

GLEANINGS IN



JULY '89

BEE CULTURE

SOURWOOD — The Best Kept Secret In The South!



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116 Years Continuous Publication by the Same Organization

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- **TONN'S HONEY** *Kim Flottum* 408
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- **ROBBING HONEY** *Stephen Bambara* 414
This North Carolina Extension expert explains and shows the four best ways to separate bees from their honey. An excellent primer, or refresher.

THE INNER COVER

Rain, Rain . . .

This is the month two kinds of rain fall on my part of the planet. But most places have different kinds of rain, during those seasons water is soft and warm when it falls to earth.

I count seven distinct, but not discreet rain types here, but there are probably more. They often overlap and are difficult to tell apart. But with practice it comes easier. Like the Eskimos, with so many kinds of snow and a name for each, you can smell and feel and even taste the differences.

The first rain falls in early spring. It comes as winter coldly lingers, hanging on hardest at dawn it seems, when it leaves its mark on window panes and puddle tops.

But one gray day it's just the slightest bit warmer. You notice it as you drive because you can roll the car window down a little. That night it rains. But unlike the frigid rainy night the week before, the temperature holds — the cue for grass and other early growing things to wake and yawn, to stretch and rise.

In the morning you see damp and dewy drops on a finally growing world. Green rain fell that night.

This shower does more than wake the early risers though. It is the fuel for the next flush of flowers. Though not up and about yet, Green Rain primes the pump for all the plants needed when foraging becomes feasible.

Then comes Brood Rain. If Green has done its job everything is in waiting for this event — primed and ready. With this day-long deluge, the sources of brood food pop — almost it seems, overnight. And very likely right after a warm and soaking Brood Rain. These are the April showers of poetic fame, but if you look carefully, they account for much more than the May flowers they are ultimately credited for.

With luck there is a break in the spring rain rites for a time, while I plant the garden and set new trees. Then, just as I finish there is another spell of wet and wonderful called Garden Rain. This is the push that just-buried seeds need to germinate and grow; transplants need to really set foot; and trees need to anchor new feeder roots.

After Garden Rain season there's a lull in the clouds, and an oversupply of sunshine — the solar power needed to carry those little and just-started plants to flower stage. And just before we reach this floral celebration, along comes Honey Rain.

Honey Rain brings new life to just-about-dry plants, juices up the nectar and puffs out the pollen on the plants of our honey flow. This is the time to stand back and watch and to wonder at nature on a power trip.

Most always Honey Rains happen in June because in July we go back to a lull in the clouds. Another shot of solar power to fuel the fruit-building material in trees and gardens and honey plants. A difference though, between this time and the last — this is definitely summer. Hot, sunny, breezeless, and, well, summer.

This is the time my mother always asked for a Wash Rain, a splash that comes, after days or weeks of none, right after you've hung out the wash, or cleaned the car. It's a law of nature I think, like gravity or sunrise.

But it also washes the dust off leaves and dirt off the porch. Maybe, if you're lucky it washes the summer heat off the back of your neck as you stoop to weed, or lift a honey super on the truck. It washes you cool, and

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COVER . . . The flowers on Sourwood trees are not nearly as distinctive as some tree blossoms — for instance, tulip poplar, black locust or any of the citrus trees. But the honey produced from Sourwood's less than dramatic blossoms rivals any and all takers for flavor, color and — unpredictability.

Photo by Steve Forrest

NEXT MONTH

August — Dog days and harvest time for most of us, though some are already done with the honey removal chores. For those who aren't, we've got two good stories on different aspects of this task.

Part II of Tonn's Honey looks at extraction in detail in this mid-size operation in Ohio. From uncapping to bottling, from cappings-wax to solar extractor, Tom and Dorothy seem to do everything right. Find out how next month.

But most of us go through that 'first time' trial by fire. Harrowing Harvest explores one beekeeper's experience when not quite everything goes right. Yes, someday you'll laugh about all this!

August is also the time of year that bee removal activity seems to heat up, whether it's honey bees or hornets, by now the populations have built to the point where they get noticed. One beekeeper removes bees for fun (and profit), and here's how it works.

Using a computer in your operation yet? Whether for tracking colony production, profit and loss, inventory, payroll or whatever, computers are playing a bigger role in everyday business — even beekeeping. Next month a beekeeper looks at computers — some basic facts and how-to's, plus hardware and software information that you can use. Bits, Bytes and Bees takes you past the games and into business.

Honey isn't the only thing that gets harvested next month. Wax is, or can be, a big part of your operation and the next thing asked is "what can I do with it?"

With the going price about \$1.00 a pound (more or less), making candles or other objects is a logical choice. Taking raw cappings and turning them into candles is an art, but one worth learning. But most of us don't have fancy melters or other equipment. So, do you own a bar-b-que grill? One of these, or even a more primitive heat source, a couple of pails, and you're all set. Don't set your kitchen on fire (or get wax on the floor and walls) try this trick — next month, in *Bee Culture*.



MAILBOX

B-Notes

My English beekeeper-pen pal is interested in writing to United States beekeepers. He is interested in stamp collecting, honey memorabilia and writing. He is a prominent commercial beekeeper and is also the curator of a beekeeping museum.

Readers are invited to correspond with:

Mr. John Benson
Silverwing Apiaries
Burgh Road, Friskney
Near Boston
Lincolnshire PE 22 8NS
England

Postage from the United States is 45¢ each 1/2 ounce. Correspondents are invited to utilize commemorative postage stamps for Mr. Benson's stamp collection hobby.

Albert G. Bell
Eastern MT Beekeepers Assn., Inc.

Inside Wrapping

In regards to the New Jersey hobbyist who switched from wrapping his

hives to not wrapping and only reducing the hive entrance, I did just the opposite with my two hives. Only, I liked the wintering results I got when I wrapped the hives.

The most important requirement with wrapping that I found was to allow moisture to escape through the top by placing a small (1/4") section of wood under the front half of the top cover.

I have read pros and cons about wrapping, providing the propolis seals have not been broken on the hive after the final harvest.

I rightly feel that if done correctly, wrapping and allowing extra honey for the bees lets the hobbyist enjoy a strong and healthy hive the following spring. Of course, larger operations don't normally have the time or money to do this. Yet, the emotions behind a dead or nearly dead hive are the same for us all.

Jim Engle
Warsaw, IN

Times Have Changed?

Nostalgia prompted me to send for a copy of *Gleanings*. Would you believe the last one I saw was in 1967? Change does come with time and progress. The size, format and advertising are all different, now. The price, too, which was \$2.50 yearly back then.

From 1955 until 1963 I did assist my beekeeper husband. Success was amazing in spite of many blunders.

The icing on the cake was a pleasant association by mail with M. J. Deyell, editor at the time. He accepted articles I wrote as did his successor, Jack Happ.

Some changes are good though, but I still prefer the smaller sized magazine which I could tuck into my large purse and take along on car, bus or train trips.

I did save copies of the old *Gleanings* which bring back memories of happy days.

Thank you for the complimentary copy of *Gleanings*. It is still the greatest.

Edith Fox
Port Tobacco, Maryland

Waxing Poetic

I read your piece on waxies with great excitement. I expect to become rich beyond my wildest dreams by raising waxies and selling them to the fish-

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erman around here, tropical fish stores, and so on. I will get my mortgage paid off, even have something left towards my kids' college.

Richard Taylor
Trumansburg, NY

Diana Sammataro's article on rearing wax worms (page 297) gives me an excuse to report that slumgum, the refuse left after rendering old combs, makes an excellent media for rearing wax moths. I never got around to counting the numbers, but there were masses of larvae and moths in the gallon jars half-filled with crumbled air-dried slumgum. The jars were closed with mason caps using a piece of wire screening in place of a dome lid.

One day I found my office smelling as if someone had spilled a LARGE bottle of perfume, but I found the source to be the moth cultures! This attractant pheromone was synthesized in 1968 at the University of Wisconsin, and can be purchased from 1 ml to kilo lots. It might have a market as a novelty perfume if not used around apiaries?

Here are two additional recipes for media:

Mykola H. Haydak

Parts by weight:

Fine corn meal 4
Whole wheat flour 2
Skim milk powder 2
Powdered dried yeast 1
Standard wheat
middlings or bran 2
Mix dry ingredients thoroughly,
add liquid mixture of equal volumes of
honey and glycerine until moist.

R. Hoopingarner

Mix 7 parts granular dog meal and 1 part water. Add 2 parts honey and let stand one day. Granules should be soft but not sticky.

Ruth Chase (Noland) kneaded wax comb, soft dead moths, and honey into a small loaf. After standing to dry, it was cut into thin slices to feed larvae. When about half grown, the larvae were placed on brood comb; some dry and pollen-filled and some moist with honey. Newly hatched larvae first feed on the dead bodies of moths. When mature larvae are stored, avoid including immature larvae that will cannibalize them.

Toge Johnansson
East Berne, NY

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Reader Assistance

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The Editor's Not French

Reference: Letter to Editor, Feb. 1989.

Correctly used, the American Language is an efficient tool that may be used to communicate with other users of the American Language. I am sure that your atrocious use of the word "Chauvinist" in the published letter was because you never bothered to use a good dictionary to determine the correct/exact definition of "Chauvin, or Chauvinist, or Chauvinistic". Please do so soon!

Just in case you don't have a good dictionary available I will explain that:

1. Chauvin is a French word that has been adopted into the American Language.
2. Nicholas D. Chauvin was a French officer in Napoleon's Army.
3. Chauvin was a fanatical supporter of Napoleon and France.
4. In 1831 Charles T. and Gene Hippolyte Cogniard wrote the play: "La Cocharde-Tricolore" based on the legendary Nicholas D. Chauvin an officer in Napoleon's 1815 army.
5. The word "Chauvin" and its derivatives was adopted into French and defined to mean: blind and fanatical

patriotism or military zeal. Chauvinistic and nationalistic may be used interchangeably.

6. The correct American definition of "Chauvinist" is the same as the French.

Misuse of the word by the illiterate Gloria Stienham does not change the word and its definition!

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The American Language has adopted many names and defines them based on something about that person. For example:

- Quisling = Traitor. From Vidkun K. Quisling the Infamous WW2 Norwegian traitor.
- John = Toilet. From Sir John Crapper, the English inventor of the flush toilet.
- Christian = Follower of Christ.
- Sandwich = Two pieces of bread with meat between them. From the English Earl of Sandwich (so he could eat at the gambling table).

I found the letter interesting until the last sentence. Have you considered the possibility that trade magazines can't print articles by women if the women don't write any "qualified" articles? Get a qualified lady beekeeper to write and submit a few articles. Then write your letter if none of the articles are ever printed.

I hope my letter was not so abrasive as to make you excessively angry but atrocious misuse of words scratch my eyeballs when I see them in print!

Fred G. Deer
Raleigh, NC

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A letter from the Old Timer

Dear Friends,

I began to wonder if the population explosion was spilling over into my neck of the woods late last summer when a small truck with a camper aboard slowed at the driveway and drove in.

From behind the dust covered, cracked windshield emerged a middle-aged man in the brightest red wool shirt I've ever seen. His explanation for this eye-catching work of art was, "I don't want hunters to mistake me for a deer". I told him there was no worry on that score since hunters (or anyone else) seldom come this far. He seemed relieved.

We asked him in for coffee over which he said he was a journalist with a city newspaper. He also confided to some kind of a nervous breakdown and just had to get away for a rest.

