.

But in October the Stamp will be old news, which means no news; the press releases will have been released, the local news spots erased and gone, and National Honey Month just a turned-over page on the calendar.

And you still have honey to sell. It didn't miraculously all disappear in September, like the news stories, press releases and other hoopla. Yes, it's still in pails (drums, bottles), and still needs to be sold, or moved, or dealt with. Life does go on, after all.

The National Honey Board's recent consumer survey reported that one in three households in this country buy honey — 1 in 3. WOW!

But that also means that 2 in 3 don't. WHY?

Continued on Page 536

COVER . . . NEW BEE STAMP!! . . . The honey bee stamp (available only in rolls), by veteran stamp designer Chuck Ripper, will join the wildlife kingdom of philately on September 2 at the 1988 Omaha Stamp Show in Omaha, NB.

Postmaster General Anthony M. Frank will dedicate the new definitive stamp in an 11:00 a.m. ceremony in the JFK Room at the Holiday Inn Central, 3321 South 72nd Street. Attendees should use the rear parking lot and enter through the North Lobby.

The design of the stamp is as bright and colorful as a sunny summer day. A gold-and-black worker honey bee lights on the pink florets of a clover blossom. "25 USA" appears in the upper left corner in black serif type against a golden yellow background.

The combination of offset and intaglio printing provides rich color and intricate detail, right down to the bee's delicate wings and the tiny hairs that virtually cover the insect, aiding it in the collection of pollen. Although five different color inks are used (four offset, one intaglio), only a single black intaglio plate number appears on every 48th stamp.

The U. S. Department of Agriculture estimates that about 3.5 million acres of fruits, vegetables and seed crops in this country depend on insect pollination, and that another 63 million acres benefit from it. Considering that 90% of insect pollination is performed by the honey bee, it is easy to see the truth in the phrase, "busy as a bee."

First Day Cancellation Ordering Instructions:
Customers Affixing Stamps: The Postal Service encourages customers to purchase the Honey bee stamps and affix them to their envelopes. Covers bearing stamps will receive preferential service. Customers must address envelopes on the right side at

Continued on Page 536

SEPTEMBER Honey Report

September 1, 1988

These figures represent current prices from our contributors. They are based on reports from many states and averaged for each region. Where insufficient information is received, no price is shown.

Wholesale Extracted	Reporting Regions								Summary		
Sales of extracted, unprocessed honey to Packers, F.O.B. Producer. Containers Exchanged	1	2	3	4	5	6	7	8	R	A	L
60 lbs. (per can) White	41.01	50.00	35.04	30.00	35.09	36.17	40.00	37.20	24.00-60.00	38.22	35.14
60 lbs. (per can) Amber	38.42	37.20	39.19	38.00	33.00	32.75	35.50	33.85	32.00-43.00	35.61	31.49
55 gal. drum/lb. White	.55	.45	.39	.41	.48	.63	.62	.55	.39-.65	.52	.52
55 gal. drum/lb. Amber	.50	.38	.36	.39	.47	.55	.50	.46	.35-.56	.46	.47
Case lots — Wholesale											
1 lb. jar (case of 24)	28.75	28.80	26.10	23.00	23.45	24.60	29.00	29.33	18.00-35.19	26.59	26.53
2 lb. jar (case of 12)	26.82	27.00	24.91	18.09	22.20	23.62	26.20	28.10	18.00-33.00	25.09	25.69
5 lb. jar (case of 6)	27.45	24.10	24.00	22.75	25.25	24.05	28.15	28.75	22.50-30.00	25.48	27.06
Retail Honey Prices											
1/2 lb.	.96	.90	.89	1.15	.83	.87	.95	.87	.79-1.50	.94	.93
12 oz. Squeeze Bottle	1.45	1.55	1.48	1.22	1.17	1.11	1.44	1.25	.93-1.89	1.30	1.38
1 lb.	1.55	2.02	1.25	1.65	1.33	1.34	1.70	1.45	1.09-2.00	1.63	1.55
2 lb.	2.75	3.09	2.22	3.89	2.39	2.60	2.87	2.72	2.15-3.89	2.82	2.68
2-1/2 lb.	3.43	4.21	3.00	—	3.45	3.08	—	—	2.50-4.85	3.60	3.59
3 lb.	4.00	4.08	3.48	3.51	3.60	3.93	3.98	3.48	3.00-4.30	3.79	3.80
4 lb.	5.10	4.90	4.00	—	4.75	4.37	4.95	—	4.00-5.50	4.65	4.75
5 lb.	6.05	5.79	5.81	5.75	5.75	5.25	5.75	5.50	5.00-6.50	5.65	5.86
1 lb. Creamed	1.80	—	1.89	1.39	1.55	1.85	1.85	1.70	1.35-2.15	1.73	1.63
1 lb. Comb	2.23	1.91	1.97	3.00	2.15	1.88	2.69	3.63	1.65-5.00	2.38	2.12
Round Plastic Comb	1.83	3.00	2.00	2.00	1.85	1.71	1.88	1.91	1.50-3.00	1.97	1.89
Beeswax (Light)	1.00	.94	.80	.95	1.20	.80	.90	2.50	.75-1.20	1.20	1.29
Beeswax (Dark)	.87	.88	.65	.85	.80	.71	.81	1.38	.65-1.10	.90	.85
Pollination (Avg/Col)	26.50	—	20.00	25.00	—	21.50	—	26.00	20.00-30.00	23.57	20.83

Honey Report *Features*

Summary Column: There are 3 parts. **R** — Range of *all* prices reported for the month, lowest and highest. **A** — Average price for each commodity across all regions. **L** — Average price of each commodity listed *last* month.

Comments Section. Price Index — A descriptive statistic that takes into consideration *all* commodity prices, and compares each region to the others. The region with 1.00 has the highest overall prices for the month. A region with Price Index .90 has prices, overall, at 90% those of the region with 1.00.

Region 1.

Price Index .98. Sales steady and prices rising slowly. Enough rain in eastern regions to produce adequate crops while western sections drier. NY prices and sales slow, and conditions not good for fall.

Region 2.

Price Index 1.00. Sales and prices increasing a bit, primarily due to seasonal crops, but some specialty crops (tulip, sourwood) have been affected by erratic rainfall. Some areas great, others in trouble. Watch for feeding and summer crops being eaten.

Region 3.

Price Index .89. Sales steady but slow and prices increasing a bit. Moisture continues to be spotty and production corresponds. Watch for both sugar and pollen shortages.

Region 4.

Price Index .78. Sales slow but prices steady. Definately a drought, even with the recent rains. Northern areas very dry, with little honey stored. Crops in stress and outlook even drier. Some areas looking better, especially in southern areas.

Region 5.

Price Index .85. Sales slow, prices steady primarily due to hot weather. Northern areas extremely dry, but southern areas improving a bit. One benefit, farmers aren't cutting alfalfa because it's too short and it's blooming and making honey.

Region 6.

Price Index .85. Sales and prices steady to rising. Production spotty — great in some spots with rain, poor in drier areas.

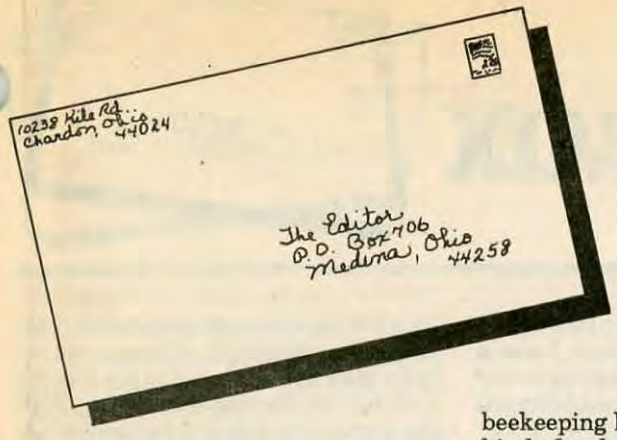
Region 7.

Price Index .94. Sales steady to increasing, prices strong. Drought has had great affect on most of areas and crops very short generally. Fall feeding will probably be required.

Region 8.

Price Index .91. Prices and sales steady and strong. Southern areas dry, but northern areas feeling it too. Bears in north causing problems, late crops in south hold some promise but strong flows not expected.

Anyone interested in becoming a "Honey Reporter" should contact the Editor.



MAILBOX

Guess What?!

I have enjoyed *Gleanings* for several years, and I look forward with nervous anticipation to the day my kids bring it from the mailbox. They hide it behind their backs with a "Guess What, Daddy".

J. McKenzie
Rt. 5, Box 5284
Athens, TX 75751

Bees Do As They Please

The magazine gets better and better. The poetry in the June '88 issue finally gets to the real essence of beekeeping. Richard Taylor is a poet, and most beekeepers sense the mystery of the hive and respect the bees' integrity. Bees are beautiful, beekeepers are funny by comparison, but between them they make honey and poetry, riddles and answers. We are forever curious about our own bees (we own the hives but certainly not the bees!), wondering how they know so well how to outsmart us.

Gwen Eisenmann
Rural P. O.
Brixey, MO 65618

Rare Stock

Some 4 years ago, working with one of my colonies of locally captured swarms, a white bee circled about 3 ft. out and landed on the flight board. It visited momentarily with those on the board and then went into the hive. I assume a play flight for there was no pollen and no hurry to enter the hive, as field bees often exhibit. It was on the board some 10 seconds and gave me ample time for inspection . . . all white and no bandings. I did not think to inspect for pink eyes. Thorax and abdomen were white, too.

Since I was working the colony this kept me from removing the frames to run the critter down. And I saw no reason for having an albino bee in my beekeeping husbandry. I brushed that kind of endeavor aside.

Recently Joan Embry of the San Diego Zoo showed a rare albino bear on the Tonight Show. Talking about such rarity prompts me to report, and to wish I had another chance to capture my Albino Bee.

Roland Bell
5901 Robinhood Lane
Ft. Worth, TX 76112

Drone Comb Killers?

I have been pondering your comments about non-chemical means of coping with varroa mites. As I understand it, you suggest adding drone comb or foundation to a colony infected, or suspected of being infested with varroa. The theory here is that mite females prefer to lay eggs on drone larvae. I don't know if drone larvae are more succulent, or that their larvae take longer to emerge.

In any event, after the drone brood has been capped, the frames are removed and the brood destroyed. Apparently, this will upset the mites brood rearing cycle so that it's population remains at an acceptable level.

Since there are no mites in Connecticut (?) I can't try out my theory. Please take this opportunity to perhaps get someone in your audience to supplement your procedure with the following one.

At least twice and possibly three times a year, confine the queen for a period of up to the time the drone brood are to be removed. This is easily done with a full frame queen cage. Slip it over the queen and nearby attendants. Provide a queen excluder so the house bees may move in and out but the queen is limited in egg laying space.

The loss of field bees (due to restricted laying) for the nectar flow can be remedied by adding queenless bees

MAILBOX

just prior to the nectar flow. The mite population with the above procedure should not be significant enough to interfere with the collection of honey.

After the nectar flow is over, a screen board can be used to siphon off the adult bees who are going to meet their Waterloo anyway, and will take additional mites with them. After the field bees are removed, the queen could be caged again, if necessary, to reduce the mite population further.

It may be necessary to add more bees in the fall for proper wintering, but in any event the cost would be less than the cost of a lost colony, and the possibility of having additional colonies infected.

If you think this is worthy of printing, I would be happy to hear from any of your readers as to their reaction to the feasibility of the method. I would also be happy to supply the necessary equipment to those who want to try out the system.

Austin A. Knox
295 Pumpkin Hill
New Milford, CT 06776

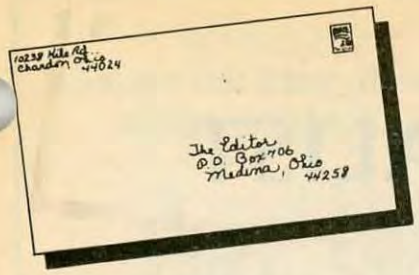
Make Mine Mild

In reference to your article "Honey — What's the Problem?" by Richard Niklas in the July *Gleanings*, I thought I should give a consumers viewpoint, and pass along some observations.

To begin with, I think the big problem with honey is the fact that it is messy to use. Today's consumer wants a sweetener that pours easily. Honey sticks to the spoon and invariably drips on the side of the bottle. This means you have to lick the spoon and get a damp cloth to wipe the side of the bottle. With the increasing demand for non-messy convenience foods with throw away plates, many people don't want to mess with a jar of honey.

Now, before someone says that's what squeeze bottles and honey bears are for, keep your hive cover on and let me pass on an observation.

I have almost never, repeat *never* seen a bland flavored honey (such as clover) packaged in squeeze bottles or honey bears. They are almost always reserved for a fine flavored honey (such as orange blossom) which is (or should) be reserved for putting on a hot biscuit. This is why you find honey in the jelly/



MAILBOX

spread section of the market.

If you want to sell honey as a general purpose sweetener, it needs to be packaged differently.

The blander tasting types of honey (clover, etc.) which do not have a pronounced flavoring effect on the food they are used in should be packaged in large squeeze bottles — two or three pounds at least. Large bottles with no-drip spouts like the cooking oils come in and my favorite, the old fashioned syrup jar. The kind that has a little lever that slides open a little metal gate and when you release it, it cuts off the flow of honey with no drips. I believe that the International House of Pancakes still uses them on the table for their syrups.

The key here being *non-messy to use* and a honey that has no pronounced flavor of its own.

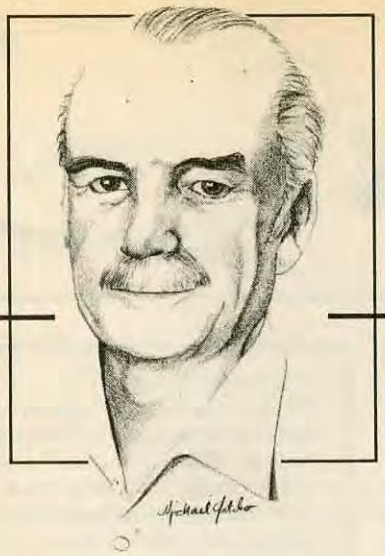
You have to face the fact that orange blossom honey tastes great in tea but horrible in a pecan pie.

In short, if honey is to compete with sugar, it must share the ease of use and impart no noticeable flavor to the finished food.

The only way I can see that happening is a new direction in packaging.

R. A. Paquette
P. O. Box 197
Windermere, FL 32786

EDITOR'S NOTE:
Unfortunately, I agree with most of what you have said. It seems the public, the *uneducated* public, will only eat a flavor of honey that has no flavor! The less the better! So, the obvious answer here is to change that attitude. Honey has a flavor, just like jams, jellies, cheese and cookies.



THE BEE SPECIALIST

ELBERT R. JAYCOX

5775 Jornada Road North • Las Cruces, NM 88001

"Fall and winter preparations are a bit different this year."

Fall is for Finding Mites
I. *Varroa*

Late summer and fall are the best times to determine whether colonies are infested with mites, both *Varroa* and tracheal mites. This is the time to put some shallow trays, with a sheet of white paper about a quarter of an inch beneath an 8-mesh hardware cloth screen, into some of your colonies. The screen keeps bees from removing any dead mites and other debris that falls onto the tray, and there is a smaller quantity of material to examine than will be found later in the year. According to Armin Spurgin, writing in *Imkerfreund,* September, 1987, you can find Varroa mites easily on the trays after only five days if the colony is infested. This is probably a more accurate diagnosis than the one made with an ether starting fluid. The question arises, why use the trays or some other method like examining sealed brood, particularly drone brood, instead of putting in a fluvalinate strip? Simply because we are heading for a major crisis in marketing honey and wax if we do not reduce our use of pesticides, drugs, and antibiotics in our bee hives. Every time we use one of these materials, for testing or control, we increase the chance of contaminating our major products.

In Switzerland, after three years with *Varroa* infestations, the veterinary service and the bee research station have agreed that it is no longer acceptable to use Folbex VA (bromopropylate) as a diagnostic agent to detect infested colonies. Instead, they will examine hive debris and sealed drone brood. They believe that by using only these methods they will prevent the buildup of pesticide residues in honey and wax and prevent, or at least hinder, the development of acaricide-resistant mites. They also have broadened the assortment of chemical materials for control of *Varroa* mites. They now allow the use of Perezin (coumaphos) and Apitol (a systemic), along with previously-approved compounds Folbex VA (bromopropylate) and formic acid plates.

The Swiss Federal Beekeeping Laboratory is investigating a technique that could become an important fall manipulation, at least for amateur beekeepers, in this country. They call it

a late-summer "brood stop." In other words, they want to free the colonies of brood, especially sealed brood, at the ideal time for mite treatments. They confined queens in queen-excluder cages for five weeks in August and September. This created a 10% reduction in the number of bees going into winter, but in the spring, the control and treated colonies were of equal strength. They noted that there was some risk of a new queen being reared and possible loss of the old queen. In many areas of this country, there will always be brood in colonies in the fall without some manipulation such as this Swiss "brood stop," and *Varroa* control will suffer. Remember that this is essentially a *brood* disease and to control it effectively we must treat when it is at its lowest point — without brood, and toward the end of the year.

Finding Mites
II. *Acarapis*

Tracheal mites appear to be causing more losses than earlier expected, and Marion Ellis, editor of *Nebraska Bee Tidings*, says that people who ". . . proclaimed that it was no problem should be ashamed of themselves." From the results of studies reported by Maki, Wilson, *et al,* on the infestation of tracheal mites in Texas, Nebraska, and Mexico, perhaps we should be ashamed for using menthol in bee colonies, not because it is illegal, but because it will delay our developing resistant bees.

According to these studies, the mite infestations were low all year in colonies of Texas bee stock at Weslaco. Only 25 miles away, with a similar climate but Mexican stock, tracheal mites thrived. They also did well in bees in Seward, Nebraska. This fall is an ideal time to sample the colonies suspected of being troubled by tracheal mites. You can send samples to the U. S. Department of Agriculture laboratory at Beltsville or, if they are unable to help, you should learn to examine bees by the system reported in the *American Bee Journal* last year by Smith, Needham, and Page. Using a pair of good forceps, they pulled out the lobe of the first thoracic spiracle and got enough of the trachea to examine it for mites at 15-20X magnification. Samples took only 1 to 2 minutes per bee.

The next problem is what to do if there are heavily-infested colonies. First, you might consider taking your losses in the fall and killing up to 10% of the colonies: those with the highest infestations. Leslie Bailey says that colonies with more than 30% of their

Continued on Page 498

individuals infested are more liable to die in spring than those less heavily infested. I would not kill any colonies unless infestations were much higher than that, however. If it is not too late, you might requeen colonies with another strain of bees. Pettis and his coworkers reported that requeening helps to lower the infestation level. Eischen also found the same result.

Whatever you do, be sure that infested colonies have plenty of stores and sufficient hive space for wintering. They consume more than mite-free bees. B. A. Cooper, in *The honey bees of the British Isles,* reported that *Acarapis*-infested bees are more liable to die in single hive bodies over the winter; they do better in 1-1/2 and 2 boxes. "in other words," he wrote, "the smaller broodbox appears to select strongly for acarine resistance where the larger one does not."

If we take some losses of bees from tracheal mites we will be in a far better position than if we nurse susceptible bees along with menthol and other illegal chemical treatments. Consider what happened with the bees of Buckfast Abbey and Brother Adam. the "Isle of Wight" disease struck heavily in 1914, killing all their black bees. The surviving "Ligurian" (Italian) stock did so well that by the spring of 1916 the Abbey had replaced all the dead colonies and made a crop of 100 pounds average per colony. We can do the same thing here if we do not get hooked on the idea that we must save our susceptible stocks with expensive, *unapproved* treatments.

Garlic For Wax Moth?

This time of year we need to think also about putting away our extracting combs and keeping them from being damaged by wax moths. Since ancient times, people using wool for rugs and garments have had similar problems. According to Nina Hyde in *National Geographic,* the Romans used bare-breasted virgins to beat the surrounding bushes to drive out the moths whose larvae devastated their woolens. Another early treatment was cow manure and garlic.

By coincidence, garlic seems to be making a comeback in the world of human medicines and beekeeping. According to researchers at Brigham Young University, garlic extract can kill, with nearly 100% effectiveness, the viruses that cause human colds, influenza, fever blisters, and genital herpes. Sinead Kavanagh reported in *The Irish Beekeeper* on her project with garlic for wax moths. They fell to the bottom of the hive and died overnight. She placed the garlic in a perforated plastic bag at the bottom of the hive in hopes of preventing off-flavors in the honey. The garlic killed all the larvae in Kavanagh's hives and prevented the pupae from hatching to adults. I found the story in *Beekeeping,* the newsletter of the Devon Beekeepers' Association in England.

Garlic may be good for genital herpes, but don't try propolis, even a 10% solution. A man who did, learned after applying it that he was severely allergic to propolis and suffered intense swelling, inflammation, and blistering.

A Future For Propolis?

For many years we have been reading about the uses of propolis in human and animal health; most of the stories have originated in Eastern Europe. At the XXXIst International Congress of Apiculture held in Warsaw, Poland, in 1987, many reports dealt with propolis, ranging from its use as an additive in feed for broiler chickens to the treatment of giardiosis, dental diseases, and fungal infections of human skin.

Although large quantities of propolis come from the buds of poplar trees (*Populus* spp.), bees also collect the resins from pine, birch, oak, alder, willow, eucalyptus, and hazel. They will also collect substitutes when plant sources are scarce, using such materials as paint, bitumin, and mineral oils. The diversity of sources probably produces unique mixtures of resins that do not lend themselves well to standardized pharmaceutical uses, the most commonly reported application. In New Zealand, however, I saw propolis lozenges and toothpaste for sale in one store (see illustration).

