GLEANINGS IN BEE CULTURE

JULY '88

The Smaller Honey Producers Dream

The LIQUIDATOR
4 units in 1

- **Uncapping/Cappings Drain Tank**
- **1-Can Liquefier (60# Containers)**
- **Wax Melter**
- **175# Bottling Tank**

THE LIQUIDATOR and an extractor are the only equipment necessary to process and package your entire honey and wax crop. The LIQUIDATOR, a great companion for your Junior Bench, Little Wonder, or Ranger extractor was developed specifically for hobbyist beekeepers. Save time, labor and mess with the LIQUIDATOR. Components:

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1 - 1800 watt-120 volt immersion heater
1 - heavy stainless steel support for 60# containers
1 - 1" bottling ball valve
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1 - 14½" stainless steel spun cover
1 - wooden frame uncapping bar

(Write for brochure with full operational details)

The Liquidator — A Great Value

1 Cappings Tank — Use the tank, container support, screen and uncapping bar. Uncap directly into the tank and allow your cappings to thoroughly drain.

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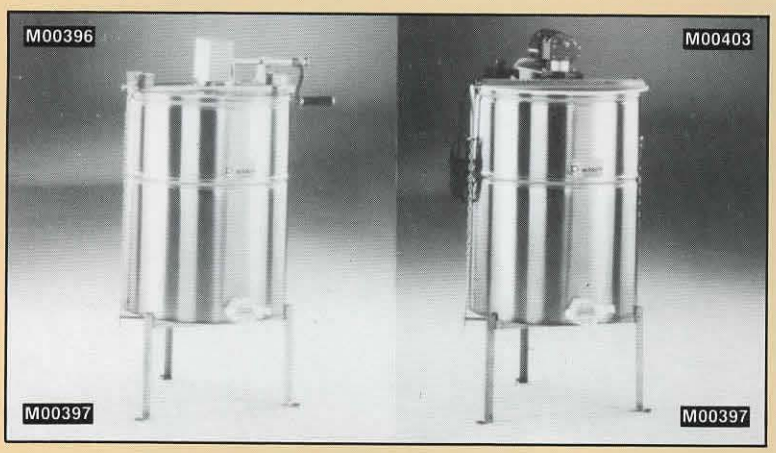
4 Bottler — Use tank and cover. 1) Pour liquid honey into tank, 2) Bottle honey through high quality 1" ball valve.

M00394 - The Liquidator - Complete, Shipping Wt. 35 lbs. _____ **$287.50**



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M00397, Stainless Steel Stand, wt. 8 lbs. _____ **$ 25.60**

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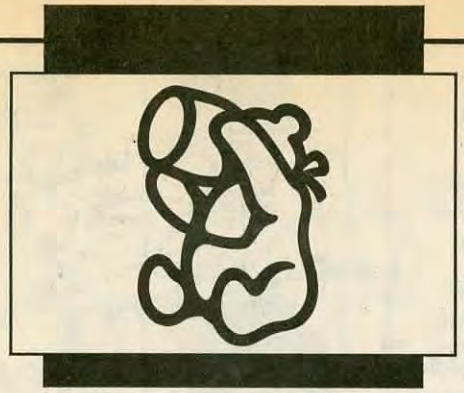

JULY, '88

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(ISSN 0017-114X) Vol. 116, No. 7

115 Years Continuous Publication by the Same Organization

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NEXT MONTH

The evolution continues. Next month, in spite of what the calendar says, is a 'New Year' for *Bee Culture*. Corporate America dictates some strange things, but August as New Years is one of the Best.

Not to be outdone, though, and in the spirit of rebirth and renewed vigor, *Bee Culture* will take on some changes, some growth, some more of the good things you've been seeing on these pages lately.

We're all excited here, and we know you'll be too when you see what's in store. So stay tuned. Don't miss the greatest change of all — Next Month, in *Bee Culture!*

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

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THE INNER COVER

Webster's Dictionary defines the verb 'market' as the action of exposing a product for sale. When I read that, all sorts of things went through my mind, all of them a play on the word 'expose'.

Open your mind a bit, and see if you agree . . .

The first thought, when thinking of marketing honey and using the word expose, would be to NOT *expose* your combs to the whole world of dirt, dust and other nasties when extracting, and certainly don't *expose* your extracted crop to the same.

Next, from the world of photography, comes the term *overexposure*. This, if you're in the same slightly perverted frame of mind as I am, could have all sorts of honey-selling definitions. Of course, you would never want to *overexpose* your honey to too much heat, which will certainly *expose* you to poor sales and make you appear in a bad light.

But overexposure has other connotations as well. Did you ever hear of a supplier who made dozens of promises to have honey available all year long, only to find himself in a bind 6 or 7 months later? He had promised more than he could deliver, and had *overexposed* himself. It was obvious, because all you got was a *blank* stare when you asked where was the honey.

One last definition, though not having much to do with marketing, was easy to come up with. It had something to do with the day I ripped my veil while checking brood nests. I certainly was *overexposed* that time.

Another photographic term that comes to mind is *underexpose*. This first occurred when buying honey at a farmers market. The seller had obviously not used a strainer. There were bees and bee parts, wax, propolis and other things floating in the jar. His crop had certainly been *underexposed* to a honey filter.

Underexposed too has other connotations. One of the best ways not to sell honey (or any other product) is to not let anybody know it is available. *Underexposure* here can be disastrous if selling your crop is necessary.

Last, but certainly not least, there's *indecent exposure*. Sticky jars, crooked and ugly labels, fermented or crystalized honey are all certainly indecent, and this *exposure* should be avoided at all costs — because it costs all of us.

But when you stop and think of it, nearly all the stupid things people do when selling honey should be considered indecent exposure.

Webster's says marketing is exposing a product for sale — keep your product, and your exposure, in top shape.Δ

COVER . . . The National Honey Board's Honeybear logo that appears on the cover of this months issue is getting ready to do some real-world marketing. They plan to use the logo as a "honeybear certification mark", similar to the Dairy Industry's "Real Seal". The honeybear logo will be offered to food manufacturers who agree to utilize NHB's Standards of Identity program.

For a food manufacturer to take advantage of the honeybear certification mark, they must meet one of two criteria. First, products whose names contain the word "honey" will be required to be formulated with honey as the predominate sweetener (over 50% of the total sweetener). Other products who merely name honey in their ingredient listing must use honey for at least 1/3 of the total formula sugar.

We believe the honeybear mark will really work. Consumers will recognize and identify the honeybear mark with high quality, naturally sweetened honey rich food products. To our knowledge, this is the first such national certification mark for honey sweetened foods.

The honeybear certification program sets minimum recommended honey content levels for manufactured foods. For *food manufacturers* wishing more information or assistance they may contact the National Honey Board Food Technology Office, telefax 415/340-8568 or write **Thomas J. Payne & Associates,** P. O. Box 281525, San Francisco, CA 94128.

JULY
Honey Report

July 1, 1988

The following figures represent current prices reported by our contributors. They are based on reports from many states and averaged for each region. Where insufficient information is received, no price is shown. The retail prices represent the price of each size jar.

Wholesale Extracted	Reporting Regions									
Sales of extracted, unprocessed honey to Packers, F.O.B. Producer. Containers Exchanged	1	2	3	4	5	6	7	8	R	A
60 lbs. (per can) White	43.50	39.85	24.10	24.00	34.75	37.07	37.25	40.50	24.00-44.00	37.01
60 lbs. (per can) Amber	42.50	35.05	21.00	21.90	29.90	33.52	36.00	39.00	21.00-43.00	33.83
55 gal. drum/lb. White	.56	.60	.42	.40	.49	.60	.60	.60	.40-.60	.55
55 gal. drum/lb. Amber	.55	.50	.41	.37	.40	.55	.55	.48	.37-.60	.50
Case lots — Wholesale										
1 lb. jar (case of 24)	28.65	24.93	23.00	23.95	24.17	24.74	25.10	25.20	23.00-28.80	25.20
2 lb. jar (case of 12)	26.95	23.33	24.49	22.75	24.93	23.82	31.15	23.99	21.00-31.15	24.93
5 lb. jar (case of 6)	30.75	25.58	23.25	23.99	24.15	24.53	25.30	25.50	23.25-31.50	25.69
Retail Honey Prices										
1/2 lb.	.93	1.06	.80	.85	.85	.86	.91	.99	.80-1.29	.92
12 oz. Squeeze Bottle	1.45	1.30	1.19	1.29	1.33	1.26	1.09	1.39	1.09-1.50	1.30
1 lb.	1.55	1.58	1.29	1.55	1.44	1.54	1.50	1.49	1.29-1.75	1.52
2 lb.	2.77	2.63	2.69	2.75	2.79	2.68	2.84	—	2.39-2.89	2.71
2-1/2 lb.	3.35	3.50	3.39	3.44	3.40	3.28	3.71	3.39	3.15-3.71	3.43
3 lb.	4.10	4.08	3.50	3.15	3.77	3.87	3.50	3.75	3.15-4.40	3.82
4 lb.	5.20	4.58	4.25	4.49	4.79	4.53	4.49	4.79	4.25-5.40	4.67
5 lb.	6.30	5.52	5.44	5.75	5.61	5.40	5.74	5.50	5.25-6.60	5.64
1 lb. Creamed	1.75	1.49	1.39	1.55	1.61	1.56	1.66	1.35	1.35-1.75	1.57
1 lb. Comb	2.37	1.85	2.95	2.25	1.95	1.95	2.69	2.25	1.85-2.95	2.18
Round Plastic Comb	2.00	1.99	1.75	1.85	1.77	1.86	1.89	1.80	1.75-2.25	1.87
Beeswax (Light)	1.05	.97	.95	1.10	.99	.82	.95	1.21	.75-1.20	.97
Beeswax (Dark)	.92	.86	.85	1.05	.88	.73	.85	1.00	.70-1.05	.87
Pollination (Avg/Col)	27.50	19.00	—	27.50	20.00	19.00	23.00	26.00	19.00-30.00	23.17

Honey Report Graph Features

On the far right hand side you will see two different columns. The first, labeled "R", is the price range of prices reported from all contributors — lowest to highest. The second column, labeled "A", is the average price of a particular commodity across all regions. Example: the range in price of a 1 pound jar of honey sold retail is $1.29 - $1.75 and the average price across the country is $1.52.

In the comments section you will see a figure called the "Price Index". This figure is only a descriptive statistic that compares **ALL** regions to the highest region of the month.

Example: Region 1 has a price index of 1.00 this month and remaining regions are compared to that index.

Region 1.

Price Index 1.00. Prices steady to increasing, sales steady to slow. Colonies in good shape generally after build-up and pollination chores. Adequate, but barely adequate, moisture for summer crops.

Region 2.

Price Index .87. Prices steady, sales beginning to increase, anticipating early crops. Spring flows generally good, with weather cooperating. Some areas cool and rainy, but generally warm, with adequate moisture. Tulip and locust flows excellent.

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

Region 3.

Price Index .71. Sales and prices steady with no great action in any area. Movement strong with quarantine removal, but mites not a significant problem this time of year.

Region 4.

Price Index .71. Prices steady but low and sales stagnant. Drought becoming evident and could be disastrous if adequate rain does not come. Some areas in danger while others are threatened but getting by.

Region 5.

Price Index .82. Prices increasing a bit, sales steady. Drought very evident and may be too late to produce an adequate crop in many areas (as of June 1).

Region 6.

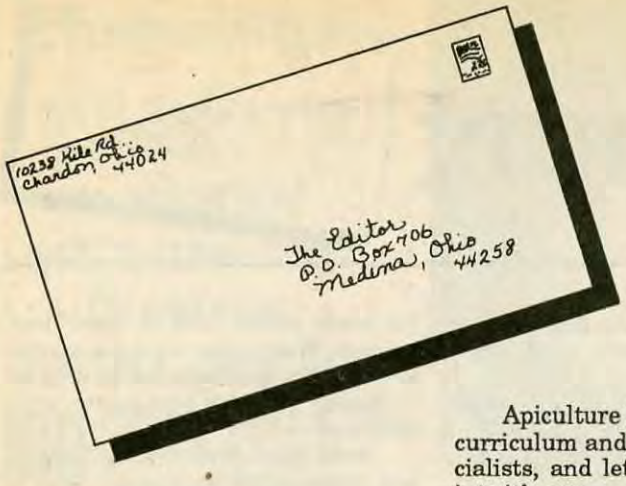
Price Index .85. Sales slow, prices steady but beginning to drop a bit. Drought is significant in most areas with strong concerns of total crop failure in some areas. There are spots that have good moisture. African bee stories in the media becoming frequent, with very little constructive information being passed on. Local hotspots of conflict (beekeeper vs. beekeeper) regarding AFB becoming newsworthy!

Region 7.

Price Index .91. Sales steady, prices beginning to increase just a bit. Dry in most areas and if it continues, will seriously threaten crop. Summer crops starting well.

Region 8.

Price Index .94. Prices strong and sales steady. Basically, a very confused area. Honey production great or terrible. Bees and queens a shambles for shipping. Great or terrible weather. Pollination steady, and summer crops on time.



MAILBOX

Loco Beekeeper?

A couple of years ago I met a beekeeper in the foothills of California. He had several hives located in a large patch of loco weed. He offered me a taste of the pollen and nectar, which I declined. Since he introduced himself as Mr. "B", I was wondering if Dr. Beebe might be one and the same?

Signed
I thought so!

Bee Mastering

Most Apiculture courses taught at the college level are in control of entomology departments. This is like having poultry science taught by ornithologists, or beef production by zoologists.

Most universities suffer from the "NIH" syndrome (not invented here). If other sources develop knowledge, skills or techniques, they are seldom acknowledged. This should not be the case. All universities should be corroborating information rather than ignoring the works of others.

If apiculture, as a study onto itself was taught, students could chose to become beekeepers, but also breeders (genetics), marketers (sales, packaging, advertising, writing), and products developers (expanding by-product development).

Apiculture MUST HAVE it's own curriculum and degrees, it's own specialists, and let bee mastering come into it's own.

Name withheld by request

Send Us Your T-Shirts!

Our bee club in Northern California (100 members) would like to add to our collection of bee club t-shirts from elsewhere in the United States. We have a small collection presently and would like to expand it.

If you have a t-shirt available, please inform me of the price (including postage) and mailing address and I will send a check promptly. Thank you.

Mike Gnau
1267 Matanzas Way
Santa Rosa, CA 95405-6952

Bee-ing A Carpenter

Recently I designed and built a 'bee-corral' to contain the honey bees that I plan on rounding up.

I'm female and definitely not a carpenter so it took me several days to build the structure (it's actually to keep my cows out) and also several days to build the bee equipment. The problem I had was that I didn't know the terminology 'wedge'. To find out about a wedge I had to phone the local agriculture department and speak to the bee inspector.

I now know that a wedge is part of a frame . . . I thought it was a tool! I did say that I'm not a carpenter.

Karen J. Goodwin
5020 Ranchland Road
Melbourne, FL 32935

Appalachian Honey Plants

I thought this was a very good article in the May issue of *Bee Culture*. I do not wish to appear to be making disparaging remarks about the Appalachian area as it is one my favorites, however, I take issue with the statement that the Appalachian region has a diversity of plants unmatched in the U.S.

Before anyone makes such a statement, he should look into the "Big Thicket" area of East Texas. The magazine *Natural History* called our area the botanical meeting-ground of North America. I have read that there are thousands of species of plants there that have never been classified yet. I would rate the Big Thicket second to nowhere.

B. A. Burns
14430 Sequoia Bend
Houston, TX 77032

Laying Workers

I had a double brood box hive that went queenless and had laying workers. This is how I fixed it.

I smoked all the bees out of the top box and put a queen excluder between the two. Then I borrowed a frame of brood with eggs and hatching larvae from another hive. I caged a queen and put her with the frame of eggs and larvae in the middle of the top box. The idea is to get the bees to think this is the queen that laid those eggs so they will accept her. I put the hive back together and did not check it for a week. When I did, I only checked to see if the queen was out and possibly laying in some of the empty frames. It worked!!! She ran out and was doing fine. One month later I removed the excluder. I've checked the hive several times since then and it continues to thrive.

David Richardson
701 Gaza Rd.
Fayetteville, GA 30214

MAILBOX

Restrict Moving Bees

We all feel bad that everyone can't move bees as usual, but beekeepers from non mite infested areas have the right to protect their operations. Most beekeepers don't want mites trucked into their area. Most large operators are very caring people. It's too bad that a few bad apples have caused so many problems.

Future trade with you and your business may depend on how we "all" handle our problems in these days of change. In the future, as before, beekeepers will trade with people who treated them right. If you don't show concern now, they won't need you later.

Menthol and Fluvalinate help control mites but they are not 100% effective. Less than 100% control is not good enough for moving bees to non mite infested areas. Can these chemicals contaminate honey? We are told they can. We are also told that we can live with the mites. We can live better without them. The people who wish to move bees, non-infested or infested, pay more attention to what is going on, and their voices are heard more than the voices of the 'stay at home' beekeepers. Most mites were not spread by natural migration but were trucked to distant areas by beekeepers or in mail trucks.

It still goes on now, just count the new infestations each year. Who is being protected now? Where will the protection come from in the future? It is hoped it won't be left in the hands of outlaws. It is also hoped that honest, hard-working beekeepers won't be forced to become outlaws in order to continue beekeeping.

N. E. Farmer
Bristol, CT

Book Review

A Hive of Bees, by John Crompton, Nick Lyons Books, 31 West 21 Street, New York, Ny 10010, 180 pp. $8.95 paper ISBN 0-941130-50-9

by Derrick Jensen

At least since the invention of writing, moralists have been using the page to tell us that we should be more like the honey bee. We should be more industrious, they say. We should, like her, wear out our wings serving our sisters, and crawl away to die when we are no longer able to work.

But as any beekeeper knows, these moralists miss the point by a long shot. We shouldn't study bees to become more like them. If we're going to give them human traits, we may as well have some fun while we're at it. And that's exactly what John Crompton has done with his book, *A Hive of Bees.*

Originally published in 1958, this book has recently been rereleased by Nick Lyons Books as part of a series of Natural History works by John Crompton, the least apologetic and most whimsical of the insect anthropomorphizers.

A Hive of Bees isn't a handbook of apiculture. Instead it is the story of his life with bees, and the spell they cast over their keeper. He started off as many future beekeepers do, by being scared of the tiny creatures and not wanting anything to do with them. As he says, "Not everyone wishes to see a hive of bees opened up, and when the offer is made most people remember they are late for some appointment." Only later did he grow to love them, and he describes what they did to his life. "Rarely has the acquisition of a hive of bees had such a drastic effect as in my case. It made me neglect my work, drop my studies, leave the garden to its weedy fate, arrive late for meals, and, worst of all, resulted later in this book."

But the book is more than just his story, or mere anthropomorphism. It is solid science put forth in a bed of irony and humor. It provides plentiful information about honey bees and their cousins the bumblebees, and more importantly, a sense of compassion and understanding toward them. While discovering the fate of a failing queen, for example, we get to peek into her mind, or to come as close to doing that as is possible with a creature so alien.

He makes us care, and he sparks an awareness of the mysteries of these tiny creatures. Most important of all, though, he gives us a taste of the sense of awe, of pure satisfaction, which comes from lying on a hillside listening to the workings of the honey bees. Their soothing hum removes a thousand years from the age of man, and lets him know that all is well with God and nature.Δ

Derrick Jensen keeps bees, sells beekeeping equipment and writes book reviews in Spirit Lake, Idaho.

Book Review

*Bees And Their Keepers,*by Richard F. Trump, 171 pp. Ames, Iowa: Iowa State University Press, 1987, $17.95.

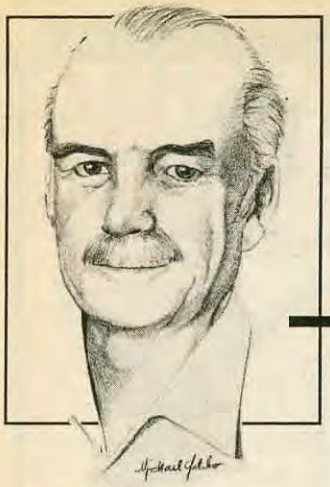
by Richard Taylor

The author is a biology teacher, and the reader gets the impression that he must be a very fine teacher indeed. The flavor of stimulating classroom discussion, of probing questions and intellectual excitement, comes across through the pages of this book. Mr. Trump is also a beekeeper of long standing who from time to time teaches apiculture in the entomology department of Iowa State University. His writing roams all over the subject of honey bees, through history, bee biology, practical beekeeping, and many engaging anecdotes concerning the beekeepers he has known. The book thus makes for delightful reading, whether by beekeepers or those outside the craft. It is a book for any lover of nature. It is not a manual of beekeeping. There are no chapters on spring management, harvesting the crop and that sort of thing. It is instead an excursion into the author's vast knowledge of his subject, and one gets a taste of the excitement of learning these things. He writes in a discursive, sometimes rambling style, not unlike what one would find in an exciting classroom presentation.

Even old hands at beekeeping will learn quite a lot from this fine book. One thing I learned, to my surprise, is that people seem to have no preference, in terms of flavor, for unheated honey. At least that conclusion seemed to emerge from Mr.Trump's several experiments with honey tasters of various ages. And old hands will also get from Mr. Trump's reflections a renewed sense of some of the mysteries of bee biology.Δ

Did You Know . . .

. . . that SSBF stands for the Southern States Beekeepers Federation? . . . that this group, calling itself the oldest such in the nation, meets annually? . . . that, for example, it held its 57th Annual Convention in Savannah, GA, Nov. 10-13, 1985? . . . that 175 bee lovers from 17 states and 3 foreign countries buzzed in to enjoy that famous Southern hospitality? . . . that member states Alabama, Arkansas, Kentucky, Mississippi, Missouri and New Mexico had gone into the winter cluster so early as to have missed the meeting? . . . that the oldest(?) member in attendance was septuagenarian Ralph Wadlow, Ft. Myers, who joined the group in 1927? . . . that the federation is greatly held together by its dynamic president Stephen Taylor Forrest of Brushy Mt. Bee Farms, capably assisted by spouse Sandy, Moravian Falls, NC and by its veritable beeglue secretary-treasurer Dr. John T. Ambrose, Raleigh, NC, plus a swarm of fellow indispensable Tar Heelers? Well, now you know.