We told him this was the end of the road, actually, but his vehicle looked like it had enough clearance to make it to a rocky ridge about ten miles to the east. But going another fifteen miles to the mountain foothills was a venture I didn't think he should attempt this late in the season. For one thing, he would be climbing all the way and with the dramatic temperature changes you could wake up any day to a foot of snow and anything can happen under those circumstances. For another thing, even if the weather did hold good, there are some low-lying marshy areas where you can suddenly drop down to the axles — as I did once.

I suggested fishing at a small lake back a couple of miles since he

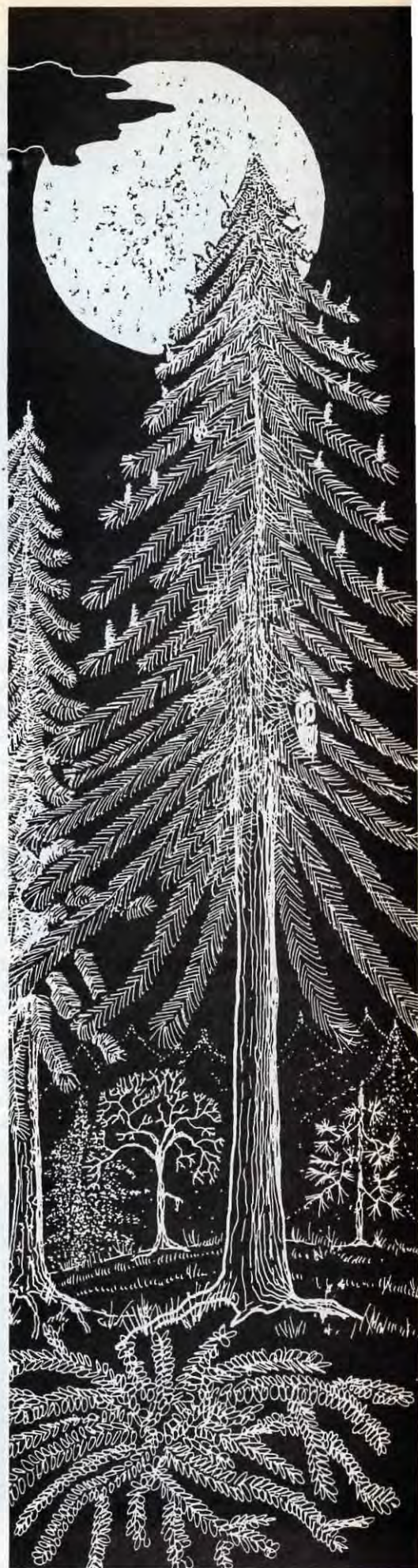
had mentioned having tackle aboard and there were plenty of worms out there in the manure pile. At his insistence (he saw several of our hives from the kitchen window), I began a discourse on my favorite subject, honey bees, and the nutritious food they produced.

While he carefully manipulated a frame of comb honey before him on the table, I pointed out the amazing precision of its construction. I was stopped in mid-sentence by my wife's up-lifted finger — first, faint soul-stirring sounds, then a sudden shower of calls through an open window. The wild geese were on the move — winter must have come to their far-north nesting grounds. We made a dash for the outdoors, my wife leading, where, in the yard away from the house we stood, faces uplifted to the wondrous spectacle.

Wave after wave — thousands upon thousands of these legendary creatures moved steadily across the heavens in their characteristic 'V' shaped squadrons, miles high, it seemed, filling the wilderness with their primeval melody. Captivated, time became meaningless until my wife finally stirred. She broke the reverie with "surely this phenomenon is newsworthy. Twice a year, spring and fall, this miracle occurs within the confines of 'The Pacific Coast Flyway', a migratory river we live under."

He quickly replied, "Yes, I'm sure it will appeal to a lot of folks — if the editor prints it. It won't be front page though. The stuff that sells papers

Continued on Next Page





Getting ready to Super...

must be sensational — murder, rape, mayhem, bombings — you name it."

After a thoughtful moment the missus looked at me and said, "tell him about last spring at Jim's".

I glanced over at our visitor and encouraged by his expression said, "You probably didn't notice it, but back about a dozen miles there is a little cabin and out-buildings set back away among the trees. Jim Turner, our closest neighbor, lives there alone. Well, early this year he cut his foot quite bad with an axe. He drove to our place with his bandaged foot (liberally daubed with comb honey) up on the dashboard to help stem the flow of blood and used a stick to operate the throttle. We didn't lose any time fixing him up on the back deck of the truck with his leg raised on a pile of hay. After tea and sandwiches, I drove him back to his place. The missus did the house chores for the next few days while I stayed and did his until his foot healed enough for him to get around on his own.

"Anyway, I was milking one morning, a day or so after he started hobbling around using a stick. His cow stable is similar to ours — a lean-to on the barn with two doors, one in the end and another bigger one in the middle. Both were open in the warm weather. Suddenly a shadow came up on my left as a huge black bear padded out the center door a few feet from me. Long grizzled hairs just

touching my shirt as he went by. It happened so quickly that my hair didn't get a chance to stand on end until he was gone. The old cow stopped chewing, pulled her head round to watch, then paid no more heed.

"Heart hammering, I stood up gingerly, and with the pail of milk in hand, stepped to the door just in time to witness 'Old Horrible' finishing the last of the milk put out for the chickens. Licking his chops he then ambled nonchalantly across the paddock and out of sight among the trees.

"Later, when I related this to Jim he laughed and said, 'I forgot about Old Zeke. He hasn't been around for awhile. He's very old and lonesome and visits the place two or three times a year — drinks milk by the gallon,

eats scraps on the manure pile, then moves on. He does no harm, doesn't even go near my bee hives. One time I was in my living room and I heard a noise in the kitchen. I thought it was the old dog, but when a pot lid fell to the floor I stepped out to investigate and there was Old Zeke just going out the door.'"

Our visitor had a pad on his knee and was writing madly. Pausing, he said, "This is fascinating, please go on".

Grabbing the nearest story from my well stocked memory I said, "Well, our milk-cow made friends a couple of years ago with a very old moose. We've often seen them walking side by side through the farm-yard here, and in the meadows beyond, grazing. Sometimes, on a cold winter morning when we go out to do chores, he'll be lying close up to the cow stable wall under the window across from where she is tethered. Then we put some hay in the rack outside and let her out to feed with him."

My wife broke in with "chores" — just as I was about to begin another anecdote. Our friendly tourist blurted out (a little sadly, I thought), "Yes, I'm sorry I've taken up so much of your time. I guess I'd better be going".

Pondering a moment, I said, "tell you what. I have to pick up some honey bee colonies that have spent the summer on heather and fireweed pastures east of here a three or four hour round trip and tomorrow's as good a time as any — you're welcome to come along". His sudden reply took us by surprise.

"I'd be delighted to round out my vacation with such an experience. I'll park my camper over there by the big tree and you just pound on the door when you get up in the morning."

The silent wilderness muffled the

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steady drone of the engine as we toiled up hill and down, this way and that, sometimes only at walking speed. All the while we were bathed in silvery moonlight which gave the whole panorama unfolding before us a fantasy quality. Now and again, eyes flashed red fire from the thickets as nocturnal creatures encountered our headlights. The river — churning and glittering — appeared on our left from time to time, until about half way when it left us to swing north. In this night world we passed Aspen groves and giant solitary firs, scattered pines next to huge rock outcroppings, wild grass meadows (old when Christ walked the Earth) and bushes of scarlet rose hips. There was fireweed without end and for good measure, a magnificent two foot tall snowy owl on a bare pine limb. We stopped a few feet away just to marvel.

It was about five a.m. when we arrived. I never carry a watch and he had forgotten his. As we walked among the hives, the moon, through pristine atmosphere, washed in silver the bee hives and boulders, grass, and everything we saw. My colleague, able to talk only in a hushed voice said,

"I've never experienced anything like this before — it's like we're the only people on Earth. The incredible solitude, the . . ." and just then, as if on cue, a wolf gave a long drawn-out howl somewhere on the next ridge and, after a space of time, was answered by another, so far away that its melodious voice reached us across the dark-spined forest as no more than a tiny fragment of sound.

Silence descends and as half a minute ticks by, my companion whispers, "I'm overawed by the whole thing. I have to keep pinching myself to prove that I'm not dreaming".

Mind you I'm not indifferent to the spell either, even though my life is part and parcel of this great lone land. If anything, I'm more mesmerized as time goes on. Often at home on really brilliant moonlight nights or during a spectacular display of Northern Lights, I'll step outdoors, paying no heed to the cold and the fact I may be just in sleeping attire. Even, and especially, animals are effected by these times of wonder.

While my companion (using a hive as a table) sketches, I begin gathering sticks for a fire. When I had one going, walked down and filled the tea pail from a little creek which runs part-way round the base of this rocky height of land. We sat there at peace — he on a boulder, cup beside him, me on a chunky bit of a log — both munching on sandwiches. The small fire faded as I loaded the hives (a simple task with ramp and dolly) then a last 'feasting of eyes' at the ethereal beauty surrounding us, climb aboard the waiting vehicle and slowly, cautiously, wend our way home.

Leave-takings over, the engine coughed to life, making the camper vibrate. Our friend of twenty-four hours rolled down the window, "I'll spend a day fishing at Green Lake

then I'll stop in at Jim Turners, perhaps I'll be lucky enough to catch the sight of Zeke. I'll write." Tendrils of dust wreathed up over the wheels and he was gone.

True to his word, he did write. And in the letter — well, I'll just copy this part the way he has it written down . . . "My boss says I'm all tied up in this back-country life of yours. It isn't *real* life. When I talk about the incredible solitude, the animals, the pristine air and water, I get funny looks and remarks like 'are you sure you're feeling alright?' This bothers me not at all, because my memory tells me that for a few precious hours, by good fortune, this summer I stepped foot in another world. One where hate and discord doesn't exist — even among the animals. A place where there are no sirens, no mug-gings, no garbage, no smog, no chaos. Only peace. And in this place I came to realize that that which is me — had meaning . . ."

Well, that's all for now. I'll write later when time, and energy, permit.

All the best,

The Old Timer

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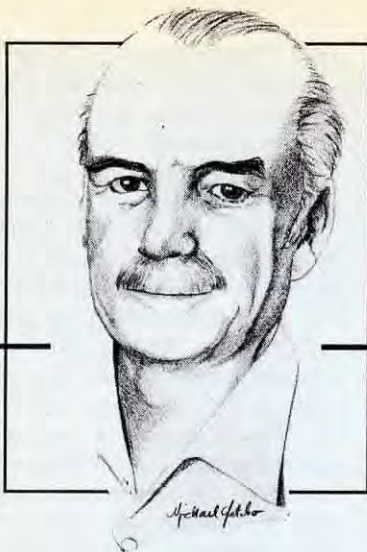
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“When processing honey, using heat is essential but abusing it is a crime.”

Beekeepers commit a lot of crimes against honey as it is handled, but still consider it the nectar of the gods and an important health food when they sell or eat it. Unfortunately, some have probably never tasted undamaged honey except from pieces of comb straight from the hive.

Probably the best example of what I'm talking about was included in an article in the 1970's by a woman beekeeper in California. She was explaining how to pack “extracted” or liquid honey without the use of an extractor. In actuality, she was illustrating all the ways in which you can ruin honey by extremes of heat and by close contact with wax while it is being heated. Her process consisted of crushing combs of honey into a double boiler, heating them until all the wax melts, allowing the mixture to cool over a period of 4 to 6 hours, and then bottling the honey after removing the wax cake from above it.