At one time, purchasers of propolis in the United States were paying as much as $40 per pound for the pure product collected by beekeepers. It is difficult to produce large quantities and the techniques are labor-intensive. The annual yield per hive in Central Russia has been estimated at only 50 grams, less than 2 ounces. The latest price offered in the United States (July, 1988) is $2.00 per pound plus freight. Contrast that with the price offered in the November issue of *The New Zealand Beekeeper*: $NZ80 per kilogram or about $US26 per pound! You could hardly afford to scrape bee boxes for $2 but you might try it for $26. There are several other collecting methods, including sawkerfs in the hive bodies, screens lining the hive, and hive inserts with small holes, all of which the bees fill with propolis. When chilled or frozen, the propolis can be removed cleanly from the sites where the bees have stored it.

I seriously doubt that propolis will ever become a stable item of commerce and a good supplemental source of income for beekeepers. Its variability and the fact that many people are sensitive to it will prevent its general use.

Research Reports Should Not Be Recommendations

Research reports are just that: reports of experimental studies to find a control for a pest or disease, or accounts of other scientific investigations of any kind. Many such studies involve the use of products, safe or dangerous to humans, to solve a particular problem. When research workers publish their results, they include all the details so that others may compare their work and results. A disclaimer is usually included stating that the work is experimental as are the compounds involved, and that they are not yet approved for general use.

With the threat of two parasitic mites facing them, many beekeepers have failed to heed the disclaimers in reports of mite research and are now blithely using unapproved chemical controls. This may also result from the glowing accounts of success in controlling mites that are published in bee magazines and given in talks to beekeeping groups. Probably the best

example is the use of menthol for the control of tracheal mites. Even large companies in New York that import and distribute menthol are now advertising in bee journals along with the bee supply companies offering the product without specifying its use. Steve Taber has contributed to the confusion by referring to studies by Wilson, *et al*, and Herbert, *et al*, as showing that menthol can ". . . remove all internal parasitic mites from living honey bees." On this basis, he assures customers that his menthol treatments will prevent their receiving mite-infested bees. What he fails to mention is that the mites are commonly found in the air sacks of the head where most research workers do not look. These mites are rarely killed by menthol treatments. He seems also to overlook the fact that eggs and immature stages often are not killed by menthol vapors. Unfortunately, nothing is said about the lack of approval of menthol for any purpose in bee hives, at least as of late July, 1988.

When the U. S. Department of Agriculture published the order allowing the supervised use of fluvalinate-soaked plywood strips for treating *Varroa*-infested colonies, they gave exact details on how to prepare the strips. Beekeepers took the information and went into the treatment business. A similar response has come from reports telling about the successful treatments with amitraz insecticide, which beekeepers are using for *Varroa* mites. This material is considered unsuitable for use in bee hives in West Germany and has never been approved in spite of many studies in that country.

It seems as if the U. S. Department of Agriculture has ruled out the use of formic acid for *Varroa* without giving it a test. This is unfortunate because it is the only compound which kills some of the mites within sealed cells. It also has the advantage of being readily detected by its odor when residues are present. It shares similarities with menthol in that respect, and by the fact that it is a natural constituent of honey, with about 1 g. per kg. (2.2 lbs) of honey, according to Mirko Muller, reporting in *Alpenlandische Bienenzeitung*. I think I would rather take my chances with formic acid residues rather than those of suspected carcinogens.

Perhaps some people will try formic acid in place of amitraz if they are aware of the research reports dealing with its use. Formic acid plates are the least expensive of the approved treatments in Germany. They are made from fiberboard, 200 x 150 x 15 mm. These are soaked with 25 l of 60 percent formic acid and sealed in a foil packet or plastic container for a week so that the acid will penetrate the entire board. One plate is placed *beneath* and close to the brood nest, usually shoved into the entrance in the evening and left in place for three or four days. A second board is then put in if more than 200 mites were killed. Treatments are made *only* in the fall when colonies have little or no brood. When properly done, with moderate temperatures, treatments with formic acid have been as effective as those with Perezin (coumaphos) and Folbex VA (bromopropylate) according to reports.

European researchers warn that formic acid is dangerous to handle and can damage bees in warm weather. It may cause disorientation of bees if their colonies are close together. However, reports from Europe show that formic acid is probably the best material for control of Varroa mites on the basis of residues and number of mites killed.

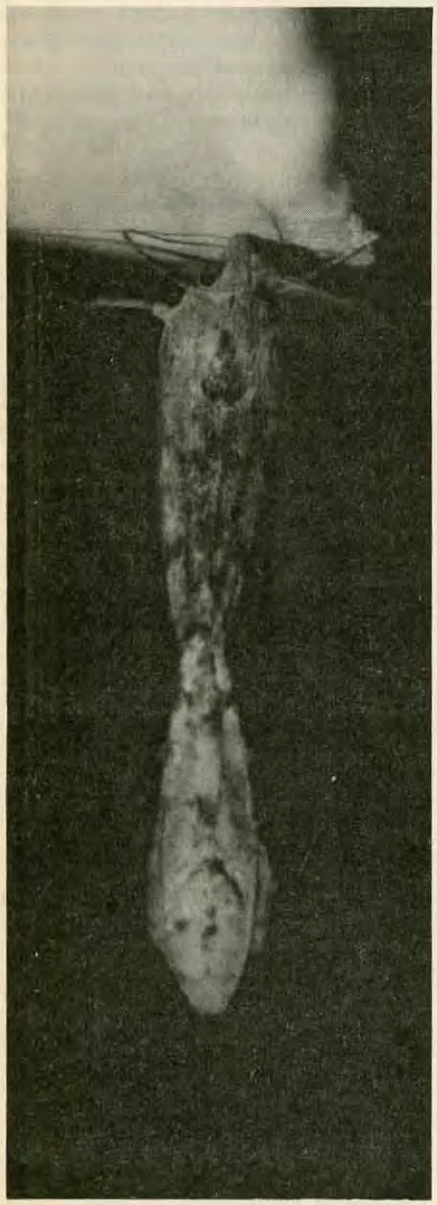
Probably the best biological control of Varroa mites is the use of drone combs for trapping and destroying the mites, which prefer to rear their young on developing drones. Who would think that such a practice could lead to problems? Yet Dr. W. Ritter, who has done important research with *Varroa* in West Germany, says that there are different strains of the mite, some of which are more attracted to drone larvae than others. By concentrating on removal of infested drone larvae, we could be selecting for strains of mites that prefer worker larvae, and in this way create more serious problems with the mites. Of course, when we begin to incorporate African blood into our breeding stocks, that problem will disappear because of the shorter development period of Africanized worker bees.

Beekeepers need to back off from the misuse of chemicals in their bee hives and demand some redirection of research on the control of parasitic bee mites. With a breeding program, we could have strains of bees highly resistant to tracheal mites in a short time. Research on chemical controls, and the treatment of susceptible stocks only delay the solution to the problem and waste research dollars.Δ

LOOK *and* LISTEN

WAX MOTH COMMUNICATION

HAYWARD G. SPANGLER



Mating pair of greater wax moths on the outside of a bee hive. Female is holding on and suspending the male.

Introduction

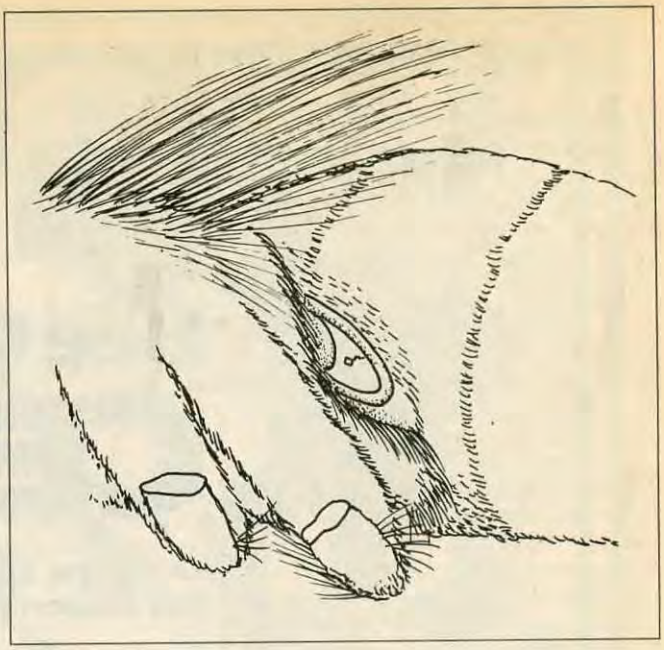
Greater wax moths, *Galleria mellonella*, are able to hear ultrasound above the range of human hearing over a wide range of frequencies. This hearing ability enables them to react defensively to avoid insect eating bats which locate and capture prey using ultrasonic echolocation. Greater wax moth males also produce ultrasound coordinated with chemical signals (pheromones) as part of their mating communication sequence. Males produce short phrases of sounds with a small pair of tymbals they activate with the motion of their forewings. When she hears the male's sound, a female fans her wings. The low frequency female wingbeat sounds cause the male to start producing more pheromone. Attracted by the odor, the female moves directly toward the male to mate. Since these moths are probably able to communicate only at distances less than 1 meter (m) all three of the elements of the greater wax moth's communication system are short range. Understanding how this moth's hearing and communication system works may lead to development of practical methods to detect and control this serious bee pest.

Both lesser, *Achroia grisella* F., and greater, *Galleria mellonella* L., wax moths are troublesome bee pests that cause damage to bee comb. Lesser wax moths, found in the extreme Pacific Northwest and at higher elevations in the mountainous west, are less of a problem than the more widespread greater wax moth, considered the leading pest of bee colonies and stored comb in most areas of the United States. Throughout the South, for example, some stage of greater wax moth infestation can be found in nearly every bee colony. In the Far West, 78% of the colonies sampled in Los Angeles were infested with greater wax moths during October, and 65% were infested during January (Clark, 1984). Since the greater wax moth causes such severe economic losses to beekeeping equipment (Williams, 1976), new methods for the moth's control need to be explored.

I did not begin to study the greater wax moth's sound production and communication until after my colleagues and I had discovered that male lesser wax moths call their mates with ultrasonic clicks above the human hearing range (Spangler et al., 1984; Spangler 1984b). Since the discovery that female lesser wax moths orient directly to the continuous sounds produced by the males, I developed techniques for detecting and monitoring them with acoustical equipment (Spangler, 1984b; 1985b).

I suspected that the greater wax moth could also hear and produce ultrasound, and that perhaps this moth as well might be detected and monitored acoustically. However, my research has shown that sound is not the key element in greater wax moth communication. Thus, identical methods to detect and control lesser wax moths seem unlikely to work on greater wax moths. However, this research has yielded important information about the biology and behavior of the greater wax moth. This report summarizes the observations, experiments and conclusions of my greater wax moth hearing and communication studies.

Electromicrograph of the sound-producing tymbal of a greater wax moth male.



The left ear of the greater wax moth, located on the ventral-anterior surface of the abdomen, just behind the hind leg.

Initial Observations

It is known that wax moths, like many night flying insects, are able to hear the ultrasonic cry produced by a hunting bat which echoes when the bat locates its insect prey.

My initial aim in investigating the role of sound in the communication of greater wax moths was to test whether producing artificial sounds simulating bat cries could affect wax moths enough to keep them away from apiaries and stored comb (Spangler, 1984b). In early experiments, I noted that higher-frequency ultrasound at 100 kHz (1 Hz = 1 cycle per second) was much more effective in repelling greater wax moths than 40 kHz sound even though higher frequency sounds fade out more rapidly and travel a shorter distance. Therefore, I standardized the frequency of further tests at 100 kHz. Initially sounds at that frequency kept away up to 72% of the moths expected to reach "protected" hives inside greenhouses; but the sounds prevented only 22.5% of the moths from reaching hives in the field (Spangler, 1984b).

Since it was clear that these wax moths could obviously hear and respond to high-frequency ultrasound, I decided to make an in-depth study of their hearing. I found that they had an exceptionally wide hearing range for moths, from 20 to 200 kHz, with sensitivity peaks between 30 and 40 kHz. The greater wax moth could hear at the extremes of its hearing range, below 10 and above 300 kHz, only if the sound was very loud (Spangler and Takessian, 1983).

I was puzzled that these moths did not appear to respond defensively to artificial sounds from 20 kHz up to above 35 kHz either presented continuously or pulsed as simulated bat cries. To demonstrate this, I recorded the activity of moths on an actograph (a device which records the relative amounts of activity of an insect over time) and presented the moths with a series of ultrasound frequencies for ten minutes each hour.

"Wax moths can distinguish between bee-produced sounds and bat-produced sounds."

These tests suggested that the greater wax moth can distinguish sound frequencies (Spangler, 1984a). Although these moths detect the lower frequency sound (as discussed below), they do not loop and dive to the ground as they do in response to higher frequency sound unless the intensity is very loud. At the time I had no explanation for this apparent ability to distinguish frequency.

However, since then I have discovered that honey bees produce a great deal of ultrasound in the range of reduced wax moth defensive response when they fan their wings (Spangler, 1986b). Although this sound has no established value for the bees, it could have repelled wax moths by stimulating a continual defensive response. It appears that greater wax moths have dealt with this problem by developing an ability to distinguish bee-produced sound from bat cries and not react. The moths retain good defense against most insect-eating bats which produce echolocating cries either above 40 kHz or at high intensities. This would explain why I found that frequencies higher than bee produced ultrasound in the range of most bat cries at 100 kHz would be more effective than 40 kHz sound in keeping wax moths away from apiaries and stored comb.

Greater Wax Moth Communication: Male Produced Sound

Greater wax moths produce ultrasound as part of a mate-calling sequence, but do not use sound to call females directly (Spangler, 1985a). They do not fan their wings continually while sitting as lesser wax moths do when they produce sound. Instead, greater wax moths position themselves so that their wings extend outward about 45 degrees from their body. If no other insects (i.e, male or female greater wax moths) are nearby, a male remains stationary while releasing a small amount of pheromone, the stimulus which attracts females. However, if a male is disturbed by an approaching moth, (usually another male or a female greater wax moth) he will flutter his wings briefly and usually emit ultrasonic sound pulses. When many males are clustered inside an enclosure such as a hive with few or no bees, they frequently produce ultrasound. Their ultrasonic pulses are in the form of a

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Testing Your Beekeeping Knowledge

By CLARENCE H. COLLISON
Pennsylvania State University • University Park, PA 16802

When an individual first gets started in beekeeping, their initial concerns are normally associated with obtaining the appropriate equipment, putting the equipment together properly, getting the bees hived and avoid getting stung. Unfortunately, some beginners never get beyond this point in their beekeeping experiences. An individual of this type is often labelled a "Bee Haver" rather than a "Beekeeper" and we jokingly say "that the bees survive in spite of their efforts". Too often these individuals are shocked in the fall when they go to check their bees for the second time and to harvest their crop of honey. There is a lot more to successfully managing honey bee colonies than practicing "Scientific Neglect".

If an individual actively pursues beekeeping, they soon learn that they are dealing with a very complex insect society and there is no one right way of keeping bees. One learns a great deal from their own mistakes and from numerous other sources, i.e. beekeepers, workshops, books, etc. The more they learn the more they discover that they do not know. With successful completion of the first couple of years, often the beekeeper starts thinking about expanding the size of the operation and trying many new things which generates additional questions.

Please take a few minutes and answer the following questions to determine how well you understand some of the questions often asked by beekeepers with a couple years of experience. The first four questions are true and false. Place a T in front of the statement if entirely true and an F if any part of the statement is incorrect. (Each question is worth 1 point).

1. ___ When splitting or dividing colonies, it is best to let the new divides raise a queen from brood provided.
2. ___ Since cells in brood combs are reduced in size with each generation of brood, combs should be replaced every 2-3 years.
3. ___ American foulbrood in a colony is an indication of poor colony management.
4. ___ A good way to stop the swarming impulse is to give the colony frames of foundation to draw out.

Multiple Choice (1 point)

5. ___ The medium-depth honey super, Dadant or Illinois shallow, has an overall depth of ____ inches. A) 9-5/8 B) 5-11/16 C) 4-5/8 D)7-5/8 E)6-5/8
6. What are two conditions that should be considered in determining the number of colonies that an apiary site can support? (2 points).

   _____

   _____
7. If you wanted to move a colony of bees 100 yards, name two ways you could accomplish the task. (2 points). _____

   _____
8. When considering the important characteristics of an ideal apiary site, the following items are often taken into consideration. Indicate why these characteristics are important considerations in relation to colony safety and productivity. (7 points).
   Easterly or southern exposure, Accessibility, Floral sources, Water source, Drainage, Seclusion, Area pesticide usage patterns:

   _____

   _____
9. Give two reasons why many commercial beekeepers have migratory operations. (2 points).

   _____

   _____
10. In a commercial beekeeping operation what are the functions of a hot room in the honey house? (2 points).

    _____

    _____
11. Name two advantages of producing round plastic comb honey sections over the square or rectangular wooden sections. (2 points).

    _____

    _____
12. Name two situations when the use of drone comb foundation is recommended. (2 points).

    _____

    _____

ANSWERS ON PAGE 526

WAX MOTH . . . Cont. from page 501

series (phrase) or pulse trains consisting of two to four pulses.

In an abandoned outdoor bee hive ultrasond production begins about 11 minutes after sunset and frequently continues throughout the night, depending on temperatures. Isolated males remain silent, because males require the stimulation of contact with other wax moths before they will produce sound (Spangler, 1986a).

Greater wax moth males generate ultrasound when they activate sound-producing tymbals on their tegulae, the plate-like structures that cover the attachment of the forewings to the body. Wing motion pushes down on a tegular-wing coupler attached to the tegula. This coupler, when pushed down by the wing, activates the tymbal, causing it to buckle in and produce a sound pulse. On release of pressure, the tymbal snaps back to produce a second pulse. The tymbals are activated by the wings at the bottom of short wingstrokes (Spangler, 1986a). Since there are two tymbals which buckle in and snap back, two, three or four pulses of ultrasound are contained in each pulse train. The exact number is determined by how well the movement of the forewings is synchronized (Spangler, 1985a).

Female Response

When presented with actual male sound or pulses simulating the male's sound, a virgin female consistently fans her wings. Sometimes she may also circle or run around, but she will not orient toward the sound source.

The reactions of 100 unmated females were tested (in groups of 5) to bursts of 72 kHz sound at 5-second intervals for up to 3 minutes. A few moths responded during the first burst; most had responded by 2 minutes; and a few failed to respond by 3 minutes.

At widely varying frequencies (25 to 150 kHz) the average intensity at which simulated male sound would cause females to fan their wings was 69 decibels (dB). For tests, 72 kHz sound simulators were used because the sound they produced closely resembled male sound both in frequency and pulse length (Spangler, 1985a).

Males Can Detect Female Sound

Males in calling position hold their wings stiffly out from their sides at about 45° (Flint and Merkle, 1983). While in this position, males are sensitive to the low-frequency airborne sounds emitted by females. I have

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RESEARCH REVIEW

DR. ROGER A. MORSE

Cornell University • Ithaca, NY 14853

"News from the International Congress of Entomology — Fluvalinate will migrate into comb wax."

Increasing the number of European drone-producing colonies in an area with Africanized honey bees will influence the number of European drones with which a European queen will mate. In tests conducted in Venezuela, in an area that has been Africanized for a number of years, it was found that adding European drone colonies had a positive effect insofar as producing more Europeanized stock is concerned.

When no European drone-producing colonies were added to the mating apiary about two per cent of the matings were with European stock, indicating that there were still some European bees in the area. Adding four European drone colonies increased the number to about 30%; adding seven such colonies increased the number to about 40%. There were, of course, the normal variations between individual queens that one might expect. On a theoretical basis, and using these data, it would take 23 drone-producing colonies to increase the number of matings of a European queen with European drones to 50% Projecting even further, 990 drone source colonies would be needed to influence 99% of the matings.

As I understand these data, they indicate that queen producers in the southern U.S., where honey bees will become Africanized to at least some extent, will be forced to tolerate some degree of matings with Africanized bees no matter how rigidly they attempt to control the drone populations. In the tests made in this study there were no data on the number of feral colonies living in hollow trees, caves and in the ground. We know only that Africanized bees are more tolerant of nesting in such locations than are European bees. In Africanized areas there are usually a larger number of feral colonies than in areas with European colonies according to research my students and I have conducted in Brazil and Mexico. Presumably southern states queen bee breeders could have some control over feral colonies in their areas but this is not an easy task.

Queen breeders have been seriously infected by three bee diseases in the past 16 years (chalkbrood, tracheal mites and varroa mites). Africanized bees may pose one more problem. In my experience, hybrid bees, those that are half European and half Africanized, are good honey producers. The authors cited below write that the "defensive behavior of colonies populated by hybrid workers is intermediate to that of the parental lines".

Hellmich, R.L., A. M. Collins, R. G. Danka and T. E. Rinderer. *Influencing matings of European honey bee queens in areas with Africanized bees.* Journal of Economic Entomology 81:796-799. 1988

The 18th International Congress of Entomology met in Vancouver, B. C., Canada, July 3-9. There were several sessions devoted to social insects, including honey bees and honey bee diseases. There is such a Congress every four years. The next one will be held in China in 1992.

Varroa Disease

There were several papers on the biology and control of the mite *Varroa jacobsoni.* Dr. A. de Ruijter from the Netherlands presented data on the effectiveness of the acaricides Perizin (94.4% control) and Apistan (99.8% control with a six weeks treatment). In one test colony about 25,000 mites were found but I did not learn how high the population of bees was in the colony. Perizin is approved for use in many countries in Europe but Apistan is not yet approved. It probably soon will be, as it is already approved for use in the U. S. Apistan is the trade name of the plastic strips that are impregnated with the chemical fluvalinate.