THE BEE SPECIALIST

ELBERT R. JAYCOX • 5775 Jornada Road North • Las Cruces, NM 88001

"Interaction in World Honey Markets"

If you think that the United States is alone in its honey marketing problems, consider the plight of New Zealand beekeepers. Murray Reid reviewed the current problems of honey marketing in New Zealand and world-wide in his *Waikato Bee Notes* from Hamilton, New Zealand.

Since the honey buyback program began in the United States, our honey imports have dropped by 54 percent. Reid says this "subsidy", which it is, allows American honey into European markets at very competitive prices. These force the Canadians, Chinese, Mexicans, and Argentinians, the biggest world exporters, to lower their prices, leaving New Zealand out in the cold. Australian exports to the United States are also down a whopping 88 percent.

Because of their loss of much of the U. S. market, Canadian honey exporters have diverted their honey to West Germany and Japan, the two biggest markets for New Zealand honey. New Zealand beekeepers had hoped to diversify by selling a large number of package bees to Canada, but the depressed Canadian honey market has reduced the sale of such bees. As if those weren't enough problems for New Zealanders, they have also been accused (falsely, it seems) of dumping honey into the Australian market.

Reid sees an increase in prices for honeys from named floral sources and for honeydew. Ling heather, bugloss, thyme, manuka, and pohutukawa are among the New Zealand sources that can bring more returns if they are kept separate during harvesting and extracting. "Mixed floral sources" are not nearly as appealing to the consumer as named types of honey with distinctive flavors. We need to keep this in mind also in this country.

Figure 1.

Figure 2.

National Honey-Testing

Honey marketing is being further complicated by the need to keep any contaminated or adulterated honey off the market. A recent example is the concern in Canada and the United States about residues of sulfathiazole in honey. The amounts involved were minute, and claims have been made that the actions taken related more to trade barriers than to human health. But with a zero tolerance in the U. S., honey containing measurable residue is unacceptable, and laboratories had to be set up in Canada to provide certification of freedom from sulfa.

Treatments for parasitic mites are increasing the need for honey testing. High levels of the insecticide Galecron (chlordimeform) in Chinese honey have increased the testing of imported honeys in Europe this year. Murray Reid reported that there are rumors of 15,000 tons of Chinese honey in Europe either unfit for sale or under test. Such problems are certain to increase testing and requirements for certification of our honey as free of contaminants.

Honey tests are specialized and expensive, and not readily available to all producers. We may need to consider the establishment of large private or federal honey laboratories if the need increases as expected. New Zealand has established a nation-wide honey testing service in Auckland, where beekeepers and packers may send samples for analysis. Prices range from as little as $NZ 2.75, for checking the floral source or flavor class, to $NZ 164.56 for testing the apparent sucrose content.

If New Zealand sees the need for such service, we will probably need a similar one soon to remain competitive in world markets and to meet the requirements of foreign importers for certification of honey quality.

Marketing in Mexico

On a recent trip to Mexico, I saw many similarities to the marketing of honey in the United States. In the supermarkets and ordinary stores, the honey was nicely bottled with attractive labels. Some bottles had shrink-plastic bands around the caps to prevent customers from opening them. Perhaps you have felt a little sneaky, as I have, when you opened a jar of orange honey to see if it really smelled like orange honey. In an open air market in Zacatecas, I saw a woman stick her finger in a jar to sample the honey. The general use of plastic seals around the lids would prevent any such tasting and tampering with honey on the shelves. Or we could use paper bands which are used commonly in Germany for protection but also to identify the source of the honey: either from German beekeepers or imported, as shown in Fig. 1.

Honey in the open air markets and in other places in Mexico can be hard to identify. In one case, (Fig. 2), I saw it outside a shop in a dark passage-way packed in lightweight polyethylene bags; in others, it was in baby-food jars and brandy bottles — not much different from our flea markets. I asked one man if the product in the jars he was selling was honey. "No, stove cleaner," he replied.

The word "miel" in Spanish is supposed to mean honey, but it is used also for syrups such as Karo. Only if it is "miel de abejas", honey from bees, will you get true honey. In Zacatecas, Mexico, vendors riding burros had big pottery jugs closed with rolled up agave leaves. When I asked what was in them, they replied "agua de miel" or honey water. But honey is not involved — it is a fermented drink made from the agave plant called maguey.

I visited a friend who raises queens in Cuernavaca. He showed me a large shipment ready to go to Chihuahua, but delayed because of the strike and bankruptcy of the airline, Aeromexico. The cages were covered with light-colored screen which made it almost impossible to see inside. When I asked why he used the light screen, he smiled and said it was so that people can't see how poor the queens are. I feel sure that black screen costs more or is not as readily available. This is the same man who told me he didn't feel well one day in Las Cruces, NM, because he missed the microbes in the water.

The Rolling Honey Jar

In the March issue of *Imkerfreund,* a unique honey advertisement and sales booth is illustrated and described. It is a trailer in the shape of a large honey jar, about twice as high as the car that pulls it. Equipped with a hitch, bumper, and tail lights, it can be used in parades or simply as a moving ad when it is towed behind a vehicle.

When parked, the "honey jar" can be stabilized, windows and doors opened, and it is a neat sales stand for dispensing honey and other beekeeping products. It is made of fiberglass-reinforced plastic. Inside there is a counter, shelves for honey containers, a sink, heating, and electrical connections. It is 3.5 meters high (11.5 feet), 2.25 meters wide (7.4 feet), and weighs only 650 kg (1430 lb) empty. It was built by G. Heymann of Altenstadt an der Waldnaab, West Germany. If you want details, I will try to get them for you by contacting him through the magazine *Imkerfreund* published in Munich, West Germany.Δ

American Foulbrood

DR. JAMES TEW • The Agricultural Technical Institute • Wooster, OH 44691

"A Cause and Treatment Overview of this Bee Killer"

American Foulbrood is found worldwide. Even after years of research, it is still a major cause of colony deaths. In fact, much is still not understood concerning American Foulbrood disease (AFB). The most efficient method of containing the disease is colony destruction, a drastic, if not controversial, control technique. Informed beekeepers rightfully have a great respect for the disease and frequently react forcefully, sometimes even approaching superstition. Inestimable numbers of colonies that have died or have been destroyed by AFB control programs support the concern expressed by beekeepers, researchers and regulatory personnel; however, the disease is not bacterially unique. It is not without some vulnerability. It responds to antibiotic control agents and is not always successful in its efforts to infect a colony.

Etiology — The Cause

The disease is caused by a bacterium, *Bacillus larvae*, that is rod-shaped, flagellated and is Gram-positive (Bailey, 1981). The bacterium produces great numbers of spores that are infective for many years. Haseman (1961) reported on spores that were still infective *after 35 years*. The spores are the characteristic that make AFB such a problem for beekeepers. They are resistant to heat, desiccation, and chemical disinfectants.

Dispersal

Bees that are drifting from one colony to another can be a source of newly introduced spores, but this is probably not a major source. Another, and more serious route is robber bees taking honey from a dead (or dying) infected hive. Honey that immediately surrounds an infected brood nest is contaminated with spores sufficient to start the disease in other colonies. Honey apart from the brood nest may be clean, but the risk is too great for a beekeeper to re-feed honey to uninfected colonies.

Infection

American Foulbrood disease is not expressed in adult bees. Only brood can be infected — specifically, only very young larvae. Larvae one day old or less are the most susceptible and can be inoculated with 10 spores or less (Bailey, 1981) (Bucher, 1958, reported, however, 35 spores/larvae sufficient to cause infection). Larvae only a few hours older, approaching two days, may require millions of spores to show the same infection as a younger larvae that required only 10-35 spores. Bamrick (1964, 1967) was able to show that the larval gut environment becomes unsuitable for spore germination as the larvae ages. The reason for the older larval gut changing is still not fully understood.

Spores germinate when entering the susceptible larval gut and produce the vegetative stage of *Bacillus larvae* — the rods. The vegetative stage is mobile and migrates to and penetrates the gut lining, where they multiply profusely in the hemolymph (blood) of the larvae. The infected larvae dies quickly, probably from blood poisoning, and bacterial sporulation occurs (Bamrick, 1964). An estimated *2500 million* spores are produced in one dead larvae (Sturtevant, 1932). Bailey (1981) stated that older larvae may be less infective because the vegetative stage (rods) was voided with feces before it had a chance to migrate to the gut wall.

Appearance

Larvae usually die in the prepupal stage — elongated in the cell, though some may even be capped. As the larvae decompose, tissue fluids are absorbed by the wax and give the cappings an oily appearance. All larvae don't die, so consequently a frame will have a scattered brood pattern, consisting of healthy, diseased and dead larvae. Beekeepers sometimes call this a "shotgun" brood pattern. Infected larvae change from a pure white to progressively darkening stages of brown. A decomposing larvae will pass through a degradation stage where its' tissues are stringy — frequently called the *ropy stage*. During this phase, a beekeeper can put a twig in the decomposing larvae and "rope" a thread of tissue about 1 inch out of the cell. Other brood diseases will not pull out that far. After 3 - 5 weeks, the body tissues have dried out and only the larval skin remains. The skin, contaminated with millions of spores, sticks tightly to the bottom wall of the cell and is called a "scale". Frequently, the developing bee that died from AFB had begun to develop its tongue. After death, the tongue will be seen protruding upward in the cell. If one allows sunlight to come over one's shoulder, the black, oily scales, with occasional tongues showing, are clearly visible within the darkened cells. Also, cleaning behavior by bees results in some cells being torn open to remove the larval residue. These opening are irregularly shaped and look different from the normal hole that briefly exists as bees cap healthy larvae.

•AFB Characteristics

1. Scattered Brood Pattern
2. Comb has oily, darkened appearance
3. Occasional larval tongues protruding upward
4. Occasional larval remains will string one inch from cell when punctured with a twig
5. Dark, rubbery, larval scales clinging to the bottom of cell
6. Sunken cappings, frequently have irregular openings torn in cell cap

7. Comb has sour odor

Resistance

All colonies subjected to AFB inoculum do not become infected. Rothenbuhler (1967) described three pathways that a colony would follow when AFB disease develops in a hive. **(1)** The colony becomes infected, suffers severe population loss and dies. **(2)** Infected larvae are removed from the colony and remaining spores are finally voided from the hive, bringing the colony back to a healthy condition. **(3)** Infected larvae remain in the hive for weeks — even months. Genetic and environmental factors will determine if the colony becomes diseased or recovers.

Colonies that do not become infected have some kind of AFB resistance mechanism that protects them to a greater or lesser degree. Rothenbuhler (1964) was able to show that resistant lines of bees cleaned out diseased material quickly. Susceptible bees did not. Resistant bees ingested contaminated inoculum if the larval remains could not be removed wholly. Passing the spores through the house bee's alimentary canal scattered spores and, in most cases, removed spores from the hive in voided fecal matter.

Sturtevant and Revel (1953) demonstrated that a valve (proventricular) located just behind the honey stomach (crop) was able to filter pollen, debris, and AFB spores from the crop contents. The valve was able to remove up to 79% of spores from contaminated syrup fed to bees. Obviously, the more efficient the valve operated, the more resistant the bees were.

Rose (1965) reported results showing that brood food from younger nurse bees inhibited spore germination and reduced the viability of the vegetative stage of Bacillus larvae. The conclusion was that brood food from some nurse bees in specific colonies had bactericidal properties.

Rothenbuhler (1956) also showed that larvae from selected colonies were more resistant than larvae from other colonies. Again, the question of larval gut environment was at question.

• Mechanisms For Resistance

1. The function of the proventricular valve
2. Quick removal of diseased larvae
3. Bactericidal larval food
4. Gut environment

Control

Through the years, many control procedures have been recommended and many have been recanted. The method that has long been the most effective (and the most severe) is burning contaminated parts of the hive and destroying the brood and adult population. Even though AFB is not as infectious as most beekeepers think, it still is a disease to be respected. When discovering an infected colony, some beekeepers will emotionally commit their time to ridding the colony of its scourge. In some cases, most of them rare, it can be done. But what frequently happens is that the beekeeper soon realizes how much time and effort is demanded to remove the pathogen. The dependable use antibiotics — long term — is *absolutely necessary.*

In many cases the initial commitment to disease containment/eradication fades. Then the remainder of the operation, plus the operation of other beekeepers is jeopardized and the disease spreads. In most cases, burning is the safest way to go.

The only antibiotic approved for bee hive use is oxytetracycline HCL (Terramycin). The material most commonly available is "Terramycin Soluble Powder" packed in 6.4 oz packages. Each pound of this material contains 25g of antibiotic so each 6.4 oz package contains 10g of antibiotic. The dusting directions indicate that 1 level teaspoon of Terramycin Soluble Powder (1/8 oz) should be mixed with 1 oz. of powdered sugar. One ounce of this powdered sugar mixture should be applied to outer parts or ends of the colony's brood next — *never directly on the brood.* If one wishes to mix the entire 6.4 oz package with an appropriate amount of sugar, three pounds of powdered sugar should be used. If possible, use powdered sugar that does not have corn starch added, but this is difficult to find.

Terramycin dustings are used as a preventative and will not clear up an established AFB infection. Dustings (3 - 1 oz. applications at 4 - 5 day intervals) should be stopped *4 weeks before the main honey flow.* It is possible to feed terramycin in liquid form to bees, but I suggest that anyone wishing to do this correspond with a beekeeping authority beforehand.

Ethylene oxide fumigation chambers are effective in destroying AFB spores in contaminated equipment; however, there have been recent health concerns about the use of this gas and its future seems uncertain. Several states have fumigation units, but they are not widely available.

Conclusion

American Foulbrood is a dreaded, but not unmanageable bee disease. There is no shame in having a colony become infected with AFB. There *is* shame in not recognizing it and spreading it across one's bee operation. The spore forming bacteria are persistent, but is not a super organism that has no control. Know it when you see it, deal with it immediately and know where to get help and advice.Δ

References

Bailey, Leslie 1981. *Honey Bee Pathology.* Academic Press, New York. 124 Pages

Bucher, G.E. 1958. *General summary and review of utilization of disease to control insects.* Proceedings of the Tenth International Congress of Entomology 4:695-701

Bamrick, J.F. 1964. *Resistance to American Foulbrood in honey bees. V. Comparative pathogenesis in resistant and susceptible larvae.* J. of Insect Physiology 6:284-304

Haseman, L. 1961. *How long can spores of American foulbrood live?* Amer Bee J. 101:298-299

Sturtevant, A.P. and I.L. Revell. 1953. *Reduction of* Bacillus larvae *spores in liquid food of honey bees by action of the honey stopper, and its relation to the development of American foulbrood.* J. Econ Entomol 46:855-860

Rose, R.I. 1965. *Effects of Honey Bee larval food on the growth and viability of* Bacillus larvae. White, M.S. Thesis. The Ohio State University

Rothenbuhler, W.C. 1964. *Behavior genetics of nest cleaning in honey bees. I. Responses of four inbred lines to disease-killed brood.* Animal Behavior 12: 578-583.

Rothenbuhler, W. C. 1967. *Genetic and evolutionary considerations of social behavior of honey bees and some related insects.* In Hirsch, Jerry (ed), Behavior-Genetics Analysis. McGraw-Hill Book Co., New York

Rothenbuhler, W. C. and V.C. Thompson. 1956. *Resistance to American foulbrood in honey bees. I. Differential survival of larvae of different genetic lines.* J. Econ Entomol 49:470-475

Testing Your Beekeeping Knowledge

By CLARENCE H. COLLISON
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Honey production is related to many different factors associated with apiary location, colony strength, floral sources, and the weather. The beekeeper has some control over the factors that regulate colony development and is always searching for the ideal apiary location. Unfortunately, the environment has a greater influence on honey production than the beekeeper. In some instances, man may even jeopardize the chances of colony survival, since many decisions are often made for the convenience of the beekeeper rather than the welfare of the colony.

Please take a few minutes and answer the following questions to determine how well you understand the factors that regulate foraging behavior and honey production. 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. ___ Foragers from a hive normally forage at the nearest, most profitable floral sources.
2. ___ White sweet clover typically blooms prior to yellow sweet clover.
3. ___ Pollen collectors normally make less foraging trips per day in comparison to those collecting nectar.
4. ___ The size of nectar and pollen loads collected tend to increase with the environmental temperature.

Multiple Choice Question (1 point)

5.. ___ The foraging population of a colony is composed of scouts and workers that collect nectar and pollen. The proportion of the foraging population that searches for new food sources (scouts) is approximately: A) 20% B) 1% C) 15% D) 10% E) 5%

Listed below are several important floral sources in the United States. Please match each floral source with the correct characteristic or response. (Each correct answer is worth 1 point).

A) Buckwheat B) Purple loosestrife
C) Alfalfa D) Basswood E) Cotton
F) Aster G) Rhododendron
H) Tulip poplar

6. ___ An extremely large tree that produces large quantities of amber honey.
7. ___ Floral source sometimes known as linden or lime.
8. ___ Crop that produces a thick, strong flavored honey that is dark amber in color.
9. ___ Reported to produce poisonous or toxic nectar.
10. ___ Tends to yield nectar best after the first frost and in many northern areas it is the last floral source to provide nectar before winter sets in.
11. ___ Floral source sometimes known as lucerne.
12. ___ The plant grows profusely in wet swampy areas and produces honey that is dark greenish in color.
13. ___ Floral source with nectaries located outside of the flower (extra- floral nectaries).
14. Name three characteristics associated with a plant's nectar supply that affect foraging behavior. (3 points).

    _____

    _____

    _____

15. Name four factors that will affect the size of honey bees' foraging area. (4 points).

    _____

    _____

    _____

EXTRA CREDIT QUESTIONS

16. ___ Honey bees are able to distinguish between sugar concentrations as small as:
    A) 2.5% B) 5.0% C) 7.5%
    D) 10.0% E) 12.5%
17. ___ The average size of a nectar load carried by a forager is: A) 20 mg B) 60 mg C) 50 mg D) 30 mg E) 40 mg
18. ___ The average size of a pollen load carried by a forager is: A) 5 mg B) 15 mg C) 25 mg
    D) 10 mg E) 20 mg
19. ___ A chemical isolated from pollen and found to be attractive to the honey bee is:
    A) 10-hydroxy-2- decenoic acid B) Octadeca-trans-2,cis-9,cis-12-trienoic acid C) isopentyl acetate D) 9 oxo-2-decenoic acid E) Citral

ANSWERS ON PAGE 418

HONEY — WHAT'S

For the last several years, the sales of honey for home consumption have been declining at an alarming rate, particularly in U.S. supermarkets, which account for 76% of the domestically sold honey. Statistics accumulated by *Progressive Grocer Magazine* and reported in it's annual survey of supermarket sales results indicate that the sales of honey in supermarkets have gone from $132.53 million dollars in 1981 to $104.91 million dollars in 1986. **A decrease of over 20%.**

This condition is obviously of great concern to honey producers, processors and distributors. So, to find out why there had been such a drastic decline, we needed to answer two basic questions:

1. What were the possible causes for the decline of honey sales in supermarkets; and
2. What recommendations could we make that would reverse this negative trend in retail honey sales.

To find out some of the possible causes for the decline in honey sales at the retail level, we needed to study two basic areas:

1. Consumer Demographics. We developed a profile of honey users and non-users; and,
2. Retail Distribution. We developed a profile of various merchandising efforts at the retail store level.

To do this, we used the following methods. The consumer demographic research was conducted by mail. A total of 450 surveys were sent to randomly-selected Ohio consumers. A total of 151 responses were received for a return of 33.5%.

The retail distribution study was performed by personally visiting 75 supermarkets throughout the State of Ohio. In addition, 25 other *potential* outlets for honey such as department stores, discount stores, drug stores, and convenience stores, were visited.

Certain conclusions can be drawn from the results of the consumer demographic study and the retail distribution study that have been completed.

A majority of the the population of Ohio uses honey; however, they use honey on an infrequent basis. 68.9% of those surveyed use honey; however, only 12.7% indicated they use honey on a daily basis. 50.0% of those surveyed indicated they only use honey on a monthly basis. National Honey Board statistics indicate about 34.9% of the total U.S. population lives in homes where honey was purchased this year.

Ohio honey users use other sweeteners in addition to honey and prefer sugar as a sweetener. 53.8% of the respondents indicated that sugar was their preferred choice as a sweetener. Only 26.0% indicated that honey was their first choice. An additional 20.2% indicated that they prefer artificial sweeteners.

The preferred usage for honey by Ohio consumers is as a sweetener and/or in cooking and baking. 47.8% of those surveyed prefer to use honey in this fashion. 34.8% indicated they used honey as a spread.

Ohio honey users purchase most of the honey they use from supermarkets. 71.9% indicated they purchase honey in supermarkets. 13.3% indicated they purchase honey from private growers/packers. 10.7% indicated health food stores were their source of supply.

A majority of Ohio honey users live in the city (57.7%), are female (57.7%), have a college

Don't Rule Out Value-Added Products

Trying To Increase Exports?

America exports more raw apicultural commodities than any other kind of product. But when it comes to improving the agricultural economy, the country's third-leading category of exports could be the key, says an agricultural economist at Ohio State University.

Value-added products may be the most often overlooked part of the agricultural trade picture, Dennis Henderson says. Only 4% of all U.S. product exports are semi-processed and processed agricultural products or manufactured foods. However, basic farm commodities are about 8% of the country's export total.

Henderson says value-added products account for only 25 to 30% of the value of America's exports of agricultural products. That's a good deal different from the global view of trade, he says. About 60% of the world's agricultural trade is in value-added products.

Less than 4% of value-added agricultural products produced in the United States are exported, because most are consumed domestically. In contrast, exports of basic agricultural commodities account for about 20% of total production, Henderson says.

The big question facing American agriculture is how to get other countries to buy more processed and semi-processed agricultural products, Henderson says. That means finding out why American industry, when compared with other countries, exports a higher percentage of basic farm commodities than value-added products.