Let's look at what happens to honey when processed in this manner. First, what kind of comb is being crushed: clean white comb, or dark comb that has been used for brood rearing? White comb is free of any brood rearing remains that can be released into the honey and comb mixture. However, crushing comb darkened by brood rearing opens cells containing larval skins, larval feces, and other unpleasant ingredients such as spores of *Nosema apis*. Add these to your hot honey and the unappealing off-flavors that result can ruin the final product.

It is easy also to think that you are “protecting” the honey by using a double boiler with a layer of water between the honey and comb mixture and

the flame. This was the author's reasoning in the article — she believed that, somehow, only flame, or some other form of direct heat damaged honey. To some degree, at least, this is true. We use double boilers to slow the transfer of heat and to maintain it at a level safe for the delicate sauce, custard, or honey we are heating. Yet, if we *boil* the water in the lower section, there is at least localized overheating where the upper, or inner, pan meets the contents being heated. The heat of the boiling water, 212°F (100°C), is too much for honey being processed except in a commercial processing plant where honey can be “flash” heated for very brief periods and cooled down immediately thereafter.

When heating your honey, remember this idea of *localized* overheating, which can easily be overlooked. For example: if you have a water bath used to heat cans or bottles of honey, do not put the heat-sensing element, the thermostat, into the cool honey. Often, the mistake is then made to set it for the temperature to which you want to heat the honey, perhaps 145°F (63°C). When you do this, the sensing element continues to call for more and more heat in the

water, bringing it to temperatures well above the desired level in the honey — it may even boil. When this happens, all the honey close to the container's surface will be overheated while the heat penetrates the mass of honey to

where the thermostat is located.

Stirring the honey speeds the heating and reduces the period of overheating, but damage can be done. So instead of putting the sensing element in the honey, put it in the water and you will limit the

temperature of the honey to a “safe” level. Of course, this also increases the time to process it.

Wax, too, imparts a flavor to honey when they are heated together. As I explained, brood comb is the most undesirable, but any wax flavor can downgrade that of the honey itself. All extracted honey should be free of wax particles before it is heated for straining and bottling. Let it stand long enough for the particles to rise to the top of the storage container and then skim off all the wax particles along with anything else with them such as dead bees or parts of bees.

Chemical changes take place in heated honey. The darkening that takes place is evidence of the changes, but the loss of the volatile aromas and flavors is much less evident and equally important. The enzyme glucose oxidase, which leads to the formation of hydrogen peroxide in honey, decomposes on heating, reducing the honey's antibacterial properties. Another compound, hydroxymethylfurfural (HMF) increases in concentration when honey



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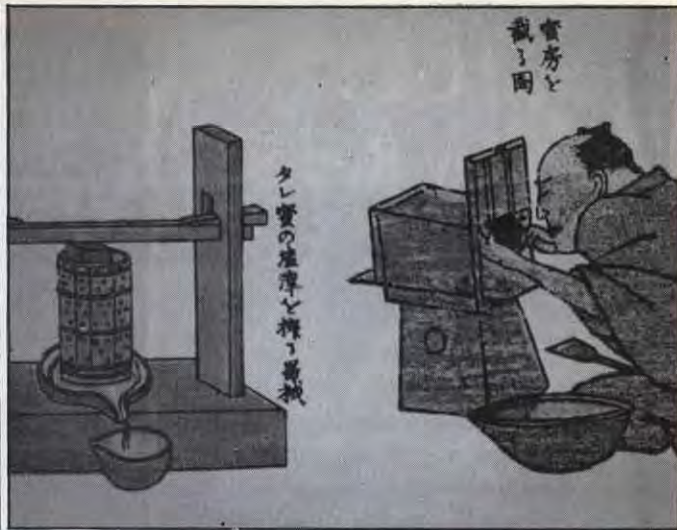
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Tank (water bath) for heating 5-gallon cans of honey. The sensing element, at end of the long wire, is in the water, not the honey.



Japanese print from 1872 showing removal and pressing of combs to obtain liquid honey. Courtesy of Honeybee Science.

is heated. It is generally present at low levels in unheated honey, but varies in quantity with the floral source and geographical area. It can increase readily when honey is stored in uninsulated, uncooled buildings in hot climates in the U.S. and elsewhere. Honey buyers in Europe will not accept honey with above-standard levels of HMF.

There is no simple, neat, home method of obtaining liquid honey from combs without using an extractor, but in 1872, Japanese beekeepers used the press system. Regardless of what method you devise, you must consider how to use the least heat possible and to separate honey from wax as quickly as you can. A mixture of crushed comb and honey could be warmed to about 100°F (38°C) and allowed to strain through any of a variety of coarsely woven materials supported by a metal screen of some kind.

Heating the separated, usually granulated, honey remains a problem.

According to Stan Ablewhite, writing in *Beekeeping*, April 1986, hot air cabinets used for heating honey often suffer from uneven temperatures, even with a circulating fan. Allowing the honey to run out of the cabinet as it becomes liquid helps to prevent overheating that may occur when the containers are upright and the air temperatures are above that desired for the honey. Ablewhite says that heating or reheating bottled honey in a kitchen oven is an unsatisfactory way to process honey even with an internal fan. He also warns, as I have, in regard to heating in water baths, that the use of heating cables on drums and other honey containers may cause overheating unless

very careful control of the temperature setting is exerted.

I firmly believe that the careful use of heat in honey handling is essential to putting out a good product and to make processing easier. In each step of handling honey, from warming rooms to storage in wholesale or retail containers, we must use only as much heat as needed, but keep the level and range of temperature as low as possible. Perhaps one of the most important reasons for using heat in processing honey is to prevent it from fermenting after granulation. Sugar-tolerant yeasts can thrive in honey, unless killed by heat. They will then become active in the liquid portion of granulated honey where the sugar concentration has been reduced, and produce alcohol and carbon dioxide gas. The honey takes on a sour taste and may even leak out of the container; at worst, a bottle may explode from the gas pressure, causing injury and liability suits. □

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JULY Honey Report

July 1, 1989

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



Wholesale Extracted	Reporting Regions								Summary		
	1	2	3	4	5	6	7	8	R	A	L
Sales of extracted, unprocessed honey to Packers, F.O.B. Producer.											
Containers Exchanged											
60 lbs. (per can) White	42.50	39.50	25.16	27.00	25.63	34.91	38.62	39.60	24.00-43.00	35.69	36.87
60 lbs. (per can) Amber	41.50	34.59	28.75	21.60	24.19	32.15	36.00	33.95	21.00-43.00	33.42	33.70
55 gal. drum/lb. White	.49	.40	.42	.40	—	.57	.57	.56	.40-.62	.50	.50
55 gal. drum/lb. Amber	.47	.37	.37	.36	.40	.50	.52	.45	.36-.55	.45	.46
Case lots — Wholesale											
1 lb. jar (case of 24)	28.55	25.68	25.50	26.94	23.50	22.91	26.25	30.01	22.80-35.04	26.78	26.63
2 lb. jar (case of 12)	27.15	23.23	25.50	24.18	22.20	25.22	28.25	29.40	21.00-31.00	25.48	25.89
5 lb. jar (case of 6)	30.45	29.28	22.99	26.38	—	25.91	26.15	26.10	22.99-38.00	27.30	26.28
Retail Honey Prices											
1/2 lb.	.93	1.01	.85	.89	.83	.89	.95	.94	.83-1.19	.93	.91
12 oz. Squeeze Bottle	1.48	1.31	1.35	1.39	1.13	1.10	1.15	1.44	1.10-1.69	1.33	1.34
1 lb.	1.55	1.55	1.46	1.47	1.29	1.53	1.57	1.56	1.29-1.90	1.52	1.56
2 lb.	2.85	2.61	2.39	2.62	2.39	2.57	2.87	3.18	2.39-3.18	2.69	2.74
2-1/2 lb.	4.00	3.55	2.95	3.60	3.39	3.21	3.71	2.63	2.63-4.00	3.42	3.53
3 lb.	4.22	4.03	3.49	3.25	3.61	3.62	3.71	3.67	3.25-4.30	3.81	3.74
4 lb.	5.50	4.83	3.99	—	4.79	4.40	4.67	—	3.99-5.50	4.71	4.65
5 lb.	6.75	5.63	5.97	6.08	5.88	5.40	5.77	6.06	5.10-7.00	5.95	5.88
1 lb. Creamed	2.00	1.25	1.37	1.60	1.55	1.65	1.78	1.75	1.25-2.00	1.67	1.63
1 lb. Comb	2.37	1.90	2.49	2.13	2.98	1.90	2.70	3.88	1.85-5.50	2.55	2.67
Round Plastic Comb	2.00	1.95	2.00	1.85	1.71	1.85	1.85	1.75	1.75-2.25	1.91	1.97
Beeswax (Light)	1.12	.98	1.10	1.00	1.00	.91	1.00	1.57	.91-2.13	1.09	1.00
Beeswax (Dark)	1.00	.90	.91	.73	.90	.89	.90	.90	.45-1.00	.89	.91
Pollination (Avg/Col)	30.00	—	—	27.50	—	—	27.00	20.75	15.00-30.00	26.00	24.34

Honey Report Features

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

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

Region 1

Price Index 1.00. Prices are steady and strong, as are sales. Bees are in good shape from spring. Honey flows promise to be good due to adequate spring moisture. Bear problems increasing in many areas with no relief in sight.

Region 2

Price Index .80. Sales and prices steady and little changed yet. Specialty honeys just coming into play. Early spring weather wet and cool, delaying or ruining some crops. Later spring weather seems better, with good soil moisture.

Region 3

Price Index .77. Prices and sales slow and low but steady for the region. Specialty honeys are just coming into play, but some areas have been hurt by bad weather. Citrus crop is poor in many parts.

Region 4

Price Index .74. Prices and sales are steady, but demand is decreasing seasonally. Early spring foraging has been hampered by bad weather, lots of swarms and inability of beekeepers to get to their bees. Canola crops increase, along with mite infestations in the region.

Region 5

Price Index .61. Prices and sales and demand are dropping seasonally and steadily. A late spring has hampered early foraging, but moisture will help late crops.

Region 6

Price Index .83. Prices and sales steady, steady, steady. Colonies in good condition generally, dry in some areas, but mostly adequate to excellent soil moisture.

Region 7

Price Index .91. Sales and prices are strong and steady. A cool wet spring has slowed early flowers, but helped later crops. Subsoil moisture is slowly building.

Region 8

Price Index .91. Sales steady to increasing a bit, prices rock steady. Northern areas tend to be wet and cool, slowing production a bit. Southern areas just the opposite with dry to drought conditions prevailing.

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Tracheal Mites & Genetics

STEVE TABER of Honey Bee Genetics

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"Maybe we need to rethink our earlier stand on Tracheal Mites."

I look at the task of writing this column as one that should not only help your beekeeping, but perhaps provide you with a bit of new information on occasion. Sometimes I make errors, and most of the time these are pointed out, in no uncertain terms, by people who tell me what an idiot I am.

Several years ago I wrote articles stating that we should not be concerned with the internal parasitic mite, *Acarapis woodi*. However, this may have been one of my errors.

But first, let's go back to the beginning to see how I got into this mess. When the internal mite was discovered here five years ago, I immediately went to the library to see what had been written about it. There were many references to mite research, but outside of Dr. Baily's work in England, the only recent work was done in Italy, and that was paid for by the USDA. If the mite was a problem in England, or wherever it had been found then more, recent work would have been done. It was obvious the mite was not a problem in England, or in any part of Europe.