I asked in the open meeting if anyone had any data on Apistan (fluvalinate) residues in honey. Though at least 15 countries from Asia to Europe were represented, no one had any data they were ready to release. However, following the meeting I talked to several people from Europe. I was told that fluvalinate migrated easily into beeswax when the impregnated strips came into contact with any comb. The fluvalinate did not tend to migrate out of the wax into the honey that was later extracted. However, in the extraction process bits of beeswax are often thrown off the combs into the honey. Some of these are very small pieces, almost microscopic in size. These were often found to be contaminated with fluvalinate. In Germany, I was told, some honey packing firms are considering filtering honey using pressure and diatomaceous earth, something they have never before done and, in fact, have been strongly opposed to.

Some Europeans told me, too, that

the levels of fluvalinate being tested in Europe, and being used in the U. S., were much higher than were needed for control. Presumably better information on the proper rates to obtain good control of *Varroa jacobsoni* will be available in both Europe and the U. S. this fall. Several people said that one treatment of Apistan a year was adequate to obtain good control.

As an aside to the information I gleaned at the Vancouver meeting, I can report that we have dropped our plans to work on *Varroa* biology at Cornell, at least for this year. We have found no *Varroa* within 60 to 80 miles of Ithaca though I am sure it must be present closer. More important, New York State beekeepers who used fluvalinate in the form of Spur and Mavrick, while it was legal to do so earlier this year, have done such a good job in reducing mites in their colonies that we have not been able to find heavily or even moderately infested colonies with which to work this summer.

Increasingly beekeepers and researchers in Europe believe that *Varroa jacobsoni*, in addition to causing problems by feeding on bee's blood, are transmitting bee diseases. A study conducted in Poland showed that the mite can carry bacteria on its body surface, thus spreading an infection from one bee to another.

Tropilaelaps Disease

Another Asian honey bee mite not yet found outside of Asia, but of concern because it ravages colonies of European honey bees in tropical Asia, is *Tropilaelaps clareae*. Dr. S. Wongsiri of Thailand reported that colonies of the Asian honey bee *Apis cerana* can rid themselves of these mites by grooming their bodies and biting and killing the mites. This is the same technique that Dr. Peng of the University of California has previously reported is used by *Apis cerana* to control *Varroa*. *Tropilaelaps* appears to devastate colonies of European bees more than *Varroa* does. *Tropilaelaps* does not normally infest colonies of *Apis cerana* but when it does these bees can easily cope with the problem.

Distribution Of Honey Bees In Iran

We were able to learn more about the distribution of honey bee species from Dr. Morteza, a researcher from Iran. There have been many questions about this because it is in Iran that eastern bees "meet" western bees. We have often wondered why Asian bee diseases have not been spread more rapidly from east to west. We were told that *Apis dorsata*, the large Asian honey bee, is not present in Iran. *Apis cerana* is present in the northeastern part of the country and it is only recently that European honey bees have been carried into that area. *Apis florea*, the little Asian honey bee, is present throughout much of the country; this is the bee that has also been found recently in the Sudan, in Africa. So far no one has found any diseases associated with *Apis florea* that have an adverse effect on European honey bees.Δ

FIRE!

STEVE TABER of Honey Bee Genetics

P. O. Box 1672 • Vacaville, CA 95688

"Are you prepared for this?"

June 18, 1988, 3 a.m., my partner, Tom Parisian, lost his home, shop, truck, trailer, hives and nearly everything else he owned. This article is intended to bring to everyone's attention this traumatic event, so you can think about it — and make some changes around your operation making it safer from fire for you and your bees.

Like most of you, the beekeepers around here live in rural areas, and we depend on a rural, volunteer fire department. The fire started in the shop and was out of control by the time it was discovered. When they went to call the fire department, the phone line was dead — already burned.

Will *your* phone line be already burned by the time you call the fire department? Will your power supply, connected to your pump and well, be burned so you can't use your garden hose to stop a small fire? Do you have adequate (and proper) fire extinguishers placed in strategic places?

Fortunately, all four inhabitants of Tom's house got out; and while he was at the nearest neighbors to call the fire department, his 100-gallon propane tank blew up. A visiting beekeeper's father who works in fire prevention told him that if the tank had been as much as half full it would have been a bomb, and leveled everything for 200 yards in all directions. Tom said he had noticed, just a few days previous, that the propane level was low and he would have to order more. So in that respect he was lucky. Where is your propane tank? Is it close enough to a burning structure that it will explode?

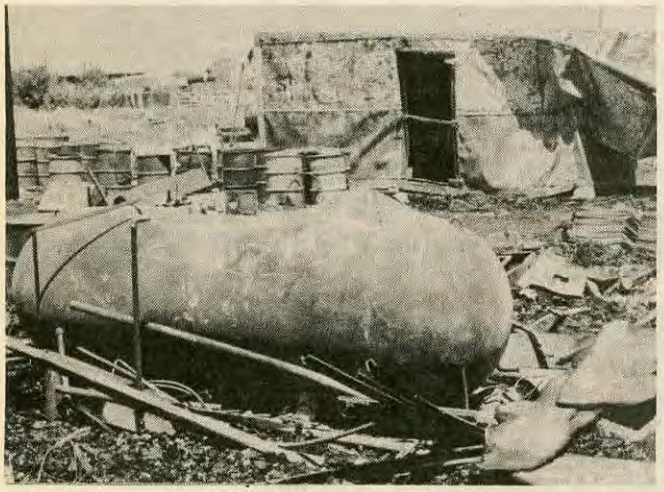
It took the fire department 40 minutes to get to Tom's and then they had to wait for a tank truck before they could do anything. I'm talking about a small volunteer fire department here, like you probably have where you live. This one was ill-prepared, and ill-trained, to fight a beekeeper's fire. Tom had a thousand pounds of beeswax in his shop and about 10 truck tires. The firemen continually complained that the water sprayed on the fire — didn't put any fire out!

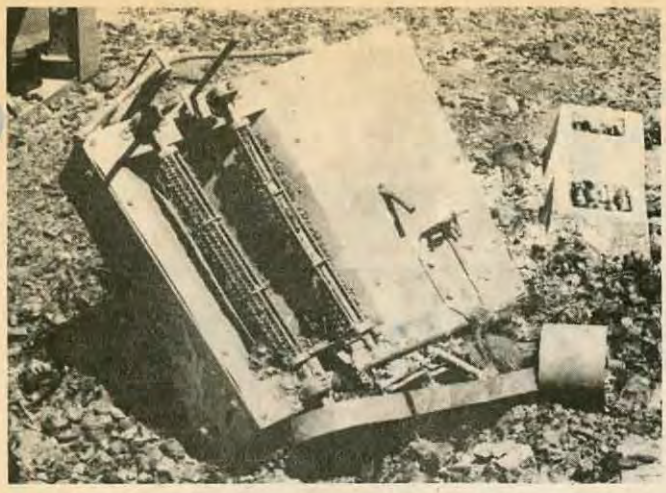
Tom thinks the best prevention system would have included a ceiling sprinkler system in his shop, where the fire began. These can be installed fairly inexpensively, and can meet any building code in your outbuildings.

Where do you store your highly flammable material — like crude beeswax and foundation, gasoline or rubber tires? How about your extra comb storage room? Is it isolated so it won't endanger anything else?

Another local beekeeper, several years ago, was burning sulfur in his comb storage room to kill wax moths in the combs. The sulfur exploded. The rest is history and mostly ashes.

Tom's work with **Honey Bee Genetics** is a very small part of his operation. He makes most of his income from his own business, **Cal Queens Farm**. Primarily a pollination business with nearly 1,200 colonies. He employs several people to help in this operation. His colonies are moved into, and out of, the almonds in early spring, then he raises a few thousand queens. In the summer it's back to pollination again. His summer pollination is with the giant Boswell Ranch, which grows thousands of acres of alfalfa for seed. They rent three colonies for each acre they raise.





Now, all of a sudden, Tom has no truck to move his bees. If your shop or house burned down, would it take your trucks and other vehicles, too?

Tom's office, with all his business records, was in a corner of his house, furthest from the fire. He told the firemen to please save his records, which they did. How about your records? If the structure they are in burned, could they be saved? Think of the difficulty of defending IRS deductions when your records are only ashes. A fireproof safe could prevent this.

And, then, the bottom line. If you are *not* going to go bankrupt because of fire, you must have insurance so you can rebuild what was lost, ***at today's cost of rebuilding***. Tom was pretty well covered, he thinks, but he won't know until the insurance company makes the final adjustment.

Beekeepers' fires start from all sorts of causes, but one of the worst offenders is our friend the smoker. I have been told many sad tales of beekeepers who burned their own truck by not putting out their smoker. My suggestion — get a tin box with a tight lid and keep your smoker in it. Now, I just put my smoker out — but I was really stupid once, and here is my story.

I was driving my pickup truck with a lit smoker in the back in a cardboard box with a pressurized can of insecticide in it, which I used to kill ants around my hives. Behind me was a guy on a motorcycle. The cardboard box caught on fire, the pressurized insecticide can exploded and the poison drenched the motorcycle rider. I heard the explosion but didn't know what had happened. I stopped and the motorcycle rider stopped. He told me I almost killed him! I said, "I'm sorry, but I have a fire to put out in the back of my truck!"

I can hear a lot of you laughing. But it is a lot cheaper learning from someone else's mistakes than from your own.

Take a good hard look at your place, **NOW**, to correct the potential chances of an extensive fire at your place. Don't burn your bee equipment or your bees.

And, last, but certainly not least, is your apiary. Frequently grass or brush fires occur in dry periods of the year and you can have an entire bee yard destroyed. I think it was Phil Rossman (Rossman Apiaries in GA) who told me that every summer after the shipping season ended, they send their crews to the bee yard to remove all pine needles and other debris that would burn and kill bees. When I was keeping bees in Ohio we had a brush fire in the bee yard, accidentally started by a smoker, that could have destroyed a large group of colonies. Except for prompt action by a volunteer fire department we would have lost them all.

In California, where it seldom rains between April and November, grass fires are a very real danger. A few years ago, a beekeeper north of here started a dry grass fire with his smoker. It spread to a 40 acre wheat field which was destroyed. When you work in an area of extreme fire danger, my suggestion is to use one of those hand held plant misters that you can buy at nurseries. Misting, with just water, works pretty well, and if a little sugar has been added works even better. With the drought that is plaguing so much of the country, I predict we will have lots of fires. So use caution. Get out there and clean up anything that will burn — round your business, and around your bees.Δ

HOW TO TRAVEL

TABER'S TRICKS AND TIPS

I do quite a bit of traveling, talking to and visiting beekeepers all over the world. This article explains some ways to go about it, and save money.

First, you need a good travel agent. One that will work to save money, not just put you on a certain airline. That's difficult, because airlines furnish travel agents with their computer terminals, and they are rigged to favor that particular airline.

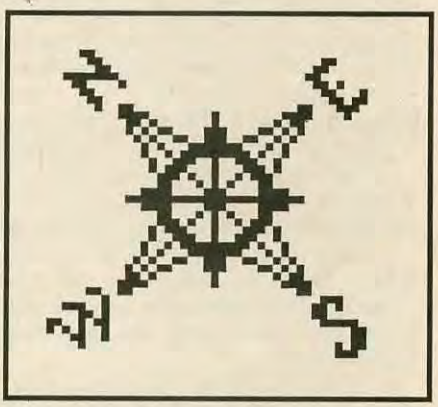
Then, you must give the travel agent lots of leeway in planning your trip. For instance, it's cheaper if you stay at your destination over a weekend; if you fly a certain day of the week; or if you buy your ticket a month ahead of time.

If you live near several major airports, have them all checked for prices and times. I can fly out of San Francisco, Oakland or Sacramento. San Francisco is usually the cheapest but parking there is expensive, there is a lot of traffic, and poor public transportation.

If you are planning to visit Europe, and it doesn't matter what time of year you go, choose winter because the fares are cheaper. Above all, talk to the travel agent well in advance and discuss your plans so that the agent has ample time to work with your trip so it is reasonably priced.

Recently the beekeepers in France were paying for my airline ticket for my visit there, so they wanted the cheapest price possible. They called and asked me to get ticket prices, and they would do the same. Then, the one with the lowest price would buy the ticket. I knew there would be no contest, because my agent would look at *all* possibilities. Well, they won anyway. The price for a round-trip San Francisco to Paris ticket was $572, including tax.

Let me give you another example. While I was in Europe talking to the French beekeepers, I decided that while I was there I would visit friends in Poland for a week, too. What was the best, and cheapest, way to get to Poland? In Europe, trains are fast and inexpensive, so my agent worked hours coming up with the following: Fly from Paris to Warsaw and return. Or, fly to Vienna, Austria, then take the train across Austria, through Czechoslovakia and into Poland. This was the least expensive but I would need a Czech visa and it would take about eight hours longer. Also, I would be traveling through countries where I didn't speak the language. I took the plane.



Now, I'll let you in on a little trick scientists have been pulling for years, that beekeepers should know about. It will reduce your travel costs. Start by compiling mailing lists of your beekeeper friends all over the world, or maybe they are only acquaintances — no matter. It takes a long time, but I've been at it for about twenty-five years. I've been in beekeeping since 1940, but I didn't catch on to this trick until about 1965. The trick was that my bee scientist friends were coming to visit me all the time. I would have them over for a meal or perhaps to spend the night. I never caught on — this was making their trip much less expensive, and a lot more fun.

It wasn't until I came to California that I started doing a fair amount of traveling, and started collecting on some of these past dues. This past summer when planning the trip to Germany and Poland I wanted to visit two friends in Poland and two in Germany; so, I wrote letters to all four saying that on about a certain date I would arrive **and if it was NOT all right for me to arrive then, let me know.** These stops were planned on one side or the other of the APIMONDIA congress. Three wrote back inviting me to come, and the fourth said that he would be gone after the congress but why didn't I come the week before the congress?

My travel agent was putting me on an excursion flight which only went one day a week, coming and going, but it was $100.00 cheaper than a regular flight. I went back to the agent to change reservations, leaving home a week earlier than planned. Make your agent work for you, and for their money.

My only language is English but I would heartily recommend working on another language before going foreign. The next APIMONDIA will be in Brazil, where they speak Portugese. If you go there you will meet beekeepers from all over the world who will invite *you* to visit them. I know, without having been there, that Brazilian beekeepers will be out in force, all wanting to meet you and to have you visit them and their beeyards. Do it. You'll learn lots about beekeeping, and lots about beekeepers!Δ

"Beekeepers, and friends, have shown me sights and scenes all over the world. Get your list started."

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6 THRU 11	$1.93	$23.20	10 THRU 20	$23.40	5 THRU 9	$43.80	11 THRU 23	$81.20
12 THRU 23	$1.85	$22.21	21 THRU 49	$22.80	10 THRU 24	$39.60	24 THRU 49	$62.00
24 THRU 49	$1.80	$21.59	50 THRU -	(QUOTE)	25 THRU -	(QUOTE)	50 THRU -	(QUOTE)
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REFLECTIONS

RICHARD DALCO

Has this ever happened to you? Some fall day when you're pulling honey you leave an empty super on a hive. You make a mental note to add frames or remove the super, but you forget to do either. Then, the following spring, with a honey flow in progress, you remember that empty super and take a look inside it. The bees, unaware of your good intentions, have gone right ahead and filled that once empty super with new combs full of honey. The combs are attached to the hive lid, the ends of the super, and the top of the frames in the box below. Getting that honey out will be a mess, no matter how many ingenious ways you can think of to do it. How do I know? Because this very thing happened to me last spring.

I thought I had it figured out though. A foolproof method of getting that wax and honey out of that super. Here's what I did, or rather what I tried to do. First, I cut about a two foot length of frame wire. Then I lifted the front of the super in question just enough to get the wire in between the super and the box below it. Using a back and forth sawing motion I was able to pull the frame wire between the boxes from the front to the back of the hive, thus freeing the new comb from its attachment to the tops of the frames below. Having done this I thought that I could simply lift the super off and take it to the honey house where I could remove the new comb full of honey.

There was only one problem with my plan. Well, two, actually. First, I couldn't convince all of the bees to leave the super and go to the box below. It seems they were quite fond of their handiwork and had no intention of leaving it. Second, when I lifted the super, heaving with honey and unsupported by frames, the comb began to break away from its moorings. To make a long, sticky story short, I had to leave the super on the hive and cut out the new comb, piece by dripping piece. I was able to salvage the wax and most of the honey, but it took the best part of an afternoon. Oh well, now I know why the moveable frame was invented. See if I ever leave an empty super on a hive again.

Bait Hives

Speaking of hives, I had two that died during the winter. I intended to clean them up and move them to the honey house as soon as I had the chance. By the time that opportunity came, both of those recently vacant hives had bees flying in and out of them. Said bees hadn't bothered to ask me if they could establish residency in my hives. I was delighted, of course, that they had. I concluded that these "free-bees" had most likely come as swarms from another apiary or a bee tree.

This experience got me thinking about so-called "bait hives" and the attempt to lure swarms to enter a new hive of their own accord. Like many beekeepers, I had tried a few bait hives in the past but with no success. Now I just may fix up a few empty hives next spring, hang a VACANCY sign over the entrance, and see what, if anything, happens. I might even try a few drops of oil of anise, especially since I just happen to have a small bottle. Some years ago I read somewhere that scout bees are attracted by the scent of oil of anise. So I set off in search of some. I had no luck until I tried the pharmacy of a large chain store, where I found a rack containing small vials of all sorts of natural oils including oil of anise. I took a vial over to the pharmacist to pay for it, and he said, "You must be going fishing," he said after glancing at the oil of anise. I gave him a puzzled look.

"What makes you think I'm going fishing?" I asked. He told me that oil of anise was reputed to be a powerful catfish lure and many fishermen came into buy some.

"All the fishermen around here swear by it," he added.

"Well, I'm buying this stuff for bees," I replied. The pharmacist gave me a look that suggested he thought I must be pulling his leg. I was all set to launch into a lengthy discussion of swarms and scout bees and bait hives, but then I though better of it. I decided that getting this fellow to belive such a story would be an uphill battle, at best. So I just paid him and headed for the door.

"If this stuff doesn't lure in the bees," I said as I left, "I'll go give the catfish a try."

Just In Time Extraction

Another experience I had last season was with late extracting. By late I mean too late, as in November. Now normally I wouldn't have tried such a thing, being more given to extracting when a person ought to, which isn't November. But I had a small outyard that I had missed earlier, and I hated the thought of supers full of granulated honey in the spring. So, early in November a good friend and I went to pull the last of the honey. It was a bright warm day and everything went well, all things considered. There weren't many bees in the supers, and those that were there seemed lethargic and not in the mood to object. Our only problem was that some of the bees we swept from frames seemed to mistake us for their hive and wanted to land on us. By the time we were through, we both had quite a lot of bees crawling on our bee suits. We carefully swept the bees from one another before removing our veils and heading back to town. Neither of us had been stung during the course of our work, a fact I felt rather proud of.

Then, as we were unloading the last super from the truck, I felt a sudden and familiar sensation on the back of my neck. A wayward bee had escaped our attention and decided to give me a piece of her mind in the form of a stinger.

But I had other things on my mind. Would the honey we'd taken off would be too cold to spin out, or worse, had some already granulated? As it turned out, most of the honey was still liquid, and it did spin out, (but rather reluctantly). Here and there a few cells had granulated, but I figured the bees would clean them out if I got the supers on early enough in the spring. I had to chuckle then, because there I was, with all of winter ahead, and already I was thinking of spring — making new plans, hiving imaginary swarms, supering yet-to-be hives. I decided, as I rubbed my neck, that beekeepers think a bit differently than your run of the average citizen. Hardly is one season past before we begin anticipating and dreaming of the next. But I don't think we'd want it any other way. We think of the year in bee terms. Swarming season, the honey flow, extracting time, and so on. And, after a while, one begins to see that what started as a simple hobby has taken on a far greater importance over the years. It becomes apparent, that the bees have taught us far more than we'll ever teach them. Like, never forget to remove an empty super, and finish extracting on time!Δ

Richard Dalco keeps his bees, and continues to learn from them, in Salt Lake City, Utah.

WAX MOTHS . . . Cont. from Page 503

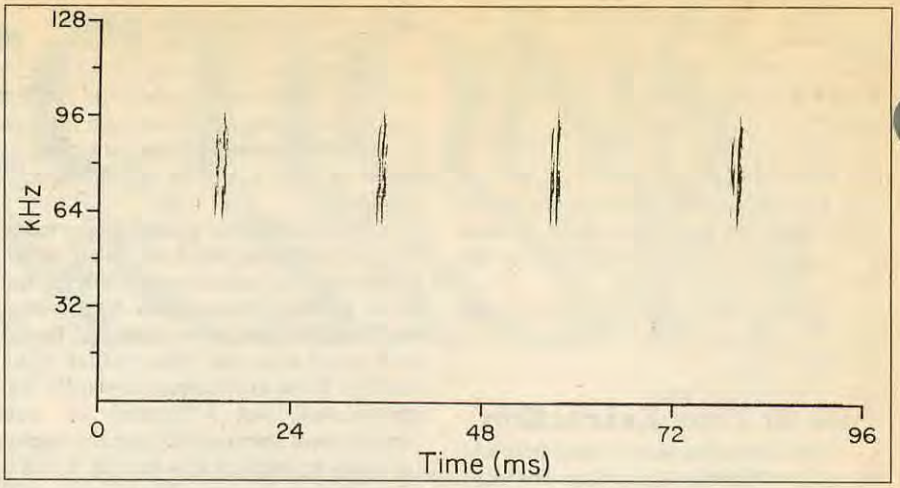
hypothesized that these low-frequency sounds impinge on the stiffly outstretched wings and cause the entire insect's body to vibrate. They detect body vibrations with receptors on their legs similar to those of many insects, including honey bees. The receptors detect vibrations from the surface the insect is resting on (comb, in the case of honey bees). Behavioral modifications allow male greater wax moths to use their receptors to detect the airborne sound of a female fanning her wings.