"We definitely have to look at both U.S. and foreign trade policies as we examine the potential export market for value-added products," he says. "The United States has taken the position that industrialized countries should reduce subsidies and other trade barriers for *basic* agricultural commodities. Yet, casual observation suggests that industrialized countries are more likely to *restrict trade* in value-added products. I believe that we need to focus international trade policies as much on value-added products as on basic agricultural commodities."Δ

THE PROBLEM?

RICHARD J. NIKLAS

education (55.8%), have an above-average income (63.4%), and have an income in excess of $25,000. Artificial sweetener users have a very similar profile. Sugar users, however, tend to be male (62%); have a lower educational level (only 42% indicated they attended college), and a lower average income (only 29% of those who preferred sugar have a yearly income in excess of $25,000).

Honey has good distribution in supermarkets and convenience stores in Ohio, but has poor distribution in other high-volume locations such as drug stores, discount stores, and department stores. 100% of the supermarkets and convenience stores surveyed stock honey. Only 14% of the drug stores, discount stores, and department stores surveyed stocked honey (all of the stores stocking honey were drug stores).

In Ohio, adequate shelf space is devoted to honey in most supermarkets. The average space devoted is 4.25 ft. The average store has 14 facings.

Honey may not be stocked in the proper department or area in most supermarkets in Ohio. 47.8% of those surveyed indicated they used honey as a sweetener or for baking and cooking purposes (61% of respondents to NHB survey indicated the same). Only 6.8% of the stores surveyed stock honey in a location that would be convenient for customers who purchase honey for this purpose to buy it. 82.6% of the stores surveyed stock honey in the jelly/spread section; however, only 34.8% of the consumers surveyed use honey for this purpose. 17.6% of the stores surveyed stock honey in more than one location/department.

Honey has a poor shelf position in most Ohio supermarkets. 77.3% of the stores surveyed stock honey on the top shelf and 14.9% of the stores stock honey on the bottom shelf. According to studies made by *Progressive Grocer Magazine,* these are the *two worst shelves for merchandise to be stocked on.* Only 37.8% stock honey at the eye level which is the preferred shelf position. 35.1% of the stores surveyed stock honey on multiple shelf locations.

Honey is poorly promoted and featured in Ohio supermarkets. Only 2.7% (2 stores) had a special display. Only 10.8% (8 stores) promoted honey with promotional shelf signs or display material such as recipes.

Honey has a brand identity problem in Ohio. Most stores stock three or more brands. No single dominant brand was found in any marketing area.

Honey has a packaging problem. Sizes and shapes of similar weight containers vary. *Twelve* different size containers were found in the marketplace. The three most popular sizes were the 1 lb., 2 lb., and squeeze bottle. 57% of the stores surveyed stock five or more sizes. 80% of the stores surveyed stock four or more sizes. Labels are generally unattractive and uninformative (lack eye appeal and do not contain consumer information).

As a honey retailer, you can use this information several ways. First, use it to your advantage when targeting a particular market — who should I sell to? is answered here. Second, use it to educate your wholesale buyer (grocery store owner or buyer). Smart owners will do most anything IF you can show a good return on an investment.Δ

Richard Niklas is the Technology Coordinator for Food Marketing at the Agricultural Technical Institute, Wooster, OH. He has been studying honey marketing and the problems associated with it off and on for several years.

It's Freshness and Variety That Are Important

ROAD SIDE MARKETS

STAN ERNST

Freshness and variety are what draw consumers to farm markets. Farmers and beekeepers who cash in on direct marketing are doing themselves and the buyer a favor, says Ohio State University's direct marketing specialist.

"Consumers favor foods that are fresh or exotic,," Kelso Wessel says. "By offering a variety of products through their own market, beekeepers can fill that demand and cut out a middle man. That should mean more money in everyone's pockets."

Farmers' markets range from a front yard table with a few products to large buidings offering a wide variety of goods and services. Wessel says farm markets symbolize freshness and quality to consumers. And, for farmers and beekeepers, they're a way of controlling marketing costs. Products sold are usually fruits and vegetables, meats, crafts, flowers and certainly honey in it's various forms.

Americans have dramatically increased their demand for fresh vegetables, fruit and other products since the 1960's. That's part of the reason direct marketing has become more popular among producers. Apple juice, avocados, cauliflower and grapes are a few products at least 100% more popular than they were in the 1970's, Wessel says.

The increasing gourmet market is another reason for the jump in demand. Beekeepers have learned to not only produce unusual products, they're making traditional products more appealing.

With honey, you need to be both fresh and unique when selling direct.Δ

Using Perma-Comb

ANDRES and ANTOINETTE CALANDRIA

We started, or at least decided to start, keeping bees during 1984. However, it wasn't until mid-April the next spring before we could install our packages. We spent the waiting time reading every book and magazine article on beekeeping we could get our hands on. Since we live in the Gulf area, it was unrealistic to expect a good honey crop from late spring packages, so we waited patiently for the next season, and kept on reading. During the fall we came across a new products release in *Bee Culture* describing a revolutionary design for a fully drawn plastic comb made of high density, linear polyethylene. We thought to ourselves that if the bees would accept this totally new plastic comb with not one speck of wax, it would be the best thing since the invention of beehives with bee space.

We were convinced that we had to test this product. We think that seeing all our wax foundation being chewed up by the bees while we waited for the '86 honey flow to start really prompted us to call the Perma-Comb Company to see what could be done. Bees cannot chew plastic.

We called Perma-Comb, and to our delight, were able to talk to the inventor, Dr. Herbert Drapkin, a surgeon in Woodland Hills, CA and an expert in plastic injection molding. His interest in making beekeeping more efficient and profitable convinced us to try Perma-Comb. We initially ordered two boxes, but, now, 90 boxes later, we must tell you of our success.

In mid-April, 1987, medium supers of Perma-Comb were installed on two powerful double brood hives with conventional drawn comb. On each hive we placed one super with nine frames of Perma-Comb. The bees came right up for a look, but did not stay up in any great numbers at first. A few days later when we returned to check them, they had moved up in full force. The major nectar flow in our area had just begun and the bees were busy in the middle frames, with about five frames 1/3 full. By the end of April the supers with Perma-Comb were over two-thirds full. We quickly placed another call for two more boxes because at this rate we were going to be in serious trouble. A few days later (and just in time) more boxes arrived. When we placed the second medium super of Perma-Comb on, we noticed that the bees were drawing out the cells in the first super because of the nine frame spacing. There was little or no reluctance on the part of the bees to move into the second super.

"The BEST part was the blue ribbon we won for our honey in 1986."

We extracted the most beautiful frames of honey that year you could ever imagine . . . capped from one end to the other. Each double deep hive, with two medium honey supers, netted between 70 and 80 pounds of honey. Extraction was easy and fast. The only tool required is a wide blade putty knife to uncap the plastic combs.

One pass over the uncapping tub with the wide blade putty knife on each side and the frame is ready for the extractor (no electricity required and no burned honey or damaged combs). There is also a heavy duty brush available for those frames that have concave or even cappings which the putty knife would miss. However, if you space at nine frames this will not be a problem. They can also be uncapped with an uncapping machine if you have one. Forget about being gentle with extraction speed . . . crank as fast as you wish because it is impossible to hurt those solid plastic frames. But the benefits don't stop there. After the nectar flow it was a great feeling to be able to forget about wax moths when we stored the combs for next year. We haven't heard of a plastic moth yet!

From 4 hives in '86 we are now up to 40. Ten of these hives we wintered over and are now doing just what the first two did in the spring '86 honey

PERMA . . . Cont. from Page 394

flow. The rest are new packages, using Perma-Comb in both brood chambers and honey supers, with complete acceptance. These are located in different areas and looks like they will produce a good crop of honey in just 2-1/2 months from package installation. We feel this is due to the fact that the bees do not need to produce wax, but only need to make honey. With Perma-Comb their house is already built. That's several pounds of honey you could be selling, instead of harvesting wax in a few years.

Using virgin Perma-Comb in a brood chamber can present problems, but they are easily overcome if a few precautions are taken.

First, if at all possible, place a previously used Perma-Comb frame in the center of the brood nest. The bees will start there, and move out. Second, feed, feed, feed. A strong honey flow (or a honey flow simulation) will motivate the bees to expand the brood nest (or move into honey supers) without taking time to evaluate their surroundings.

With these few precautions, beekeeping with Perma-Comb is even more rewarding, and more economical than you can imagine.Δ

Andres Calandria is an audio engineer for public television, and his wife, Antoinette, is an Interior Decorator. They live in New Orleans, and keep most of their 40 colonies in Kiln, Mississippi.

RESEARCH REVIEW

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"Varroa Control Not Difficult in Finland"

The first find of Varroa mites in Finland occurred in 1980, on the Russian border. They are now present in over 15 to 20 percent of the beekeeping territory in the country. Infested colonies of bees that have not been treated have died. However, Finnish beekeepers have found that one treatment with the miticide Perizin in the fall is adequate to control the mites in their colonies for a year. I spent two weeks in Finland at the end of April lecturing to students at the University of Helsinki and at two meetings of beekeepers. I also visited three commercial beekeepers, two who produced honey and one who was a queen breeder.

The fact that Finnish beekeepers have been able to control *Varroa jacobsoni* so well suggests that beekeepers in the northern U.S. and Canada should likewise not have too much difficulty with mite control though it will, of course, be a nuisance with some cost. Apparently if applied during the break in brood rearing that occurs naturally in northern climates one chemical treatment is adequate.

In the northern United States and Canada most colonies of honey bees have no brood in October and November. There is some brood rearing in December and January and even more in February. It is possible that in Finland, because it is so far north, bees start to rear brood later in the spring. If so, the Finnish beekeepers may have a longer break in brood rearing that may help even more.

When *Varroa* mites were first found in Finland the infestations were quite high, indicating the mites had probably been present as early as 1975. Quarantine zones were established soon after the mites were found and one may not move colonies from an infested area to one that is not infested. It has not been possible to stop the spread of the mites in Finland but it is apparent that their spread across the country has been slowed. Queen breeders have been able to ship queens all over Finland by having government officials replace the worker bees in the queen cages with other bees and having each queen examined by an inspector.

Another factor that aids in mite control is that the management of colonies in Finland is intense. Full-time commercial beekeepers have only 300 to 350 colonies, but each colony is watched closely. One queen breeder with about 300 colonies told me that in late April all of his colonies were alive after winter. However, he had not checked closely to make certain all of the queens were alive and laying. Still, it is remarkable that winter survival should be so good, again indicating the care given each colony of bees.

Colonies that are overwintered in Finland have all of the honey removed in the fall and are fed sugar syrup. Honey sells for a very high price in Finland and importing honey is not allowed except under very special circumstances. By agreement Finnish beekeepers use only Italian bees. Italians build strong colonies and are less aggressive than the native bees, in their view. However, it is agreed Italians do not winter so well as the native bees. There are about 5000 beekeepers in Finland, 50 of whom are commercial; the total number of colonies is between 50,000 and 60,000.

Fluvalinate has not yet been tested for Varroa control in Finland. The beekeepers are quite satisfied with the results they have had using Perizin. Folbex, a miticide containing chloropropylate, has been used but is not as effective. Other miticides have been tested to a much lesser extent.

Perizin is not a trade name that appears in any U.S., E.P.A. literature. The product is made and used in Europe only. The primary ingredient is coumaphos, an organophosphorus compound. In the U.S. coumaphos is widely used in the livestock industry for controlling cattle grubs, lice, flies and ticks.

I talked to Dr. Harvey Cromroy of the University of Florida who has tested several compounds for the control of *Varroa*. He said that Perizin was very effective for *Varroa* control when no brood was present. However, the material is applied as a spray to each comb and too much time and labor are involved to make its use practical for commercial beekeepers in this country. For beekeepers with a small number of colonies it may be a practical alternative should such be needed in the future.Δ

REFERENCES

Cromroy, H. *Personal Communication.* 1988

Neuhauser, H. *Information Uber Den Wirkstoff des Perizin.* Apidologie 16:217-19. 1985.

Ritter, W. *Varroatosis in the honey bee and its control with Perizin.* Veterinary Medical Review 1:3-16. 1986.

Teittinen, P. *Beekeeping and* Varroa *in Finland.* The Finnish Beekeepers Association, Helsinki. Mimeographed. 5 pages and 4 maps. 1988.

Drifting

STEVE TABER of Honey Bee Genetics • P. O. Box 1672 • Vacaville, CA 95688

"Row-end colonies make more honey than row-middle colonies"

My usual complaint about bees is that when you want to investigate any particular subject, you find that very little research has been done on it. This is true about this drifting.

When I was at the Baton Rouge Bee Lab I ran an experiment on drifting. It was never published so I will tell you about it now.

The Bee Lab is located on Ben Hur Road, which was south of LSU campus and ran through some very large LSU pastures. I got permission to work in the pastures, and in the middle of one mowed a circular area about 200 feet in diameter.

There were no landmarks anywhere near the bees, and the object of my mowing was to remove any possible landmarks, making the area as uniform as possible. Right in the center of this I placed a hive full of bees. I left them there for a couple of weeks so that they would be oriented properly to their hive.

After this orientation period, one day I drove in and parked the truck about 100 feet from the hive. The bees immediately came to the truck, as if it was their hive. There were hundreds of bees inside the cab in a matter of minutes. Then, I got a large cardboard box, one that had contained a refrigerator measuring 3' x 3' x 6', and painted it white, the same color as the hive. This time I parked the truck about 100 yards away from the bees and carried the cardboard box into the mowed area. Yes, the bees immediately oriented to the box, anywhere it was placed — north, south, east or west of their colony.

Next, I removed the box, picked up the hive very carefully and was able to move it over 100' without disturbing the bees' flight back to the hive entrance. What this told me was that visual landmarks are very important to bees in finding their own homes after they've been on a foraging flight.

Some time after I left the Madison, WI bee laboratory (under the direction of C. L. Farrar), they rearranged the hives for ease in mechanical manipulations and placed them in rows of 10 colonies each, rather close together. Of the 350 colonies used, in every case colonies at each end of each row made more honey than any of the eight other colonies in the row.

Now, many beekeepers want to begin breeding improved stock. To do this they select next generation daughter queens and drones to mate with those that produce the most honey, along with other desirable characteristics. The problem with this is how do they **know** whose bees produced the honey. When you test for honey production, you have to **know**, with no uncertainty, that the bees in a hive all came from the queen in the hive. Every commercial apiary that I have worked in, *with no exceptions*, makes this task impossible. Bees drifting in commercial apiaries is very common.

Dr. Cam Jay has done the best work on drifting and its' prevention in commercial apiaries. He found that if hives are placed in snake-like or zigzag patterns, drifting is drastically reduced over the usual 3 or 4 straight lines of 20 or 30 colonies in each line. I haven't done research on this, but I request people who work with me to place all colonies in pairs, with each facing an opposite direction, and pairs of colonies not all facing the same way in straight lines. I also paint my colonies many different colors to give the bees more visual landmarks.

It is thought by many of the European bee scientists that the rapid spread of varroa mite is caused by drones drifting. Some reports I heard were of drones drifting many miles, but unfortunately I was not able to verify this. When drones leave the hive for a mating flight, they search out mating areas or drone congregation areas (dca's). If they are unsuccessful, they head for home, but they may decide to follow a leader home. Maybe all those worker bee girls will take better care of them there than where they live.

In a recently published article Dr. T. Rinderer claims that in Venezuela, drones of the Africanized bee seek out and invade hives of European bees. To me, this indicates a genetic variation in the ability of drones to come back to their own hive, or to drift into any other hive that might be handy. And, this same logic should go along with worker bees and queens too, a genetic variation in *home finding*.

If you have several colonies of bees, you can see how much drifting occurs if you requeen half with black and the other half with bright, yellow bees. First, check the bees on emergence to be sure that your queen supplier sent you queens that didn't mismate. Then, on occasion, check your hives for workers and drones of different colors.

Right now everyone is concerned about varroa. However, if you have bees, you will most likely have varroa in a few short years. Not buying queens from good, conscientious breeders who offer improved stock will not stop you from getting varroa. The experts in Europe I have talked to believe that varroa is in every state in the USA now, since it is already widespread, and has been in Florida for several years.

Perhaps, when bees are being bothered and irritated by the mite, they go to another hive on purpose. Drifting then would not be accidental but would be done on purpose. Is this possible? We know that when bees are placed in an intolerable situation they

will frequently leave or abscond. Is it possible for a single bee to abscond? Is drifting by workers or drones genetically determined, so that some stocks will drift more than others? Does an infestation of varroa cause bees to drift more? Or less?

I've listed several of Dr. Jay's publications on drifting. You may contact him directly for further information.Δ

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References

Jay, S.C. 1965. *Drifting of honey bees in commercial apiaries. 1. Effect of various environmental factors.* J. Apic. Res. 4:167-175

Ibid 1966. *Drifting of honey bees in commercial apiaries. 2. Effect of various factors when hives are arranged in rows.* J. Apic. Res. 5:103-112

Ibid 1966. *Drifting of honey bees in commercial apiaries. 3. Effect of apiary layout.* J. Apic. Res. 5:137-148

Ibid 1968. *Drifting of honey bees in commercial apiaries. 4. Further studies of the effect of apiary layout.* J. Apic. Res. 7:37-44

Ibid 1960. *Drifting of honey bees in commercial apiaries. 5. Effect of drifting on honey production.* J. Apic. Res. 8:13-17

Ibid 1971. *How to prevent drifting.* Bee World 52:53-55

HONEY PRICING

An Economists Historical Perspective

LOIS SCHERTZ WILLETT

The current price of honey is determined by production costs, and the residential, industrial, foodservice and export demands for this product. The price you receive may also be influenced by the federal honey support program. To understand what direction the honey industry is taking, it helps to have a historical perspective about trends in the supply, demand and price of honey. This article is an analysis of the honey industry since 1950, from an economist's perspective.

Perhaps the most significant event in the honey industry in the early 1950's was the federal honey support program. This program was established by the Agricultural Act of 1949 to provide for the maintenance of adequate members of honey bee colonies to pollinate the nation's seed, fruit, nut and vegetable crops. The program has been in existence ever since.

Despite the existence of the honey support program, the number of colonies decreased between the early 1950's and the 1970's. Following 1970, the number of colonies averaged about 4.2 million. Several factors, such as changes in returns and costs of colony maintenance, urban expansion reducing the availability of bee pasturage, improved technology increasing product yield per colony and increased pesticide use by farmers could be associated with the decline in colonies.

"What do production, consumption and the government have in common?"

As indicated in Figure 1, honey *production* remained fairly stable at about 240 million pounds per year from 1950 to 1970 despite the reduction in the number of colonies. The associated increase in average yields from 43.5 pounds per colony in the early 1950's to 50.5 pounds per colony in the late 1960's, could be attributed to better colony management by beekeepers and increased sources and availability of nectar. From 1970 to 1985, when the number of colonies was relatively stable, the average production of honey fell to 206 million pounds per year. This decrease in production was accompanied by a slight drop in average yield from 51.1 pounds per colony in the early 1970's to 46.6 pounds per colony in the early 1980's. This decrease in yield per colony could be due to pesticide use, adverse weather conditions or changing cropping patterns that reduced the number of nectar producing plants. The actual level of honey production is subject to some variability from year to year due to changing weather conditions.

Honey *consumption* has also fluctuated since 1950 but has been above domestic honey production since the mid-1970's. Although there has been an increase in the total amount of honey consumed domestically, per capita consumption exhibits a decreasing trend from the early 1950's. The average honey consumption per person (per capita) in the United States was 1.51 pounds in the early 1950's. This dropped to an average of 1.07 pounds in the early 1980's but has increased slightly since 1985.

The gap between domestic honey consumption and production since the mid-1970's has been filled by increasing the amount of imports, as seen in Figure 2. The United States was a net exporter of honey until the late 1960's when the level of imports began to increase. United States honey exports varied between a peak of 32.9 million pounds in 1953 to a low of 4 million pounds in 1975. Since the late 1960's less than 10 million pounds of honey were exported per year except for 1987 when exports appear to double previous levels. The types of honey exported are primarily specialty honeys that command a premium price. The United States exports honey to several countries including West Germany, Japan, the Netherlands and Canada. West Germany has been the major market for United States honey because. U.S. honey meets the West German's high quality standards.

Honey imported into the United States falls under item 155.70 of the Tariff Schedules of the United States (TSUS). A tariff rate of $0.01 per pound is applicable to honey imports from all countries except for nonmarket-economy countries. Designated nonmarket-economy countries are assessed a $0.03 per pound duty. The $0.01 per pound rate is an agreement made by the United States in the General Agreement on Tariffs and Trade (GATT) effective January 1, 1948. This classification and the rates apply to pure honey only.

The honey imported into the United States is a mixture of industrial grade honey and table grade honey. Prior to 1972, the majority of imported honey was in bulk shipments of darker non-table honey. Since 1972, however, most of the honey imported has been the lighter table honey. Many imported honeys are combined directly with domestic honey and sold as a blend. Of course, some exotic honeys from unique floral sources are imported and sold at premium prices. The majority of the United States' honey imports come from four countries: Mexico, Argentina, China and Canada. Just over a third of our imports are from Mexico, while China now sends us nearly 13%. Argentina, Canada and other countries send us the remaining seventeen percent of our imports.

"Imports have taken up the slack between increased US consumption and decreased US production."

One explanation for the significant increase in honey imports can be seen by comparing the price received by domestic producers, the price paid for imported honey and the support price, as seen in Figure 3. Until 1980, most of the activity of the honey price support program was in loans to beekeepers. In 1981 the support price rose above the domestic honey price. Because of this discrepancy, domestic packers found it more profitable to purchase lower priced imported honey rather than honey from domestic producers. Hence, domestic beekeepers forfeited on their loans with the CCC (Commodity Credit Corporation). The CCC received the beekeepers' production and held the honey in storage until it could be distributed through government sponsored programs. Additional free stocks were held after 1981 because of the falling domestic price of honey and the speculation of higher prices in the future. In 1985 the support price for honey was $0.653 per pound compared to an average wholesale price of $0.455 per pound received by domestic producers for unprocessed extracted honey in 60 pound containers. Then, compare these to a price of $0.331 per pound for honey imported into the United States (the average wholesale prices of extracted bulk honey for 1979 through 1985, seen in Figure 3, are unofficial estimates of the U.S. Department of Agriculture).