My feelings were reinforced when the first scientific reports from Florida indicated mites were not a problem. In fact, heavily infested colonies produced large honey crops, which also reduced these 90% or so infestation levels to very low mite populations.

At the time, my argument was that since we had been importing bees from Europe and elsewhere until 1922, why didn't we have the mite?

I decided that we actually had imported the mite, but that conditions were such it didn't cause problems. This, of course, meant it was already here but no one had really looked for it.

And, as you probably already know, you almost never find something unless you look for it.

Let me give you a good example of finding things. We know that package bees infected with nosema build up slowly in the spring, and there is a high death rate in the queens. Further, high infestation rates in overwintered colonies in northern states result in slow spring build-up with correspondingly reduced honey production.

But in the southern states high levels of nosema seem not to be detrimental to early spring build up. For years many southern states refused to even look for it, stating they didn't have the disease. This was the case in 1965, when I started working in Arizona. No one had found nosema there either, and it was assumed that Arizona was a nosema-free state. It wasn't then, and isn't now, of course. We found nosema because we looked for it.

Considering this, let's look at the mite again, only more currently. This past year many people have found that colonies with heavy mite infestations in the fall do not survive the winter. Here, heavily infested means that 40% or more of the bees in a colony are infested. Apparently some colonies with heavy

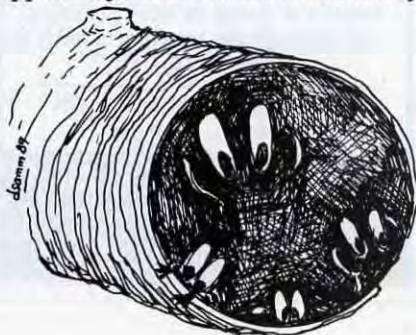
infestations do survive, but almost all that die have been heavily infested. When I heard this I began to suspect my earlier opinion was in error. So it was back to the beginning.

Bailey writes that complaints about a new disease began about 1910 on the Isle of Wight. They intensified until beekeepers got an official response to find the cause. At the time Bailey suggested a cause other than a disease. His theory was that weather, coupled by neglect and no sugar for feed during the war years of 1914-1918 was the killer. This seemed logical at the time.

But now, suppose that in about 1900, on or near the Isle of Wight a mite attached itself to a bee. Then, it rapidly evolved and its offspring finally became situated inside the bee's trachea. It's common knowledge that mites are widespread, and live in a variety of environments, including on you, right now. They are also on many, if not all the flower blossoms that bees visit.

It's also very possible that Baily's current theories are incorrect. He thinks, now, that the mite is no longer a problem in England because agricultural practices have changed, and there are fewer bees. This, of course means that there is better foraging for those remaining. But the mite had been worked on in most of Europe for many years — but not recently. Neither the European scientists, nor Bailey consider the mite a problem worthy of study anymore.

Now, I'm going to tell you what I think. I think that the European beekeepers have been selecting their bees for resistance to this mite for the last 60



Continued on Page 393



RESEARCH REVIEW

DR. ROGER A. MORSE

Cornell University • Ithaca, NY 14853

"Beekeeping success depends on good management, and perfect timing."

Honey Flow and Disease Control

Beekeepers have known for many years that a honey flow does much to eliminate many disease symptoms and to improve the health of a colony. However, it has not always been so easy to explain why this is true. Some parts of the question are obvious and others have been made clear, or at least clearer, by recent research.

A honey flow stimulates bees to clean cells for food storage. This involves the removal of debris and, in most races of honey bees, the use of more propolis. Propolis contains substances that have a long-lasting antibacterial effect. As fresh propolis is distributed it tends to aid in the control of disease-causing microbes.

Another factor is that a honey flow, which is often accompanied by a pollen flow, also stimulates brood rearing. Rearing more brood results in a flush of young uninfested and uninfected bees that first turn their attention to cell cleaning. This young population dilutes the population of older bees that are the carriers of some disease agents.

Perhaps the most important reason that a honey flow aids in disease control is that it causes the bees to fly and work hard and this causes their death at a relatively early age. This can be a good thing insofar as the health of the colony is concerned. It is popularly thought that honey bees always work very hard but this is not true. They work hard when there is work to do, such as during a honey flow. When there is little or no work to do the bulk of the bees are generally idle and thus conserve their energy and bodies for the

time when they will be needed. This results in some worker bees living to an older age, on average, and certain disease-causing organisms, such as tracheal mites, may accumulate in large numbers in older bees.

This discussion has a direct bearing on how beekeepers should view bee diseases and when they should treat colonies so as to control the disease-causing organisms most effectively.

Since a honey flow will aid in disease control it would not be appropriate to use chemicals for disease control prior to and during a honey flow (and it goes without saying that it could create potential honey contamination problems). It is after the honey flow, especially in the fall when colony populations are dwindling and worker bees are headed into a time when they will live longer because of doing less work, that one is concerned with the application of chemicals for disease control. As is the case in much of good beekeeping, timing is critical. The time when a beekeeper should be concerned with swarm prevention, requeening, adding excluders, or some other management practice, can usually be built into a rather precise calendar. Success in beekeeping often depends on outlining and adhering to a rigorous management scheme; this includes the proper timing of disease control methods.

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Notes from the U.K.

I spent several days recently in England, Wales and Scotland (the U. K.). This is the land where tracheal mites were first found in about 1920, and probably where they evolved. Many people, but not everyone, agree that the origin of tracheal mites is recent and that they evolved from one of the external honey bee mites from which they are barely distinguishable.

No one is too concerned about tracheal mites in the United Kingdom. The mites can usually be found everywhere and they do weaken some colonies and kill others. However, the losses are never too serious and certainly the severe problems we have been having

with tracheal mites in the U. S. recently do not occur in the U.K.

It was curious to me that no one I talked to was interested in menthol as a treatment for tracheal mites. This is especially interesting because we have found several references to using menthol for mite control buried in the English and European literature dating all the way back to the 1920's. When they do treat for these mites in Britain they use Frow mixture that contains two parts petrol, two parts nitrobenzene and one part safrol, all by weight. The active ingredient in the Frow mixture is nitrobenzene and is sometimes used by itself as a treatment. This mixture is not used routinely but only as needed. It can be toxic to adult bees and larvae. It is not approved for use in the U. S. by the Environmental Protection Agency.

From about 1900 to 1920, a disease ravaged colonies in the U.K. Losses were very high. The circumstantial evidence we have now is that tracheal mites were the problem; certainly what has happened in the past few years in the U.S. suggests this was the case. The result was that many colonies died and the surviving English bees are apparently resistant to the mites. I was interested to learn there is a division of opinion in the U. K. about their importing queens. They are now allowed to bring queens into the U.K. from New Zealand. However, several beekeepers told me the New Zealand stock is not resistant to tracheal mites and soon dies. The dark bees from the U. K. survive year after year with little trouble.

Part of my trip this spring was for

the express purpose of arranging to bring some queens from the U.K. into the U. S. in early summer. We expect these bees to be resistant, to some degree, to tracheal mites. We have not yet cleared all of the necessary paperwork with the U. S. Department of Agriculture but we have had approval from the N. Y. S. Department of Agriculture and Markets. Any queens we bring in will be put into colonies in an indoor flight room with no access to outdoors. We will use one-day-old larvae from these queens as breeding stock in the hopes that we can obtain resistant stock. The resulting queens will be mated with some selected U. S. stock. After we obtain the larvae we need, the queens will be killed as a precaution. □

Taber . . . Cont. from Page 391

years and it's beginning to show. Further, I think that because we in America haven't been selecting for resistance our bees are very susceptible to its affects. Although the resistance mechanisms are present in our bees, they are not being expressed in enough bees, or strongly enough, to combat the problem. We know that genetic resistance to the mite can be selected for in our bees because Drs. Page and Gary reported resistance showings up after only two generations of selection.

The obvious conclusion to all this, of course, is that I think we should repeal the 1922 law banning importation because the reasons it was enacted in the first place are now invalid. Then, import bees from England, France, Germany and Italy and begin testing them for resistance to *Acarapis woodi*. Let's conduct research that will help beekeepers.

Finally, I want to go on record thanking the American Honey Producers Association for their efforts to register menthol for treating tracheal mite infested colonies. □

S T O L L E R

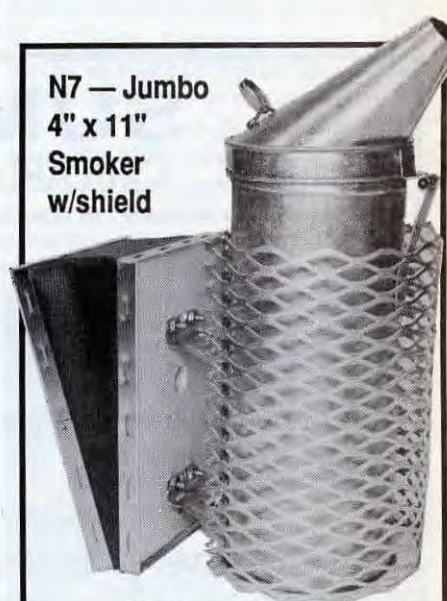
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Prices Include Postage

No. of Queens	After May 15
1 - 5	\$3.90
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25 - 99	\$3.50
100 - up	\$3.25

CARNIOLAN QUEENS
Prices Include Postage

No. of Queens	After May 15
1 - 5	\$4.50
6 - 24	\$4.25
25 - 99	\$4.00
100 - up	\$3.75

Beauty and the Bees

B. A. STRINGER

The evergreen hollies are useful, multipurpose shrubs or trees. The flowers produce both nectar and pollen used by bees, the berries are relished by birds, and the plants themselves are attractive shrubs, espaliers, hedges or screens.

There are about 300 species of holly. While English Holly *Ilex aquifolium*, is probably the best known, there are other species of *Ilex* which may be more suited to your growing area. The variety 'Balkans', which is grown from Yugoslavian stock, is the hardiest English Holly. Local nurseries and Extension Agents will be able to help you select the best holly for your site.

English, or Christmas Holly grows very slowly to about thirty feet. As the shrub is very tolerant of clipping, it is a practical hedge plant. Instead of clipping it into a tight, solid hedge, try thinning the dense growth to produce a softer outline and more pleasing form. Excessive pruning decreases the flower

and berry crop.

Most hollies are dioecious, that is, the male and female flowers are carried on separate plants. Male flowers do not produce berries. The fruit forms only on female plants. Generally, both sexes of holly must be present for the female to produce berries, but there are exceptions. Some female hollies produce fruit without crosspollination, and commercially available hormone sprays may set fruit on female flowers. Probably



the easiest way to ensure berries is to graft a male branch onto your female tree, or to grow both sexes of plants. The berries are bright shiny red, just like on the Christmas cards.

Holly's cream-colored, fragrant flowers are inconspicuous during their 2-3 week bloom in late May. Both pistillate (female) and staminate (male) flowers secrete nectar, which are very attractive to honey bees. Pollen is produced only by the male flowers. Bloom may not be consistent from one year to another, and even different branches on the same tree may vary in the number of flowers produced.

Leaves of English Holly are highly variable in shape, color, and amount of spininess. Variegated varieties may have green leaves edged with silver or gold, or a green edging on silver or gold centered leaves.

English Holly is part of the Aquifoliaceae, or "needle-leaf" group of plants. Its botanical name of *Ilex* comes from the Latin name for a southern European evergreen oak with holly-like leaves, the Holm Oak.