When low-frequency sound from a speaker was directed toward males in calling position, they responded by fluttering their wings and releasing large quantities of a pheromone from wing glands. The existence of this pheromone has been known for some time (Leyrer and Monroe, 1973) and has been demonstrated to attract females (Finn and Payne, 1977). In a recent study, (Spangler, 1987), I found that males exhibit high sensitivity to sound and vibrations at frequencies similar to those produced by wing fanning females. Because it is relatively quiet within a bee hive over this range of male greater wax moth sensitivity, it is unlikely that bee sounds and vibrations would trigger the release of pheromone by male moths.

How The System Works

Within a cavity such as an abandoned bee hive, males constantly move about and produce ultrasound (Spangler, 1986a) as they release low levels of pheromone. The presence of many males releasing pheromone at the same time within an enclosure makes it difficult for an unmated female to find a specific male even though she can recognize that males are present. To initiate a successful mating, a single male produces pulses of ultrasound. The female recognizes that a male is nearby, and in turn fans her wings to signal him that she is receptive. The male then sharply increases production of pheromone, which is the agent that guides the female toward the male so that she can find him and mate.

However, outside the hive, calling males tend to be widely scattered. When separated, they have been observed producing ultrasound infrequently only when two males wander close to each other, after which they separate again. They seem to release a small amount of their pheromone, which may be enough to attract a female if she is close enough. If a female is flying near a male, he will flutter his wings and sharply elevate his pheromone release rate, which helps the female find him quickly. Therefore, outside cavities where females may already be flying, ultrasound as a stimulus for female wingfanning does not appear to be very important.



Sonagram of the sound produced by a male greater wax moth.

Conclusion

My research has shown that both sexes of greater wax moths hear most high frequency bat sounds and attempt to escape. They may not, however, defend themselves when they hear lower frequency ultrasound in the range produced by the wingfanning of bees. Hence, it would appear that the greater wax moth has the ability to discriminate frequencies primarily so that it can distinguish its bee hosts from bats. Greater wax moths have been able to survive and carry on mating activities among bees since the bees do not appear to react to either the moth's chemical, or its ultrasonic and low-frequency sound signals.

The mating sequence can be adapted to fit situations both inside and outside enclosures. Since all systems seem to operate at a distance of less than one meter, the mating communication of these moths is short range. I believe that mating typically takes place near, on, or inside honey bee hives. Since these moths do not seem to be able to find each other away from bee colonies, they concentrate their mating activities on or near bee hives, and have no need for a longer-range sexual signalling system.

This complex sexual signalling system makes it difficult to control this leading bee pest with artificial sounds. Mating signals produced by the greater wax moth can be picked up on an electronic listening device (made to detect the lesser wax moth, Spangler, 1985b). However, such a device would not be of practical value to beekeepers. Greater wax moth males produce sounds only when they congregate with other males. The strong odors produced by such a group would make it easy for some beekeepers simply to smell them.

Understanding the biology of these troublesome bee pests may lead to yet undiscovered control techniques. In the meantime, it would be promising to study the method wax moths use to find bee colonies. If the odor and/or sound signals that attract wax moths to bee colonies could be defined, then appropriate methods to lure the moths into traps could probably be devised.Δ

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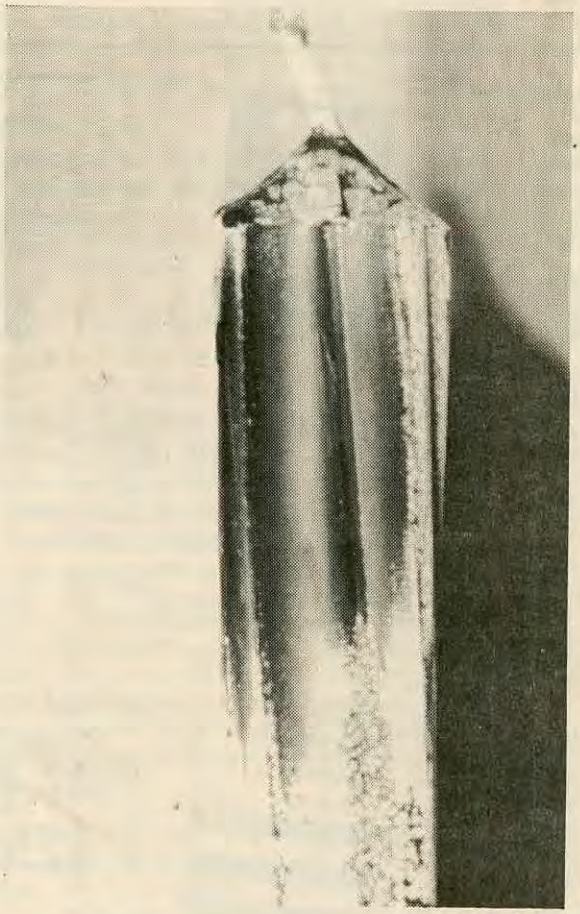
BEESWAX BLOOM

ROGER MORSE

Beeswax is a complex substance. It is secreted from cells on the underside of a worker bees' abdomen. We call a group of these cells wax glands; there are four pairs on each worker. Queens and drones do not have wax glands.

The chemistry of beeswax has been studied for over 100 years. Over 300 individual components have been identified, most of which are hydrocarbons that contain only hydrogen, carbon and oxygen. The one of these that is most abundant accounts for only eight per cent of the wax.

It has been noted by wax processors and beekeepers that the surface of wax in any form, including cakes, candles or foundation, may become coated with a whitish material that resembles mold. This is called bloom. Normal beeswax melts at 143° to 151°F (62° to 66°C). Bits of bloom have been removed and it has been found that it melts at a much lower temperature, about 102°F (39°C). It is believed that bloom occurs as wax components with lower melting points migrate and are exuded onto the surface. Beeswax that is poured into molds and cools slowly may show bloom after only a few months. Beeswax that is extruded under pressure may not show signs of bloom for over a year.



Bloom on a colored candle. A portion of the bloom has been wiped off with a cloth. Photo by Ken Ross.

Bloom causes no problems for bees or for people. When it is found on foundation that is several years old we have observed that bees chew it, as they do the rest of the wax, and build it into the new comb as they draw out the foundation. Bloom on beeswax candles may be easily removed by wiping with a cloth. Some believe that bloom gives candles an antique, frosty appearance that is desirable. It has no effect on the way in which the candle burns.

Sometimes beeswax is added to chocolate used to cover soft candy. The beeswax acts as a hardener. Ordinary chocolate candy coverings usually contain paraffin. Bloom may form on the surface of the candy when either beeswax or paraffin is used, but unfortunately people think it is mold. Bloom on candy has no effect on the flavor but in this case its appearance is usually considered undesirable. As in the case of candles the candy may be polished to remove the bloom.Δ

"National Ho

Image

Year one of the National Honey Board was a time for building—building image, building a library of promotional materials and building the use of honey by consumers, foodservice operators and distributors, and by commercial manufacturers.

To bring consumers' minds *back* to the taste of the world's oldest and most wholesome sweetener, the National Honey Board has focused on the warmth, the pleasure, and the taste of honey. The National Honey Board's image of honey is exemplified by its honeybear logo with a "forgivable greediness for a fabulous taste." Simple, wholesome and loveable imagery. It reminds you of the great taste that tops a biscuit, sweetens a cup of herbal tea or glazes a holiday ham.

As an organization, the National Honey Board has brought together professional resources and the strength of a unified industry to market honey. The Honey Board stands as a contemporary and consistent source of product information, of helpful counsel and as a symbol of a significant industry. The Honey Board can support food editors in recipe development, provide a foodservice chain with "Honey I Love You" promotional materials and answer major manufacturers' food formulation questions! The Honey Board reflects the stability, strength and integrity of the honey industry.

Has The Honey Board Been A Success?

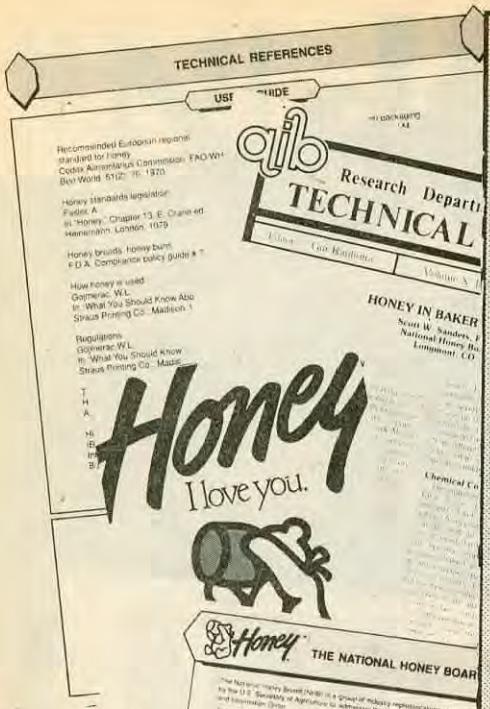
After a year of organization and goal-setting, the National Honey Board has produced some of the most sophisticated advertising and image building promotions our industry has ever seen.

Undoubtedly, the advertis-

Continued on Page 518

"And the Natio


ney Month"
INGREDIENT...
PHYSICAL CHARACTERISTICS
Freezing Point Depression
Specific Gravity
Honey A FUNCTIONAL
CHARACTERISTIC
FUNCTIONS
HUMECTANCY
VISCOSITY
oney
I love you.
FACTS & FIGURES
Composition
Honey is an invert sugar formed by an enzyme from natural floral nectar gathered by bees and manufactured into a stable, high-density high-energy food. One tablespoon of honey contains about 64 calories, and because of its high fructose content, honey has a higher sweetening power than sugar.
Honey
TECHNICAL REFERENCES
COMPOSITION
CHEMICAL CHARACTERISTICS
Honey A USER'S GUIDE FROM A-Z
ADULTERATION:
CRYSTALLIZATION:
DIASTASE:
ENZYMES:
EXTRACTED HONEY:
FERMENTATION:
FILTERED HONEY:
GRANULATION:
HYDROXYMETHYLFURFURAL (HMF):
MOISTURE CONTENT:
National Honey Board
We're Reintroducing An Old-Time Favorite —
Bake biscuits for your honey, this quick Bisquick
Biscuits
Honey and Biscuits
WIN HONEY MONEY
1987
$10,000 IN GOLD
Honey Board



ing agencies they have hired to produce this material are largely responsible for the actual production, but the directions and guidelines have been set by the Board.

Dwight Stoller's report, below, typifies our 'new' position in the sweetener commodities.

A Quality and Competitiveness conference was called by the Secretary of Agriculture, June 29-July 1, to focus attention on the quality and competitiveness of agricultural products. About 400 people attended, representing every facet of U.S. agriculture. From the honey industry were Richard Adee, Walter Diehnelt, Ralph Gamber, Frank Robinson, Jim Tew and Dwight Stoller. Dan Hall, manager of the National Honey Board, was also present. (National Honey Board members attended at their own expense.) Jane Phillips and Charles Shaw were in our workshop representing the USDA.

As the conference title indicates, most presentations focused on quality. Basically, quality is defined as recogn***izing and meeting*** the needs of the consumers, or end users of any particular product.

In the sweeteners commodity workshop, the majority of the time was spent discussing sugar and corn sweeteners. The discussion revealed several important facts about sugar as our competitor:

- The sugar industry is very disorganized. They spent most of their time complaining.
- They've not spent much energy in marketing. They've not defined nor exploited their potential markets.
- They admitted that honey had a better image than sugar or corn sweeteners.

Our workshop keynote speaker was Dr. Clarke, from the sugar industry. She was at the recent Institute of Food Technologists Conference in New Orleans, and picked up the National Honey Board's technical bulletin, put together by Tom Payne, a market development consultant to the Board. The sugar and corn sweetener representatives were "drooling" over it. It certainly appears we have a better sense of direction than these industries.

As a group, the honey industry is limited in how much can be invested in promotional efforts, but we absolutely must promote. Our competitors have "bigger guns" and a far larger "war chest"! However, we've made tremendous progress in a short time.

In our workshop and in the general sessions, everything pointed toward exactly what the National Honey Board is doing. The Board will need to continue to spend every dollar wisely, but I'm excited about the honey industry's potential. We will make a difference in honey sales, in everybody's honey sales!

Honey
from

HOME HARMONY

By ANN HARMAN
6511 Griffith Road
Laytonsville, MD 20879

I am baffled. Totally baffled. My quandary started about a year ago when I noticed a grocery store display announcing a NEW! cracker. I examined the boxes and found that this NEW cracker came in several flavors, one of which was labeled "original". In the tangled web of my mind, "original" seems to mean "something that came first — before changes were made". OK — the cracker labeled "original flavor" was the first flavor created by that company. However, there is no clue to indicate what that flavor really is.

In the ensuing months I noticed "original" on many foods. I began to wonder exactly what flavor "original" is. Where does it come from? Is it something that you grow, like tomatoes? Or something that you catch, like chickens? Or something that you mix, like salad dressing?

Matters got worse during a recent stroll through a feed store. One large stack of dry dog food proclaimed "original flavor". Nestled against that were the bags of cat food, also "original flavor". What does this mean to the dog? "Comfortable knuckle bone flavor?" To the cat? "Mouse", perhaps.

What shall we order in a restaurant? "Original of the day", followed by "original with gravy", baked potato with "original topping", salad with "original dressing", and finally "original ice cream". You and your imagination can decide what really was served.

So far I have NOT seen **"original flavor honey"**. I hope I never do, since the flavors of honey are all so different and so enjoyable.

Pears and apples are the autumn fruits. Although perfectly delicious eaten plain (does that qualify for "original"?), these two fruits combine well and are enhanced by honey recipes.

Fruit Kabob

1/2 cup honey
3 Tbls. lemon juice
4 Tbls. butter
2 apples
2 pears
1 small cantaloupe or other melon

Place honey, lemon juice, and butter in a pan. Heat over low heat, mixing all the time, until melted and well blended. Wash the fruits but do not remove the peel. Cut in pieces and place in the honey mixture. Stir to coat. Place the pieces on skewers and broil or bake at 400°, brushing occasionally with the sauce, until the surface is crusty.

The Honey Handbook
Andrea Nasi, Ilaria Rattazzi, and Frank Rivetti

This dessert recipe for pears is easy to make, is very elegant, and is a good choice to accompany a rich dinner.

Orange Glazed Pears

2 oranges, juiced (about 3/4 cup orange juice)
1-1/2 Tbls. lemon juice
1/4 cup honey
2 inches stick cinnamon
4 medium pears, halved and cored
1/2 pint whipping cream

After juicing the oranges, save one orange half and scrape out the excess white membrane. Slice the peel into very thin strips. Combine the orange juice, peel, honey and stick cinnamon in a small saucepan and bring to a boil. Cover, reduce heat and simmer for 5 minutes. Remove from heat. Place the pear halves cut side down in a baking dish and pour the syrup on top. Arrange the orange peel and cinnamon over the pears, then cover and bake for 30 minutes in a 400° oven. Baste with the juice 2 or 3 times during baking. When pears are done, remove the cinnamon and peel. Whip the cream and place in 4 to 8 dessert bowls. Spoon the pears carefully onto whipped cream. Top with the sauce and serve warm. Serves 4 to 8.

Honey & Spice
Lorena Laforest Bass

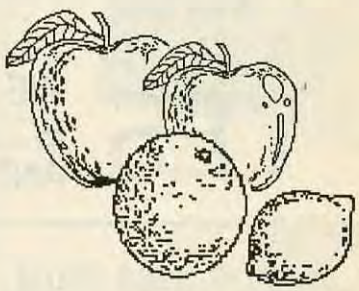
This recipe for raw applesauce can be modified in so many ways that it really qualifies for one of my "non-recipes". I have tried it with a number of different apples and have found it best with a sweet eating apple. A rich, flavorful honey is a good choice. Don't hesitate to experiment with the choice of juices. When should you serve it? Try this applesauce with baked ham or pork chops. Or serve it for dessert with a piece of gingerbread.

Raw Fresh Applesauce

3 apples, peeled, cored and diced
1/4 cup honey
1/4 cup apple juice, orange juice or pineapple juice

Place all ingredients in blender or food processor. Puree to desired smoothness. Makes about 1-1/2 cups.

Honey Naturally
California Honey Advisory Board



Fresh ginger adds such a nice flavor to recipes that I do not advise substituting ground ginger if the recipe calls for fresh. Keep fresh ginger in the freezer. It will peel and grate very well while still frozen.

Ginger Salad Dressing

This is magnificent with salad greens tossed with apple or pear slices.
2-inch piece fresh ginger, peeled and grated
3 cloves garlic, minced or pressed
2 Tbls. Dijon mustard
2 Tbs. honey
1-1/2 tsp. salt
1/2 tsp. freshly ground pepper
1/4 cup cider or white-wine vinegar
3/4 cup salad oil

Combine all ingredients and mix thoroughly. Makes 1-1/2 cups

adapted from *A Taste Of Aloha*
Junior League of Hawaii

Recipes for corn breads are always welcome. There is nothing better than a chunk of warm corn bread, well-buttered, with dinner. It is fortunate that corn breads are served in big chunks — a small slice just would not be satisfying.

Johnny Cake

1-1/3 cup flour
1 Tbls. baking powder
1 tsp. salt
2/3 cup corn meal
2 eggs, slightly beaten
2/3 cup milk
1/3 cup honey
1/3 cup shortening, melted

Sift together dry ingredients, including corn meal. Add remaining ingredients and combine until just blended. Pour batter into greased 9x9-inch pan. Bake at 400° for 30 minutes. Serve warm with Honey Butter.

Honey Butter

2 parts honey to 1 part butter

Let butter stand at room temperature until soft. Add honey and stir until perfectly blended. Variations: Blend with chopped nuts, or crushed strawberries, or grated lemon or orange rind, or cinnamon.

Special Recipes From Shelly Reiger
North Dakota Honey Queen 1987-88

Although everyone seems to have a favorite potato salad recipe, I enjoy trying all different ones. I have yet to find two that are alike. Yes, you probably have your own special recipe, but just once in awhile, try a different one.

Zing-Zang Potato Salad

2 cups potatoes, peeled, diced
1/2 cup bacon, diced
3 Tbls. flour
1/4 cup vinegar
1 Tbls. onion, diced
1 Tbls. pimento, diced
1/4 cup honey
1/2 cup water
1 Tbls. green pepper, diced
salt and pepper to taste

Cook diced potatoes until done. Drain well. Cook diced bacon until done. Remove bacon from pan and blend flour in pan with bacon fat. Add the rest of the ingredients and cook until thickened. Pour over potatoes and serve hot.

Pour It On
Texas Department of Agriculture

Some pear trees are overly enthusiastic and produce more pears than seems reasonable. This conserve will help you use up all those pears.

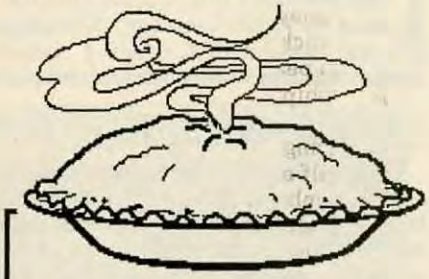
Pear Conserve

5 pounds firm pears (15 cups)
5 cups honey
2 cups raisins
1/2 cup orange rind, cut fine
1 cup orange juice
4 Tbls. lemon juice
1/2 cup chopped nuts

Peel pears and cut into small pieces. Add the honey and let stand overnight. Then add raisins, orange rind and juice and lemon juice. Bring to a boil and cook until thick — about 30 minutes. Add the nuts during the last 5 minutes of cooking. Spoon hot mixture into hot sterilized jars to within 1/2-inch from top. Complete seals and process in a boiling-water bath for 10 minutes. Yield 6 pints.

Putting It Up With Honey
Susan Geiskopf

Leftover diced chicken or turkey can be used in this recipe. The honey and soy sauce flavors combine to give a nice sweet-sour flavor.



Pineapple Chicken Chow Mein

1/4 cup cooking oil
1 cup thinly sliced onion
3 cups chopped celery
1 10-oz. can bean sprouts, drained
1 14-oz. can pineapple tidbits, drained
2 chicken bouillon cubes
1/2 cup. boiling water
1/4 tsp. pepper
2 Tbls. honey
2 Tbls. cornstarch
1/4 cup soy sauce
2 cups hot cooked chicken or turkey
chow mein noodles

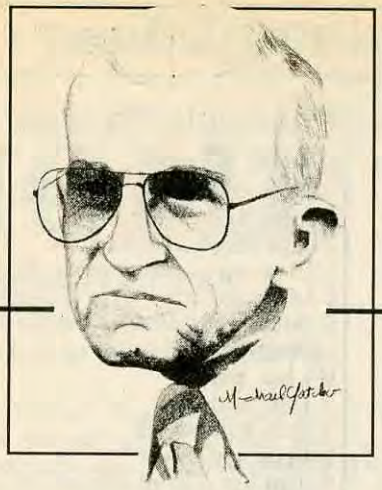
Heat oil in a large heavy saucepan at medium heat. Add onion, celery, drained bean sprouts, drained pineapple, bouillon cubes dissolved in boiling water, pepper and honey. Cover; bring to a boil. Reduce heat. Cook 3 to 4 minutes. Blend cornstarch and soy sauce. Stir into vegetables. Add chicken. Cook, stirring constantly, until thickened, about 3 minutes. Serve immediately over chow mein noodles. Makes 4 to 5 servings.