"The honey price support program, with the buy back option, has been attractive and competitive."

Due to large imports of honey beginning in 1981, the Reagan administration showed considerable interest in phasing out the federal price support program on the grounds that it was not necessary to guarantee an adequate supply of honey bees for crop pollination purposes. The 1985 farm bill kept the honey support program intact however; but scaled back the level of federal support. The support price will continue to decrease by five percent until 1990 when a new farm bill will be devised.

In addition to the decreasing level of honey support rates, the 1985 farm bill included a buy back option. This program allows a honey producer to turn honey in under loan, and then buy back the honey at the price support rate, or a lower rate, as determined by the secretary of agriculture. The pro-

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Figure 1

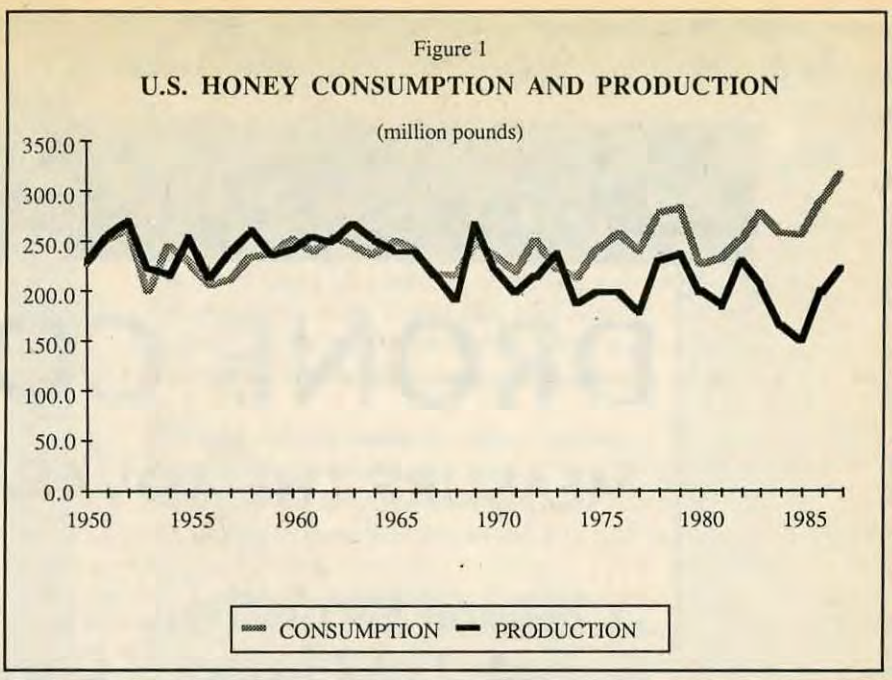


Figure 2

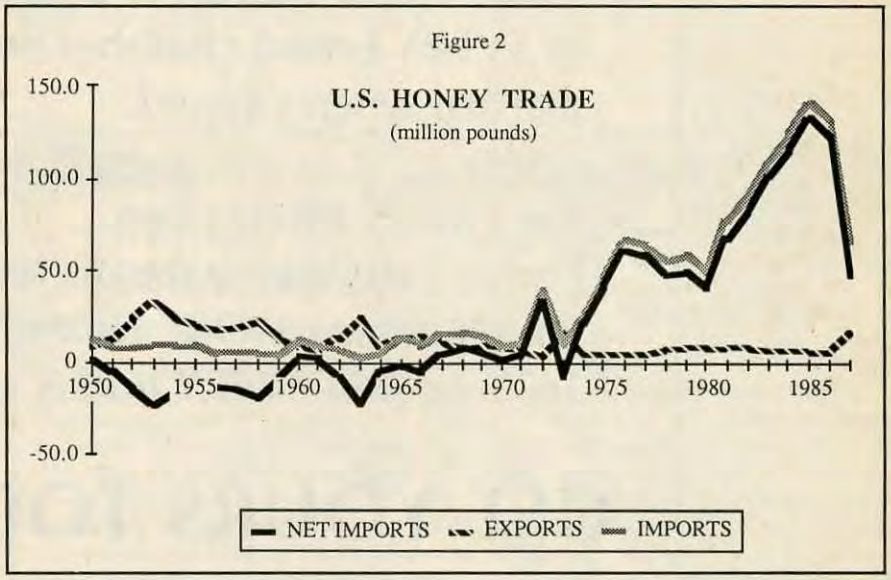
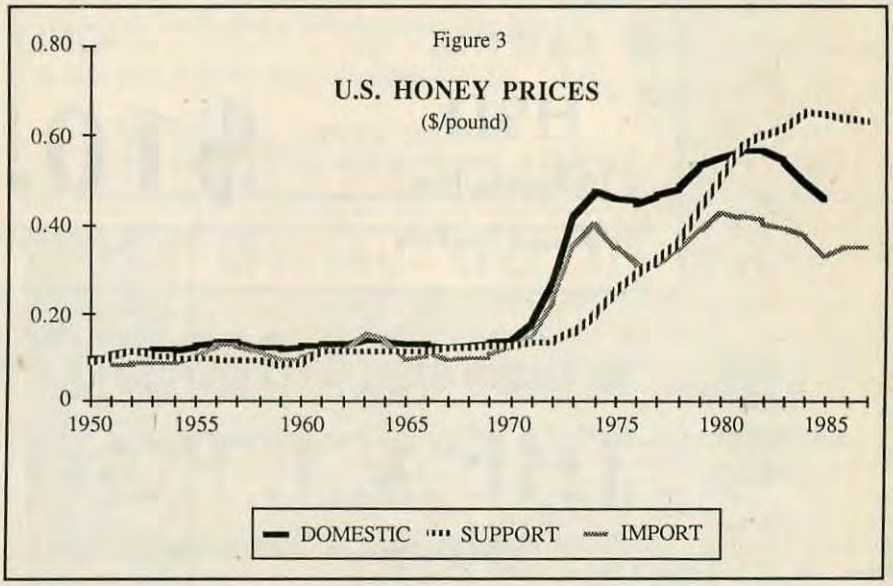


Figure 3



INDUSTRY . . . Cont. from Page 401

gram is attractive because it allows for a transition period in the honey support program and so far these buy back rates have been far lower than the average honey support price. In fact, they are competitive with world market honey prices. Hence, beekeepers who participate in the program are able to profitably sell the honey they buy back, and the CCC is able to reduce its stock level. Further the CCC does not incur the costs of storage, processing and transporting the honey, and it goes back into the market without the CCC giving it away. This program has been successful in reducing the level of stocks held by the Commodity Credit Corporation.

Changes in the honey support program, the international trade of honey and the uncertainty of the impacts of the varroa mite and the Africanized honey bee make it increasingly difficult to determine what will happen to the beekeeping industry in the future. However, understanding the historical trends of the industry's economic measures of price, supply, demand and trade will enable decision makers to better "guess" the future.Δ

Lois Schertz Willett is an assistant Professor of Ag. Economics at Cornell University. Her specialty is on price determination of specialty crops, of which honey certainly qualifies.

SOURCES

Hoff, Fred L., and Frederick Gray. Honey Background for 1985 Farm Legislation. United States Department of Agriculture. Economic Research Service National Economics Division. Agriculture Information Bulletin Number 465. Washington: GPO, 1984.

Morse, Roger A. and Richard Nowogrodzki. *"Trends in American Beekeeping, 1850-1981."* American Bee Journal 123 (1983): 372-378.

Sullivan, Harry, USDA/ASCS Personal Communication. June 1985.

United States. Council of Economic Advisers. *Economic Report of the President.* Washington: GPO, Annual Reports.

United States. Department of Agriculture. Foreign Agriculture Service. *World Honey Situation.* Circular Series FS 2-87. Washington: GPO, October 1987.

United States. International Trade Commission. *Honey Report to the President on Investigation No. TA-201-14 under Section 201 of the Trade Act of 1974.* USITC Publication 781. Washington: GPO, 1976.

Honey Bees' Lament

T. T. CRONE

I worked hard all summer to put up this crop,
You did little more than skim off the top,
Looked in now and then just to drive me berserk,
Took what you wanted; left me with more work.

You take all the credit for what I produce,
Some workers would give up and say, "What's the use?"
But we've got a union, we could have had less,
We now and then feel the sweet sting of success.

We've social security and a warm place to live,
Enough food to eat so we've plenty to give.
So, we'll let you take credit and keep all the money,
What harm if we let you believe it's *your* honey?

HONEY VINEGAR

A Pungent, Profitable Product

JIM KNIPP

Honey is certainly the sweetest product of the honey bee, but, as we are all aware, it's far from being the only one; we use beeswax, propolis, and the products derived from them almost every day. If you aren't also using honey vinegar, you're missing a unique, delicious, easily-made, and cheap by-product of the honey extraction process. Making honey vinegar is a lot like making wine — it can be an elaborate process interwoven with obscure chemicals and equipment, or it can be an easy, almost casual, process with the same delicious results. The process described here is the easy and casual one; the equipment is minimal, and the cost is as cheap as the rinse water from cleaning your extractor.

Any sugar solution can be made into vinegar by processing the sugars into alcohol and then converting the alcohol into acetic acid. Since vinegar is a food, it naturally requires relatively clean surroundings. Also, since the process requires the presence of common (but specific) bacteria, a little effort is required to keep the wrong bacteria away; here the natural antiseptic properties of honey really help.

The Rules

The process of making vinegar begins after I finish extracting honey in my two-frame hand extractor. I start cleaning my extractor by putting into it one gallon of the hottest water I can get from my tap (I've checked it with a candy thermometer, and it's about 130°F.). I use hot water to reduce the action of the enzymes in honey that helps prevent spoilage so that the fermentation I now want can take place. After sloshing the water around in the extractor a bit to dissolve as much of the honey as possible, I carefully strain the honey-water into the clean and rinsed container I will use to make the vinegar. I use a 5-gallon plastic carboy (obtained from any winemaking supply store), but you can use any clean container that has some type of small opening. Since I've mentioned the carboy, I'd better next mention that the only other piece of commercial equipment I use for my vinegar production is a hydrometer (similar *but not identical* to those used to measure the "strength" of your car's battery antifreeze). Mine measures from a specific gravity of 1.000 to 1.100, and costs about $3 from the same winemaking supply store. It's not absolutely necessary, but it does help.

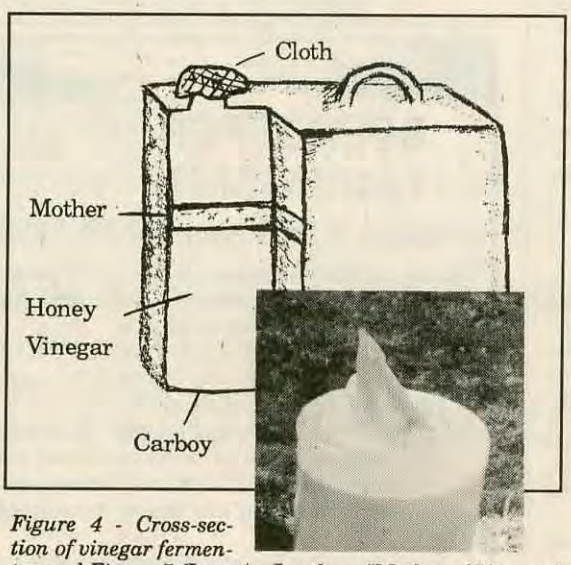


Figure 4 - Cross-section of vinegar fermenter and Figure 5 (Insert) - Leathery "Mother-of-Vinegar".

When the honey-water is cool, I measure the specific gravity with my hydrometer. The specific gravity is a measure of how much honey is in solution, and thus indicates approximately how strong the finished vinegar will be. Legally all vinegar sold must be at least 4% acetic acid, but most commercial vinegar sold as cider vinegar or distilled vinegar is 5% acetic acid. I start with a specific gravity of 1.060 (diluting my original honey-water with more water as necessary), which should give me a vinegar of approximately 7-1/2% acetic acid; if you want to produce a different strength, use the graph shown in Figure 1, and proceed from there. If you don't want to use a hydrometer, the literature I've read says to start with a strong enough honey solution to "float an egg" so that a spot about the size of a dime is out of the solution. This is only an estimate of specific gravity, since I'm sure that all eggs don't float equally well, but the one egg I tested floated at a specific gravity of 1.080, which would result in a good strong vinegar.

The next part can be a little tricky if you let it, (I don't!). Depending on what you read, you may be advised to add different mineral compounds to help the fermentation along, but I just let nature take it's course and have been successful so far. I *do* believe that it's a good idea to have the solution a little bit acid, so for only your first batch it may be a good idea to add a cup or so of commercial vinegar to make it *acid* enough.

The next step is to cover the spout of the carboy (see photo) with a piece of muslin or coarsely-woven cloth (hold it on with a rubber band). Then, let it sit somewhere where it won't freeze or get extremely hot until next spring, when you're ready to bottle. By the way, some references will tell you to put a piece of screen such as window-screen over the spout of the carboy, but don't do it; it will certainly keep large insects

out, but it *won't* keep out fruit flys, and they are greatly attracted to the vinegar-in-the-making.

For those of you who find the wash-water from successive extractions is not enough to provide all the vinegar you want to produce, you can add (or start with, for that matter) a honey-water solution you make from bulk honey; if you want to do that, I've provided another graph (Figure 2), showing how much honey you need per gallon of water to get the specific gravity you desire. Figure 3 is a combination of Figures 1 and 2 that gives percent acetic acid directly.

As your vinegar process begins, you will probably notice a slight foaming of the solution resulting from the gases given off during fermentation. Leave a couple of inches of air-space between the top of the liquid and the top of the carboy so it won't foam over. After a month or so (depending on temperature) you'll notice a gray film form over the surface of the liquid that will get thicker as time goes on (see photo). This is the "mother-of-vinegar", the live culture that converts the alcohol into acetic acid. If you move the container around, this "mother-of-vinegar" may sink to the bottom, but after a time another will form on the top, since it needs the air coming through the muslin-covered spout to do it's work. To show you how tough and thick this "mother" is, note the photo showing a five-month old culture being pulled from the carboy spout.

If you extract in the fall, the vinegar should be ready to bottle by late Spring. In preparation for bottling, I first pour the vinegar through a large strainer to remove the "mother" (the first few years I made vinegar I left the "mother" in the carboy to start the next batch, but this proved unnecessarily messy). After rinsing out the carboy, I put aside a quart of strained vinegar to provide acidity and start bacteria for the next year's batch.

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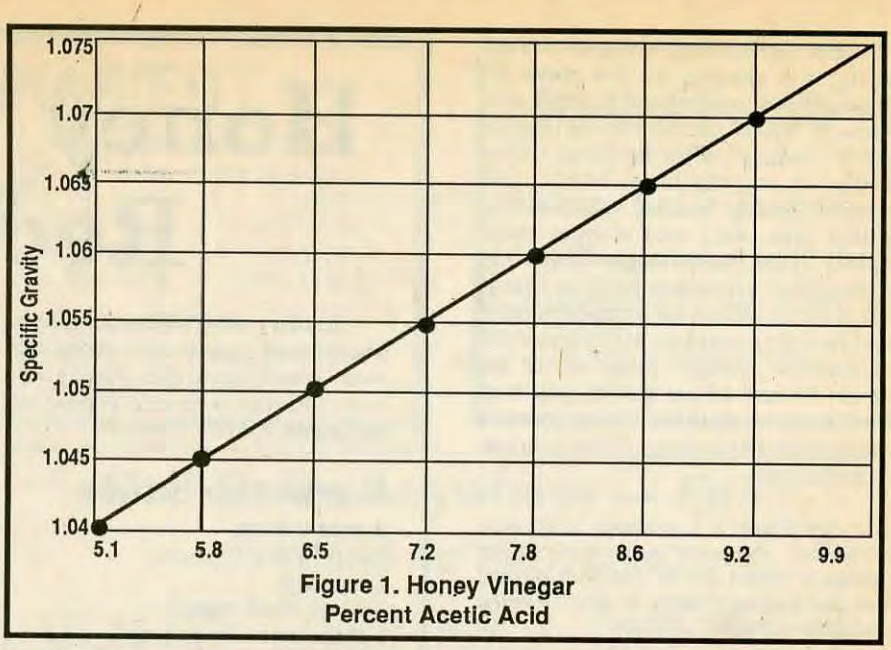

Figure 1. Honey Vinegar Percent Acetic Acid

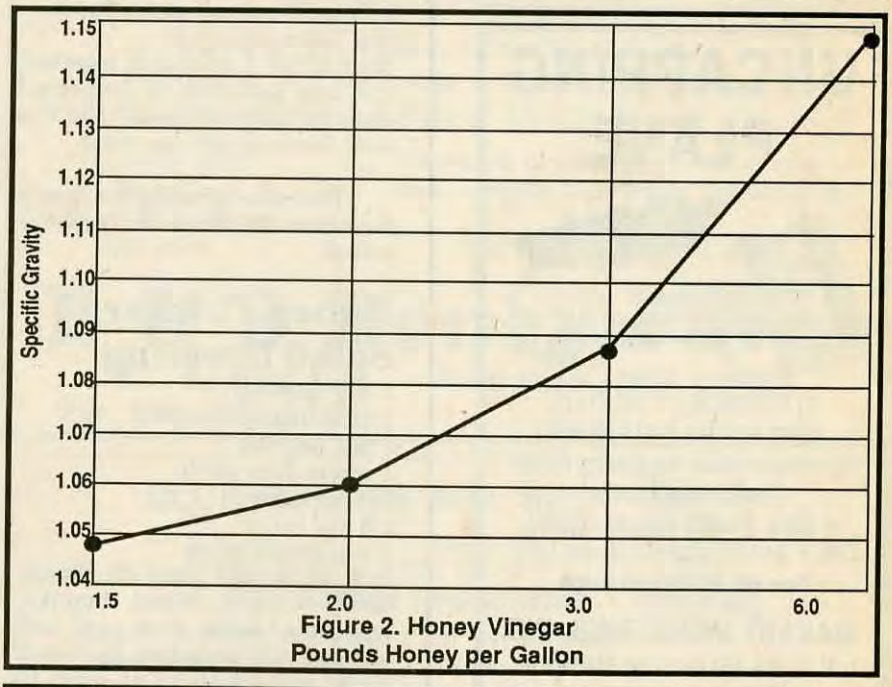

Figure 2. Honey Vinegar Pounds Honey per Gallon

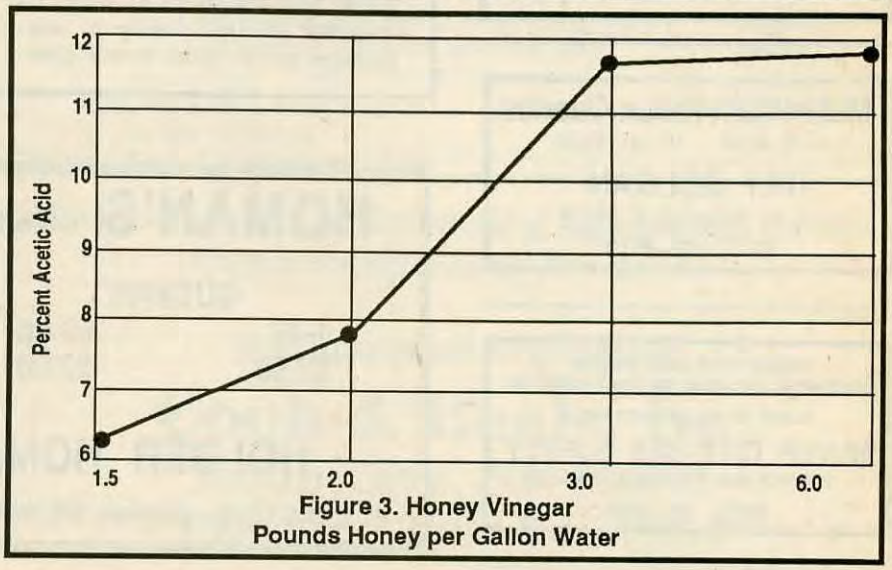

Figure 3. Honey Vinegar Pounds Honey per Gallon Water

The remaining vinegar I first bring to a simmer on the stove for about fifteen minutes so it won't continue to "work" (and continue to grow more "mother") after bottling. I then bottle it in anything handy (old cleaned catsup bottles, wine bottles, gallon jugs, etc.) and stopper them tightly. If you have a large surplus and a supply of attractive bottles, this is the time to attach an attractive label and look for a market; with plain cider or distilled vinegar retailing for between $2 and $3 per gallon, you may find that, per pound of honey, you can make more from vinegar than you can from honey.Δ

Jim Knipp is a professor of Physics, Math and Computer Science at Bethal College in Milan TN. He has been keeping bees and making vinegar for over 10 years, and currently has 7 colonies.

Honey Vinegar Recipes

In this part of the country, barbecue sauce recipes are among the most closely guarded family secrets. This one is especially good on barbecued pork or venison.

Barbecue Sauce

2 cups Catsup
1 cup Honey Vinegar
1 tsp. salt
3/4 tsp. black pepper
1 large onion (chopped)
1 Tbsp. Worchestershire Sauce
Hot Sauce (optional)
Simmer all ingredients together. Put over parboiled or barbecued meat and bake one hour at 350°F to soak flavoring into the meat.

This salad dressing is a family favorite on both fruit and vegetable salads.

Honey Vinegar Salad Dressing

1 cup salad oil
1/3 cup honey vinegar
1 tsp. paprika
1 whole clove garlic
1/2 cup catsup
1/3 cup honey
1 tsp. grated onion
In a small bowl place oil, catsup, honey vinegar, honey, paprika, and grated onion. Beat until well blended. Add peeled whole clove of garlic and let stand at least 10 minutes or until ready to use. Remove garlic. Store in refrigerator, beating each time you use it. Makes 2-1/2 cups.

This is a hot sauce similar to the Louisiana-style hot sauces, and is VERY HOT. My dad used to describe something very hot as "hotter than the hinges of hell", thus the name of this sauce.