Native to the British Isles and southern and central Europe, English Holly can be grown successfully in regions where temperatures do not get

lower than 0-10°F, or USDA Plant Hardiness Zone 7. A rich, acid soil with ample moisture and good drainage provides the best site for these shrubs. While they thrive in sun or part shade, full sun exposure produces more compact and fruitful plants. To minimize maintenance, and avoid being speared by the spines, try mulching around the plants to suppress weeds and conserve moisture.

There are two pests of hollies; Mealy bugs, which are tiny white, cottony insects, and Scale, which are small, waxy shell-covered insects. Try to use biological controls to combat these pests. A predator beetle *Cryptolaemus* and Lacewing larvae will eat Mealy bugs. Parasitic *Aphytis* wasps can be released to feed on scale insects. If it is necessary to resort to chemical sprays to control pests, protect your bees! Read the label, and use only as directed. Do not spray while the plant is in bloom. □

Variegated with green & cream leaves.



Female holly with berries.



SOURWOOD

STEVE FORREST

July is the World Series of beekeeping in the Mid-Atlantic states. In fact, during a good year July is the World Series, Superbowl and Heavy Weight Title Match all rolled into one. Because during July even the fireworks of the Fourth pale in comparison to the excitement generated when the Sourwood trees are in bloom.

If it's a really good year, local beekeepers will make a crop of what is believed to be the original Nectar Of The Gods.

However, those years of blossoms but no honey are given over to great despair, and wailing and gnashing of teeth can be heard all through the land.

Why all the fuss and bother for something as simple as Honey? Well, two reasons are generally cited by those in the know.

Sourwood Honey sells anywhere from \$8.00 to \$12.00 a quart! And second, when Sourwood is in season (during those special years), customers will beat a path to your door. It seems to be the worst kept secret in the state. A beekeeper with Sourwood Honey seldom gets to keep the fruits of his labor.

But to really understand why all this commotion occurs, you need to

taste Sourwood comb Honey on a hot and steamy biscuit. Exquisite is a word that comes to mind, or at least it is the most commonly used term by those who have been blessed. It has the tiniest touch of sourness that enhances the full-bodied yet delicate flavor.

Estimates vary, but beekeepers can only expect a crop twice in every five years or so. What's worse, when it does bloom, there's never enough to go around. The bloom period is short, and

changing somewhat though, as the popularity of Sourwood Honey grows.

The 1988 Sourwood season was pretty good around here, and just as I was finishing my Sourwood harvest, a friend of mine from Florida came to visit. Ralph Wadlow, a retired commercial beekeeper stopped in at just the right moment, and I sent him home with a quart of perfection in a bottle.

On the way home Ralph stopped at Conrad Cramer's place in Florida.

Conrad is the president of the Florida State Beekeepers, and runs a pretty sharp Honey stand at his place. Ralph took his jar in to show Conrad, and while there a customer identified it as North Carolina Sourwood.

"I much prefer Sourwood," she said, "and only buy Florida Honey to cook with." She added that she

and her husband spend their summers in the North Carolina mountains, and every year purchased Sourwood Honey while there.

Ralph had heard that in the mountains, Sourwood costs \$10.00 or more a quart. She said, "Yes, but we don't like the comb in ours, so he charges us a \$1.00 extra to have it removed." Needless to say, Ralph was impressed with



Oxydendrum arboreum, sourwood.

even, a strong colony in a good location is lucky to make one super of cut comb Honey.

Very little of the nearly water white Sourwood Honey reaches store shelves though, because most is purchased directly from the beekeeper. And very few beekeepers produce Sourwood Honey to be extracted, so the liquid gold can be placed in a jar. This is

this marketing concept.

He called shortly after that, wondering about setting up a yard or two in Sourwood country. I told him it probably wouldn't be feasible to move into our area for a 'maybe-this-year' crop, and besides, North Carolina was quarantined for out-of-state bees.

I'd like to tell you a little about Sourwood production in North Carolina, and some of the mystique that surrounds this jewel of the Tar Heel State.

There are very, very few commercial beekeepers in our state. Those that make their living with bees are almost all located near the east coast, and even they have found it too expensive to move for a Sourwood flow.

But, there are literally thousands of hobby and sideline beekeepers here, and these are the producers of Sourwood Honey. They either live and keep bees in the right areas, or can move efficiently to gather a crop.

You would think that with all these producers we'd be able to predict, with some accuracy, which years the Sourwood makes Honey. We strive and study, but unfortunately we seldom take the right information. But beekeepers are by nature observers, bringing us closer to nature than most other hobbies or jobs. But we still don't know — is it cold winters? Wet falls? Wet springs? Snowy winters? High moisture? Some combination of these?

Though I don't have it figured out yet, I enjoy listening to people tell me their ideas. But clearly my favorite forecaster is Howard Pruitt, a beekeeper who lives in my county. Howard forecasts Sourwood production by studying the lunar cycles. He says these cycles run over a course of about 20 years. So, since no Sourwood Honey was made in 1969 and none in 1979, according to Howard there won't be any in 1989 either. Earlier this year he told me a freeze would hit the Sourwood living in low lying areas — and sure enough, in early May it happened. He also said that 1990 should be a good year — and he has some convincing data, at least for me. His records show bumper crops in 1960, 1970, 1980 — can 1990 be next?

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To produce Sourwood Honey you must first locate that perfect place. This spot will offer protection from vandalism, theft, bears, and worst of all — the dreaded home gardener armed with a Sevin applicator.

The best way to do this is to start your search the year before you want to move your hives. Look for a spot with



Sourwood (*Oxydendrum arboreum*) is a deciduous tree ranging from Pennsylvania west to Indiana, south to Louisiana and northern Florida. It seldom reaches more than 40 feet tall. Not an important timber crop, it is commonly found on the edges of forested areas, on stream banks and generally in well drained, acid soils.

Blooming begins in mid-to-late June and extends into August, depending on latitude and altitude, which ranges from sea level to about 3500 feet.

To propagate, collect seeds in late fall/early winter. Make sure they are dry and plant outside in the spring. They germinate readily in flats of peat/soil mix. After one growing season transplant seedlings to larger pots, then after another year directly to their growing site.

Trees prefer sun, so avoid shady locations. Deer like the young shoots, and honey bees and bumblebees like the flowers.

A single tree can make an outstanding specimen plant, as it has excellent summer and fall colors, and a pleasing symmetrical shape. □

lots of blooming trees. Sourwood blossoms are a delicate white and easily stand out from the tree's deep green foliage. They are not difficult to spot. Areas near water, and tracts of land that have been timbered at least five years previous both tend to be good locations, for reasons that are a bit vague, but reliable.

Prior to Sourwood's blooming period there is a noticeable nectar dearth which curtails brood rearing and leaves empty areas in the brood nest. When the Sourwood flow starts, the first thing the bees do is pack the brood nest with Honey. Then, if you haven't been careful and removed any remaining honey, they'll mix it with all that remains. To avoid this, make sure all honey supers are removed before the flow starts. For best production, you must have only one brood box and one empty comb super on when the flow goes.

Cut comb Honey is the production method of choice around here, and the frames must have wafer thin foundation before you put them on a Sourwood hive. And if you've ever tried it, you already know that producing cut comb is a fairly labor intensive process. This certainly contributes to the low supply, and correspondingly high price.

Last year, Jim Johnson, who is a friend of ours shared a solution to the labor intensive process of dealing with any honey already on the hive when the Sourwood flow starts. His technique is quite simple, actually. At the start of the flow, he places a fresh and ready comb super above his single brood nest. Above these two supers he puts an escape screen, then the honey supers already on the colony. After a couple of days the bees have left the supers above and are crowded below, perfect for cut comb production. He reinspects at least once a week, and if wax moths appear in the top supers he removes the screen for a day or two so the bees can come up and clean out the worms.

This is still fairly intensive production, and is the main reason many beekeepers don't produce cut comb Honey. But it also is the reason the few who do are so successful.

Continued on Next Page

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Sourwood . . . Cont. from Page 397

A few customers want extracted honey without the comb, but they are rare in this area. Sourwood's fame is spreading and extracted and processed honey can now occasionally be seen.

Sourwood Honey is a truly unique treat but it is still not well known, nor well appreciated, outside of its growing area. If you want to try this original Nectar Of The Gods, you'll have to travel to the hills and plains of North Carolina, and find a beekeeper willing to part with a bottle.

If you don't want the comb, you'll probably have to pay a buck more — but it's worth every penny. □

Steve and Sandy Forrest own and operate **Brushy Mountain Bee Farm** in Moravian Falls, NC. They produce, when nature allows, not nearly enough Sourwood Honey with their 15 or so colonies.

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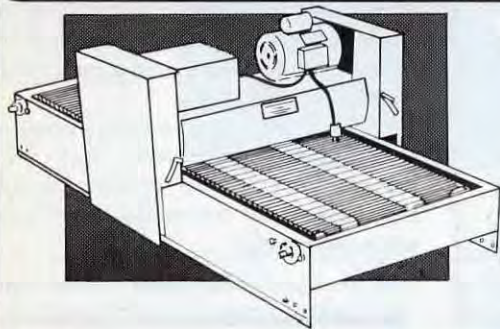
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Getting There?

PAT SHERRIFF

The clocks are against us — we have been up since the crack of dawn and still there is not enough time. We are beekeepers, but we also make protective clothing for beekeepers. All week long we have been dealing with customers, most pleasant, but some not, because we just cannot ship fast enough. However, it's around 6 p.m. and so the pressure has slackened somewhat.

It has been frustrating packing the suitcases for our trip to the United States for the Beekeepers' Conventions — how many large size do you think we ought to take, and how many small. And shall we take more of the 'Honey Rustlers' for this has been the most popular in the U.K. My husband thinks differently and suggests we pack more of the full suits, and so it goes.

"By the way," says my husband, "you need to call the factory." So before anything else, I make a mental note to visit the factory which is 5 miles away. All these interruptions slow me down. If only . . . yes, if only there were a few more days before we set off on our journey.

Well, the cases with the bee suits are packed and the necessary documentation for the Customs is made out

but not without a few exasperated comments when interrupting my husband. Now with these suitcases fastened, it's on to our personal cases. Reaching for the linen locker door I realize there were still a few shirts to be ironed. Oh, and I forgot to wash my husband's jacket, and he could have done with a few more pairs of socks, they are getting a little thin.

Brian's clothes go first — three pairs of slacks, then one warm sweater, suitable ties, socks and the rest. I think, yes, we will travel light. I'll do the same, just a few pairs of slacks, a dress, skirt, and a pair of shorts, and not to forget the swimsuits, of course, but then I could put in the blue dress and perhaps the two-piece, that wouldn't take up much room, and how about a track suit for lounging around in and a couple of colored sweaters. I know, I'll carry my blazer and throw in a quilted jacket just in case it gets a little chilly — that should just about do it. But stop, how about the shoes. Shoes to go walking in, and to stand in when at the conventions, and then my husband would like two pairs to ring the changes, and of course sandals. Oh, guess what, I forgot the little gifts I promised my niece and that picture for my sister-in-law.

Goodness, I almost forgot the most important thing of all, the tea. What would I do without my tea and with that goes the tea pot. Now I am not thinking

else the case won't shut". So I stand there for a few minutes debating what to remove — shall I take out a pair of his slacks or mine!

The case is closed, the house is checked, all taps turned off and we are actually setting off. At the local garage we stop to fill up with petrol for our journey to the airport.