Gourmet Honey Recipe Book
British Columbia Honey Producers Association

I have discovered that recipe titles do not use the word "original". Actually recipe titles are quite clever and eye-catching, and certainly more descriptive than the word "original".Δ

Hint of the Month

One of the surest ways to disaster with baked goods is to assume that cooking oil can be substituted for a solid shortening such as butter or margarine. Some recipes DO call for oil — but the rest of the ingredients have been carefully matched for a liquid. A solid fat can be softened at room temperature for ease in mixing, but it should never be melted unless the recipe specifically indicates. Biscuits are tender and flaky from the small lumps of solid fat. Creaming solid fat with honey or sugar incorporates air to make baked goods light and tender. Oil cannot be substituted successfully for melted shortening either unless the recipe states. For successful baked goods, follow the recipe requirements for fats.Δ



POLITICALLY SPEAKING

GLENN GIBSON

Minco, Oklahoma 73059

"And what of the compromise?"

Rarely do we spend much time and effort to prove that we are wrong. Stephen Pile points to the fallacy of this unwritten rule[1]. He feels that success is overrated and that we spend a disproportionate amount of time talking about the things we do well, leaving the discussion of our mistakes and failures to the opposition. This still seems to be an accepted way of doing business since the conventions of the American Honey Producers Association (AHPA) and the American Beekeeping Federation (ABF) unwittingly pursued the same line. (My tenure of leadership followed this norm.)

Post-convention publicity about the conventions and solutions of the current problems in Washington continue the praise-critic tone. Dissenting views and the freedom to discuss these is one of the great freedoms of this county. So, I would venture to say that we will continue to praise our fellow members and continue criticism of those who have opposing views. Is this bad? On the whole — no, but in certain instances where cooperation would benefit everybody, one would conclude — yes. For instance, Foreign Policy debates should be confined to the borders of our country. The Price Support Program for honey should be given the unstinting support of all beekeepers — regardless of size. It is disturbing to learn that some beekeepers feel the program support should be limited to certain groups while severely penalizing some by restricting loans to $250,000. This limitation would have bankrupted a number of the lager producers. This discrimination was supported by ABF, but opposed by the AHPA.

Troy Fore, editor, *The Speedy Bee*, explains the Federation's endorsement of the Loan Cap compromise in the February, 1988 issue:

"Few people liked the $250,000 loan cap / $250,000 ceiling we had. But it was the result of a compromise between one of the beekeepers' best friends in the Congress (Chairman de la Garza) and one of our biggest detractors on Capital Hill (Massachusetts rep. Silvio Conte). The compromise was put in as a last gasp effort to save the program from certain death. It wasn't pretty, but it was a lot better than the alternative."

Bill Buckley would label the compromise — "Non Sequitur" (Contains illogical conclusions). And I would agree with Bill.

The Rest of the Story

Since Fore's version of the Federation-Conte-de la Garza compromise has been repeated many times this past year, it seems appropriate to cover some related events. Subject compromise was a part of the Continuing Resolution, CR, which funded the entire Federal government for the 86/87 fiscal year. It's adoption came during the waning hours of the 2nd Session of the 99th Congress. This measure was replete with pork, program terminations, amendments (like the loan cap), etc. A situation made to order for Conte to sneak through a loan cap on honey without any fear of opposition.

Congressional friends advised us to be in town during the CR deliberations. So, Jack Meyer, Sr., Richard Adee and I were working the halls during the final week. We met and visited briefly with ABF representatives several times, but the compromise was not mentioned. A friendly congressional aide advised us that Conte was after our program, but I refused to believe his prediction that we would be saddled with a loan cap. With the very short time left, we tried to discourage talk of amending our program, but the situation was hopeless. During 1987 the Congress agreed with AHPA by removing the loan cap. Predictably, Conte was, and still is, mad.

A Compromise?

Several concerned beekeepers have asked if my tea leaves revealed any signs of an acceptable compromise if push comes to shove when Conte makes his move. At this point I have no satisfactory answer. The Federation has outlined their policy relative to threats of a crippling Conte amend-

ment in the Jan.-Feb. Federation Newsletter. The pertinent sentence follows:

"... However we have made it clear on all visits to senators and representatives that if the time comes when the entire program is threatened we certainly support a move to restore the ceilings as an alternative!"

The AHPA has not mentioned compromise.

I question the wisdom of advising opponents in advance that one is willing to agree if threatened. (However, it would seem appropriate to advise supporters about possible compromises and seek their assistance, *but not publicly*.) Since there is an indication of a compromise if threatened, I am wondering who will decide when the degree of threats will warrant a compromise??

Please Do This ...

Write your congressman and tell him what you think of Mr. Conte. If you approve what Mr. Conte is doing to the beekeeper — write your Rep. If you don't approve — write your Rep. My letter to Rep. Dave McCurdy will label Mr. Conte — ***jerk***. An old friend, Representative Mo Udall[2], tells us that we need to give our congressman unshirted hell once in a while. One of his friendly letters from back home contained the following descriptive sentence:

"Of all the rats and snakes elected to represent the people and carry out their wishes, you rank head and shoulders beneath the lowest."

Use your own tone and words, but please write.

References

1. Pile, Stephen, *Heroic Failures*, New York; Ballantine Books, 1979.
2. Udall, Morris, *Too Funny to Be President*, New York; Henry Holt and Company, 1988.

Reduce Pesticide Use

MECHANICAL CONTROL

Reduce Varroa

HERB DRAPKIN

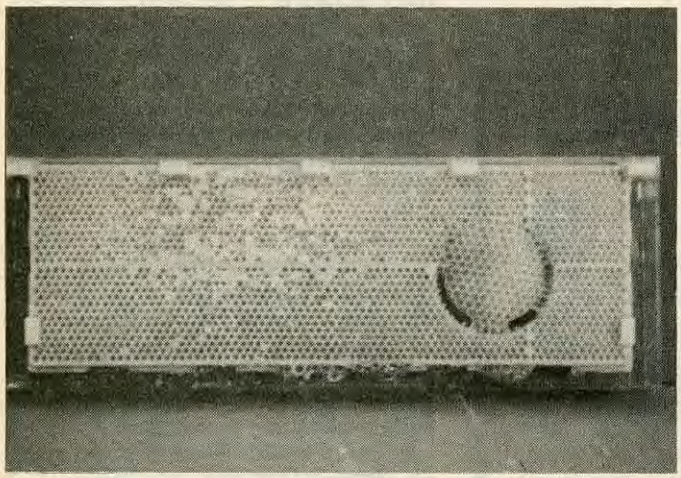


Figure 1.

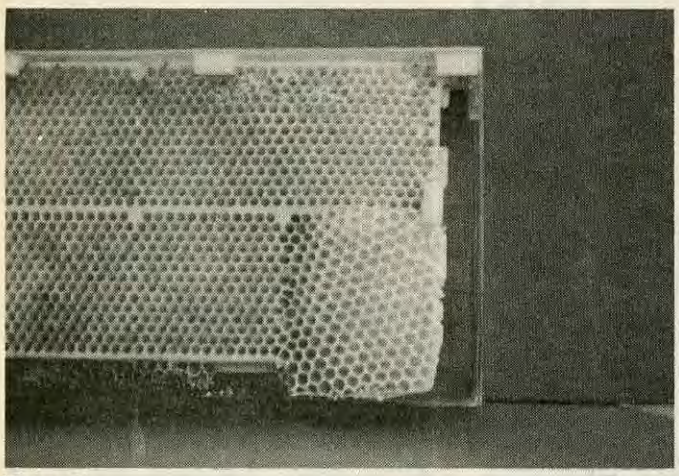


Figure 2.

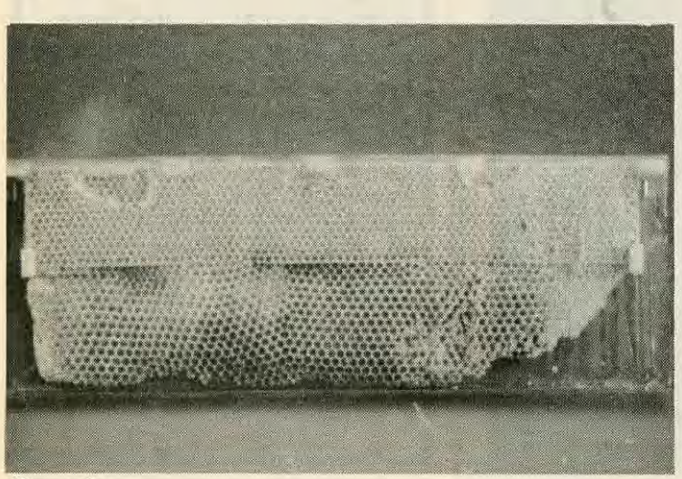


Figure 3.

There has been a great deal of research looking for appropriate acaracides to control *Varroa Jacobsoni* in the hives of *Apis Mellifera*. Currently two chemicals, Fluvalinate (Zoecon, Inc.), and Amitraz (Nor Am Chemical Co.), are available to the industry. The use of these acaracides, as efficient as they are, presents several problems. The first is the possibility of these mites developing resistance to these and other chemicals. This is a continuing problem which must be addressed. Second is the threat of potential contamination of honey and other hive products.

Presented here is a technique of mechanical control, based on the ability of bees to produce drone comb in a specified site in the brood chamber, and *varroa's* preference for drone brood for reproduction. Varroa tend to prefer drone brood because it takes three extra days for drone to develop. This increases the likelihood of mite larva survival, and a better chance to breed, thus increasing their numbers.

The key to producing drone comb in a specified site on a comb is to have all remaining cells in the brood chamber constructed as worker cells. Experiments conducted in a colony environment of total worker cells was accomplished using all plastic, fully drawn worker cell comb (Perma-Comb). If you allow bees to draw comb from foundations made of wax or plastic, they can alter them to form drone cells, even to the point of tearing down previously drawn cells. This does not allow for specificity of site and is difficult to control.

With the use of fully drawn plastic cells these alterations cannot be amde. Their drive to produce drone cells in preallocated sites, under these conditions, is greatly intensified. A queen that is laying only drone eggs shows up immediately. Drone larva, in plastic worker cells will have a "popeyed" appearance, easily recognized.

To determine if we could specify the site we wanted the bees to build drone comb, several trials were conducted. The first trial was to cut a circle approximately 3" in diameter in one of the plastic combs. This was placed in a prepared brood chamber and after an appropriate interval was inspected. The result was a beautifully produced circle of drone cells (Fig. 1). This makes an excellent technique to produce drones. The drone comb would be fully protected within a plastic retainer and 3 or more circles could be made on the same comb. However, this is not efficient for harvesting drone comb for *varroa* reduction.

A second method was tried in which an approximately 3" square was removed from each lower corner. These sites were chosen because they are the normal placement of drone cells by bees. After an appropriate interval they too were in-

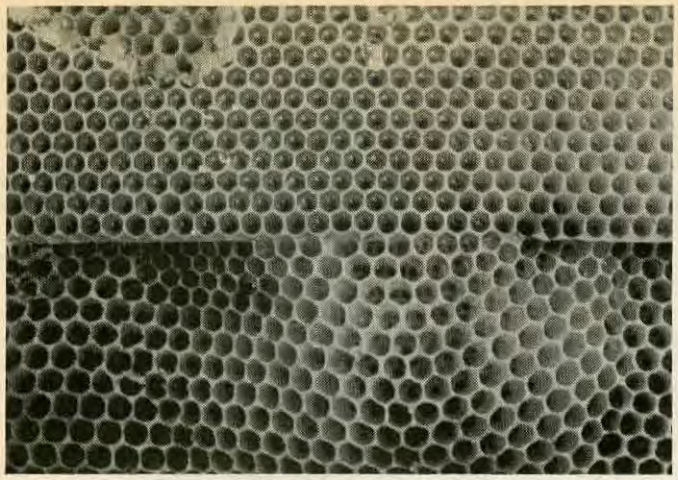


Figure 4.

spected, and we found them to have beautifully drawn drone comb (Fig 2). We felt these were easy sites to harvest drone comb from. They could be destroyed when capped and occupied with varroa. In fact, any amount of area could be removed from a comb, as was done in the third trial.

The third test was to take a plastic comb and cut it in half, longitudinally. The top half had the ears and could immediately be replaced in the brood chamber. In order to not waste the lower half it was anchored to a top bar with sheet metal screws, which produced a duplicate of the upper half. This too was placed in a brood chamber and in a short time the bees had drawn excellent drone comb along the entire base of the missing portions (Fig 3 and 4). These would also make easy harvest sites for the destruction of drone cells if infested with varroa.

The results of our trials suggest that we could control the amount and placement of drone cells in a colony. By knowing which comb in the super was involved in the production of harvestable drone comb, and at what intervals to harvest, these sections could be removed and destroyed.

Because of its natural control technique, we recommend this method be used during honey- and products-producing times. The number of varroa would be reduced and no acaracides could possibly contaminate the inside of the colony, the honey, or other products. This would also prevent a number of generations of varroa that would have had a chance to build up resistance with continuous use of acaracides — an important aspect if we are to control varroa.

Some varroa will continue to be produced in worker cells. However, our thesis is that this mechanical control would: 1) lower, or hold steady the numbers of varroa produced, along with mature mites; 2) reduce the chances for pesticide resistance to develop; 3) give the acaracides smaller numbers of mites to destroy in the off season; and 4) since only plastic worker cells are being used, there would be less chance for acaracide residuals to remain when honey production season resumes.

True, this is another management step, taking time and adding expense. However, we believe that by having drone production sites in fixed positions, it would require only a minimum of time to harvest — a small price to pay for the control and prevention of building pesticide resistance in the mite population.Δ

TESTING ANSWERS

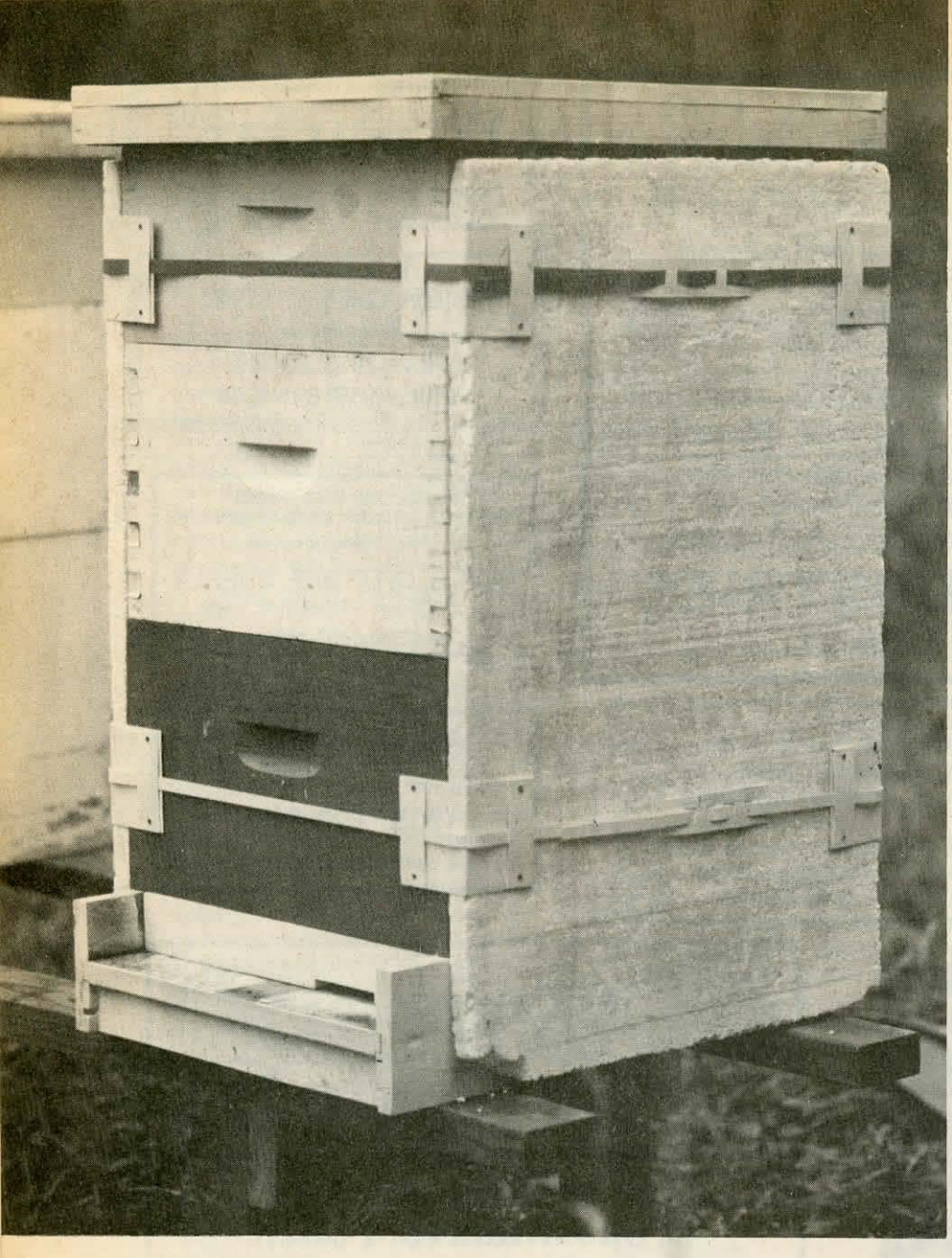
1. **False** When dividing strong colonies, new splits should receive either a new queen or queen cell rather than let them raise a queen from brood provided. Queenless units select older worker larvae to produce emergency queens which are likely to be inferior because they receive less royal jelly during development. Also development of the new splits will be delayed by 3 to 4 weeks while raising a new queen.
2. **False** Accumulation of cocoons, cast-off larval and pupal skins and the treatment given the cell in preparation for the next cycle of brood may result in a thickening of cells over a period of years. Even though this contributes to a reduction in cell size, I do not recommend comb replacement every 2 to 3 years.
3. **False** American foulbrood in a colony is not a direct indication of poor management. Strong, well managed colonies have a greater chance of picking up the disease than weak colonies since they have a larger field force. As the infection weakens a colony, they can no longer defend against robbers from other colonies. The first line of defense is your ability to detect and recognize symptoms of American foulbrood. Failure to recognize the disease is the only way one could be accused of poor management.
4. **False** A primary cause of swarming is congestion in the brood nest. Removing combs and replacing with foundation provides additional work for the bees but *does not* reduce congestion. Instead of reducing the swarming impulse, it is likely to enhance it since the amount of brood rearing and storage space has been temporarily reduced.
5. E) 6-5/8 inches
6. A) Abundance of nectar and pollen plants in the area.
7. A) Move the colony to a new site greater than 2 miles away and leave it there a minimum of 3 weeks, then move it back to the desired location.
   B) Move the colony 2 to 3 feet each day until you have reached the desired location.
   C) If you live in the northern part of the United States, wait until early winter, then move it to the desired location.
8. A) Easterly or southern exposure — Bees are less irritable and easier to handle when located in the open where they can get plenty of sunshine. Shade retards the flight of workers and makes it difficult to see eggs within cells. A southern or easterly exposure gives colonies maximum sunshine throughout the day, providing a longer work day.
   B) Accessibility — A location's accessibility is important, since many trips are made to the apiary each year in all kinds of weather. It is important not to have to carry equipment and heavy supers of honey to and from the apiary.
   C) Floral sources — Throughout the foraging season there must be nectar and pollen sources within a short distance of the hives. Pollen is essential for brood rearing and nectar (honey) is the source of energy. Large concentrations of floral sources are needed to produce a honey crop.
   D) Water supply — Bees need fresh water to regulate the temperature of the hive, liquefy crystallized honey and raise brood. If a water supply is not available within 1/4 mile of the hives, it should be provided.
   E) Drainage — Hives should be located on dry ground and have good air drainage. Avoid windy exposed hilltops or sites near the bank of a river likely to overflow. The apiary should not be located in a woods or in damp bottom land, since excess moisture encourages development of some bee diseases.
   F) Seclusion — Hives should be secluded from traffic, constant noise, and disturbance from animals and children. To discourage vandalism, place colonies near a dwelling or area frequently visited yet screened from view if possible.
   G) Area pesticide usage patterns — Relative safety from repeated pesticide applications to colonies or their forage is important. Place colonies away from areas that are treated routinely. Pesticides work in two ways to reduce bee populations. First, they are highly toxic and second, herbicides reduce the numbers of attractive plants for bee forage.
9. Moving colonies from one locality to another during a single season allows the beekeeper to take advantage of two or more major honey flows and provides additional opportunities for pollination contracts. In addition, northern beekeepers often move their colonies south to reduce winter losses, raise early season queens and make splits.
10. The purpose of a hot room in the honey house is to warm supers of honey which will speed up and improve the extraction process and remove excess moisture.

ANSWERS TO EXTRA CREDIT QUESTIONS

11. The chief advantages of round plastic comb honey sections are: A) the need to scrape or clean the sections in preparation for market is eliminated, since the bees do not have access to the outer surfaces; B) the corners in the regular wooden comb honey sections, which the bees fill last or not at all are eliminated; C) a finished round section weighs about 9 ounces, compared with 12-14 ounces for the traditional sections, so the bees are able to produce more sections in the same amount of time and they bring approximately the same price as the wooden sections; and D) the round sections are filled more quickly and the colony management system is less intense.
12. A few sheets of drone foundation may be used to advantage in queen rearing yards where a large population of drones of desired stock is needed for queen mating. In extremely dry areas of the United States drone comb is sometimes used in honey supers because it is easier to remove low moisture honey from the larger cells when extracting.

There were a possible 24 points in the test today. 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
24-18 Excellent
17-15 Good
14-12 Fair



Snuggly wrapped, winter's worst won't harm Rybak's Bees.

WRAP -N- STRAP

L. EDWIN RYBAK

There's got to be a better way!

If the above echoes your sentiments, and you are a believer in wrapping your colonies for winter, read on. If you used to wrap but gave it up as too much of a hassle, and too expensive in time and materials — read on.

There are valid reasons for both sides of the wrapping debate and, to buttress *your* side of the argument, you can find convincing proof in the current literature. But, to wrap or not to wrap frequently boils down to the cost in both time and materials. The time is never reusable; and altogether too frequently neither are the materials.