Hinge Sauce

Ripe (red) Jalopena peppers
Honey Vinegar
Lemon Juice
Put a rack in a pressure cooker and add about a cup of water. Fill the pressure cooker about 2/3 full with Jalopena peppers, first cutting off all stems and green crowns. Pressure cook for five minutes; then cool cooker under cold water until pressure completely drops. Open the cooker (DON'T BREATHE THE FUMES!) and transfer the peppers with tongs into a blender. Add enough honey vinegar to make the contents churn around well, and blend for a short time (about 10 seconds). Pour the blended peppers into a large tea strainer and jiggle over a glass or stainless-steel bowl until the pulp passes through, leaving the skin fragments and seed behind. Thin the pulp with more honey vinegar and add a tablespoon or two of lemon juice (this helps the sauce keep its brilliant red color). Can in small jars in a hot-water bath. This makes a couple of year's supply!

A Delicious way to Increase Sales

HONEY & FRUIT

DR. ROBERT BERTHOLD

A number of years ago we (Berthold and Benton, 1968) were discussing ways to increase the per capita consumption of honey in the United States. The conclusions we came to were similar to those of others, including the recent National Honey Board survey results. The average consumer's three major objections to honey are 1) it's too sweet; 2) it's messy to use; and 3) it lacks flavor variety.

These objections have come about because average consumers seldom have the opportunity to try honey from nectar sources other than clover and alfalfa, and have hardly ever tried finely crystallized (or creamed) honey.

During our discussions we came up with the idea of incorporating fruit with finely crystallized (creamed) honey in order to overcome these objections. We ruled out the use of fresh fruits, because their high moisture content would tend to raise that of the honey used above the 18.6% moisture level, and the final product would likely ferment.

The first fruit that we experimented with was high quality sun-dried apricots, purchased in the supermarket. Using alfalfa honey, which has a natural tendency to readily crystallize with very fine crystals, we found that incorporating about 5% by weight of the apricots produced a product with an excellent honey-apricot flavor balance. Next, we obtained freeze-dried strawberries from a commercial food vendor. We found that by using about 2% freeze-dried strawberries, another pleasant flavored spread would result.

Over the years, we have experimented with other dried fruits. We made some oven-dried cranberries that produced a very acceptable spread, but have not been able to locate a commercial source of dried cranberries. Dried bananas and freeze-dried raspberries also produce excellent spreads. Peaches, coconut, and blueberries when dried, do not have enough flavor definition to balance the sweetness of honey, so we didn't use them. We tried raisins too, but came up with a product that tasted like rusty razor blades! Powdered cinnamon, available in most supermarkets also produces an excellent mix.

The Cream Scheme

In order to produce the finely crystallized honey used in our Honey & Fruit Spread, we use the method patented by Dr. Elton Dyce. His method is still used world wide today.

First, pasteurize liquid honey (heat to 145° F for 30 min.) in order to kill any foreign yeasts present, as well as to liquify any crystals that might be present. Next, this pasteurized liquid honey is cooled to room temperature. Then blend in about 10% by weight of already finely crystallized "seed" honey. If commercially produced finely crystallized honey is not readily available, acceptable "seed" honey can be produced by finely grinding any crystallized honey in a mortar with a pestle. Blending can be done many ways, including hand stirring, using a hand cranked or electric meat grinder, a food blender or various types of commercial mixers. Once the honey mixture is uniform in appearance, it should be placed in containers and stored for 3 to 5 days at as close to 57° F as possible. In the lab we can use an incubator but other options include root cellars, spring houses, and, during the cooler months of the year, even placing the newly made spread in the attic often produces acceptable results.

All finely crystallized honey products should be stored in a cool place. If they are exposed to too much heat for too long a period of time the product will liquefy.

A nice thing about this product is that a small scale packer or even a hobbyist beekeeper can produce these products at a very reasonable cost. Each spring, students in my Apiculture course make a jar of honey apricot spread as a laboratory exercise. We use the best variety of sun-dried apricots available, since they produce the most tasty spreads. We use pasteurized alfalfa honey for the liquid part of the blend. We use hand cranked meat grinders with the fine grinding heads attached to grind the apricots. Since apricots alone are very sticky, we grind them along with 10% seed (already crystallized) honey plus some of the liquid honey. We have found that to produce a final product with good flavor balance and good eye appeal, you need to grind the mix a second time. The doubly ground apricot-seed-some-liquid honey is then blended thoroughly with the remainder of the pasteurized liquid honey, bottled in wide mouth containers, and stored in a cool place for at least five days.

As soon as we had developed the apricot and the strawberry spreads, we sought the cooperation of Mr. Ralph Gamber of Dutch Gold Honey, in Lancaster, PA. We wanted to know if it would be economically feasible to make these products on a commercial basis. The ease by which the fruit products could be added into Dutch Gold's

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Mortar and pestle.

HONEY . . . Cont. from page 408

finely crystallized honey manufacturing process encouraged Mr. Gamber to add the fruit spreads to his product line.

To give us an even better picture of our product we conducted a consumer test, using the honey-apricot spread, at the PA State University store. We did this during the summer, when there was a good cross section of visitors on campus. We encouraged everyone to sample the product and to fill out a questionnaire, similar to one discussed in Amerine et. al. (1965). We strongly urged those who said they didn't like honey to assist us in our study, and nearly everyone cooperated. Hundreds of people participated in our study, and approximately 25% initially said they didn't like honey. Of this 25%, over 80% said the spreads were great and they would use honey in that form. Of the remaining 20%, many said that if a different fruit was used they would probably use the product.

Once the honey-fruit apricot and strawberry spreads were commercially available, we started test marketing them at the Penn State Dairy Store. The store manager allowed us to put up a large sign explaining what the

Continued on Page 410

There are two major types of honey spreads available on the market:

- the first type contains fruit juice, puree or concentrate (10-20%) and honey in its *crystallized* form
- the second type contains fruit (50-60%) and honey in its *liquid* form (40-50%)

Those products are not new, as their commercial production was described as early as 1950 by Dr. J. W. White. Later, Berthold and Benton conducted sensory evaluation tests on apricot flavored honey-fruit spreads. The results indicated that *of those who like honey, 95%* liked the spreads, and of those consumers who *did not like honey, 82%* liked the spreads.

Twenty years later, we see these products reappearing on the market under different forms, from U.S. manufacturers as well as from abroad. These products are positioned as gourmet spreads, and are of very high quality.

Spice apple, passion fruit, loganberry, blueberries, hazelnut butter and ginger are examples of flavors for the spreads of the first type described. Fruit concentrates, freeze dried fruits, purees and natural flavors are incorporated in these products, based on creamed or crystallized honey. Their texture is that of a thick cream or smooth and creamy butter.

Apricot and strawberry purees are examples of the flavors used for the second type of spreads. These spreads are entirely sweetened with honey and they look very much like regular preserves or jams. The major difference is that the flavor of the final product is greatly enhanced by honey.

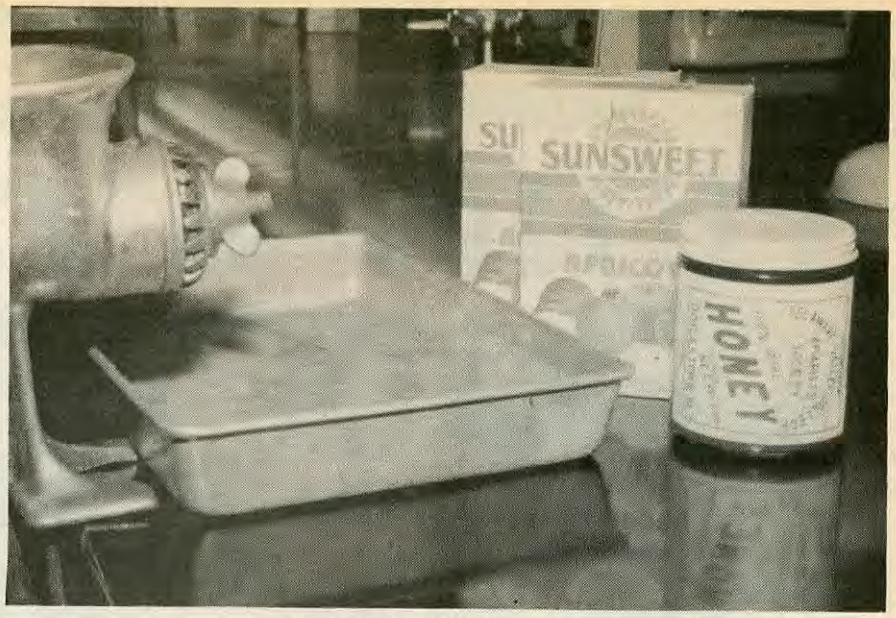
. . . And That's Not All!

Honey has also been added as an ingredient in peanut butters and apple butters. These spreads have a great potential as an alternative for jams or preserves, but they could very well be used as a filling in cookies, breakfast cereals or confections and snacks.Δ

For more information, contact the National Honey Board Food Technology Program, P. O. Box 281525, San Francisco, CA 94128-1525.

9 Steps to 10 lbs. of Fruit and Honey

1. Weigh out 8-1/2 lbs. light colored honey.
2. Pasteurize this honey by heating honey to 145°F for 30 minutes.
3. Obtain 1 lb. 'seed' of already creamed honey from a commercially produced source or your own, or make some by grinding (see Cream Scheme).
4. Take 1/2 lb. (5% by weight) of high quality dried apricots, and about 1 lb. seed honey, plus enough liquid honey to make the product flow easily, and grind in a meat (or other type) grinder.
5. Grind this mixture twice.
6. Thoroughly blend final mixture with remaining liquid honey.
7. Pour into clean, wide mouth containers.
8. Let stand at 57°F for at least 5 days.
9. After 5 days, clean outside of containers if necessary, and apply an attractive label (important) and get ready to sell.



Meat grinder, collecting pan, apricots and creamed honey — All the ingredients for an excellent product.

HONEY . . . Continued from Page 409

new products were. From the time they were introduced, they out-sold similar sized containers of liquid and non-fruit honey spreads (Berthold and Benton, 1967).

Once Penn State University became aware of the commercial potential for these honey-fruit spreads, they investigated the possibility of obtaining a patent on them. The patent search revealed that in 1933, Philip Crane received a United States Patent for blending many things with finely crystallized honey, including dried fruits and nuts. Since this patent has now expired, the process is public domain and anyone can make these products without royalty fees.

The Beekeeping Club at Delaware Valley College has also been marketing these spreads for nearly 20 years, with results similar to the Penn State sales.

These spreads have overcome consumers' three major objections to honey, — messy to use, too sweet, and lacking flavor variety. In addition to Dutch Gold Honey, a number of other commercial honey packers in the United States and overseas have produced this product.

There is no doubt, honey-fruit spreads can and will increase your honey sales. Whether you sell wholesale or retail, this product should be considered. It is easy and inexpensive to make and can be produced during the slow part of the year. And, with adequate storage conditions, has a decent shelf lifeΔ

Dr. Robert Berthold is the Associate Dean of Science, Delaware Valley College in Doylestown, PA. He also is an avid candle maker, and is active in the Eastern Apicultural Society.

References

Amerine, M.A., Pangborn, R. M. and Roessler, E. B. 1965. *"Principles of Sensory Evaluation of Food,"* Academic Press, NY.

Berthold, R. Jr. and Benton, A. W. 1968. Creamed *Honey-Fruit Spreads,* J. Food Tech., 22(1): 83-85.

Berthold, R. Jr. and Benton, A. W. 1968. *The Potential of Honey-Fruit Spreads Increasing Honey Sales,* Amer. Bee J., 108(6): 236-7.

From The National Honey Board

Customer Directed Marketing

DAN HALL, Manager

The Sweeteners Market

"Who is your market?" This is a simple, yet very basic question which every segment of the honey industry should address. In reality, the honey market is a sweeteners market, dominated by corn sweeteners, granulated sugar, and artificial sweeteners. The job for the honey industry and for the Honey Board is to determine how best to carve out a larger share of this sweeteners market. The Honey Board's costs are an industry investment in securing a larger part of this sweeteners market.

Directed Marketing

Before spending your investment dollars on any specific advertising or promotional program, the Board conducted market research studies to determine how residential consumers, foodservice operators and distributors, and key commercial manufacturers were using or not using honey. This initial marketing research was conducted to insure that promotion funds would be spent productively (other marketing boards indicated pressure from within their industries to quickly spend promotional dollars, resulting in wasted initial expenditures. We did not want to fall into *that* trap). So following their advice, marketing research was conducted to better determine where promotion dollars might best be spent. These results then served as the guideline for developing the National Honey Board marketing plan.

The research showed that one-third of U.S. households had purchased honey during the last year — two thirds had not. When asked why they did not use more, consumers responded that they "did not know what to use it for" or "it lasts a long time." Similarly, foodservice operators and distributors said that they needed information on how to use honey and they needed to know that honey *added value* to their menus.

We saw an opportunity for targeted advertising and public relations programs.

The Marketing Plan

To keep it's efforts on target, the National Honey Board developed, and continually refines, a marketing plan. This marketing plan places in action programs and projects which aim toward satisfying customer needs (demands). The marketing plan includes a variety of projects to help maintain and expand honey markets. From consumer magazine advertising to contacts with key food manufacturers, the ultimate goal is to increase the demand for honey. Following is a summary of just some of the National Honey Board's planned promotion for this year:

• Advertising

The Honey Board wants consumers to know that "sweet things happen when you mix a natural pair" — a natural pair like flavorful honey and herbal tea. In October and November of 1988, the Board will be spreading this message in cooperative ads with Lipton Herbal Tea. The ads will appear in 10 leading consumer magazines ranging from ***Good Housekeeping*** to ***People*** to ***Reader's Digest.*** The magazines have a combined paid circulation of 210 million people.

"Just add honey — make more money" is the message of the National Honey Board's first foodservice advertising campaign. The ad stresses that honey adds value to a meal — what research said they needed to know. The ads will appear in *Restaurants Institutions* and *Bakery Production and Marketing* from June to Dec., 1988.

The Honey Board's Advertising efforts also include "Honey is Another Word for Love" radio advertisements and current development of a 10 & 30-second television ad.

• Retail Merchandising

To help improve retail sales, the National Honey Board will launch a retail (in store) merchandising program that mirrors the Fall/Winter, 1988 advertising efforts.

The merchandising program is in eight targets where NHB merchandising representatives meet with key retailers and radio ads are placed.

Shelf talkers, artwork, and merchandising fact sheets will help producers, handlers and retailers set up eye catching displays and place local ads for honey.

In addition, the Board will again sponsor a retail promotion contest from September, 1988 to February, 1989. Retailers can earn points by setting up special displays for honey (and Lipton Herbal Tea) and by placing newspaper and radio ads for honey. The retailer with the most points wins $10,000. We want retailers to recognize the profitability of honey promotion.

• Public Relations

The National Honey Board, with the help of its agency, **Evans/Kraft**, is continually providing feature and news stories about honey to newspapers, consumer magazines and foodservice publications. Honey-use articles, recipes and photos appear in leading publications on a regular basis. To date, an estimated 20 million people have read these stories. The estimated value of this "free" space if over $300,000.

In addition, the National Honey Board contacts key food editors, professional home economists and foodservice operators and distributors constantly reminding them of honey. In mid-May, Board staff met with 25

national consumer magazine food editors. As a result, several magazine articles featuring honey will be published at little cost to the Honey Board.

Public Relations activities range from honey trivia questions, to stories on the benefits of beekeeping to agriculture, to appearances by the lovable NHB honeybear mascot!

• Commercial Promotions

Honey is used as an ingredient in a variety of manufactured products. While the amount of honey varies from token amounts to substantial, honey can be found on every aisle of the supermarket.

The National Honey Board is working with another agency, **Thomas J. Payne and Associates**, to encourage commercial manufacturers to use substantial amounts of honey and to develop new products using honey. One such "new product" use now being promoted is wine and fruit juice clarification, using a honey process. Honey-enhanced animal food is also being explored with manufacturers.

The Board has developed a factual platform outlining honey's many chemical and physical attributes. This information is passed on to key food manufacturers in brochures, technical bulletins, seminars, and by telephone.

To answer technical questions about honey use, the Board sponsors a "Honey Hotline", a telephone answered by trained food scientists. The hotline is now being advertised in leading food manufacturing publications.

We want honey to be recognized as a unique, energized ingredient in the manufacturing world. An ingredient that, when used, *adds value* to manufactured products.

•Military/Public Marketing

The National Honey Board is actively pursuing the Military/Public sector market, also, particularly as an ingredient in manufactured food products. For example, the Canadian military provides soldiers with a 43 gram squeeze tube of honey, a peanut butter/honey and a honey dairy spread for field rations. They like honey products because of their portability/storability without refrigeration. Such products are dual purpose in that they can be used as a spread or drink sweetener. Further, they can be eaten without preparation, are easily stored, and provide a snack food that is universally liked. Food products developed for military personnel often find their way into civilian production channels. The National Honey Board, utilizing the services of **Thomas Payne & Associates,** is vigorously pursuing the military/public market segment for increased honey utilization.

• Export Marketing

The National Honey Board is also working to obtain Targeted Export Assistance (TEA) funds from the U.S. government. These funds will help the Board promote U.S. honey as a unique premium product in foreign countries. When TEA funds are secured, U.S. honey promotions are targeted for West Germany/ED, Saudi Arabia and Pacific Rim Countries.

Where We Want To Be

The National Honey Board's only goal is to increase honey use by consumers, the foodservice industry and commercial manufacturers, and in export markets. . . to strengthen the demand for your honey. All of us, as a part of the nation's honey industry, must remember that the "customer is the boss". To prosper we must develop new product markets, offering the consumer the convenience and other product attributes that they demand. We can, through NHB promotional programs aimed at consumers, foodservice, and manufacturing customers, regain our rightful sweetener's market share. Through factual educational efforts, honey's unique characteristics can be demonstrated to our customers. By working together, the U.S. honey industry will prosper in this competitive sweeteners market.Δ

Panning For BROWN GOLD

CLIFF WRIGHT-SUNFLOWER

This article is about propolis; how I collect it, process it and market it. It didn't take me very long to realize that there were more products produced by a beehive than honey. Just like any successful farmer, I wanted to figure out how to get more out of the same piece of property. I was already producing speciality honeys, beeswax products and pollen. Propolis became my next product adventure. I'd like to share my success with you.

Collecting

I collect propolis throughout the summer and fall. As I maintain my colonies I scrape it off inner covers and top bars, with my hive tool, into a little five pound plastic bucket I carry. In most cases I let the propolis get a little hard so that it is easier to handle than the new gooey propolis. Some collectors have argued that I am missing the necessary vital oils this way, but in six years of selling, my customers have been satisfied with the results and health benefits of my product.

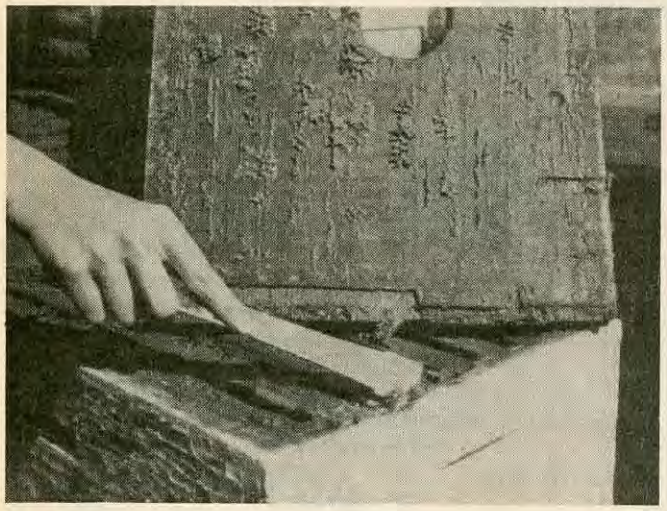
I collect most of my propolis in the honey house. I scrape it off the supers and the top bars of frames before they go through the uncapper. I clean and sort along the way as it saves time in the final cleaning stage. I try not to scrape paint, wood chips or dirt into my propolis bucket. I also pick out suspect dirty propolis. Next, I put the sealed collecting bucket into the deep freezer for four days to destroy wax moth eggs and larvae in all stages.

Scraping equipment for those nuggets of brown gold.

Processing

To process the propolis I first thaw it at room temperature. Then I dump it into a five gallon bucket half-filled with cold water. I break up the propolis into small pieces with my hands and hive tool. The propolis sinks and any remaining beeswax floats. I pull a fine strainer screen through the top of the water to skim off the beeswax. This goes into the wax production area of our business where we make candles, ornaments, furniture polish, carpenters' wax and sewing wax.

I then lay out a clean, large, discarded window screen on a couple of saw horses outside on the lawn. A good substitute could be made by stapling window screening to a large wooden frame. In either case, once the screen is used for this, don't expect it to work as anything else except a propolis screen. Now, I dump the bucket of propolis and water onto the screen and evenly spread it out. I spray it with a cold-water hose, using a medium to hard spray. This will wash out any loose



Get in every nook and crevice.

Washing with a spray on a screen.

After washing, let dry on screen.

dirt. Then I move the screen into the shade or a clean dry basement or workroom. Here the propolis needs 24 to 48 hours to dry. The time-consuming part of the process comes next. I spread the propolis out on a large white heavy paper on my clean workbench and clean and clean and clean. I pick out by hand any of the remaining propolis embedded with dirt, paint chips or wood. Good lighting and patience are necessities for this work.

The combination of freezing, washing and drying has hardened the propolis into chips. I sort or grade our product at this point. The chips of uniform size are packed and sold as is. The irregular sizes and crumbs are lightly ground in a food processor to make ground propolis. I only lightly grind the propolis with the chopping blade, because too much grinding can recreate gooey hive conditions and become a sticky mess. As with most beekeeping procedures, anything you "borrow" from the kitchen has little chance of making it back in the same condition. Be ready to buy your household kitchen anything you may render unreturnable.

Marketing

I lightly pack both ground and chips into separate half-pound queenline honey jars. I label them "Pure honey bee collected propolis". I use an accurate millogram scale and weigh each jar empty and full. I mark the weight exactly in milligrams on the label. I am clearly selling it as a bee produced food item, made on my farm. Then off to the health food stores it goes. A half-pound queenline jar holds three to four ounces of propolis. I sell this amount, wholesale, for about $5 to $6 and it retails for $8 to $10. I am careful to make no claims to its benefits. Often, local nutritionists do this job for me. Some customers request

Continued on Next Page

DON'T THROW IT AWAY!