"Well dear, do you think you have everything?"

"No," says I. "I have left my hand-bag on the bed!" We travel back to the house in silence only to find it was in the car all the time.

On our arrival at the airport there is the usual hustle and bustle, the suitcases are weighed and we are then free to enjoy another breakfast before crossing the Atlantic.

We have slept a little, eaten a lot, but we finally arrive at our destination, the United States of America. We have gone through the usual formalities and await our suitcases. With so much commotion it is difficult to see if our bags

have arrived — is that one of ours coming along now, the one with the red band? Obviously not, for someone else just claimed it. Everyone else seems to be pulling theirs off the conveyor belt. It just

wouldn't be funny if they were lost. Oh, here they come, safe and sound, but after having flown for nine hours they seem a lot heavier than when we started off.

By now I am beginning to feel hungry but first we must pass through Customs and make the necessary dec-

"The 'getting ready' part of beekeeping conventions is not nearly as easy as being there"

straight, for I need my husband's razor, my hair dryer, and a couple of books for us to read on the plane . . .

But, of course, it all doesn't fit, so I yell to Brian, "Can you help me, I can't get the lid closed on our case."

"Hold on" comes the reply, and, after waiting what seems like forever, he comes to the rescue and tells me, "you have got to part with something or

Continued on Next Page



Angela, Brian and Pat Sherriff discussing their products at one of their convention visits.

laration. The Customs officer asks "You are not carrying live bees are you?" and "You are going to a beekeepers convention? Now where is that?" and of course, "You know, my grandfather used to keep bees and he lived until he was 90."

We are now out of the building and waiting on the pavement looking for a bus or cab to take us to our hotel. We make a telephone call "Yes sir, the bus will be with you in just 10 minutes."

Oh, that's not so bad, says I, but the 10 minutes goes to 20, and so another call has to be made.

However, after a little while along comes the bus and here we are in no time at all arriving at the hotel — oh, and look who's in the foyer, the friends who were at the last convention, and guess who just went around the corner. Maneuvering our suitcases into the lift, with difficulty, we arrive at our room and drop our luggage to the floor. I know for sure that next time I'm travelling light! □

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Seeing Bees

"I see, and I remember"

Why have an observation bee hive in your classroom? Because it is a living exhibit of unique adaptations, both structural and behavioral, because it will steer some of your students into a great hobby that pays its own way, because there is undoubtedly a beekeeper in your community who will be happy to help, because your exhibit will go right on teaching while you are checking lab reports! When you ask permission to drill a hole in the wall or to block a bit of window space, point out that an observation hive is much less expensive than busing your students to an apiary. When permission is granted, call for an appointment with that friendly beekeeper who will help you get off to a good start.

Establishing The Hive

There are a variety of observation hive models available (see list) that are constructed so as to fit well in classroom windows. Some are several frames wide, which is good because you can build a sizeable population. However, the disadvantage is that you are unable to see much of what occurs in the hive.

Choose a model that fits your situation, and will be easy to use for demonstrations and 'observation'.

Most observation hives have upper and lower frames. The upper frame(s) are used by the bees for storing surplus honey and pollen. The lower frame(s) are the brood chamber, where the queen lays eggs and the young are raised.



Rearing A Queen

Queens and workers come from the same type of egg, one that has been fertilized by a sperm. The difference in development depends on nutrition. At first, both receive a high-protein diet consisting of a glandular secretion from the workers. For workers the diet is changed to a mixture of honey and pollen during the third day. As a consequence, the reproductive equipment is incomplete, and specializations for harvesting food, building comb, and other work develop instead. Queens continue to receive the glandular secretion, known as royal jelly, throughout the larval stage. The result is full reproductive development, but most of the specializations for work are lacking.

If you have had no experience with bees, it would be well to ask an experienced beekeeper to help install the bees in the observation hive.

The beekeeper may do one of two things when installing the bees. He may install only bees and frames with eggs and larvae (young bees), or he may install a queen, along with all the rest.

Continued on Next Page

This handout has been specially prepared by the beekeepers in your area. If you have questions about observation hives, honey bees, beekeeping, honey or any other aspect of this wonderful world, please call us, we'd be happy to answer any of your questions.

If a queen is not added and young larvae are present, workers will remove the walls around a very young larva and construct a much larger queen cell that looks somewhat like a peanut. The queen cell is aligned vertically and therefore at a 90° angle to the cells in which workers are reared. While the queen cell is under construction, you will see workers with their heads in the cell, adding royal jelly. About eight days after the egg was deposited, workers will seal the opening with wax. On the 16th day the young reproductive female will chew her way out at the lower end of the cell. Although longer than workers, she will be only slightly thicker. Her first activity will be to search out additional queen cells, tear a hole in the side, and sting the occupant.

Five to ten days after emerging from her cell, the young queen will be ready for her mating flight. She will leave the hive in early afternoon on a bright day, circle repeatedly to get her bearings, and then disappear. After mating with a dozen or more drones, she will return with a store of sperm sufficient for her entire reproductive life. Within a few days you will find her inspecting empty cells, thrusting her abdomen into the cell, and leaving a tiny white egg at the base. She is capable of releasing either fertilized eggs, which produce females, or unfertilized eggs, which produce drones. Ask your students whether a drone, having no father, has a grandfather.

You can begin this queen-rearing sequence either in early autumn or in spring when the fruit trees and dandelions begin blooming. But you cannot expect the queen to be of high quality. Lacking the full nutrition that a large colony would provide, she will be somewhat small, with poorly developed ovaries. This is not a problem, however, for such a small colony. Your objective is seeing.

Seeing Bees

Distinguishing Castes

Distinguishing among castes is elementary but important. In addition to her greater size, the dorsal surface of the queen's thorax is bare while that of the worker is fuzzy, although the fuzz tends to wear off gradually with age. The drone has a much thicker body, a blunt abdomen, and much larger compound eyes. Because drones are unproductive in that they consume but do not

provide food, beekeepers dislike having many in the hive. If there is an excessive number of drones and few young workers (distinguished by their fuzzy appearance), the keeper suspects that the queen is aging and thus running low on sperm. The solution is to replace the old queen with a young commercial queen.

Storing Food

Storage of food is also easy to observe. Nectar has a high water content, which must be reduced considerably for conversion to honey. Workers place the nectar in tiny droplets on the walls of the comb and also expose droplets on their mouthparts, somewhat as children blow bubbles with bubble gum. Evaporation is accelerated by currents of air, the result of wing action by the workers. Meanwhile, enzymes from the workers chemically convert most of the sucrose in nectar to the simple sugars dextrose and levulose.

You can identify the protein providers by the glob of pollen bulging from the basket on the rear leg. When the forager finds a suitable storage cell, she turns around, inserts her rear legs, and then kicks the pollen off with her middle legs. Another bee rams the pollen down with her head.

Waggle Dancing

You will no doubt be asked, "What is that bee doing? It hurries along wiggling, then goes back and does the wiggling again." You can tell the student that Karl von Frisch watched this same maneuver 50 years ago. He was awarded a Nobel prize in 1973 for his interpretation of the food dance and his research on the senses of bees.

When a scouting worker locates a new source of nectar or pollen, she returns to the hive and recruits foragers by the waggle dance. The rate of the

dance tells hive mates the approximate distance to the food. Discovering for yourself how to translate the rate of the dance into actual distance is a satisfying project for a science fair (Trump 1987, p. 80).

The angle of the waggle portion of the dance indicates the direction of the food. Because the scout is dancing on a vertical comb, she must use a reference point visible to the bees during flight. That point is the sun. If food is toward the sun (for example, east of the hive in the morning or south of the hive at noon), the wagging portion is straight up on the comb. If the food is 20° to the right of the sun, the wagging is 20° to the right of straight up. And so on.

There is much more for your students to discover through the walls of an observation bee hive. The only limits are time, and your imagination. Use several of the many resources and magazines listed below for ideas and information. Most of all, welcome to the fascinating world of the honey bee. □

Editor's note: Richard Trump, the author of this article, taught biology at Ames High School for many years and served as adjunct instructor in the Department of Entomology, Iowa State University, Ames. He has also published the delightful book *Bees and Their Keepers* (1987).

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Further Reading

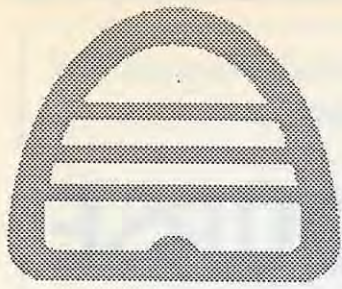
- Dadant and Sons, editors, *The Hive and the Honey Bee*, Dadant and Sons, Hamilton, IL. 1975.
- Morse, R. A., *Bees and Beekeeping*, Cornell University Press, Ithaca, NY. 1975.
- Root, A. I., *The ABC and XYZ of Bee Culture*, The A. I. Root Company, Medina, OH. 1980.
- Trump, R. F., *Bees and Their Keepers*, Iowa State University Press, Ames, IA. 1987.

Commercial glass-walled hives are available for sale from several outlets, including:

- The A.I. Root Company, Medina OH, 44256
- Dadant and Sons, Inc., Hamilton, IL, 62341
- Walter T. Kelley Bee Supply Co., Clarkson, KY, 42726
- Carolina Biological Supply Co., Burlington, NC, 27215

Magazines to Read:

- Gleanings In Bee Culture*, P.O. 706, Medina, OH 44256
- American Bee Journal*, Hamilton IL, 62341
- Speedy Bee*, Jesup, Ga 31545



Houses of Straw

GERHARD K. GUTH

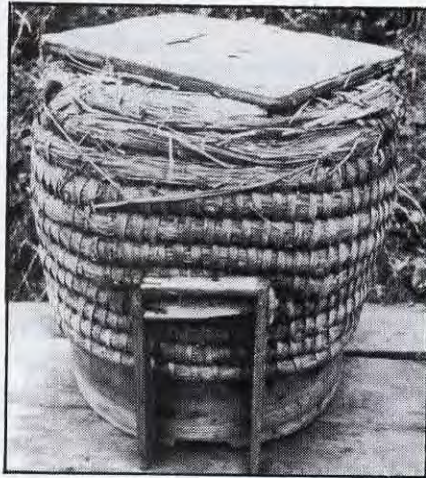


The Lüneburger Stulper has a removable roof, and central entrance. It was coarsely woven and was plastered with mud and dung. It needed protection from the rain.

When most of us think of the word skep, we envision a conical shaped container that somehow holds bees. They were used before 'modern hives' were invented, and they're illegal to use now.

Though skeps that fit this description exist, we limit our knowledge and imagination if we stop there. Keepers of bees have devised as many bee abodes made of straw (or other materials) over the course of time as 'modern' beekeepers have of wood and plastic.

Skeps, in a general sense, are containers made of flexible material, woven or shaped into a convenient shape that bees could be raised in. Straw was a common material because it was readily available, easily manipulated and inexpensive. But other plant products also worked well, including bamboo, twigs, and others.



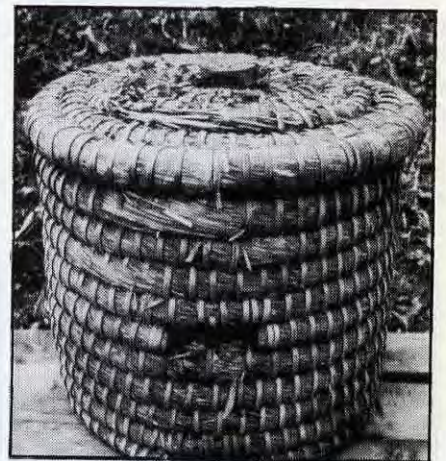
A Thuringer Roller style skep. In the spring, surplus honey was taken out of the rear of the skep. Then, the roller (bottom portion with entrance) was turned 180° and the front became the rear, and vice versa.