The work and time involved in applying felt roofing paper has likely persuaded many beekeepers to go with the tide and replace winter losses in the spring, rather than prevent them now, and personally, I've never enjoyed the black smears left on a recently (re)painted hive. Adding a layer of sheathing paper first adds to the difficulty of wrapping. And, the fact that the materials cannot be reused always rankles.

Now there *is* a better way— the materials are reusable; also, the system is quick and easy; and it can be applied by one person in two minutes or less.

Using styrofoam is not new, but I believe my application system is. However, I want to emphasize that the styrofoam used should preferably be the extruded type. Do not use the kind that looks like an ocean of subminiature ping-pong balls pressed and fused together. This style crumbles readily during handling and disintegrates when exposed to the vagaries of sun and weather. However, this type is an acceptable substitute if the extruded is

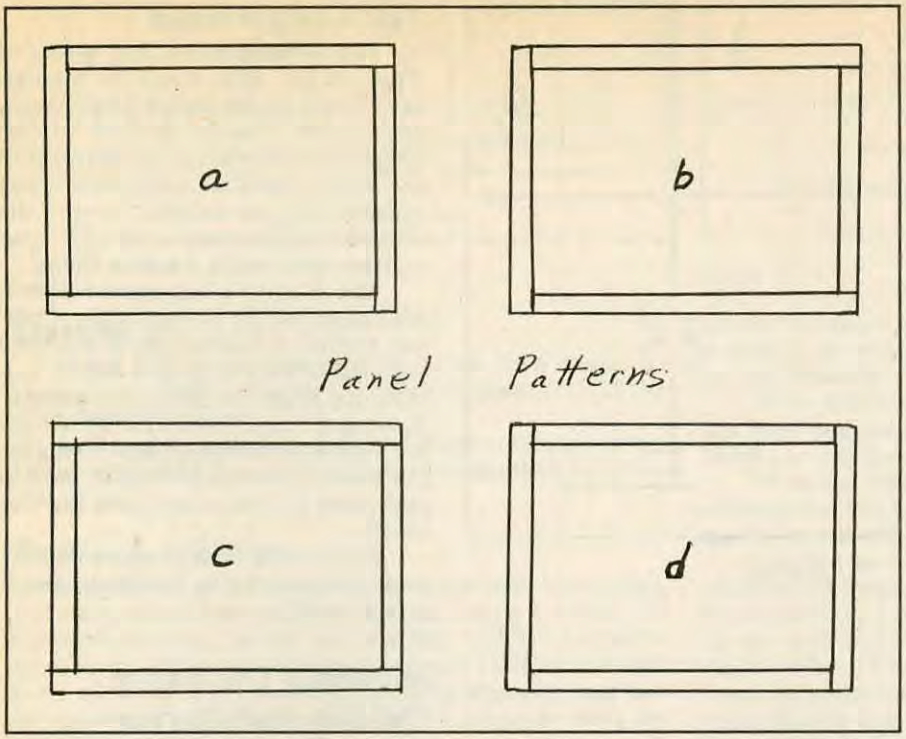


Fig. 1a: Each panel is cut one inch longer than the hive body dimension it is to cover. For instance, the hive body is 19-7/8 inches long so the length of the two side panels is 20-7/8 inches. The front and rear panels are cut one inch longer than the width of the hive, or 17-1/4 inches. In this arrangement each panel covers an end edge of another panel and has one end edge covered by a succeeding panel, in a quasi half-lap.

Fig. 1b: The two side panels are cut one inch longer than the sides or length of the hive body; the front, or rear, panel is cut two inches longer because it overlaps one of the end edges of each of the side panels; and the rear, or front, panel is cut just the width of the hive body because it fits between the projecting ends of the two side panels.

Note that in this arrangement the front and back panels are of different lengths; but either one can be used at the front or rear.

Fig. 1c: The two side panels are cut two inches longer than the hive body, or 21-7/8 inches, and the front and rear panels are cut to 16-1/4 because each fits between the projecting ends of the side panels.

Fig. 1d: The two side panels are cut to 19-7/8 inches; they fit between the projecting ends of the front and rear panels which are cut to 18-1/4; two inches longer than the width of the hive body.

not available, and will last several seasons if handled with care.

The first necessity is to standardize the size of your overwintering colonies. Whichever you prefer — 2 deeps, 1 deep and 1 medium or something else, will determine the size of panels you will make. My advice — make them all the same.

Panel Patterns

Figure 1 illustrates, by top view, the various choices possible in applying the styrofoam panels. The panels I use are one inch think but 2 inch thick panels might be preferable in colder climates. In the following, the length of the panel refers to the length or width of the hive body. If you use 2-inch thick styrofoam adjust the panel lengths given to compensate for the added insulation thickness. Where the plans calls for a 1-inch overlap, make it 2 instead.

Figure 1d is also useful when wrapping only the sides and back, leaving the front open. I've used this method successfully, and it is satisfactory for milder winters or climates. This gives a solid base of support for the side panels at the front corners of the hive; they do not project, thus are less likely to break. See Cover Photo. Note that this is also one of the modes of Fig. 1b; if the wide panel is left off and the narrow panel is used at the back of the hive.

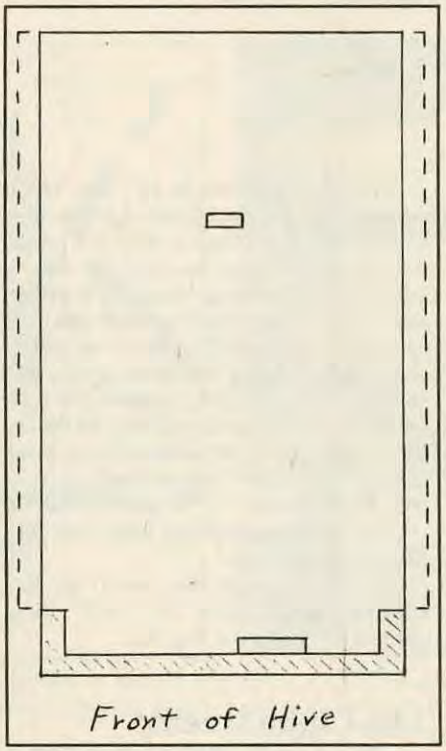


Figure 2.

Insulating The Front Of The Hive

For all methods of wrapping, if the front of the hive is insulated, the bottom edge of the front panel is indented at a point coincident with the entrance reducer opening. An indention at each bottom corner lets the lower end of the front panel slip in between the side rails and rest on the bottom board. A hole is cut to match the upper opening (Fig. 2).

I invert the inner cover for wintering and have the venting port at the front which, in my location, is also the downwind side of the hive. The broken lines indicate the edges of the front panel if this is cut long enough to overlap the front end edges of the two side panels, as in one of the choices of Fig. 1b.

Making The Wrap Straps

Making the wrap straps is easy, and with a little resourcefulness and ingenuity the cost can be minimal. The materials used must be of adequate strength and reasonably flexible in the cool weather during application; and must not break nor crack during cold weather.

Very satisfactory material is scraps of the vinyl siding used for homes. Inquire at your local lumber yard or a local builder. The longer pieces needed for the encircling straps, which must be nine to ten feet long, may be a bit more difficult to find. These can be made from two shorter pieces of siding as explained later. Or, you might be able to get some of that tough, green plastic banding that's used to bundle shipments of lumber. This stuff is strong and lumber yards are usually glad to get rid of it.

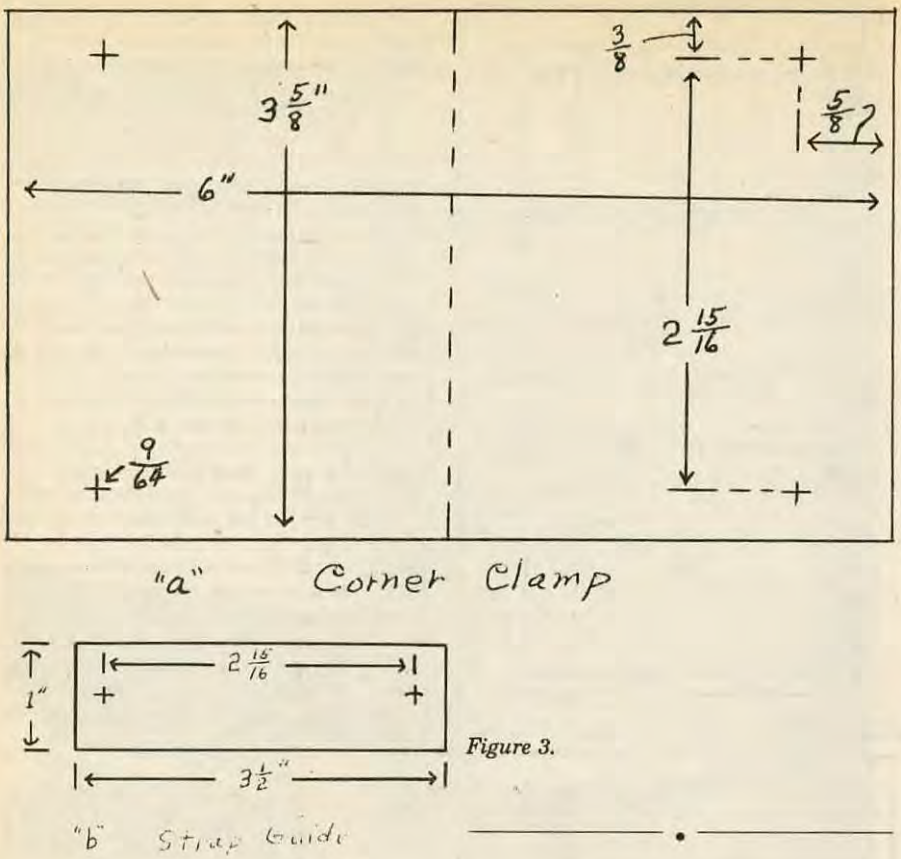


Figure 3.

Materials needed per hive:
2 straps 9" to 10' long by 1/2" wide
8 corner clamp pieces
16 strap guides
36 rivets
(frame eyelets, extras included)
(You probably never thought of using frame eyelets as anything but frame eyelets.)

The Corner Clamps

The corner clamps provide a larger bearing surface to keep the straps from cutting into the insulation, and to hold the corners together tightly. Their width also provides an overlap to hold a fill-in piece of insulation should you wish to extend the height without using an additional strap.

The pieces for the corner clamps are 6" long by 3-5/8"wide. A hole is drilled near each corner using a 9/64 drill bit. Make a pencil mark at each edge at the middle of the piece (or completely across it), on the smooth side, as shown by the broken line (see Fig. 3a).

Using a hair dryer and the narrow nozzle, or other concentrated source of heat, alternately heat both sides of the piece to be bent along the dotted line; the middle of the piece will be uncomfortable to the touch. With a 1200 watt dryer it takes just 60 seconds fto do this at normal room temperature.

While the piece is still hot lay it across a solidly placed board or the edge of a wooden work bench, with the pencil marks on top lined up with the corner edge of the bending block as a guide, and bend the projecting half down. If the piece has cooled too much reheat it; then fold until the two ends touch, and firmly (but not tightly) crease the fold. Grasp the ends and pull out to 90 degrees, hold for 5 to 6 seconds at room temperature and release. Set aside to cool. You'll have a "V" of about 65 or 70° — you want something less than 90°. More on this later.

The strap guides used on the clamps are 1" wide by 3-1/2" long, drilled as shown in Fig. 3b.

The Cinch Buckle

The cinch buckle is illustrated in Fig. 4. The holes should be 1/2" x 9/16" although 9/16 square gives satisfactory results and are easier to cut using a square chassis punch or a chisel. When using a chisel, be sure the piece rests solidly on a block of wood and do not try to cut all the way through with one blow. The material should be at room temperature at least, or it is liable to crack. This is also true if using a chassis punch.

Drill a 9/64" hole at one end of the buckle (see photo #3).

The Long Straps

From the ten-foot long pieces of vinyl cut 1/2" wide straps on a bench saw. If your pieces are not long enough, don't panic. Simply cut two shorter lengths and overlap by two inches, drill two holes and rivet using two frame eyelets. Just one caution: be sure the riveted overlap comes at an open spot, and does not rest in a corner clamp.

The alternate long-strap material mentioned earlier is even better. Lumber arrives at lumber yards strapped with either steel or plastic bands. You want the plastic banding. It is emerald green and tough! Here again, the lumber yard cuts the bands at a convenient (for them) spot and you might need to splice two shorter pieces for a ten foot length.

Drill a 9/64" hole in one end of the strap for riveting to the cinch buckle (see photo #3).

Riveting The Strap Guides And Corner Clamps

My wrap straps are made with the smooth side out, textured side in.

Place a strap guide across the end of the corner clamp, on the outside. Using a frame eyelet as a rivet, insert it from the smooth side of the vinyl through the strap guide and then the corner clamp piece. The rivets must fit snugly in the holes. Turn the piece over so that the rivet head rests solidly on a hardwood block or a piece of metal. With a wide-flaring center punch, or a Phillips screwdriver, flare the end of the rivet. If you use the screwdriver, insert the tip and press down firmly, lift, turn one-eighth turn and repeat. With tack or other small hammer, flatten the flared end. Done. Do the same at the other end of the corner clamp with the second strap guide. Finished.

You'll find it easier to rivet the strap guides in place before bending the corner clamps.

Riveting The Buckle And Long Strap

Weave the drilled end of the encircling strap through the cinch buckle as shown in Fig. 5. Note that the strap starts and ends on the outside of the buckle. Also, see photos.

Insert a rivet (frame eyelet), through the strap and then through the buckle. Flare and flatten as you did for the corner clamps.

Weaving the start end of the long strap through the buckle strengthens the rivet point by decreasing the strain on it, and provides a tighter cinching of the strap when it is in place on the hive.

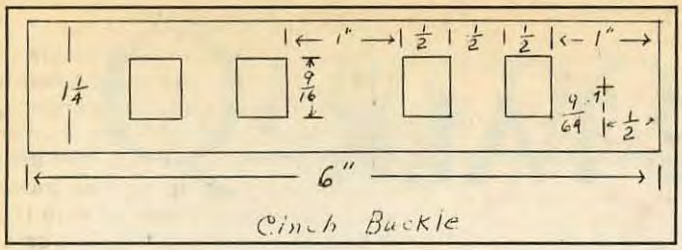


Figure 4.

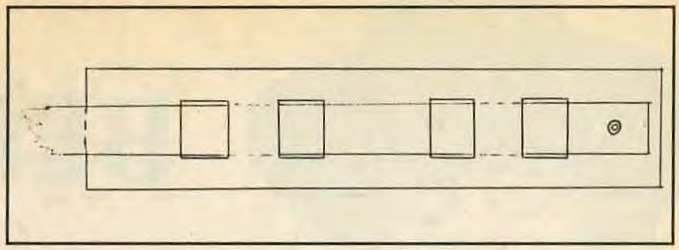


Figure 5.

Assembly

String four corner clamps onto a strap, then weave the free end into the cinch buckle. Friction and pressure hold the strap cinched in place.

At this point you'll note that the V'd corner clamps spring out to just about 90° under the straightening influence of the long strap.

To Wrap A Hive

For wintering, I invert the inner cover with the venting port down and at the front; then place an empty hive body, or any depth of super, on top. Inside of this, and down onto the inner cover, I fit a sheet of styrofoam with a 3/8" or 1/2" hole above the inner cover opening. Moisture-laden air rises into the super and is then vented gently to the outside since the top cover is raised about 1/4".

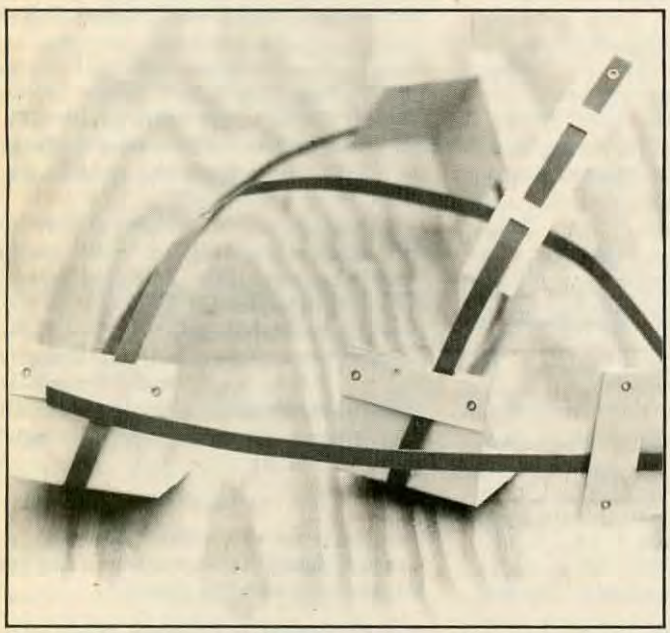


Photo 3. The complete Wrap Strap shows construction details of corner clamps and the rivets holding the strap guides. The cinch buckle is riveted to one end of the long strap.

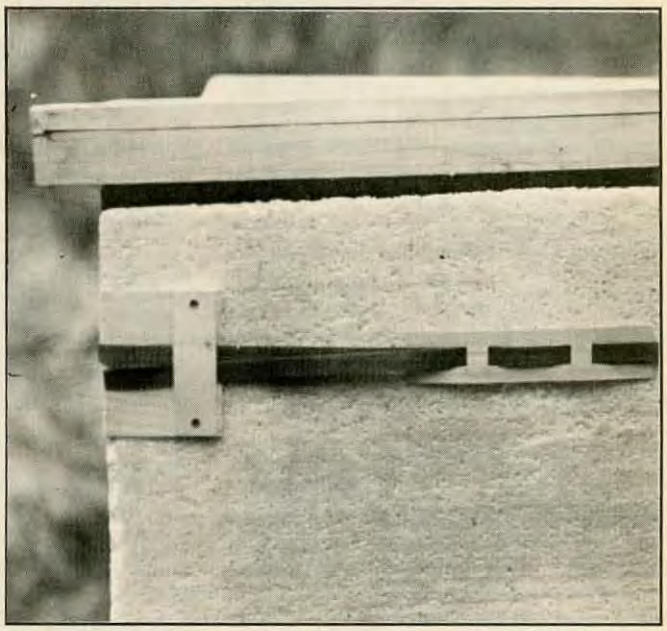


Photo 4. Close-up of a corner clamp and the cinch buckle. The loose end of the long strap is tucked under the strap guide to keep it from flapping in the wind.

If you expect to feed during any part of the winter, or very early spring, then the deep super is first choice. However, you can always add another super above what you have in place to accommodate a feeder.

To wrap a hive, slip a wrap strap around the lower portion of the hive body with the cinch buckle along one side. The strap should be loose enough so that the panels can be slipped easily between the hive body and the corner clamps. If the strap is loose enough, yet not too loose, the first panel(s) might lean outward somewhat but will stay in place as you insert the remaining ones.

With all the panels in place, snug the wrap strap a little and set the panels in approximately their proper position. Put on the upper strap, jiggle the panels into final position and snug the wrap strap firmly. Resnug the lower strap and you are finished.

When cinching the wrap straps, grasp the buckle with one hand and the loose end of the strap with the other and tighten — just firmly.

Wrapping time, with one individual, is less than two minutes, but the first few might take a bit longer, until you get the knack of it.

I get the tops of the panels up close to the bottom of the outer, telescoping cover. This minimizes snow and rain blowing in between the panels and hive body. Next I take the top cover off and wedge a thin strip of wood, about 1/4 inch thick and somewhat longer than the inside width of the top cover, up against the bottom of the cover; one at each end, and about three or four inches from the inside end of the top cover. When placed on the hive this provides a small opening all around for a gentle scavenging of moisture from the top without direct blasts of cold, chilling air into the hive.

Another good method is to drive a tack on the top edge near each corner of the hive body to hold the cover up 1/4 inch.

Finally, I place a protective, weighted flat board or other material to overhang the outer rim of the top cover by a few inches, as further protection against snow and rain blowing and seeping between the insulation and the hive body.Δ

Edwin Rybak is a retired broadcast engineer and technical director. He has eight colonies — for pollination, for fun, and to help his incurable streak as an experimentor. His successful experiments have frequently graced the pages of Bee Culture.

BEE TALK

RICHARD TAYLOR • R. D. 3 • Trumansburg, NY 14886

"You can't be a beekeeper just by having a few hives."

Spirits were high at the mid-July meeting of our bee club. Members reported more honey in the hives than they had ever seen at that time of the year, and the basswoods, which are usually the main flow, had not even bloomed yet. Some of the beekeepers reported they already had as much honey on their hives as they usually get in an entire season. Honey flows like that are a real morale booster for any bee club, and the bee-talk flowed. We gathered around the grill, where burgers and franks were being cooked on a couple of all-wire queen excluders, but no one was paying much attention to the cooking. We were too engrossed in talking about bees, the heavy flows we'd seen already, and the superb quality of the honey. My own comb honey supers had been filling up fast, and with the nicest snow-white honey I have ever seen. Super after super was filled right to the corners, completely free of travel stain.

A few days later I found myself sitting under a huge basswood tree down on the lake shore, and the hum of the bees in that tree made one think of a swarm. The basswoods were now blooming, to add their nectar to the bounty already in the hives. This gives rise to hope, but not assurance, for the fortunes of a beekeeper can change abruptly. But no matter, it has already been a good year, even if the rest of the season should turn out disappointing, and, who knows? The rest of the summer might turn out as good as the beginning.

Our's is a small club, but most of its members are avid beekeepers. Three of them are truly outstanding beekeepers, as good as any I have ever known (I might have said four, including myself in this little group of experts, but my modesty, which is perhaps the most admired of my many virtues, forbids me). One of them has developed a system of dividing and requeening his colonies each year so as to almost double his crop. Another puts lots of his hives in apple orchards for pollination, at $28 per colony, and has a system for getting a good crop of apple blossom honey at the same time, which is not any easy thing to do.