LINDA GRAHAM

Hive scrapings, or the propolis that they contain are worth more than most beekeepers realize.

When a beekeeper sends his hive scrapings to the wax melter, he is throwing away the most valuable part per pound of his years crop, and is wasting part of his years profits.

Anyone who has a routine of scraping the supers, inside covers, frames and rabbets at any time during the year is bound to accumulate an amount of propolis that is worth good money. The current market rate paid for propolis hive scrapings is approximately $2.00 a pound, with shipping costs paid by the buyer. If the weight of the propolis obtained from the scrapings is worth more at the rate of $4.00 to $6.00 per pound, the beekeeper is paid at the higher rate.

At one time, the beekeeper was encouraged to float off the wax in a bucket of cold water, and send just the propolis that sank to the bottom. Now it is preferred that you ship just the hive scrapings, although washed propolis is still accepted. The reason for this is that in shipping, when most of the wax is removed, the propolis tends to lump together, making it very difficult to clean. In addition to that, the buyer has the equipment to render more propolis from a given amount of scrapings than the beekeeper. What is very important is that the scrapings be kept as clean as possible — nothing off the floor, and no scrapings from equipment over two years old. If you wish to sell your scrapings, *never* scrape any equipment that has been infested with mice or rodents.

The heaviest part of hive scrapings is the propolis, so when you melt it down for wax, you are throwing away the most valuable part of your work. Out of one hundred pounds of scrapings rendered for wax, the wax might be worth up to $60. That same hundred pounds would probably bring $200.00 or more clear by selling it as propolis hive scrapings. Besides, it doesn't take nearly as much work or energy to put the hive scrapings in a barrel or box and ship it as it does to render it down for wax. A note to anyone having hive scrapings for sale, most buyers want a five to ten pound sample as a first shipment which is paid for.

To obtain the address of propolis buyers, check the classifieds or want ads in any of the bee magazines or journals.

Give it a try. You might be surprised at what you have been throwing away.Δ

Propolis . . . Cont. from Page 415

propolis to take internally to fight gastric infections. Others use it for relief from sore throats. As a suppository it has been used to combat infection instead of anti-biotics which are avoided, for example, by pregnant women. As an external remedy, many customers blend the ground propolis with rubbing alcohol in a 50%-50% mixture and use it as a salve for infections. I am fascinated by how people use propolis, and not overly concerned with scientific controversy concerning its purported uses. What pleases me though are the grateful people who feel that my propolis has helped them.

If you market your products to health food stores there is a good chance that people there have spoken to you about propolis. Hopefully this will help you turn your own brown gold into a high-profit item to go along with your regular honey line.Δ

Cliff Wright-Sunflower and his wife Lois collect propolis, keep bees and make candles and wax ornaments out of their home in Bath, PA.

DOES IT REALLY WORK?

CONNIE and DR. ARNOLD KROCHMAL

Propolis has been used by man for about 5,000 years for healing, and contemporary medical studies show definite and valid helpful applications of propolis for treating human, and interestingly enough, livestock health problems.

This bee product was used by the ancient Greeks and Romans for treating wounds and injuries, and its use for that continues to this day. In the Boer War in South Africa, an army physician used propolis to treat wounded soldiers and was greatly pleased with the healing response. During and after World War II, Russian army doctors used propolis in their hospitals for the same purpose, and with the same positive results.

The most active valid research programs for propolis uses are being carried out in Europe, mostly in the eastern countries—Romania, USSR, and Poland. There is also some research going on in France, Denmark, Germany, Norway and Yugoslavia.

During two visits to Romania, under the auspices of the National Academy of Sciences, we spent time at the famed Apitherapy Clinic, with its staff of MD's, DDS's and pharmacists. Our main contact was with Dr. Nicolas Mihailescu, an endocrinologist. Also, in Moscow and Leningrad, as guests of the Main Botanical Garden, we presented lectures on herbal uses of the American Indians and had the opportunity to meet some of the research workers there in the uses of propolis.

In Romania, Propolis H, a pill form, is taken orally, and Dr. Mihailescu told us it had been useful in treating two kinds of skin tumors. The same medicine, he told us, had been used successfully in treating prostate problems, healing 70% of the cases. Used in conjunction with surgery, it has been credited with hastening burn healing, producing supple, well-healed scars. Dr. Mihailescu commented that there was, in a small number of cases, an allergic reaction, but was convinced propolis was anti-biotic, anti-viral and anti-fever.

In Polish medical studies, propolis was used to regenerate bone tissue, halving healing time compared to non-propolis treatments. Other Polish medical scientists found that combining two of the alcohol-extract fractions gave anti-bacterial action.

In Norway it was noted that propolis inhibited some gram-positive bacteria.

Russian and Romanian scientists report that propolis acts as a protectant against X-ray burns. Russian doctors have used a 60:40 mix of propolis and beeswax to treat bronchitis. They reported that propolis left uncovered too long loses it's curative powers.

In the United States the Food and Drug Administration considers, at present, propolis to be an unsafe food additive which cannot be marketed as a food, dietary supplement, or food additive. However, its use as a topical application is apparently permitted.Δ

HINT

Many honey recipes for baked goods call for buttermilk, usually to be used with baking soda instead of baking powder. Since it can be difficult to keep buttermilk on hand for those inspired moments when you wish to bake something, look in your grocery store for powdered buttermilk. My supermarket carries it with baking supplies such as chocolate bits and baking powder. Follow the instructions on the container for the quantity of powder and water. With a container of powdered buttermilk you will have the exact measurement whenever you need it.

HOME HARMONY

By ANN HARMAN
6511 Griffith Road
Laytonsville, MD 20879

Every so often a newspaper or magazine will print a recipe that makes me yell "WOW!" and jump up and make it. I realize that not every combination of ingredients will inspire such a reaction in other people, but the recipe may be worth a try — at your leisure.

About this time of year that little, innocent zucchini seed you planted has turned, rapidly, into a huge plant that seems to produce bushels of zucchini every time you turn your back to it. Happily, zucchini recipes are almost as plentiful as zucchini. Since summertime is salad time, try this recipe with some of your harvest.

Fresh Zucchini Toss

2/3 cup salad oil
1/3 cup wine vinegar
1 clove garlic, minced
1 Tbls. honey
1/2 tsp. seasoned salt
1/4 tsp. pepper
2 cups coarsely grated zucchini
1 med. head lettuce, torn into pieces
1/2 cup red onion rings
1 cup seasoned croutons
tomato wedges

Combine oil, vinegar, garlic, honey, salt and pepper in blender or jar. Mix well. You can let zucchini drain for a while. Then pour oil mixture over zucchini and chill several hours. Place lettuce, onion rings and croutons in large salad bowl. Add zucchini mixture and toss lightly. Garnish with tomato wedges.

Nebraska's Honey Cookbook
Nebraska State Honey Producers

Have you ever thought about applesauce? Probably not, because it is a staple in our cupboards, much like a bottle of ketchup. But applesauce is so versatile! It can be served hot and spiced on a cold day, or chilled with cream on a hot day. It can be frozen or canned with no loss of flavor or texture. Now that you are thinking about applesauce, how about trying this easy and cool dessert on a hot July day.

Honey Apple Freeze

1 cup applesauce
1/4 cup honey
3 Tbls. lemon juice
1 tsp. grated lemon rind
1 cup evaporated milk

Combine all ingredients and mix well (honey must be dissolved). Freeze as you would ice cream, by your favorite method.

Honey Recipes From The Covered Bridge Country
Collings, Penry & Green

As long as you have your ice cream freezer handy, here's another recipe. Not only does it taste good, but it looks beautiful, too.

Strawberry/Raspberry Ice

3/4 cup honey
3/4 cup water
4 cups fresh or frozen strawberries or raspberries
2 cups pink lemonade
2 cups raspberry-cranberry juice drink

In a small saucepan combine honey and water. Heat and stir until completely mixed. Cool. In a blender container or food processor bowl, blend strawberries or raspberries until smooth. Strain through a sieve to remove seeds (I find the processor works better for raspberries). Stir together cooled honey syrup, blended berries, lemonade and cranberry drink. Freeze by your favorite method for ice cream. Makes 16 servings.

adapted from
The Delmarva Farmer

One dessert that is always a success is the make-it-yourself ice cream sundae. Set out bowls and spoons, two or three flavors of ice cream, bowls of sauces, and toppings such as nuts and cherries. It is fun to make your own sundae. Here is a sauce that can be used.

Chocolate Fudge Sauce

1 tsp. cornstarch
3/8 cup milk (not quite 1/2 cup)
2 squares unsweetened chocolate, broken or cut in small pieces
1/3 cup honey
1 tsp. butter
1/2 tsp. vanilla

Mix cornstarch and milk in a double boiler. Add chocolate and melt. Add honey and butter. Cook until it begins to thicken (about 5 minutes). Add vanilla. Serve on ice cream, cake or puddings. Serves 8 to 10. If you prefer a sweeter sauce, add more honey.

Honey Recipes
North Carolina St. Beekeepers Assn.

The following recipe caught my eye since it has two of my very favorites: black walnuts and dried apricots. Although these might not be your favorites at all, I still wish to share the recipe with you.

Honey-Cardamom Bran Muffins

1 cup all purpose flour
1/2 cup whole wheat flour
1/2 cup bran (miller's bran, cooking bran, oat bran)
1/4 cup vegetable oil
1/2 tsp. salt
1/2 cup chopped black walnuts
1/2 cup dried apricots, chopped
1/2 tsp. ground cardamom
1 tsp. baking soda
2 Tbls. honey
1 egg, lightly beaten
1 cup buttermilk

Place flours, bran, oil, salt, black walnuts, apricots, cardamom and baking soda in a mixing bowl. Stir to mix. In a separate bowl mix honey, egg and buttermilk. Blend quickly into the dry ingredients, using a minimum of strokes. Do not attempt to beat out lumps. Fill well greased muffin pans three-quarters full. Bake at 400° for 15 to 20 minutes. Makes 1 dozen muffins.

The Washington (D.C.) Post

ANSWERS TO TESTING YOUR BEEKEEPING KNOWLEDGE

1. **True** The ability of honey bees to share information about feeding sites greatly helps colonies achieve high efficiency in foraging. Whenever a bee discovers a new rich food source, she promptly recruits nest mates to it and so helps ensure that her colony's foraging force stays focused on the richest available food sources. In order to maximize their returns for the amount of energy expended, they forage on the floral sources nearest the hive that provide the greatest rewards.
2. **False** Yellow sweet clover normally blooms about two weeks earlier than white sweet clover and in areas where both are present, a honey flow of four to five weeks can be expected.
3. **False** Loads of pollen are usually collected more quickly than those of nectar. Thus nectar gatherers make approximately 5-8 trips and pollen collectors 7-13 trips per day.
4. **True** In general terms, as the temperature increases plants produce larger quantities of nectar and release their pollen supplies. With larger supplies of food available, foraging efficiency increases and so do the sizes of pollen and nectar loads.
5. E) 5%
6. H) Tulip poplar
7. D) Basswood
8. A) Buckwheat
9. G) Rhododendron
10. F) Aster
11. C) Alfalfa
12. B) Purple loosestrife
13. E) Cotton
14. 1. *Nectar volume.* The larger the supply of nectar available to the bees, the less flowers they will need to visit to obtain a load of nectar. Also, the higher the sugar concentration the more attractive the source.
    2. *Total weight of sugar.* The actual weight of sugar found in the nectar supply is an indication of the total caloric reward received by the bee and takes into account both nectar volume and sugar concentration.
    3. *Sugar composition.* The sugar composition of the nectar supply and the relative amounts of each may influence the preference of foragers for one flower species over another.
    4. *Location of nectar supply within the flower.* The shape and size of the flower and where the nectar supply is located within the flower determine how rapidly and efficiently the forager can obtain the nectar supply.
15. Individual bees do not wander at random over a crop but usually return for several consecutive trips or days to the same localized foraging sites. These foraging areas may be a few square yards of a large field crop or one or two individual bushes or trees. Factors that affect the size of this foraging area include:
    - distance between plants (plant density)
    - number of flowers per plant
    - stage of flowering
    - amount of nectar and pollen available
    - weather conditions
    - competition from other bees and pollinating insects

ANSWERS TO EXTRA CREDIT QUESTIONS

16. B) 5.0%
17. E) 40 mg
18. B) 15 mg
19. B) Octadeca-trans-2,cis-9,cis-12-trienoic acid

There were a possible 24 points in the test this month. Check the table below to determine how well you did. If you scored less than 12 points, do not be discouraged. Keep reading and studying-you will do better in the future.

Number Of Points Correct
24-18 Excellent
17-15 Good
14-12 Fair

QUESTIONS?

Q. *The weather turned cold right after I had set up my observation hive, and suddenly most of the pupal caps were perforated or removed and dead pupae appeared at the bottom of the hive. How come?*

David H. Kesler — Memphis, TN

A. Observation hives require special maintenance and close attention. If the weather turns cold the bees huddle close together, instead of covering the comb, thereby exposing the uncovered brood to chill. An observation hive, having few forager bees, is also vulnerable to sudden starvation if there is even a brief interruption of nectar flow. In your case the brood was apparently chilled, and the caps were chewed away in order to remove dead pupae.

Q. *I bought some pollen traps two years ago and installed them in the spring, switching them on and off through the summer. The hives did not produce much honey and seemed somewhat demoralized. There is a good market for pollen and I would like to produce it. Can this be done without sacrificing honey production?*

Victor Pfaff — Huntingburg, IN

A. Pollen trappers tell me that their honey production does not suffer significantly, and my own limited experience points to the same conclusion. If there is plenty of pollen in the fields then the bees apparently just gather more, to make up for what they lose to the trap, and when there is a good honey flow they can still take advantage of it. I think you may have made a mistake in putting the trap on in the spring, however, for that is when the need for pollen for brood rearing is at its peak. Perhaps you should wait until July to start the pollen trapping.

Q. *My colonies overwinter in two deep hive bodies. When I separated these I found a great deal of drone brood on the top bars of the frames in the bottom story of one colony, and scraped it off. This colony produced only about half as much honey that year as my others, even though it seemed to be a strong colony. Did my scraping off that drone comb between the two stories demoralize the colony, causing it to produce less?*

Jeffrey S. Anderson — Hollytree, AL

A. Finding excessive burr comb, sometimes filled with drone brood, between the two stories of a hive is an indication of improper spacing. The space between the top bars in the lower story and the bottoms of the frames in the upper story should be no more than 3/8". Scraping burr comb, even when filled with brood, does not, I think, significantly affect colony production, but it is a nuisance and the improper spacing should be corrected.

Q. *From a swarm hived on foundation in a 6-5/8" super I got a lot of pollen in the comb honey super just above the excluder. How can this be prevented?*

Gary Becker — Aspers, PA

A. This is often a problem when trying to get comb honey over a brood nest that is confined to a super that is less than full depth. The only way to keep pollen out of comb honey is to make sure there is honey in the hive below, which is difficult in the case of a very shallow hive. Bees store pollen above the brood nest and more or less below their honey stores, so if the brood nest goes almost up to the excluder you will get pollen in the bottom super. An extracting super under the comb super would solve the problem, but would delay the bees filling the comb super.

Q. *If I use only a deep brood chamber and one shallow super during the fall flow, with the idea of leaving all the fall honey for the bees and wintering them as a one-and-a-half story hive, is it not possible that the bees will run out of room to store honey?*

Michael Buccieri — Java Village, NY

A. This is not likely. As brood rearing declines in the fall comb space is made available for honey storage, and then as the honey gets used in the spring comb space is made available for brood rearing.

Q. *Propolis on my fingers causes the skin to crack and become exceedingly sore. The problem seems to be getting worse each year. I could wear bee gloves, but usually prefer not to. Can anything be done about this?*

Name withheld by request

A. Buy a small quantity of "Bag Balm" from any store specializing in agricultural products. This is used by diary farmers to counteract dryness and cracking on the udders of their cows, and it is wonderful for one's hands, too.

Q. *A nearby cotton field was sprayed to kill the leaves so the cotton could be harvested. Some cattle near the field died from the poison. Do you think it will have any effect on the honey in the hives?*

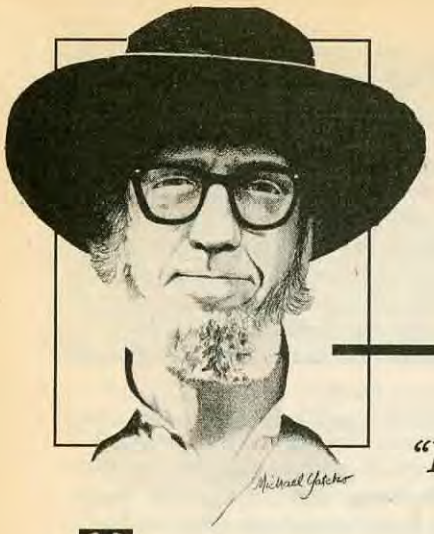
J. M. Henderson — Big Spring, TX

A. Probably not, unless the poison drifted into the hives, in which case you would find many dead bees at the entrances. As a precaution, however, I would leave that honey for the bees instead of harvesting it for human use.

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



BEE TALK

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

"Every beekeeper needs a faithful old Bee Truck."

This spring, as in every spring, I had ample opportunity to taste the inexpressible joys of existence. I saw my bees come to life, the fruit bloom and the meadows covered with the glow of dandelions, and I reflected, once again, on how little is needed for the attainment of happiness. Most of life's blessings are the gifts of the gods, and whatever we try to add to these, by way of possessions, status or power, are likely to do little more than blind us to life's genuine fulfillments.

I have a little pickup truck that serves no purpose but to be driven from one bee yard to another. She's nearly twenty years old, has never been washed or had any of the dents taken out, but she still purrs along about as good as new and takes hardly any oil at all. It may seem an extravagance to have a vehicle of such limited use, especially when I have only three outyards, with the most distant only five miles away, but it isn't. It costs me only a dollar a year to register my bee truck, and I don't have to have her inspected. That's because I've got her registered as a "farm vehicle". So the only expense, practically, is to put gas in the tank from time to time — though I do think I'll need to put a new set of plugs in when I get around to it. She sort of chugs a bit if I get up over thirty, which I seldom do. When she needs a new tire I can pick up an old one, good enough for my purposes, for two or three dollars. Being a farm vehicle, however, means she can't be driven anywhere except on the roads between my apiaries, and I have to keep a list of these on hand to show any police officer who challenges my right to this great bargain. But I sometimes do drive off the permissible path if my mission is in keeping with the spirit of the law, such as, when called upon to gather a stray swarm someplace.

Anyway, I've grown fond of my faithful old bee truck after the countless happy hours we've spent together. All my apiary stuff stays right there in the truck year 'round, and there's always a big box of smoker fuel on the seat beside me. In the spring, for my first visit to the bee yards, I just go out and get her started and drive off. All the bee stuff is still there from the previous season. No one else ever rides in the old bee truck, except, sometimes, my old dog, who hates bees and doesn't much like to go with me. If I get in with a bee buzzing around then my old dog curls up in terror on the brake and clutch pedals and it's almost impossible to either drive or move her. So it's usually just me and my bee truck, off to the bee yards in a leisurely way, and there is seldom any rush about things.

Things tend to accumulate in my old truck, and to stay there long after they were needed. I was surprised to unearth an old camera tripod there, which I hadn't used for years. And I once found my watch under the accumulations. It had been missing for the better part of a year. I was very glad to come upon that, because it is a very good watch. I paid six or seven dollars for it, at the drug store, and it doesn't lose more than five or six minutes a day, which is accurate enough for my purposes.

Last fall a gentleman phoned to say he had a hive of bees, and would I like to have them. So I got in my bee truck and went over there. This took me way off my permissible route, but no matter, no police officer came by to ask what I was up to. This gentleman, it turned out, lives in a grand house, and there were a couple of big cars in the drive and, sure enough, down in the brush, almost obscured by the bushes, a hive of bees. He had gotten all worked up about bees several years before, took the short course at the university, bought lots of equipment and set up the hive. Then he promptly lost interest. He loaded my truck up with neatly-painted supers and hives, never used, and I told him I'd be happy to return in the spring to get the bees. And this I did, just the other day. The hive, three stories high, couldn't be moved, so I laboriously took out combs and made nucs until I got it down to one story. The bottom board was completely rotted away, and I had neglected to bring another, so I set the remaining hive body with the bees onto one of the hive bodies I had emptied out. A couple days later I went back with a proper bottom board, and of course the bees had built an amazing quantity of comb down into the empty hive body. I had to scrape all that off. Now, in another day or two, I'll drive back over there and bring the bees home — four round trips in all, counting the one last fall, a total distance of eighty-four miles, as I figure it. But I've got myself another hive of bees, several nucs, and quite a pile of nice new equipment, all for just the cost of maybe four gallons of gasoline and, of

course new queens for the nucs.

Now I'll just wait for the honey flows. The trees and plants will bloom, unbidden, and if the gods are kind, as they usually are, and the weather turns out right, my supers will fill up with comb honey. I already have customers asking me to save them some black locust honey. That's a tricky one. I haven't gotten any black locust honey for a couple of years. Maybe this will be the year. In any case, it will be a year of surprises, so far as honey flows go. Every year is.Δ

(Comments and questions are welcomed. Please use Trumansburg address and enclose a stamped envelope.)

SIFTINGS

CHARLES MRAZ • Box 127 • Middlebury, VT 05753-0127

"Allergic reactions can be scary, but need not occur."

I recently received a letter from a hobby beekeeper that had an allergic reaction after being stung while hiving a swarm. Allergic reactions can be scary, but are usually rare.

The incident was as follows: "While trying to hive a swarm late in the evening, bees got under my veil and three stung me around the neck, and one stung me on the hand when I took off my glove. I began to feel sick and took two anti-histamine pills, but soon lost them. I broke out in a cold sweat, had some breathing difficulty and burning in my stomach. I tried another anti-histamine pill and lost that also. I may have been allergic to the anti-histamine pills. I was ready to go to the hospital, but developed diarrhea. I felt better after that, so I didn't go, but that night I didn't sleep well and couldn't seem to get warm."