The new front was rebuilt by the bees, replacing the combs removed for honey, and became the brood area. The back was then used for honey storage. The entire comb was renewed every year because the process was repeated in the summer.

Often, the outside was coated with mud or dung to aid in insulation and cohesion and thus need protection from the rain.

Also, straw or similar materials, was warm, yet allowed ample ventilation. Further, they were easily moved — especially important for migratory peoples, or to bring them to honey plants far from home.

When moved, they were often turned upside down and covered with cloth. This protected the comb inside from breaking loose from the walls or roof. □



An advanced design with top bars and wooden stakes for support. Also, 'supers' could be added.

All three models are from Eastern Europe and were in common use 60-80 years ago.

EAS TO HOLD SHORT COURSE

Larry Connor



The Eastern Apicultural Society has rescheduled the 1989 EAS Short Course for Aug 21 - 24, and the Master Beekeepers Examination for Aug 24. They will be held at the White Memorial Conservation Center in Litchfield, CT, a 4000 acre preserve located on route 202 just west of Litchfield.

The Short Course begins with registration at 10 a.m., Mon, Aug 21, with the course beginning at 11, continuing days and evenings until noon, Thurs, Aug 24.

Scheduled speakers include Dewey Caron, Univ of DE; Clarence Collison, MS State University; Diana

Sammataro, author of *The Beekeepers Handbook*; Bob Wellemeyer, Apiary Inspector for VA; Larry Connor, BES and Mary Ann Tomasko, Research Entomologist, Penn State University.

Meeting facilities include a large meeting room for 125, with dining room and kitchen. There are two dorms, holding 30 people each, one for men and one for women. Dorms are not air conditioned, but are located in the woods and are generally cool. Tent and camper camping are available on site. Motel facilities are also available nearby.

The Master Beekeeper exam starts 8 a.m. sharp Thursday, Aug 24. Participants should plan to arrive Wed. evening, since the exam will take all day Thursday.

Short course subjects will be varied, with several new and timely twists, which include Penn State's computer program designed for interaction with the user in disease and problem identification. Students will use a Macintosh computer to decide what a particular disease or problem might be, and then find out what can be done with it.

In addition, there will be heavy emphasis on disease and mite recognition and examination. There will be duplicate keys available which students will be able to use at home with a small amount of equipment. Addition-

Dewey Caron



ally, there will be basic beekeeping concepts examined, honey bee colonies on site, and participants will visit nearby apiaries. They will be using the new Jenter queen rearing system, which Bob Wellemeyer plans to demonstrate.

An enrollment information kit may be obtained by contacting Dr. Connor at PO Box 817, Cheshire, CT 06410. It will outline registration fees for the course, meals, and various housing options. Calls to (203) 271-0155 will be answered whenever possible. All EAS members will be notified in the summer edition of the Journal. □

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Duct Tales . . .

KIM FLOTTUM and DIANA SAMMATARO

Put four beekeepers in a room and ask them their most used tool, and in all probability you will get four different answers. But if you ask 25 or 30 beekeepers the same question, you'll get a bit more agreement, though certainly not a consensus.

We recently put about 20 friends who keep bees to the test to see what would come out in the wash. The results, though fairly predictable, did offer some surprises.

As you would imagine, the three most mentioned tools were the hive tool, smoker and veil. Add to these bee suits or gloves and the five combined totaled about 85%. The remaining 15% included extractors, pickup trucks, forklifts, the pallet and a few other odds and ends. Like I said, fairly predictable.

Interestingly, less than half considered smokers or hive tools first. I guess those who place forklifts on a higher plane than smokers must hate lifting as much as I do.

We honestly tried not to slant our questions nor influence anyone's decision. I think it was as good a survey as you're going to get, all things considered.

But, after all the dust had settled and all the questions answered, not one, not a single beekeeper who took part in this survey mentioned, or as far as I can determine even considered, duct tape as the most important tool in their operation.

Duct tape? Yes, really.

If, after you've asked a friend or two the same question, ask them if they use duct tape. You will, in all probability, get a response like, "Well, sure, I use duct tape. I've got two or three rolls in the truck (car), one in the tool box I carry, and always two or three in the workshop and around the house. You just can't live without the stuff."

See, duct tape.



All of these rolls are 2" wide by 60 yards long. The differences are obvious since the center cores are identical. Mostly found in gray, a variety of colors exist, including brown and white.

That's sort of what we figured when we started this little quiz, and that's why we were surprised when we got all those other answers, and no duct tape.

So, our next query was to find out how people really use this stuff. It was originally invented for use in the heating, ventilation and air cooling industry (HVAC) but its versatility in so many other things has made it a very popular item (see next page).

Below are the ideas we came up with when we got our friends to talk. We're sure there are more ideas and applications duct tape is used for, but here are some, listed in categories . . . sort of.

PATCHING: Holes in bee suits, veils, bellows, gloves and shoes.

MOVING COLONIES: Closing auger holes; sealing cracks between supers; holding tops on; colonies together; reducers in place; colonies to pallets; and colonies together on pallets.

HARVESTING/EXTRACTING: Repairing holes in bee blower hoses; cushioning uncapping knife handles; holding switches in place (either on or off); and sealing hoses that move honey.

REPAIRING EQUIPMENT: Cushioning hive tool handles; field repair of covers and inner covers; fastening liners in fume boards; reducing bottom boards to a single entrance; and sealing splits, cracks and other maintenance in supers.

CLOSING: Pants cuffs and sleeves; zipper stops; and screen doors in honey houses.

MISCELLANEOUS: Temporary electrical repair (non-conductive); holding together record books and the like in the field; marking colonies (ink on the tape, not on the box); bandages (used to hold absorbant material in place when cut or wounded); and probably a million things we haven't listed.

If you don't have a roll or two in your tool box by now, certainly consider getting some. It is undoubtedly the most used tool in beekeeping, no matter what anyone says. □

Why It Works . . .

Before conducting our survey, we researched our topic by going to several stores in, and around, Medina, OH. We checked prices and types of duct tape available, and were amazed at the selection. Amazed and confused, because suddenly it wasn't just 'plain old duct tape' anymore. Below are the selections we found in just three of the stores we checked.

It seems that size was the only constant because we couldn't find rolls larger than 2"x60 yards. Shorter rolls were available, but not for hard core users like us.

The rolls we examined ranged in price from 6.6 cents per/yd. to 12 cents/yd. It takes a little over two yards to go around a standard 10 frame hive (7 ft.), so using duct tape to seal hives will cost you between 12 and 25 cents per sealed crack.

We also took physical measurements to see if weight or thickness were important when examining price. Although both seemed to play a role, we figured there must be more than meets the eye here, so we contacted a few duct tape manufacturers to see what we were missing.

We found that standard duct tape is actually a three layered material, and each of the layers could be manipulated to meet special needs, or special pricing.

The top layer is a polyethylene or vinyl film. It is usually gray because duct tape was initially made to match

gray duct work. Film can vary in thickness and density and can come in colors other than gray. We found white and brown here, but the movie industry uses a type that is essentially camouflage colored. They like it because it is easy to tear, holds large electrical cords with ease, does not conduct electricity, can be removed quickly when no longer needed, but most importantly, it doesn't reflect light, messing up a shot.

The middle layer is a cloth or webbing material. Each strand in the webbing is woven, and the number of threads per strand are the measure of

'calendering'. This is where some of the trade secrets come in and we found most makers reluctant to discuss how it was done. Suffice it to say, it works.

Finally, the adhesive. Most are pressure sensitive, rubber-resin mixes, with a few secret ingredients that make each brand a little different. General purpose duct tape adhesives (the kind most of us run across), work best between temperatures of 32 and 150 degrees. However, some adhesives are made of acrylics of various types, some are simply hot melts and there are others for a million purposes.

An interesting note about adhesives. The nuclear industry uses miles and miles of a specially made duct tape, and the primary difference seems to be the adhesive. It seems that most duct tape has minute amounts of metal in the composition of the adhesive. This can be potentially dangerous in this industry, due to radioactive accumulation in the metal over time. But there is one (at least) company that produces a metal-free adhesive so duct tape can be used even here. However, we were told that most of the tape is used to seal pants cuffs and

sleeves in the protective suits workers wear. Sound familiar?

The airline industry uses a great amount of duct tape, too. Their particular brand is extremely fire retardant, for obvious reasons. It tends to be a flat gray, fairly thick and extra strong. I kinda wish they hadn't told me that. □

Color	Cost	Wt*	Thick**	Size^
•HWI Store				
Gray	\$7.29	1-10	1.56	2x60
Gray	4.29	1-5	1.22	2x60
•Carter Plumbing/Heating				
White	4.49	1-13	1.53	2x60
Gray	3.99	1-8	1.47	2x60
•Tru Value Hardware				
Brown	5.89	1-10	1.56	2x60
Gray	5.69	1-7	1.63	2x60

*Wt: 1-10 = 1 lb., 10 oz.
**Thick: 1.56 = The thickness of the roll from the outside edge of the tape to the outside of the inside cardboard center, in inches.
^Size: All rolls were 2 inches wide by 60 yards long

how thick the final webbing will be. The number of strands running each way also determine strength, tearability, and, in the words of one tape maker — tensile strength. This is the measure of how difficult it is to pull apart.

The webbing and the film are fastened together by a process called

TONN'S HONEY

KIM FLOTTUM

HARVEST TIME

"When you're in the business, it all comes down to the day you take it off", said Tom Tonn as we were suiting up, getting ready to take honey supers from his 'Country Farm' site apiary. He paused for a moment, though, and looked out over the gently rolling country surrounding the location.

Most of Tom and Dorothy Tonn's apiaries are located in the Massillon/Dover Ohio countryside. This northeast



A high level conference to decide if this colony is 'ready'.

Ohio area was long ago a lake bottom, but now it's primarily farmland, with a mix of woodland and played-out strip mines scattered throughout the county. They have between 350 and 375 colonies in several locations, all but one within twenty miles of home.

Tom's attention drifted for only a few short minutes, and he then continued readying his trailer to receive the supers of honey. Meanwhile, Dorothy was getting her equipment set to go. With preparations finished, they begin checking supers for sealed honey. Drawing on many years of experience, both can quickly gauge when a super is 'full enough'.

"I like it to be at least two-thirds capped", says Tom, "otherwise you start having trouble with green honey. If it's not full enough, we'll set it aside and let the bees have it, or come and get it later."

They check three or four colonies to get a feel for the yard, then Dorothy returns to the first and starts preparation for separating bees from the honey supers.

"We use fume boards exclusively," says Dorothy, "they're easier to use, faster and less expensive than any other technique we've tried."

"We started by buying our boards," said Tom, "but I make them all now. They're easy to make — just four edges, aluminum top (metal printing plates)



The gently rolling countryside seen from 'Country Farm' Apiary.

and lined with old sheet material."

Dorothy applies 'just enough' BEE-GO to each board, using, appropriately, a honey bear as dispenser. Then she removes the combination top-insulator-feeder and places the fume board on. When one is finished she moves to the next colony and starts all over.