We are not terribly social at our club. We meet every month, and we put on a honey show once a year, and a honey festival every fall, but we do not have an annual banquet or anything like that. We just talk about bees and swap ideas, sometimes do a little business with each other selling nucs or used equipment. Anyone who does not have a keen interest in bees soon loses interest. That's why it is not a big bee club. There are advantages in being small. Our location is good, in terms of honey crops, and Cornell University is nearby, so the graduate students in apiculture sometimes come and tell us new things. Sometimes Roger Morse himself comes to give this small audience a talk. So we all learn a lot, from each other and from the outside experts.

You can't be a beekeeper just by having a few hives of bees. You've got to know what's going on. You need to read books and the bee journals and, if you can, get into a bee club. I've kept bees longer than anyone else in our club, by far, but I still learn useful things at almost every meeting. And besides all that, there's joy in it, which is most important of all.

(Questions and comments are welcomed. Please enclose a stamped envelope and use Trumansburg address, above.)

QUESTIONS?

Q. *We had a dry hot summer without rain for over a hundred days. I waited until the end of October to harvest my honey, but it still was not capped over, and the honey is thin. Why didn't the bees get the moisture out of the honey and get it capped?*

Emery Hedlund, Harrison, Idaho

A. Usually honey stored in the combs during a hot dry season is thick enough, even when it is not capped over well. I therefore suspect that your honey absorbed its moisture *after* you harvested it, while it was still in the combs. This is especially likely if the weather was humid then. The failure of the bees to cap honey over is usually due to an abrupt end to the honey flow.

Q. *Is there any way to increase hive population in the fall in order to maximize honey production from the fall flow?*

Marshall T. Slotterbach, Sellersville, PA

A. The problem with getting fall honey is getting the right kind of weather, that is, hot days at the right times. Colonies are normally plenty strong in the fall to get the nectar if it is there and the weather is right. I think nothing would be gained by trying to boost population in the fall.

Q. *Four questions: (1) Why is it necessary to heat honey? (2) I heat mine in jars in hot water on the stove. To what temperature should it be heated, and should this be the temperature of the water or of the honey itself? (3) How long should it be held at that temperature? and (4) How much does this heating change the flavor?*

L. J. Chadwick, Peterson, MN

A. It is never necessary to heat honey unless it is so thin that it is in danger of fermenting, and I believe it is better not to. The only reasons for heating honey are to retard granulation and prevent fermentation. For someone like yourself, who is not a large commercial producer, it would be better to let it granulate and then, if you wish, warm it only enough to reliquefy it. If you insist on heating fresh honey, then 135° F., measured by a thermometer in the honey itself, is plenty. Yes, I think the flavor does suffer from heating.

Q. *I have been told that comb chunks should be put in a freezer for 24 hours before packing to kill wax moth eggs. Is this true?*

Frank Lencek, Fairmont, WV

A. Yes. Put a thermometer in the freezer and take the temperature down to zero, or close to it. This may take more or less than 24 hours. I am told, however, that in some areas comb honey is not attacked by this tiny wax-worm.

Q. *I extract my honey in July and August, when it is hot. By the time the honey is sold, in November and December, a layer of very fine bubbles has formed on the surface of the honey. The chunk honey sometimes has bubbles escaping from the comb. What causes this and what can be done about it?*

Oliver Addis, Rocky Face, GA

A. Some foam always rises to the surface of extracted honey. The honey should therefore be left in a settling tank for a few days after extracting so that surface foam can be removed before bottling. Sometimes, on the other hand, such foam results from fermentation at the surface of the honey. This is caused either by the honey being too thin or by dampness in the air when it is extracted or bottled. The way to tell whether any fermentation has occurred is to smell and taste the honey. Fermentation is avoided by harvesting only thick, ripe honey and extracting and bottling it in a dry place. It can also be prevented by very carefully heating the honey to 140°F before bottling it, but this should be a last resort, because honey is, in my opinion, always degraded by being heated.

Q. *Three of my hives, each in a different apiary, have developed chalkbrood. I understand it is a fungal disease, but I cannot find how to get rid of it or how contagious it is. Is there any solution?*

Richard L. Morrison, Grapevine, AR

A. Chalkbrood is, in my opinion, a disease that should be taken more seriously. In spite of all that is being written about mites, it is hard to get information on chalkbrood. In my apiaries it has not proved very contagious, but it does seriously affect the colonies that get it. I have read, but cannot confirm, that replacement of combs will get rid of it. Comment from knowledgeable readers will be most welcome.

Q. *I am new to beekeeping, and my area is covered with Mountain Laurel* (Kalmia latifolia). *I keep reading and hearing that honey from this source* ***may*** *be toxic, yet I can find no authoritative source to tell me definitely whether it is or is not. Is it?*

John M. Dent, Winchester, VA

A. This belief was apparently started last century by a physician who said he had seen many Confederate soldiers suffer severe illness from eating this honey, and who said he had been affected by it in the same way. Many people believe it to be toxic, although I believe that no death has been attributed to it. Beekeepers have reported never seeing a bee on the bloom of this plant. It is very common in the east and southeast, and one would think there would be more reports of food poisoning if there were any truth to the claim. I therefore doubt that it is a genuine problem, but I will welcome comment from anyone who knows.

Questions are welcomed. Address Dr. Richard Taylor, Route 89, Trumansburg, NY, 14886, enclosing a stamped envelope for reply. No phone calls, please.

ANSWERS!

Richard Taylor

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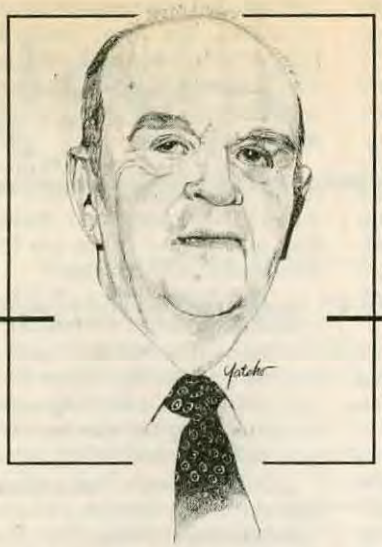


KOOVER'S KORNER

CHARLES KOOVER

1434 Punahou St. #709• Honolulu, Hawaii 96822

"Save your back . . . You've only got one!"

It's not the sting of a bee one needs to fear, it's the wrenched back, or worse yet, a slipped disk in the spine. A bee sting is only a momentary pain, but an aching back can torture a person for months on end.

Most full time beekeepers I have met suffer from bad backs. They have lifted too many deep supers and too many 60 pound cans in years gone by. It's better now with a boom mounted on a truck to do the heavy lifting in the fields, and a lift truck in the honey house. But there is always that extra can or super that becomes the proverbial straw that breaks the camel's back, for booms and lift trucks can't do everything and they have their limitations.

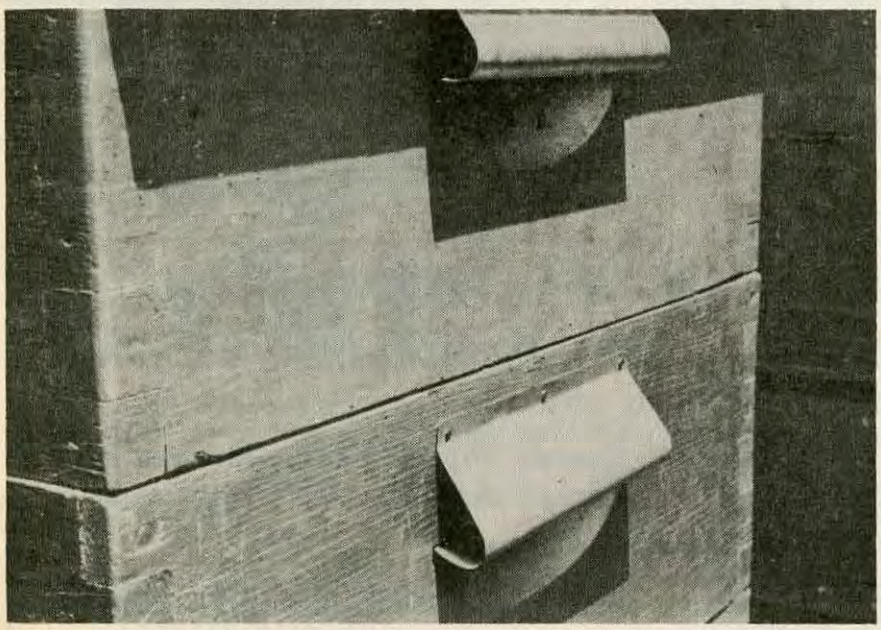
Over a hundred years ago the removable frame hive became popular and with it the fingertip handhold. The best that hive manufacturers could do was to gouge out a fingertip hold. It could not be improved on, for gouging any deeper would be cutting straight through the wood. Long suffering beekeepers have made their own improvements by nailing a slat along the top of their supers or have attached blocks of wood just above the handholds. However, slats and blocks of wood prevent the use of telescope covers and covers with overhanging cleats. The metal handhold, as shown, does away with this difficulty.

Any beekeeper, whether young or old, has trouble lifting a deep super full of honey with fingertip handholds. It throws a strain on the back, and when repeated often enough it will lame the strongest back and an injury results. There are a number of hive lifting tools offered for sale but they all have to be carried around, whereas a permanently attached handhold is there to stay.

Since old age is just around the corner for me, I decided to find a solution to the handhold problem before failing strength forced me to seek help when lifting supers, or worse, make me give up beekeeping entirely. I reasoned that if I could only extend the grip my fingers have on those handholds lifting would be easier. So I made these lightweight metal grips and discovered, to my delight, that they are just "what the doctor ordered" to keep me out of his office.

So, if you value your back, try a set and discover for yourself what I am writing about. You owe it to your back, and since it is the only back you will ever have, it deserves consideration, and these grips may save you a lot of misery and pain.

These handholds are easily made from a piece of lightweight galvanized sheet iron. And if you can assemble a hive body, nailing on these handholds should not be difficult. As shown in the photo, the bottom part fits into the rounded slot in the super wall and is held in place by three small nails. To nail them on, turn the super upside down and you can drive the nails in on an angle with a nail set. Now turn the super right side up and attach the upper end. The small nails will pierce through the wood on the inside in the rabbet trough. They should be laid over and clinched. No amount of pulling will ever loosen those handholds, for the pull is all *with* the nails instead of away from them.Δ



These hand hold extensions are easy to make but it takes time. A machine could stamp them out, drill and form them into proper shape in one operation. It gives the hand a full grip and saves the back.

INNER COVER . . . Cont. from Page 491

There is a simple reason, if not a simple solution. The answer to this is the same as the answer to the question, "Why did you pick the last truck (car, tractor, van, pickup) you bought?"

The answer is simple; even elegant in its simplicity. "It was what you needed".

See, I said it was simple.

If you think the Ford Motor Company designs cars that fit the needs of their CEO, you better think again. They design cars (vans, pickups) for the people who buy them.

If you're not selling honey, could it be that you're not offering what your customers, or potential customers want? Need? Consider: different colors, flavors, sizes, shapes, labels, prices, containers, outlets, ...

The list goes on and on and on and on. Your honey won't sell itself, and if you're not selling it, you aren't offering the product your customers want or need.

Think about it for a while. Some changes may be in order, and you might be surprised.

•

Thirty or so years ago the general public and the medical community thought that if you didn't talk about cancer, it wasn't really a problem. You never called it by name, or at least not until the afflicted were gone, and you never, ever mentioned it to your children.

Of course medical science didn't have the diagnostic skills they have today, nor the chemical or operative tools required to battle this killer. Much has improved in thirty years. Primarily our ability to avoid many of the obvious causes, (bad diet, smoking), and, in some cases, remove the disease itself (surgery, chemicals). People *are* walking away from this. One reason being that we are talking, and doing, something about cancer. It is no longer the 'C' word, but rather a situation to deal with, and often overcome. But it took a long time to get here.

Then, less than 10 years ago another killer came on the scene. And like cancer, the initial reaction was to not talk about it. After all, it was only affecting a small, very small portion of our society. And anyway, science didn't quite know what it was about.

But the reality of AIDS didn't go away, and regular people started dying from it. There was no cure, and even famous people couldn 't be saved.

So, after a few years, the government decided that something should be done. A little money was made available to study the problem, and education programs began to show up here and there.

Today, a little more money is available (though not nearly enough), world conferences have been held, and enough is known that people can avoid it if they choose. The 'A' word is not the mysterious killer it was even five years ago. But, like cancer it still remains, and it still kills. There is a pattern here that cannot be ignored. Knowledge is power — and certainly knowledge is saving lives. Smoking causes cancer (among other things), cancer kills — the lesson is simple — don't smoke.

And AIDS. Avoid the causes, and avoid the problems that result.

Now, I hope you are asking, *what on earth does this have to do with beekeeping?*

There is a sizeable minority of beekeepers in this country who feel that if nothing is said about the Africanized Honey Bee — it will go away, or at least any problems associated with it will go away.

The feeling is that if nothing is said, if we are ever so quiet and clever, the isolated instances of identification, or worse, the even rarer aggressive incidents will not make the news. If we don't make a big deal, the news people won't have much to say, or much to say anything about.

Well, if you're in this group, you're in for a surprise or two — especially when the first reporter knocks on your door and says — "Hey, are those Killer Bees in YOUR yard yet?"

The news media WILL NOT IGNORE this story, no matter how light you make it; no matter how much you try and change the subject; no matter how many positive things about honey bees you bring up; no matter how much you try to control the interview.

If you don't talk about it the reporter's first instinct will be "What's this beekeeper hiding?" or, if you really give them the run around, they'll just find someone who won't. They'll get the story, one way or another.

Your choice is — what story will they get? Stay tuned, we'll check that out next month.

Postage Stamp *Continued*

least 5/8" from the bottom and affix stamps approximately 1/4" from the top and right edges. Requests must be postmarked by October 2, 1988, and addressed: CUSTOMER-AFFIXED ENVELOPES, HONEY BEE STAMPS, POSTMASTER, OMAHA, NE 68108-9991. No remittance is required.

Postal Service Affixing Stamps: The price is 25 cents per stamp. The Postal Service accepts checks in the exact amount up to the limit of 50 envelopes. Customers should not send cash or postage stamps. Orders must be postmarked by October 2 and addressed: HONEY BEE STAMPS, POSTMASTER, OMAHA, NE 68108-9992.

NEWS . . .

September — National Honey Month!!

September was named as **National Honey Month** by the National Honey Board during its annual meeting, in Estes Park, Colo., June 23.

The Board expanded the celebration of honey from a week to a month in order to gain more media attention, explained Dan Hall, manager of the National Honey Board.

September was selected to avoid the clutter of national promotions during other months and to avoid the holidays. "By promoting National Honey Month in September, we can build momentum going into the high honey usage months," Hall said.

During September, the Board will focus on obtaining increased national and local media coverage regarding honey and its many uses as well as the beekeeping industry.

The Board's promotional efforts will work to increase the awareness of honey among the retail trade, the food-service industry and consumers.

Specific activities include feature articles for print and electronic media as well as a honey newsletter to the food-service industry. The Board will also be working with the school food-service industry to publicize back-to-school honey promotions in the schools of selected major cities.

To enhance national media coverage, the Board will nationally publicize the Ohio Honey Festival, Sept. 8-10, Lebanon, Ohio.

Additionally, the National Honey Board will develop a packet as a tool for beekeepers to promote September as Honey Month to their local media. The packet will include a news release, fact sheet, photograph and a list of promotional ideas. Write or call the National Honey Board office to receive your packet:

National Honey Board
9595 Nelson Road
Box C, Longmont, CO 80501
(303) 776-2337

National Organizations Dealing with Africanized Honey Bees

Due to the concern caused by the Africanized Honey Bee, several educational, research and advisory groups have given attention to the future problem. The names of these groups are similar and may be confusing to those who are only occasionally associated with the Africanized Honey Bee issue.

1. United States Department of Agriculture (USDA)
   - A. Animal Plant Health Inspection Service (APHIS)
   - **Mr. Charles H. Bare**
     6505 Belcrest Road
     PPQ APHIS
     Room 663, FC BG 1
     Hyattsville, MD 20785
   - **Mr. Ralph H. Iwamoto, Jr.**
     APHIS USDA
     US Embassy Mexico City
     P. O. Box 3085
     Laredo, TX 78044
   - B. Agricultural Research Service (ARS)
   - **Dr. Ralph Bram**
     NPL ARS
     Insects Affecting Man & Animals
     Room 211, B 005
     Beltsville, MD 20705
   - C. Federal Extension Service
   - **Dr. Fred Westbrook**
     Extension service, USDA
     Room 3344, S. Bldg.
     Washington, DC 20250
   - **Dr. James E. Tew**
     National Program Leader, Apiculture
     Extension Service, USDA
     ATI / The Ohio State University
     Wooster, OH 44691
   - D. Office of Governmental and Public Affairs
   - **Mr. Phil Villa-Lobos**
     14th & Independence Ave., SW
     Room 406 - A
     Washington, DC 20250
2. The American Farm Bureau
   - **Ms. Ann Sorensen**
     NER Div
     American Farm Bureau
     325 Touhy Avenue
     Park Ridge, IL 60068
3. The American Beekeeping Federation
   - **Mr. Darrell Wenner**
     Rt. 1, Box 284
     Glenn, CA 95943

Ed. Note: I suggest you copy and keep this list handy. It will be invaluable when the media begins to press *you* for information. Send them to the pro's if you're not comfortable with an interview of this type.

Reprinted from *Apiculture Awareness*

Honey Bees Abroad:

How to Avoid Them, What to Do When You Can't

A new pamphlet prepared by the Agricultural Research Service, USDA, is now available. This publication contains information on how to avoid massive stinging incidents and what to do if you are involved in such a situation. The publication will have worldwide application.

Although copies are scarce, I will send *single* copies on request as long as my supplies last. Readers are urged to reproduce this publication and make them available to others.

Send request to: James E. Tew, Ph. D., National Program Leader, Apiculture, Extension Service, USDA, The Ohio State University, Wooster, OH 44691

Chip Designed to Track Africanized Bees

OAK RIDGE, Tennessee, June 27. Martin Marietta engineers at the **Oak Ridge National Laboratory** here are designing a tiny silicon chip to track the migration of Africanized bees, expected to reach the United States in 1989. Martin Marietta Energy Systems, Inc., operates the Laboratory under contract with the U. S. Dept. of Energy (DOE).

The microchip, about the size of a 1/2 carat diamond, can be glued to the thorax of a captured Africanized Bee. The chip's infrared transmissions to ground-based receivers will help Dept. of Agriculture officials study the mating and foraging habits of Africanized Bees in an attempt to control the migration without using large quantities of pesticides. This will mark the first time bees have been monitored this way.

Africanized Honey Bees have been migrating northward from Brazil ever since the accidental release of African queen bees from a laboratory there in 1957. The bees' descendants — created through mating with the more aggressive Africanized strain — have dramatically changed commercial beekeeping operations throughout the territories they have occupied and have been known to fatally sting both animals and people.

"The bees pose a threat to the $20 billion annual production of US agricultural crops requiring bee pollination. The microchip should be able to help combat this potentially very serious situation," said Diedre Falter, one of the chip's developers.

Each custom very-large-scale integrated (VLSI) circuit weighs approximately 35 milligrams and contains its own power source — an array of tiny solar cells. The chip, with its built-in micro-miniature transmitter, was designed by Diedre Falter, Kelly Falter, Ken Valentine and Gary Alley, engineers with the laboratory's Instrumentation and Controls Division.

Honey bee research is not new to the Oak Ridge National Laboratory. Last year, its engineers developed a prototype detector instrument that will help scientists and beekeepers distinguish between Africanized bees and the more domestic European species. The instrument was successfully tested in Venezuela in January.

Using the same noise analysis technique pioneered at the Laboratory for identifying abnormalities in nuclear reactor operations, the hand-held detector will help beekeepers electronically distinguish Africanized species from European bees in hives that become infested with Africanized bees, allowing them to be destroyed.

Martin Marietta Energy Systems, Inc., is the operating contractor for DOE facilities at Oak Ridge; Paducah, Kentucky; and Portsmouth, Ohio.

The Summit

The American Honey Producers Association, the American Beekeeping Federation, and the Sioux Honey Co-op held a joint meeting the afternoon of July 21st in Fargo, North Dakota. The Executive Committee and officers of each organization met in a closed session to try and work out an agreement which could be supported by each organization as we pursue efforts to maintain a viable honey loan program.

The concensus of opinion was that most of the conflict that has developed between the organizations was attributed to a lack of communication. After much discussion it was felt a liaison committee was needed to facilitate communications between the organizations.

This committee would work together on Washington issues. It was further agreed that all legislative action as it pertains to the honey loan program must treat all beekeepers whether small, medium or large, equally and fairly. If a compromise is needed to make, save or improve the program, it again must treat all beekeepers equally and fairly. It was pointed out that if we have programs that exclude the small beekeepers, they will be our adversaries. The same goes if we have programs that exclude the medium size beekeepers or the large beekeepers. We unanimously agreed we cannot afford to have adversaries in the honey industry. If we are to have a honey program we must work in harmony. Giant steps were made at the summit meeting to accomplish that goal.

Reported by Richard Adee

Drought Relief

The 1988 drought seems to be affecting beekeepers everywhere. The AHPA has been working closely with Senators Burdick and Melcher while they draft drought relief legislation. The first proposal gave beekeepers relief under the non-program crop category.

However, a subsequent proposal gives relief *only* on historical county averages based on production per acre. As honey production is not based on pounds per acre, beekeepers are excluded from drought relief legislation. Had we been able to stay in the program, a beekeeper would have had to have a crop which was less than *65% of the average production for the preceding 5 years excluding the high and low years*. Payments would have been 65% of the simple average price received by producers for the last five years' crops excluding the high and low years. Payments would have been on the deficiency between average production and actual production for the year.