"I had a similar experience the year before, but not as bad as this one."

This beekeeper asks why this happened, after keeping bees for some 15 years, and what can be done to avoid this again.

The usual recommendation is to stop keeping bees and avoid getting stung. This is obviously not a good solution, since there is no way to insure never being stung again, even if beekeeping is given up entirely.

If you reach the point where you have an allergic reaction then something must be done. An allergic reaction is when your whole body reacts to the bee sting, not just the spot where you were stung. The symptoms can vary, but they usually start almost instantly, certainly within two or three minutes. Your eyes will water and your nose will run. Your skin develops a rash and itches, sometimes over most of the body. It usually does not make any difference where you are stung.

With long intervals of time between stings, each time you are stung can cause more serious reactions, and can lead to anaphylactic shock. This occurs when your pulse and blood pressure drop to almost nothing. Blood does not reach the brain and causes one to faint. In such cases it is necessary to inject adrenaline and to restore heart action. It is a good idea to have a sting kit handy, and a doctor should be called immediately.

The desensitizing treatment for severe allergy is to give gradually stronger doses of venom by injection over a period of time, until a solution stronger than a direct sting can be taken with no problem. When that point is reached occasional stings should be taken to maintain immunity.

The most experienced allergist in the field is Dr. Mary H. Loveless, of Westport, CT. She pioneered the use of of the pure venom allergens many years ago, which is now the standard treatment. She can desensitize an allergic person in just one day by injecting increasingly stronger doses of venom about every 20 minutes. Other allergists usually inject over much longer periods of time, and the results are seldom as good as with the Dr. Loveless method.

The biggest mistake beginners make is to avoid getting stung. Some get dressed in space suits so bees cannot sting them. This is the worst possible thing a beekeeper can do. Casual contact, that is not getting stung, will aid in developing sensitivity.

Anyone starting to keep bees must get stung right at the beginning. And, you must continue this on a routine basis until you are desensitized, and no longer swell when stung. Work without gloves as often as you can to increase the likelihood of getting stung. At first you will swell. But no matter how much you swell, even if you blow up like a balloon, you are not having an allergic reaction. This is normal, as long as the swelling is in the area of the sting. After awhile, from 3 - 6 weeks, you will swell less and less with each sting until you are completely "immune" and never swell.

You must, however, always wear a veil, as the bees' favorite targets are the eyes. Swollen eyes for a beginner can be embarrassing (and dangerous to anyone).

But stinging behavior should be controlled, and all beginners must learn to use a smoker correctly. Many beginners are afraid to use smoke on their bees, perhaps for sentimental reasons, or that "it might hurt them". You must learn to "read the bees" when you work with them, and give smoke when they need it.

Learning how to use a smoker is of utmost importance. Like the gun fighters of the Old West, you must learn to "beat the bees to the draw". If they jump first, it is too late to try and control them and you will soon learn to keep a well lit smoker on hand all the time and use it when needed.

If you become allergic to bee stings, it does not mean you must give up beekeeping. But to avoid all of this just get stung right from the start. You'll be a better beekeeper and it will help keep you in good health.Δ

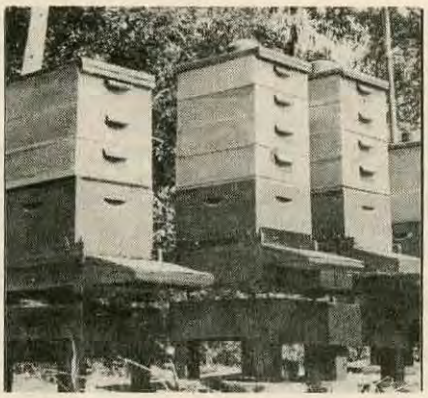
KOOVER'S KORNER

CHARLES KOOVER • 1434 Punahou St. #709 • Honolulu, Hawaii 96822

"Dark or natural colored hives — A Life Saver!"

The greatest menace to bees is to be put in a white or aluminum-painted hive. First of all the owner of the hive thinks he has done the right thing by his bees, for a light colored hive will reflect the heat better than a dark colored one. So, there should be no danger of combs melting down, etc. It gives him a false sense of security. Comes a hot spell and they do melt down and he is all confused and blames it on the unusual heat. The truth is, they will melt almost as quickly in a white-painted hive as in a black-painted one. What causes the comb to melt is not the lack of the right color of paint but several other reasons.

Lack of air circulation is the real villain, plus thin, uninsulated hive-covers. The bees in the pictures never hang out even when the temperature shoots up to 110 degrees, as it does once or twice almost every summer in Southern California. Air drainage is perfect and the hives, although painted a dark color, are protected where protection counts most, for the covers are insulated.



With their backs toward the trees and facing east, these hives get the morning sun. The canyon in which they are located gently slopes down and the cool air from the woods behind the hives brings relief from the boiling summer sun, consequently air drainage is perfect.

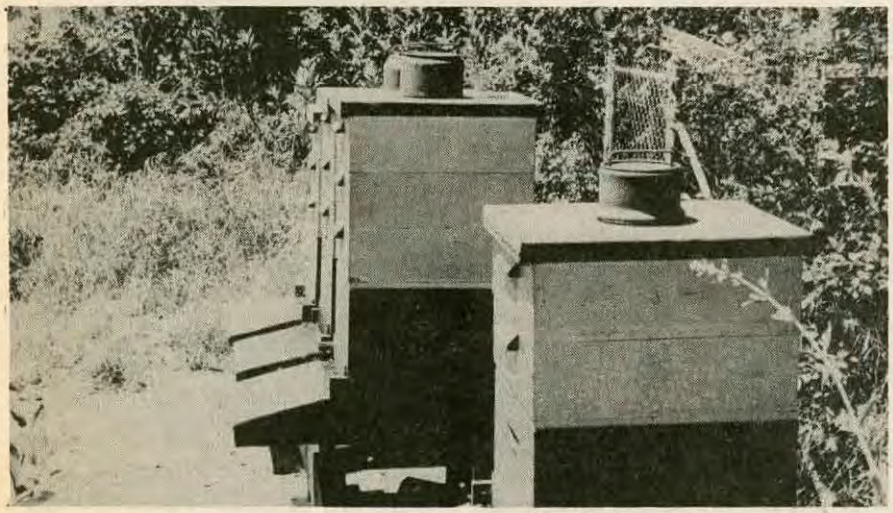
Furthermore, these hives face east by south-east so by 1 p.m. the sun is off the entrance and from then on the fanners are standing in the shade. Fanning one's wings off to save a hive from becoming overheated, while having to stand in the broiling sun, would be an unbearable task, so why force bees to do it, where a little forethought might have prevented it? Bees which have to spend their time and energy fanning are not collecting nectar.

The abuse my hives suffered, not from the heat but from vandals, causes me to take the step of painting them with a battle-ship grey paint, which blends in with their surroundings. A white painted hive is like a white-painted lighthouse along the ocean. It can be seen from afar. Driving along the countryside one can spot beehives by their conspicuous white color. If they had been painted a color which camouflaged them, thieves and vandals might not have had their attention drawn to them.

It was with some trepidation that I took the step of using a dark colored paint and when the temperature shot up I kept going out to check on the bees. If anything, the bees like it better, for instead of bumping up and down before alighting on the flight board, they fly right up to the entrance and walk in. The glare of the white paint must have dazzled them before.

The hives in the pictures show only the brood chambers painted in a dark grey paint but since these pictures were taken, even the extracting supers have been painted the same color. From a distance they completely blend into the landscape. It may not prove to be complete protection but it certainly helps.

As for the paint used, there is on the market a latex paint which can be applied even when the hives are wet. Brushes can be washed out in water if done right away. When it dries, and it does dry very fast, it becomes a tough, weatherproof coat which breathes, and this prevents blistering. It can be quickly applied without showing brush marks. So try one hive and be convinced.Δ



When nectar comes in fast and humidity is high within the hives, the oil-base paint blisters, but the latex paint is porous so it lets the moisture in the hive come through the paint to evaporate. Note blister on white-painted supers while the brood chambers are free.

News & Events

Dr. Joseph O. Moffett Retiring

After 21 years of service with the Agricultural Research Service and a total of 40 years in professional apiculture, Dr. Joe Moffett is retiring from the U.S. Department of Agriculture on July 2nd. In his earlier years, Dr. Moffett served in the U.S. Army in Europe during World War II, conducted apicultural research at Colorado State University in the 1950's, and was Secretary-Treasurer of the American Beekeeping Federation from 1959-1964. He began his bee research career with the Agricultural Research Service in 1967.

Joe worked on the professional staff of the honey bee and pollination research programs at Laramie, WY; Tucson, AZ; Stillwater, OK; and most recently in Weslaco, TX. His research accomplishments have been many and varied. He has consistently been one of the most productive apiculture-research scientists in North America. His enthusiasm and dedication are well-known and widely appreciated. Dr. Moffett's contributions include original studies on Terramycin treatment of European foulbrood, saving many millions of dollars over the past 30 years. His pioneering research on hybrid-cotton pollination has important scientific merit and represents an enormous potential economic benefit to both the cotton and beekeeping industries. His most recent studies on the chemical control of the tracheal mite and Africanized honey bees will eventually benefit national and international beekeeping.

During his career, Dr. Moffett has published over 150 articles covering various topics from *citrus pollination* to *herbicide poisoning* of bees and the value of honey bees to *wildlife habitat*. He is the author of a book entitled, *Some Beekeepers and Associates*. This book describes the history and current activities of many commercial beekeeping businesses in the United States. He was the founding editor of *Colorado B-notes* and the Federation Newsletter. He is a co-organizer and the first president of the American Bee Research Conference which will meet in Weslaco this coming October.

Joe's many friends in bee research, industry, and especially at the Weslaco Bee Lab, will miss his many contributions and friendly smile. However, we know Joe and his wife, Arlene, are looking forward to spending more time with their family in Oklahoma. Those who know Dr. Moffett realize that Joe is not really retiring but rather, just changing work locations. We can't imagine Joe playing shuffleboard all day when there are so many challenging projects to engage in. If you would like to send Joe a letter of appreciation or give him a call, he would sincerely appreciate hearing from you. Listed below is his mailing address and telephone number in Oklahoma.

Joe and Arlene Moffett
Rt. 3, Box 1760
Cushing, OK 74023
(916) 372-4593

Amendment 3 to Honey Announcement KC-HP-3

This Announcement is amended to change the marking requirements for primary and shipping containers.

1. Paragraph 11.G, Markings and all applicable exhibits which currently state: "DONATED BY THE U.S. DEPARTMENT OF AGRICULTURE FOR FOOD HELP PROGRAMS" or "DISTRIBUTED BY USDA IN COOPERATION WITH STATE AND LOCAL GOVERNMENTS FOR FOOD HELP PROGRAMS" are changed to read: "DONATED BY THE PEOPLE OF THE U.S.A. FOR FOOD ASSISTANCE PROGRAMS".
2. Existing supplies with the old donation statements may be used through September 30, 1988 provided the contractor advises the Kansas City Commodity Office of the number of containers by commodity and size.
3. This Amendment is effective for all purchases on or after April 14, 1988.

E.A.S.-'88 Short Course

E.A.S. SHORT COURSE IN BEEKEEPING. Dr. Larry Connor has planned an excellent Short Course in Beekeeping program for this summer's E.A.S. Conference. It will be held on Monday, August 8, through Wednesday, August 10, from 8 a.m. to 9 p.m. (Monday and Tuesday) and until 5 p.m. on Wednesday. The program includes lectures, demonstrations, workshops and field work, and even an informal evening social for swapping bee experiences. With a registration fee of only $65.00, including notebooks and "handout" materials, coke breaks, the social, etc., it has to be about the best buy in beekeeping education, ever!

The course is oriented for both beginners and experienced beekeepers. The first day relates to Diseases, Pests and Mites, including extensive coverage of Varroa and Tracheal mites. Foulbrood, sacbrood, wax moths, and removing bees from buildings will also be covered. Day two

Please print legibly!
__Mr.
__Mrs.
__Ms. _____

EAS-88 REGISTRATION FORM

Late Fee Deadline: 7/15/88
Room & Meals and Social Events Deadline is 8/1/88

Phone: ____/_____(day__, night__)

Please check if: Speaker__, Workshop Presenter__, Judge__, Exhibitor__, Director__, Delegate__, Officer__.

Address _____

Name & ages of children coming with you:
name: _____ age: _____
name: _____ age: _____
name: _____ age: _____

City _____ State _____ Zip _____

Total # in family attending EAS-88 _____ Spouse/companion's name _____

Are children participating in free children's day activity program? ____ If so, circle children's ages above.

Travel: Date & time of arrival _____ Departure _____
Coming by: private car/truck__, recreational vehicle__, airline at Bradley Field, Hartford, CT__
Will you need transportation from/to Bradley Field? yes__, no__. Airline _____ Flt.# _____ Time _____

1. EAS ANNUAL DUES: Individual/family/associate @ $10.00, or Life Member @ $0, or '88 dues previously paid____. TOTAL ANNUAL DUES =$_____

2. IF STAYING AT COLLEGE: (skip to #3 if staying off campus)

A. EAS CONFERENCE FEE: (must be paid by all 18 yrs. or older)
Full time (3 days) @ $35.00 x _____persons = _____
Part time @ $20.00/day x _____persons x _____days = _____ TOTAL CONFERENCE FEE =$_____

B. ROOM & MEALS: (in campus dormitories - single, double or triple rooms) - Deadline for reservations is 8/1/88!
I/we prefer: single_____, double_____, triple_____ room, if available. (If not available, you will be housed in adjacent rooms wherever possible).
Full time (3 nights - Wed. 8/10 - Fri. 8/12; 1 dinner - W; 3 breakfasts - Th, F, S; 2 lunches - Th., F)
Adult @ $103.00 x _____persons = _____
Child (3-11 yrs. in own sleeping bag on floor of parents' room) @ $50.00 x _____children = _____
Part time (1 night, breakfast & lunch next day): Please check: Wed.____, Thurs.____, Fri.____.
Adult @ $35.00/night x _____persons x _____days = _____
Child (3-11 yrs. in own sleeping bag on floor of parents' room)
@ $18.00/night x _____children x _____days = _____
Saturday lunch (not included in any of above) @ $5.00 x _____persons = _____
TOTAL ON CAMPUS ROOM & MEALS =$_____

3. IF STAYING OFF CAMPUS: (commuting from home, camping, staying in a motel, etc.) - all reservations after 8/1/88

A. EAS COMBINED CONFERENCE AND COLLEGE FEE: (must be paid by all 18 yrs. or older)
Full time (3 days) @ $65.00 x _____persons = _____
Part time @ $30.00/day x _____persons x _____days = _____ TOTAL COMBINED FEE =$_____

B. FOOD SERVICE: Available on a cash basis at Blanchard Campus Center.

4. SOCIAL EVENTS: (available to all attendees at the following charges) - deadline for tickets is 8/1/88!

A. SPOUSE'S LUNCHEON (Thurs. 8/11), including Campus Museum and Art Gallery Tour (limited to first 110 signing up)
@ $10.00 x _____persons = _____
B. NEW ENGLAND CLAM BAKE (Thurs. 8/11) @ $19.50 x _____persons = _____
Non-seafood options: Barbecued Chicken x _____persons
Grilled Steak x _____persons
C. ANNUAL AWARDS BANQUET (Friday 8/12) @ $17.50 x _____persons = _____
Meat choice: Steamship Round of Beef x _____persons
Boneless Breast of Chicken x _____persons
TOTAL SOCIAL EVENTS = $_____

5. EAS SHORT COURSE: (Monday 8/8 - Wednesday 8/10)

A. IF STAYING AT COLLEGE: (skip to B. if staying off campus)

(1) SHORT COURSE REGISTRATION FEE: (must be paid by all on campus attendees)
Full time (3 days) @ $65.00 x _____persons = _____
Part time (2 days) @ $50.00 x _____persons = _____ check two: Mon.___, Tue.___, Wed.___.
(1 day) @ $30.00 x _____persons = _____ check one: Mon.___, Tue.___, Wed.___.

(2) ROOM & MEALS: (in campus dormitories - single, double or triple rooms)
I/we prefer: single_____, double_____, triple_____ room, if available. (If not available, you will be housed in adjacent rooms wherever possible).
Full time (3 nights - Sun. 8/7 - Tue. 8/9; 2 dinners - M, T; 3 breakfasts - M, T, W; 3 lunches - M, T, W)
Adult @ $110.00 x _____persons = _____
Child (3-11 yrs. in own sleeping bag on floor of parents' room) @ $56.00 x _____children = _____
Part time (not available for Short Course - must make off campus arrangements)
TOTAL ON CAMPUS SHORT COURSE = $_____

B. IF STAYING OFF CAMPUS: (commuting from home, camping, staying in a motel, etc.)

(1) COMBINED SHORT COURSE AND COLLEGE FEE (must be paid by all off campus attendees)
Full time (3 days) @ $95.00 x _____persons = _____
Part time (2 days) @ $70.00 x _____persons = _____ check two: Mon.___, Tue.___, Wed.___.
(1 day) @ $40.00 x _____persons = _____ check one: Mon.___, Tue.___, Wed.___.

(2) FOOD SERVICE: Available on a cash basis at Blanchard Campus Center.
TOTAL OFF CAMPUS SHORT COURSE = $_____

6. LATE REGISTRATION FEE @ $10.00 if postmarked after July 15 LATE REGISTRATION FEE = $_____

7. TOTAL PAYMENT ENCLOSED (make check payable to "EAS-88") ==========
Cancellations must be made no later than Friday, July 29 to receive full refund - Call (617) 369-0467 before 7/16 and (508) 369-0467 after 7/16

$_____

Signed _____ Date _____

If Handicapped (wheelchair) access for housing is required, check here:_____

NO ROOM & MEALS OR SOCIAL EVENTS RESERVATIONS AFTER AUGUST 1, 1988!

Mail completed form and check to: Allan B. Corderman
President, EAS-88
112 Balls Hill Road
Concord, MA 01742

telephone: (617) 369-0467 (day)
(617) 369-8440 (evening)

Office Use Only: Date received _____ Amount received _____ Still due _____ Refund _____
Registration # _____ Dorm assigned _____ Other _____

covers Reproduction Biology of Honey bees, and includes topics on queens, drones, mating, swarming, working with wax, and even skep making! The last day's subject is Expanding Interests and Awareness, covering marketing; pollination; beekeeping in England, France and China; preparing honey for show; and choosing a bee library.

The faculty for the Short Course includes many distinguished beekeeping educators and researchers, known world-wide: Dr. John Ambrose, NC State University; Dr. Dewey Caron, University of DE; Dr. Clarence Collision, Penn State University; Dan Hall, National Honey Board; Dr. John Kefuss, France; Dr. Christine Peng, University of CA (Davis); Karl Showler, England; Dr. Gordon Waller, Heyden Bee Research Center, AZ; Dr. Bob Berthold, DE Valley College, PA; Alphonse Avitabile, Waterbury State Technical College, CT; and, the course coordinator, Dr. Larry Connor, BES, CT. The 3 day course is only $65.00; two day ($50.00) and one day ($35.00) registrations are also available for those who want to select certain days or can't stay for all three. See the Conference Registration Form for further information and to register. Be sure to register soon to assure yourself a place in the course and the dorm. Registration will be limited to the first 100 signing up.

E.A.S. -'88 REGISTRATION FORM AND PROCESS. The official registration form for the E.A.S. -'88 Conference and Short Course is shown here. A single form can be used to register one person or a whole family. Although the form seems long and complicated, it actually is simple and straight-forward. Just start at the top, fill in all the appropriate blanks, and sign at the bottom.

Please note that there is now one dues amount - $10.00, for individuals, families, and even businesses. Also, note that there are separate sections to fill out if you are staying *at the college*, or if you are staying *off campus* (commuting from home, camping, staying in a motel, staying in a RV, etc.). The conference fee is different for those staying on campus from those staying off campus because the college's facility fee is included in the room and meals charge for those staying on campus. The off campus people must pay this fee for using the buildings and property during the conference.

This year we have a different deadline situation with Mount Holyoke College than we've had with host colleges and universities in the past. Because we will be the only large group on campus, the college must have one week's notice of all rooms and meals required (to have staff and food available). To comply with this requirement, we have had to cut off all registrations for rooms, meals and social events as of August 1, 1988. Any registrations *received after August 1* can only be processed for attendance on a commuter basis, i.e., staying off campus, and eating on a cash basis at the Blanchard Campus Center (student lounge). We will have motel lists available for late registrants, but no conference social tickets.

As an incentive for early registration (so we and the college can do a better job) we have included the usual late registration fee of $10.00 for all applications post-

marked after July 15, 1988.

When you've completed your form, compute the charge for each activity or item, add them up, and include a check for the full amount. Overpayments will be refunded at the conference and payments short of the necessary amount will require your being asked to pay at time of registration. Send your completed form and your check made payable to EAS-88 to: Allan B. Corderman, EAS President, 112 Balls Hill Rd., Concord, MA 01742. If you have any questions, call Al at (617) 369-0467 (days) or (617) 369-8440 (evenings).

The entire schedule was in last months *Bee Culture*. Also, there will be a Bee Venom Therapy meeting Thursday afternoon at 3:30. See registration desk for location.

☆ INTERNATIONAL ☆

SECOND AUSTRALIAN AND INTERNATIONAL BEE CONGRESS. Brisbane. July 21-26. Registration $A200 (includes Congress, Congress dinner, technical tour lunch, trade and honey exhibition). For further information contact: The Convenor/SAIBC, GOP Box 1402, Brisbane, QLD Australia 4001. Phone (07) 2290-1333. Telex 42723.

☆ CALIFORNIA ☆

INSTRUMENTAL INSEMINATION TRAINING and Practical Bee Breeding Course. Designed for the serious beekeeper who wants to become familiar with the technique of instrumental insemination and plans to establish, or is operating a breeding program. The class is divided into two sections to provide the information necessary to develop and maintain a breeding program, and also to provide individual instruction in the technique of instrumental insemination.