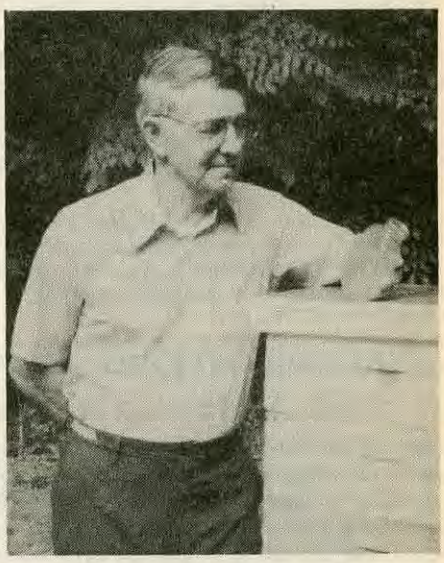
Even though beekeepers are excluded under the pending legislation, the AHPA felt if the need were there, it would make an effort to be included. However, in a quick survey of the industry, it seems that even though we have isolated cases of beekeepers experiencing nearly complete crop failure, most beekeepers feel they will make in *excess* of the 65% qualifier.

Swarm Kit Price Increased

Since the article on bait hives appeared in *Bee Culture*, Dr. Orley Taylor has changed the price of his swarm lure kit. According to his latest ad the kit now sells for $14.00 instead of $11.00 as noted.

Virginia Beekeepers Elect New President

The Virginia State Beekeepers elected Art Halstead as their new president at the annual meeting held at James Madison University, Harrisonberg, Virginia.



Art Halstead, of the Tidewater Virginia Beekeepers Association, is a long time beekeeper and was honored as Virginia's most outstanding beekeeper in 1984. He has always been active in working with the youth of the community, Boy Scouts and 4-H. He developed a Beekeeping Project Book that is used on the local 4-H level.

The next meeting of the Virginia State Beekeepers will be on November 12th in Richmond, VA. Call 1-804-786-8528 for details.

Southern States to Meet in Florida September 25-29

Mr. Paul P. Harrision was elected President for 1988-1989 at the Board of Directors meeting, Radisson Inn-Maingate, Kissimmee Fla., on April 23, 1988.

The Southern States Beekeepers Federation Executive Committee has accepted the invitation of the Radisson Inn-Maingate, 7501 West Irlo Bronson Memorial Highway, Kissimmee, Florida 32741 (Fla. Rt 192) (305-396-1400), to hold their annual meeting with them on September 25th -29th.

The management has made a very impressive concession on room rates for beekeepers who attend. Moving the daily rate from $70.00 to $44.00 with two double beds to each room. Early registrations will control the lower rate. For information contact, Dr. John Ambrose, Dept. of Entomology, NCSC, Box 7626, Raleigh, NC 27695.

. . . & Events

☆ INTERNATIONAL ☆

FOURTH INTERNATIONAL CONFERENCE ON APICULTURE IN TROPICAL CLIMATES CAIRO 6-10 NOVEMBER 1988: TRADE STANDS. The International Bee Research Association (IBRA) is convening the above conference, to be hosted by the Government of the Arab Republic of Egypt (ARE) as part of the Diamond Jubilee Celebration of the Egyptian Ministry of Agriculture. The Conference, which is the fourth in a series designed to encourage the development of beekeeping in developing countries in the tropics and subtropics, is to be held at the Egyptian International Centre for Agriculture, Cairo.

The Conference will attract delegates from all over the world — practical beekeepers, extension workers, bee research scientists and others interested in apiculture. If you would like to receive full details of trade stand facilities, please contact: Mr. El Sarki, Director General, International Organisation & Conferences Dept (FAR), Ministry of Agriculture, Dokki, Cairo, Arab Republic of Egypt.

The following are addresses for registration and information:

Non-Egyptian participants: Conference Steering Committee, International Bee Research Association, 18 North Road, Cardiff, CF1 3DY, UK. Telephone: 0222 372409/272450 (ansaphone service) Telex: 21352 monref G 8390.

Egyptian participants: The foreign Agricultural Relations, International Organisations and Conferences Dept., Ministry of Agriculture, Nadi El-Cid Street, Cairo, Egypt. Telephone: 704811 Telex: 21360 FOODAG UN.

Conference Travel Agent: Misr Travel/Egypt, 1 Talaat Harb Street, PO Box 1000, Cairo, Egypt. Cable Address Misrship. Telex: 22666/20771 Mrship UN.

Note: Egypt has its own visa arrangements which all delegates need to satisfy.

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The next **TRI-COUNTRY ANNUAL MEETING** will be held on Oct. 21-23, 1988, in the city of Oaxaca, Mexico. For more information contact: Union Nacional De Apicultores, Av. Uruguay No. 42 101, 06000 Mexico, D.F., Tels. 512 88 01 = 512 29 81 or Wagons Lits Viajes, Balderas No. 33 6o. Piso, 06000 Mexico, D.F., Tels. 512 49 68 = 518 11 80, Telex 1775839 WDANME.

☆ COLORADO ☆

REMINDER. . . The National Honey Board's second annual sales seminar will be held on August 31 in Denver, Co. A great program is planned. Contact the National Honey Board Office for registration/travel information:

The National Honey Board
9595 Nelson Rd., Box C
Longmont, CO 80501
(303) 776-2337

☆ MINNESOTA ☆

THE 1988 MINNESOTA HONEY QUEEN is 19 year old Mary Mason of Lakeville. The Daughter of Bill and

Sharon Mason, Mary will be representing Minnesota at the American Honey Queen competition in January.

☆ MASSACHUSETTS ☆

The September meeting of the **MIDDLESEX COUNTY BEEKEEPERS ASSOCIATION** is Saturday, September 24, 1988, at 2:00 p.m. at the home of Ted Shylovsky, 192 Boston Post Rd., Sudbury.

Roger and Kathy Hulgren will discuss Beekeeping through Art, Presenting Beekeeping to School Children and putting Art in Lecturing. The Hulgren's are authors of many articles that have appeared in *Gleanings*. Novices may get answers to their questions when our expert beekeepers go into the hives.

All are welcome at our meetings. Contact: Linda Boucher, 276 Salem Street, Wakefield, MA, 01880, (617) 245-8443.

☆ MISSOURI ☆

MISSOURI STATE BEEKEEPERS PRESENT AWARDS. Ms. Carol Boeckmann was presented with a plaque for beekeeper of the year for 1988 and Tappan microwave oven as a gift of appreciation from the Missouri State Beekeepers Association. Ms. Boeckmann was the editor of the newsletter for the Association for ten years and did an excellent job of holding the organization together by getting information to the members in a timely and accurate manner. While Carol claims that her husband, Henry, is the real

beekeeper, she has been of invaluable service to this organization for a decade and there are not very many beekeepers who can make that claim. Congratulations Carol.

☆ TENNESSEE ☆

TENNESSEE STATE BEEKEEPER ASSOCIATION, INC. will meet in Convention, October 20-22, 1988 at the Ramada Inn, Morristown, TN. Location is at Exit 8 on I-81. Reservations and information are available from Linda Johnson (615) 587-2400.

Schedule of events to follow next month.

☆ TEXAS ☆

BEE RESEARCHERS, APIARY INSPECTORS, AAPA TO MEET OCT. 11-14, IN WESLACO. The American Bee Research Conference, the Apiary Inspectors of America, and the American Association of Professional Apiculturists will all hold meetings in Weslaco, Texas during the week of October 11-14.

The Apiary Inspectors meeting starts the morning of October 11th and runs through October 14th. Its primary emphasis is on what affects the apiary inspectors and on the apiary inspection laws.

The American Bee Research Conference will be held on October 12th and 13th. Presentations at this meeting are limited to short research papers. Abstracts of these papers are published.

For more details concerning this meeting, please contact John Harbo, Honey Bee Breeding, Genetics and Physiology Laboratory, 1157 Ben Hur Road, Baton Rouge, LA 70820 or Joseph O. Moffett, Rt. 3, Box 1760, Cushing, OK 74023.

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QUEEN REARING, BREEDING, INSEMINATION TRAINING OFFERED IN TEXAS. On September 10 and 11, 1988, a course in "Queen Production and Bee Breeding" will be offered at the Howard Weaver Apiaries in Navasota. The instructors are Drs. Larry Connor, Beekeeping Education Service, and Anita Collins, Baton Rouge Honey-Bee Breeding and Genetics Laboratory. The course runs from 9 AM Saturday to 5 PM Sunday. Registration for the two-day program is $75.00, which includes instruction, handouts, and reference materials.

On Monday and Tuesday, September 12 and 13, 1988, Dr. Connor will offer a small-group course in the various aspects of instrumental insemination. The seminar will concentrate on aspects of queen holding, drone production and holding, semen collection, insemination, and post-insemination care and evaluation. Enrollment will be limited. The registration fee will be $225 per person, and will include instruction, handouts, reference materials, and a training video tape. Individuals who provide their own insemination equipment will earn a discount on their registration fee.

For registration and further information, contact Dr. Larry Connor, BES, P.O. Box 817, Cheshire, CT 06410. Phone 203-271-0155.

The registration and course payment deadline is Saturday, **September 3,** 1988. Participants must pre-pay by check, money order, VISA or MasterCard.

☆ OBITUARIES ☆

RUSSELL KELTY. Russell Kelty, retired Beekeeping Specialist and Assistant Professor at Michigan State University, died May 8, 1988. He was associated with Michigan State from 1919 until his retirement in 1950 when he became a full time commercial beekeeper with over 2000 colonies. During his active career he was president of the American Honey Association and a Director of the American Honey Producers League, as well as President of the Michigan Beekeeper's Association.

He wrote many beekeeping bulletins and articles while he was Specialist at Michigan State College. The most recognized was his "Seasonal Management of Commercial Apiaries" a monument to concise and accurate information about beekeeping management.

He is survived by his wife Gladys, and their four children, Russell, Jr., Donald, Douglas, and Gladys.

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GEORGE H. SONAFRANK. George H. Sonafrank, 81, of Nokesville, Va, died March 13 at his home.

For more than thirty years, Sonafrank enjoyed beekeeping as a hobby. He was a charter member of the Prince William Beekeepers Association and had recently been awarded a certificate of appreciation from the Virginia State Beekeepers Association.

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DR. RADCLYFFE B. ROBERTS of Princeton, New Jersey started his position as Assistant Professor of Entomology at Cook College, Rutgers University, on April 11, 1974. He conducted beekeeping short courses, assisted beekeepers in every possible way, and his contributions to the beekeeping industry in New Jersey will long be remembered.

In 1981, Dr. Roberts served as President of the Eastern Apicultural Society when the Short Course and 3-Day EAS Conference was held at Rutgers University.

In 1983, he took a one-year sabbatical from Rutgers University and spent the year doing research on Africanized bees in Argentina.

In the fall of 1984, he became ill but continued his duties at the College. After a long illness, our friend, Dr. Radclyffe B. Roberts died on June 20, 1988. He will be greatly missed.

Memorial services for Dr. Roberts were held on Saturday, June 25th at Trinity Episcopal Church, Princeton, NJ. May our prayers of Love and Compassion help to heal, as we also celebrate the good things shared among those who knew him well. May his Soul, Rest in Peace.

☆ Classified Corner ☆

Classified rates: 55¢ per word, each insertion payable in cash in advance. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it) counts as one word. Copy or cancellation orders **MUST** be in by the 1st of the month preceding publication (Example: January 1 for February publication). If your order has missed the cut-off date, your ad will appear in the following issue. Proof sheets available on request for an additional 2-word charge.

Send classified ads to:
The A.I. Root Co., Attention: Cyndi Stephens, Class. Ad. Mgr., P. O. Box 706, Medina, Ohio 44258-0706.
For more information call (216) 725-6677, ext. 213.

WANTED

ALMOND POLLINATION NEEDS YOUR BEES — If you can provide strong colonies, **Pollination Contracting** now arranging contracts. Offering reliable service in central CA for 1989 season. L. Hicken (209) 823-5141 or C. Carroll (209) 823-1386. (12/88)

2,000 lbs. WHITE CLOVER unfiltered honey. John Schneider, RR1, Box 51, Freeburg, IL 62243. (10/88)

WANTED: USED 8-FRAME SUPERIOR Lifetime Extractor and Related Equipment. Call (601) 767-3880. (9/88)

PROPOLIS USA, Route 8, Hayward, WI 54843 is buying hive scrapings and propolis. New suppliers please send 5-10# sample. Paying $2.00 - $6.00 per pound plus freight. Call (715) 634-4274. (TF)

BEES FOR ALMOND POLLINATION. We are interested in discussing 1989 almond pollination with beekeepers that can supply colonies of 8 frame or better strength. Contact Joe Traynor, Scientific Ag Co., P.O. Box 2144, Bakersfield, CA 93303. (805) 327-2631. (10/88)

FOR SALE

APPROX. 60 HIVES, four high with honey and more empty boxes. Call after 3 p.m. (517) 828-6866. (9/88)

TASMANIAN COMMERCIAL HONEY PRODUCTION AND EXPORT BUSINES, AUSTRALIA. Export Registered Premises, Producer of World Recognized Leatherwood Honey. An opportunity for a beekeeper to sell his own honey on the world market at attractive prices. Sale includes business and related capital assets on walk-in, walk-out basis on 1.83 ha of land. **Major Assets:** Equipment for 800, two queen hives, palletized; Mating nucs for 500 nucleus colonies; Modern extracting plant; Large storage shed, forklift, workroom, etc.; Separate wood working workshop; All necessary plant and equipment; Leases and permits for apiary sites in forests; Located in bush setting in walking distance of High School, State School, Sports Centre, Golf, etc.; Five minutes from shopping and beach areas. For further inquiries: L. van der Woude, P. O. Box 114, Penguin 7316, Tasmania, Australia. (9/88)

HOLLY QUEEN INTRODUCTION DEVICE. $11.95 postpaid. Holly Bee, P. O. Box 1863, Beaverton, OR 97075. (9/88)

75 HIVE APIARY without bees. Includes 30 frame extractor, melter and more. Best Offer. Greg, (716) 592-9417. (10/88)

BURSA-FIL BOTTLING MACHINE, Stainless steel warming oven, holding tank, honey pumps, fork lift truck, 1250 Addressograph-Multigraph Printer. Rhoda Wahl, Route 2, Box 212, Clayton, NY 13624 (315) 654-2157. (10/88)

HONEY STRAINER 8TH YEAR. Easy, practical, convenient, guaranteed. Use with bucket. Instructions. Approximately 18"x21" nylon bag. $4.00 ea. two or more $3.50 ea. Beckman G., Box 633, Stuart, FL 34995. (10/88)

HAWAII HONEY FARM complete business and home, 300 colonies at 200 lbs. yearly per each, all equipment, accounts, no predators, pest, wintering. $169,000 terms. Terry (R), Sunrise Properties, 209 Kinoole Street, Hilo, HI 96720. (9/88)

HONEY MOISTURE TESTER. Hydrometer 15-21%. $21.95 airmail. AMBROSIUS, Svanvagen 50, 83162 Ostersund, Sweden. Checks Accepted. (12/88)

SUPPLIES / EQUIPMENT

FOR TOP QUALITY BEE SUPPLIES and advice on beekeeping problems, visit your nearest Root dealer and send for your FREE 1988 Root catalog. The A. I. Root Co., P. O. Box 706, Medina, OH 44258.

COMMERCIAL QUALITY SUPERS — 9-5/8 @ $2.85, 7-5/8 @ $2.75, tops & bottoms @ $1.70. Satisfaction guaranteed. Orders less than 50 add 50¢ each. For prices or to order, write: North Idaho Woodcrafters, Box 201, Spirit Lake, ID, 83869. (8/88)

RADIAL HONEY EXTRACTORS, stainless, 5 and 10 frames, patented. Also complete line of equipment. Write or call: GAMBLE'S Bee Supply & Candle Co., (919) 299-3973 after 5 PM weekdays, anytime Sat., P. O. Box 7997, Greensboro, NC 27417. (TF)

BEES & QUEENS

WE USE ALL POSSIBLE CARE in accepting advertisements but we cannot be held responsible in case disease occurs among bees sold or if dissatisfaction occurs. We suggest that prospective buyers ask for a certificate of inspection as a matter of precaution.

GOOD QUEENS PAY! For quality and service all season long, call ALLEN'S BEE RANCH in Northern California! (916) 221-1458. (TF)

CANADIAN BREEDER QUEENS. Extremely gentle, winter hardy Italians developed by the British Columbia Honey Bee Stock Improvement Project.Breeder queens $100.00. Limited number of production queens available. Production queens $8.00 down. Powell River Queens, Fran Calvert, 5918 Fraser Street, Powell River, B. C. V8A 4T5, (604) 483-4564. (9/88)

MISCELLANEOUS

CAP/M/QUICK Encapsulator. Fills #00 and #0 capsules. 1,000 Bulk #00 capsules - $10.00 plus $2.00 shipping. Star Products, 511 Simpson Ranch Rd., Berry Creek, CA 95916. (9/88)

PROMOTIONAL IDEAS/CHRISTMAS GIFTS! Send 50¢ for pamphlets. Graphic Impressions, 1040 Wilbur Rd., Medina, OH 44256. (9/88)

FREE SAMPLES. Address labels, rubber stamps, business cards, notepads with beekeeper designs. B & W Lettershop, Box 3335, Early, TX 76803. Stamp appreciated. (9/88)

I HAVE NEW IDEAS for beekeeping. If interested, write to Arthur Harrold, 31720 Parkwood, Westland, MI 48185. (9/88)

POLLEN

CLEAN FRESH FROZEN AMERICAN BEE POLLEN, give us your needs and we will quote prices. Howard Weaver & Sons, Rt. 1, Box 24, Navasota, Texas, 77868, or phone: (409) 825-7714. (TF)

TELL US YOUR NEEDS. We will quote prices. $2.23/lb. for 11,000 lbs. CC Pollen Co. 800-345-8011. (TF)

PURE, CLEAN LOW MOISTURE POLLEN $3.90/lb PREPAID. Min. 10 lbs. **FREE UPS SHIPPING.** STAKICH BROS., INC. 1155 Vaughan, Bloomfield Hills, MI 48013 (313) 642-7023. (TF)

ROYAL JELLY

FRESH LIQUID AND POWDER ROYAL JELLY. Tell us your needs. We will quote prices. $25/lb. for liquid in quantities. $70/lb. for powder in quantities. CC Pollen Co. 800-345-8011. (TF)

BEST FRESH PURE ROYAL JELLY — 2 oz. - ***$12.00,*** 1 lb. - ***$84.00,*** 1 kilo - $154 prepaid. **FREE UPS SHIPPING.** Stakich Bros., Inc., 1155 Vaughan, Bloomfield Hills, MI 48013. (313) 642-7023. (TF)

PROPOLIS

Tell us your needs. We will quote prices. $7/lb. in quantities. CC Pollen Co. 800-345-8011. (TF)

FEEDING

SUGAR AVAILABLE for feeding. 42 and 55 Fructose now available. Granulated in bags, bins or bulk. We cover the entire U.S. St. Charles Trading Inc. 1-800-336-1333. In Missouri (314) 625-1500. Bill Heerdegen. (TF)

BOOKS & NEWSLETTERS

NEWCOMERS. Unhappy with last year's honey crop? Poor production from a package? *There IS an answer.* **A New Direction in Bee Colony Management.** Send $5.95 for this booklet to Fairfax Engineering, 295 Pumpkin Hill Rd., New Milford, CT 06776. (6/89)

BEE BOOKS, WIDE RANGE OF TITLES. Free lists from Scout Bottom Farm, Hebden Bridge, England. (TF)

THE CONNOR LETTER — FREE newsletter, catalogue, featuring new books, videos, slide sets, charts, education methods. Large inventory. Will special order titles from most USA and English publishers. IBRA STOCKLIST. BES, Box 817, Cheshire, Connecticut 06410. (TF)

HONEY FOR SALE

PREMIUM CLOVER, BUCKWHEAT, WILDFLOWER or ORANGE BLOSSOM in bottles, 60 lb. tins, 30 lb. jugs or drums. STEWART HONEYBEE PRODUCTS, 60 Council Avenue, P. O. Box 429, Wheatland, PA 16161. (412) 346-4664. (TF)

CLOVER, ALFALFA, Buckwheat, Tulip Poplar, Wildflower or Orange in 60's. Dutch Gold Honey Inc., 2220 Dutch Gold Dr., Lancaster, PA 17604. (TF)

PERIODICALS

BUSY BEEKEEPER? Easy management guide and time-saving newsletter tells what, when, why, how to do it. Marketing ideas, more. For sample copy and details, send $1 and stamp to **BETTER BEEKEEPING**, Dept. G, Box 66, Westerville, OH 43081.

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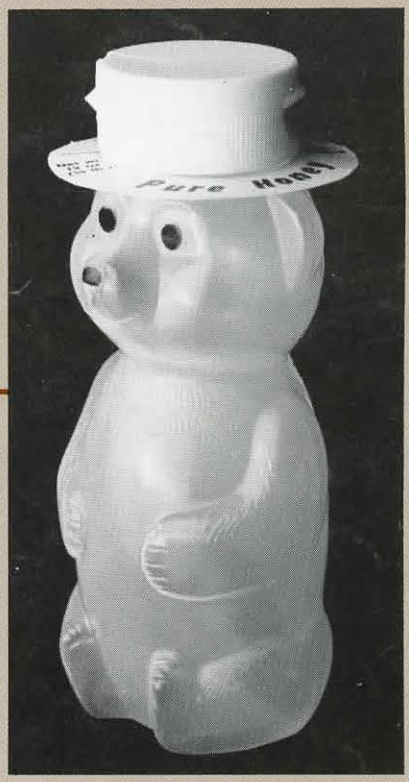

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