- SECTION 1. An intense one day seminar includes: basic bee genetics, various breeding systems with emphasis on the Page-Laidlaw Closed Population Breeding Program, colony selection methods and evaluation procedures, how to establish a selection index, pre- and post-insemination of queens, equipment set-up and adjustment, and a detailed, step-by-step slide show of instrumental insemination.
- SECTION 2. The technique of instrumental insemination is precise. Consequently, individual class time will be arranged with each student at their convenience. This allows us to provide the detailed, individual, hands-on instruction necessary for you to become comfortable with the technique. Use of standard and large capacity syringes, glass tips, plastic tips, and the short term storage of semen will be covered.

Seminar class dates are June 18 and July 16, 1988. Fees for complete class including seminar and laboratory training is $200.00. Seminar only is $75.00. For more information, contact the instructors; Susan Cobey and Timothy Lawrence, at Vaca Valley Apiaries, 6745 Bucktown Lane, Vacaville, CA 95688. (707) 447-6723.

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A HONEY OF A CONTEST SLATED FOR FAIR. If Thomas Fuller's proverb was correct, that "more flies are taken with a drop of honey than a ton of vinegar," the local pests should avoid the Orange County Fair's Honey Competition, which will honor Orange County's sweetest chunks, combs and wax.

The Orange County Beekeepers Organization will set up demonstration hives for the fairgoers to examine, according to Feature Exhibits Supervisor Beverly Heximer. The honey made at the Fair will be sold to Fair patrons.

"Fresh honey is really good," said Heximer. "It's nothing like what you find in the stores."

Ribbons will be awarded for the best beeswax, and for four honey groups: extracted; creamed or crystallized; cut comb or chunk honey; and comb (squared or round) honey.

Neither pre-registration nor an entry fee are necessary for the event.

Entries should be brought to the Orange County Building on the Fairgrounds in Costa Mesa on Tuesday, July 5, between 8 a.m. and noon. The contest is open to all beekeepers residing in Orange County.

The Fair will be held July 7 to 17. More information and entry forms for the Honey Competition may be obtained by calling the Entry Office at (714) 751-FAIR, or by writing to: Orange County Fair Entry Office, 88 Fair Drive, Costa Mesa, CA 92626.

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STEVE TABER is again offering 2 classes this summer.

•July 16, 17 and 18 will be on Intermediate Beekeeping, including location and ID of parasitic mites, bee diseases, queen manipulation and basic bee genetics. Included are field trips and guest lectures. Cost is $200.00 with a limit of 35 participants.

•July 21, 22, 23 and 24, a course on Artificial Insemination will be offered. This will include semen collection and injection, and care of virgins and drones. Evening lectures will cover bee genetics and various breeding programs. Cost of this course is $300.00 with a limit of 16 participants.

Noon meals and a banquet are included in both classes. Speakers include Steve Taber, Tom Parisian and other experts in the field of Beekeeping and AI. For more information contact Honey Bee Genetics, P. O. Box 1672, Vacaville, CA 95696. (701) 449-0440.

Participants from developing countries will be charged $150.00 and $250.00 respectively for these classes. Cost for meals for an accompanying person who is not a participant is $35.00.

☆ GEORGIA ☆

HONEY TREE BEE FARMS is sponsoring a course for more advanced beekeepers interested in: queen rearing, commercial honey production, prevention and control of diseases, the main traits of the three major races of honeybees, the government Honey Loan program, beekeeping, the law (rules and regulations) in the State of Georgia, and much more.

It will be held July 3rd and July 10th at Honey Tree Bee Farms, 3272

HWY 27 South, Carrollton, GA 30117-9523, Phone (404) 854-4629. There is a fee of $20.00 per person.

☆ INDIANA ☆

THE INDIANA STATE BEEKEEPERS ASSOCIATION will hold its summer meeting on Saturday, July 9th at Turkey Run State Park Inn near Marshall, IN.

Speakers include Gene Killion, Robert Holloway, Jim Carroll, Mel Disselkoen and Tom Champion. Just tell the gatekeeper you are going to the meeting. Registration begins at 9 a.m. The registration fee and buffet lunch is $20.00/single or $17.50/couple.

For more information contact Claude Wade, 613 State Office Bldg., Indianapolis, IN 46204, (317) 232-4120, or Steven Welch, RR 1, Box 190A, Decatur, IN 46733.

☆ MINNESOTA ☆

THE MINNESOTA HONEY PRODUCERS ASSOCIATION will hold a Summer 1988 convention on July 21, 22 and 23 at the Holiday Inn (Hwy. 10 East, Detroit Lakes, MN 56501, Phone (218) 847-2121).

Thursday, 21st
10:00 Committee Meetings
1:00 Executive Board Meeting
6:30 Registration and Displays Open
7:00 Crop Outlook and Market Meeting

Friday, 22nd
8:00 Registration
9:00 Opening Remarks, Pres. Gary Honl
9:30 Keynote, Dr. H. Shimanuki, *Varroa and Acarine Mites, Where are We now*
10:30 University of MN Report, Dr. Furgala and Steve Duff
11:00 Introductions of Honey Queen and Princess. Queen committee report
11:30 Lunch
1:00 MN Department of Ag. Report
1:30 Propolis U.S.A., Warren Ogren
2:00 National Honey Board Report
2:45 Federation report
3:15 Adjourn
6:00 Social Hour
7:00 Banquet

Saturday, 23rd
9:00 Registration
9:30 African Bee Projection and Update, Dr. H. Shimanuki
10:00 Questions and Answers
10:30 To Be Announced

There is a $10.00 pre-registration fee or $15.00 at the door. Lunch on Friday is $6.00 and the Banquet $11.00. For information please contact Darrel Rufer, Secretary, Waverly, MN 55340 (612) 658-4645.

☆ MONTANA ☆

THE EASTERN MONTANA BEEKEEPERS ASSOCIATION, in cooperation with the MontanaFair, will have an open international honey show. American Honey Queen Shiryl Donahoo will open the honey show and judge the entries.

The MontanaFair will be held August 13-21 and entries must be received before Thursday, August 11, 1988. There is no entry fee for the international honey show. Exhibitors are required to pay shipping costs.

Premium books can be requested from MontanaFair, P.O. Box 2514, Billings, MT 59103 or by calling (406) 256-2400.

☆ NEW YORK ☆

THE EMPIRE STATE HONEY PRODUCERS and the **WILLIAM H. MINER AGRICULTURAL RESEARCH INSTITUTE** invite you to attend the annual summer picnic for a day of relaxation and open discussion on the challenges facing our industry. The picnic will be held at Miner Institute, located in Chazy, NY on Saturday, July 30th, 1988, at 10:00 a.m.

Bring your own picnic lunch and table setting. Tables and chairs are limited, you might want to bring your own. Coffee, tea and soda will be furnished.

All beekeepers and their families are welcome, whether they have one colony or thousands. Children as well as adults will find the Institute of special interest.

There will be plenty of time for you to talk bees as well as tour the Institute. Bee topics are:

10:15 Studies on Africanized bees in Mexico, Roger Morse, Cornell University
11:00 NYS report on the Varroa mite, Robert Mungari, Dept. of Ag. and Markets
11:30 Chemical Control of bee mites, What Works and What's Legal, Richard Nowogrodzki, Cornell U.
12:00 Picnic lunch
1:30 Tour of the Miner Institute

For information on overnight facilities, travel directions, the meeting or the tour, contact Loretta Surprenant, (518) 846-8020.

☆ OHIO ☆

ATI WORKSHOPS. For the past few years, the **Agricultural Technical Institute of the Ohio State University** has offered summer short courses.

- The VIII International Beekeeping Seminar will be presented July 18-29, 1988. As in past years, this is a symposium on the International Aspects of Beekeeping. During the past years, approximately 200 participants have participated from 30 countries. We anticipate another successful year.

Additional information on all courses are available from: The Office of Conferences, Ms. Gail Miller, The Agricultural Technical Institute, Wooster, OH 44691. (216) 345-8336.

If we can be of any assistance, feel free to contact us.

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THE OSBA SUMMER MEETING will be held at Defiance College, Defiance, OH on July 15 and 16, 1988.

Thursday, 14th
7:30 Board Meeting, Red Room, Enders Student Union

Friday, 15th
8:00 Registration at Schomburg Auditorium
9:00 Opening remarks, John Grafton, President, OSBA
9:15 Feeding HFCS, Jack and Betty Thomas, Mann Lake Bee Supply
10:00 Beekeeper Media Relations, Kim Flottum, *Gleanings in Bee Culture*
11:00 1988 Queen Candidates, Kyna Naylor, 1987 Queen
11:30 Honey Plants, Dr. George Ayers, MI State Univ.
12:15 Lunch

1:15 Dakota Gunness Uncapper, Alice Gunness, Dakota Gunness, Inc.
2:00 Tour of W. Stoller and Stoller Honey Farms, Latty, Ohio
6:00 Banquet, Guest Speaker Ed Johnson, ABN Radio & TV
8:00 Queens' Auction

Saturday, 16th

9:00 Welcome, John Grafton, Pres., OSBA
9:15 New Equipment, Mark Bennett, Dadant & Sons
10:00 Honey Plants, 2nd segment, Dr. George Ayers, MSU
11:00 Business session
11:30 Chemicals and Beekeeping, Jack and Betty Thomas, Mann Lake Bee Supply
12:15 Lunch
1:15 Mites — views and opinions. A panel discussion
2:15 Presentation of New Ohio State Honey Queen
3:00 Adjournment

Plus — honey, comb honey, photo and baked good contests. For more information contact David Pallaye, (216) 863-0518.

☆ PENNSYLVANIA ☆

THE PENNSYLVANIA STATE BEEKEEPERS ASSOCIATION will hold their Summer Picnic and Meeting on July 16th at Getty Heights Park, Indiana, PA. There will be something for everyone. There are 3 tours being planned with lots of activities for young and old. Getty Heights Park is located one block off Rt. 186 in Indiana near the Ponderosa and Rustic Lodge.

For further information contact Mrs. Yvonne Crimbring, RD 1, Box 315, Canton, PA 17724. Phone (717) 673-8201.

☆ WASHINGTON ☆

1988 WAS MEETING. Host for the 1988 conference in Tacoma, WA on August 8 - 13 is the PIERCE COUNTY BEEKEEPERS ASSOCIATION (PCBA). The site is the campus of the University of Puget Sound (UPS) in north Tacoma. UPS is a first rate private institution with a lovely campus within the Tacoma city limits. The facilities are superb, the costs are quite reasonable, the campus is small with all facilities close at hand, and the landscaping is sylvan and delightful.

A beekeeping short course will be held on Monday, primarily for local beekeepers. Registration will begin at 1 p.m. and will continue until 7:00 p.m. A press conference for the primary purpose of informing local and state government officials of the current threats to beekeeping and to agriculture is scheduled Monday afternoon.

A set of interesting and qualified speakers from around the nation has been arranged. While the theme of the conference is "Hive products and Services", presentations of current topics have also been included (i.e., the mites, AHB, etc.). These presentations in the lecture theatre in McEntyre hall will occupy Tuesday and Wednesday, plus Thursday morning. Beekeeping craft demonstrations and initiations into the Royal Order of Bee Beards are scheduled for Thursday afternoon.

Two meetings of delegates and directors are scheduled, one on Monday afternoon and one on Thursday afternoon. Also, two general business meetings of the society are planned: one Tuesday afternoon and one before lunch on Thursday.

The first social is the get-acquainted "Hive social" Monday evening, featuring entertainment orchestrated by Miriam Bisop's dad. Wednesday evening is left free for local sightseeing and general visiting. The "Fish Fry, Clam Bake and Corn Roast" on Thursday evening at the beach party in the city of Tacoma's Owen Beach Park, on the shore of Puget Sound, will be the big middle of the week social, followed by the Awards Banquet Friday evening at UPS.

Monday, 8th

9:00 First session, beekeeping short course, McEntyre Hall (MH)
1:00 Second session, beekeeping short course, MH
1:00 Registration, Univ. Hall (UH)
4:00 Director's and delegate's meeting, Board Room SUB
5:30 Dinner, SUB
7:00 Hive social, UH

Tuesday, 9th

7:00 Breakfast, SUB
8:00 Registration, Exhibits, MH
8:30 Conferees welcome, MH
9:00 *Pollen for Pollination*, Neil McClure, Firman Pollen Co.
9:30 *Beekeeper Relations with the Press*, Kim Flottum, Editor, *Gleanings in Bee Culture*
11:00 *Federal Extension Bee Program*, Dr. James Tew, ATI, Wooster, OH
12:00 Lunch, SUB
1:30 *Bees and Beekeeping*, Dr. Elbert R. Jaycox
2:30 *Pollen Trapping*, by Mr. George Ashby, PCBA
3:10 Business meeting
5:30 Dinner, SUB
7:00 Puget Sound Cruise, MV *Spirit of Tacoma*

Wednesday, 10th

7:00 Breakfast, SUB
8:30 *Research Projects*, Dr. Mark Winston, Simon Fraser Univ., Burnaby, BC
9:30 *Hive Products*, Dr. Douglas McCutheson, BC Ministry of AG.
11:00 *Research Projects*, Dr. Michael Burgett, OSU
12:00 Lunch, SUB
1:30 *Mites on Bees*, Dr. Joseph Moffett, USDA Weslaco, TX
2:30 *Washington Beekeeping*, James Bach, Chief Apiarist, WSDA
4:00 *California Bee Quarantine Lessons*, Drs. Norman Gary, UCD and Eric Mussen, UC Extension
5:30 Dinner
7:00 . Hive free-flight/foraging

Thursday, 11th

7:00 Breakfast, SUB
8:30 *Africanized Bees*, Dr. Joseph Moffett, USDA Weslaco, TX, MH
9:30 *Value of Pollination*, Dr. Daniel F. Mayer, WSU Extension Service
10:00 *Bee Tree Hunting*, Mr. E. Wayne Robinson, PCBA
11:00 WASNA Business Meeting
12:00 Lunch, SUB; Deadline for honey show and competitive exhibits
1:30 *Urban Environment Bee Poisoning*, Dr. Carl Johansen; Honey show and exhibits judging
2:30 Beekeeping craft demonstrations; Royal Order of Bee Beards
4:30 Director's and delegate's meeting, Board Room SUB
6:00 Fish Fry, clam bake, and corn roast, Owen's Beach

Friday, 12th

7:00 Breakfast, SUB
8:30 Leave for excursion to Mt. Rainier
9:30 Mt. Rainier National Park, box lunches at Mt. Rainer, NP
6:00 Clustering (social hour) in Banquet Room, SUB
6:45 Awards Banquet, Banquet Room, SUB

Saturday, 13th

7:00 Breakfast, SUB
8:00 Adjournment

For more information contact Robert Taylor, 9917 94th Ave. E., Puyallup, WA 98373

☆ 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

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)

WANTED: TO CONTACT PERSON or company who has contacts with Commercial Beekeeping Industry in Canada to undertake the sale and distribution of large volumes of top quality Queen Bees and packages from Australia. Please contact John L. Guilfoyle Pty Ltd., P. O. Box 18, Darra, Queensland, 4076, Australia. Ph: (07) 3753677. Telex: AA145000. (7/88)

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

SEVERAL COMPLETE BEEKEEPING Operations in North Eastern Saskatchewan, Canada, including Beehives, Buildings, Production and Processing Equipment. Also additional Brood Chambers and Honey Supers available for sale. Contact Ken Childs, Agricultural Credit Corporation of Saskatchewan, Box 1480, Tisdale, Saskatchewan SOE 1TO, or call (306) 873-2693. (8/88)

50 DOUBLE HIVES, Three 6-5/8" supers each. Locations available N. W. Ohio. (419) 238-3278. (7/88)

DEEP SUPERS with drawn comb ready for honey flow. $4.50. (206) 432-4765. (7/88)

360 1-1/2 STORY BEE HIVES. Bank Reposession. $45.00/hive or best offer. (409) 743-6571 days or (409) 743-4209 evenings. (7/88)

To place your Classified Ad just call Cyndi Stephens at 725-6677, Ext. 213

BEE-OFF BLOWER SYSTEMS. Control bees and harvest honey fast in cooling comfort. Try one this year and say good-bye to smokers, fume boards, and other blowers. Purchase and lease plans available. Call collect, (616) 256-9506 between 9:00 and 3:00 Monday - Saturday. Ask for Marlene. (8/88)

BEE BUSINESS. 500 + stands. Good bee location. All the latest equipment. Best offer. Call "Red" after 6 p.m. (602) 896-2262. Serious inquiries only. (7/88)

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.

RADIAL HOBBYIST EXTRACTORS. Proven reliability! Six frame $189.00 postpaid. Bee Line Manufacturing, Box 27017, Austin, TX 78755. (7/88)

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. (7/88)

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)

ITALIAN QUEENS and Package Bees. We give special attention to all orders, large or small. Order now for best shipping dates. WALKER APIARIES., Rt. 1, Box 34-B, Rogers, TX 76569, (817) 983-2891 or 983-2961. (6/88)

MISCELLANEOUS

CATCH CATFISH LIKE CRAZY! Unusual method produces fantastic results! Satisfaction guaranteed! Rush $3.00 to Lyle Bierma, Dept. GBC, 1109 West 7th, North Platte, NE 69101. (8/88)

FREE SAMPLES. Address labels, rubber stamps, business cards, notepads with beekeeper designs. B & W Lettershop, Box 3335 Early, TX 76803. Stamps appreciated. (6/88)

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)

FRESH FROZEN OR LOW temperature dried, hand cleaned pollen. The finest in the Northwest. $4.50 a pound, plus shipping. We also offer top quality comb honey. Mountain Star Honey Company, 140 South Pine, Peck, ID 83545. (208) 486-6821. (8/88)

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

COMPLETE *GLEANINGS*, 1900-present for sale, best offer. Richard Taylor, Rt. 89, Trumansburg, NY 14886. (7/88)

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.

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

HONEY BEE GENETICS Newsletter. Focused on our mite problems and the AHB, the latest news and what the regulators are doing. Written by Steve Taber. Sent 5 to 7 times a year. $5.00. P. O. Box 1672, Vacaville, CA 95696. (7/88)

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

THE SCOTTISH BEEKEEPER Magazine of The Scottish Beekeepers' Association, International in appeal. Scottish in character. Membership terms from D. B. N. Blair, 44 Dalhousie Rd., Kilbarchan, Renfrewshire, Scotland PA10 2AT. Sample copy sent, $1 or equivalent.

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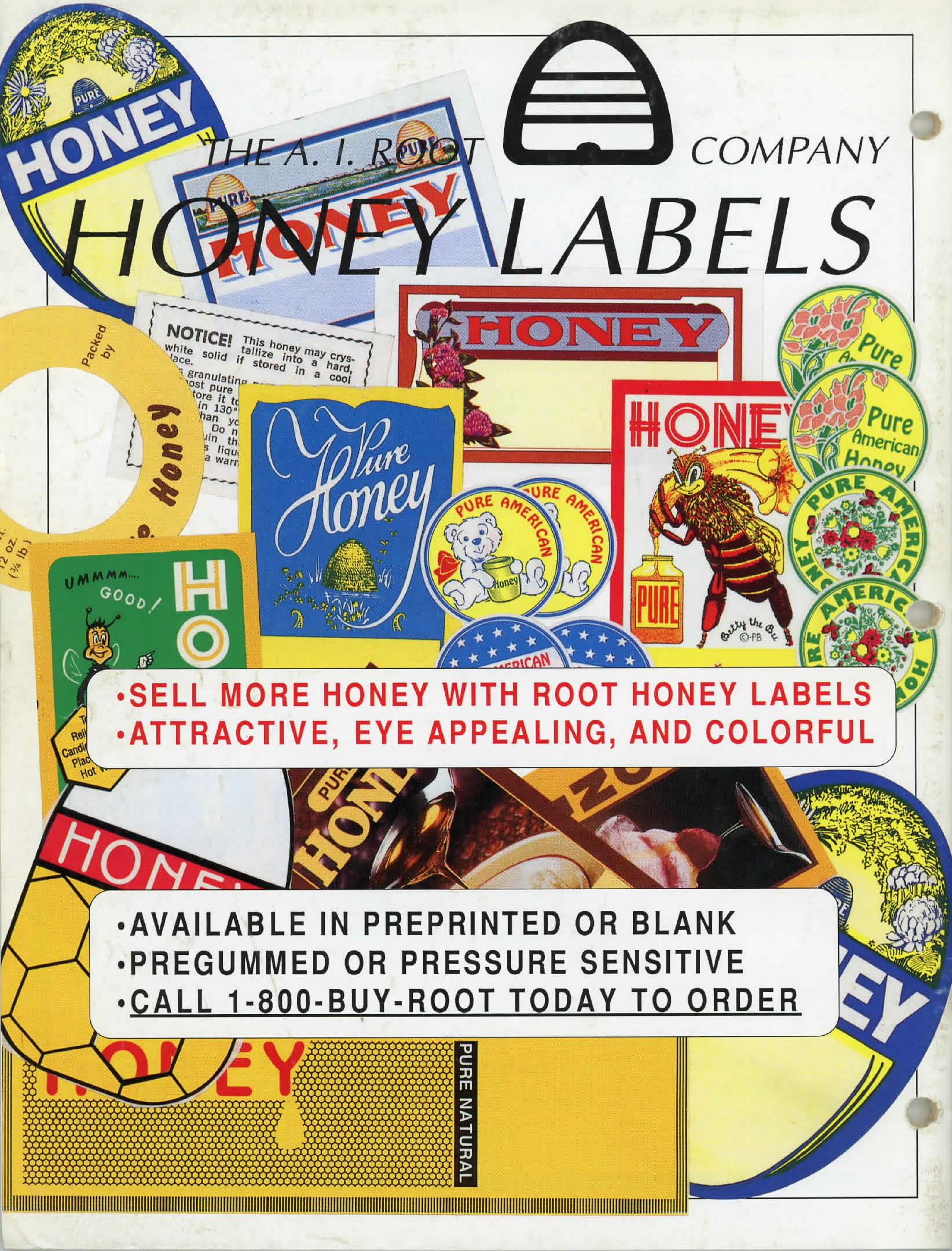

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