"I can work about three colonies at a time," she said, "but if there are two people carrying supers we'll do as many

Continued on Page 410



"You need to check every super," says Tom, "so you don't have emptys and uncapped frames."

Tonn's Equipment:



Tonn's homemade feeder, with a super leaning against it.



"We like the wood and wire excluders best," says Dorothy, "but any is better than none."

"Starting at the top," Tom Tonn says, "right under the standard telescoping cover, we have a rather unique device. It's really a feeder, which I make myself, though it's modeled after a commercially available style. We put it on a colony and then fill it with straw. When we feed, the straw keeps the bees from drowning when they come up for the syrup. We feed regular sugar syrup, not HFCS, and just pour it in. The bees clean it up fast, and don't even leave the straw sticky."

"We used to take them off when we finished feeding," said Dorothy, "but after a couple years of moving and storing, and moving again, we saw the light, and now leave them on all year. The straw helps insulate the bees from rapid temperature changes in both summer and winter."

"We would like to have excluders on every one of our colonies, and are gradually getting there," said Tom. "There is no better piece of equipment for honey producers."

The Tonns winter in two deeps. In the spring they make sure the queen is in the bottom deep (reverse if necessary), place an excluder above the two deeps, then add an additional super above for storage. Above these three supers they add their honey supers.

"We don't lose queens this way, and the bees move the stored honey from the third super down to the two we winter in, below the excluder. We don't have brood in the harvested supers, which helps with wax moth problems.

"No brood means reduced wax moth because the comb doesn't have pollen or other dark material. We can store honey supers without that worry," said Tom.

Mouse guards are a necessity here, too. Tom has a mouse guard in every bottom super entrance, and it stays



The 'permanent' mouse guard.

there year 'round. It is simply constructed of a 'V' shaped piece of hardware cloth pushed in place for the entire year. After a bit the bees glue them in so they pretty much stay in place.

"I can check the bottom super without it falling out, and worse, me forgetting to put it back," said Tom, "and I've never had a mouse problem."

"All our colonies sit on pallets," says Dorothy, "because pallets are easy to locate, cheap (often free), easily replaced, and easy to haul in our trailer. We don't have a forklift, but if we ever get one we'll be ready," she said.

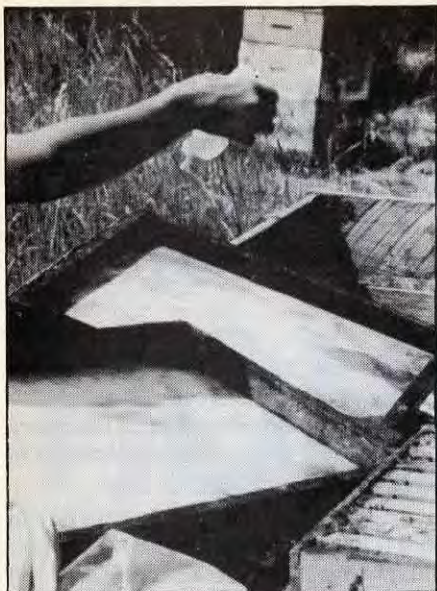
"Our trailer is a modified snowmobile trailer," Tom says. "I put on another set of axles for support, and it works just fine for our operation."

"We can carry everything we need, plus all the supers and the rest needed for 20 colonies," said Dorothy. "Besides that, we use it for adding supers in the spring, hauling bees for pollination (we don't even take them off the trailer), taking wet supers to an outyard to be cleaned, hauling pallets, jars — you name it," she adds.

"If you have this many colonies, you absolutely *must* have a means of moving large amounts of equipment quickly and easily," said Tom. "We don't have a lot of help to do the busy work, so we save steps whenever we can." □

Truck and snowmobile trailer combo hold all the gear and related equipment needed for 20 colonies.





Dorothy applies BEE-GO to the cotton lined fume board, using a honey bear applicator. She uses 'about' a tablespoon per board.

TONN'S . . . Cont. from Page 408

as five. The limiting factor here is how fast can the full supers be removed."

When asked about 'how much' to use, she said it depends on: the day, because warm days are different with BEE-GO than cool; whether the sun is out; and how big the colonies are.

"If I put too much on the board or leave it on too long, the bees will boil out the front of the colony," she said. "Then I know to tone it down a bit," she said with a trace of a smile.

Setting the cover behind her, she replaces it with the fume board. Note trailer.



When a small colony receives too strong a dose, the bees boil out both top and bottom.

After a strong colony has had too long an exposure, the bees will leave via the front door.



After approximately seven to ten minutes the bees will have moved down far enough to remove one or two full supers. Tom is the muscle here, and carries these to the truck/trailer.

After years of working together, Tom and Dorothy have their timing down pretty well. The supers to be moved are timed so that Tom seldom gets behind. This is good for reasons other than not wearing him out too soon, though. Basically, the other reason is that, like all activities in beekeeping, slow and careful movements tend

Continued on Page 412

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When everything works right (as in 99% of the colonies worked that day), removing bee-free supers is easy, and fast.



When Tom removes the full supers, he takes them to the truck where they are stacked by their oldest daughter, Sheila. She's a high school senior and helping with the bees gives her pocket money (and more) since her parents pay for her help.

Sheila also helps at extraction time, bottling, and other chores around the honey house. Though she doesn't have beekeeping in her blood, she works hard, and seems to have a feel for the rhythm of the bees, and the business. Both are handy to have.

When the trailer and truck are full, or all the colonies have been worked, the three head back to the honey house to unload and prepare for extracting the crop.

Next time, we'll look at the family extraction process including the equipment it takes to handle this much honey, and how **Tonn's Honey** packages and markets the crop. □

TONN'S . . . Cont. from Page 410

to not disrupt or antagonize the bees.

When a colony has a particularly large amount of honey supers, it may be necessary to apply the fume board two, or even three, times to keep the bees moving down.

"You want them to move down slow and easy," said Dorothy, "because if they move too fast, you've either got too much 'GO' on, or the colony is too small. It's better to do it twice or three times, and do it right, than to hurry and have problems. Besides, it seems it's always hot when we do them so I don't mind not running full speed all day."

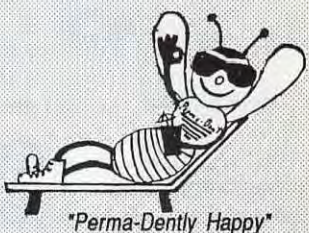


Sheila waits patiently in the truck for supers, then safely stacks them as they arrive.

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Robbing Honey



STEPHEN BAMBARA

All the legal tricks you'll need to know to commit 'Sweet Larceny'!

Despite the terminology, robbing a hive is not illegal unless, of course, it is not your hive you are robbing! None of this will make sense, though, unless you know that robbing a hive is beekeeping jargon for removing surplus honey from a colony.

The question most frequently asked by novice beekeepers is, "When is the best time to take honey from the bees?" The answer varies, of course, depending on the geographic region, time of year, colony strength and the beekeeper's objectives. Typically, a

beekeeper should wait until the end of the foraging season (major honey flow) and then remove all the honey except what the bees need to survive the local winter. This ranges from 1 to 3 supers. If you are unsure, check with local beekeepers to see what is required in your area. Some beekeepers will also remove honey immediately following a specific nectar flow to insure that it does not become mixed with other honey. With these special considerations taken into account a hive could be "robbed" almost any time of the year.

The objective is to remove combs of honey from the hive but leave the bees behind. The most basic method is the use of a brush. Commercial brushes are available, or the brushy end of a window scraper works in a pinch.

Combs are removed from the super one-at-a-time, and the bees merely brushed off the comb. Each frame in turn is placed in a covered box or empty super so curious (and hungry) visitors can't regain access to the comb. One important point in this process is to not overuse smoke. Too much smoke may flavor the honey or cause the bees to begin cutting into the cell cappings to engorge with honey. A second point is to be sure to use a plastic bristled brush. Brushes made from horse hair will aggravate the bees and cause them to sting. Many old timers will just use a small pine branch or fist full of pine needles. These work well when there are not a large number of frames to be removed.

Another method used to remove bees from a super is a bee escape. The

bee escape is a one-way valve which can be placed in the hole of an inner cover *just beneath* the super you desire to remove. Once bees pass down through the bee escape, they cannot return to the upper chamber. This method may be more suited to cooler regions or use during times of year when the nighttime temperature is cool. Bees can stay in super for many days otherwise. The bee escape is not recommended when temperatures do not drop at night or if there is any brood in a super. When using escapes, make certain all entrances to the super are blocked. Otherwise the bees will simply return via the other entrance, defeating your purpose.

The use of chemical repellants is a

Proper method to use a bee brush.

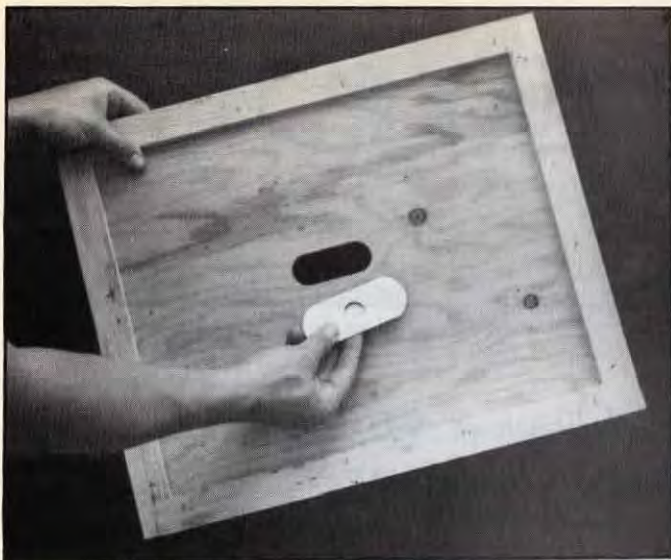


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The bee escape was invented almost 100 years ago but is still used. It can be fit into an inner cover to allow only downward movement of bees.



A few drops of repellent are applied to the underside of a fume board.



A bee blower can remove bees from a super quickly and without chemicals.

common method among beekeepers operating a large number of hives. The repellants sold are liquids. Approximately 2 or 3 teaspoons are dribbled on the underside of a fume board. The fume board is then placed on top of the super to be evacuated. After a few minutes the board is removed and the super is free of bees. The fume board can be purchased commercially or made simply by tacking a piece of absorbent material or cardboard on the underside of an old cover or board. The board should fit completely over the super with no air spaces or gaps. Painting the outside of the fume board black helps it absorb heat and increases the volatilization of the chemical. Repellants will work faster in warmer weather and care should be taken not to leave the fume board on too long. It's easy to tell if the board has been on too long when you see thousands of bees pour out of the front entrance!

There are presently two main repellants sold for this purpose. The first is butyric-anhydride (commonly known as Bee-Go). This chemical is very effective and smells like a

cross between aged Limburger cheese and a six-day-old road kill. Be sure to leave the fume board in one of your out-yards when you are finished and, whatever you do, don't spill any in your truck. The second repellent is benzaldehyde. This chemical has a more pleasant odor, resembling almond extract, and may be a little safer to use. Benzaldehyde is not as effective at driving bees off of any brood which may have been laid in a honey super and requires a little warmer temperature than Bee-Go to work effectively. Use only products labelled for this purpose to prevent honey contamination. Carbolic acid is no longer recommended. Two suggestions in the use of fume boards are first, to puff a little smoke across the top bars to start the bees downward before placing the fume board. Second, fume boards do not work well on extremely hot, humid days.

Many large commercial operations consider the bee-blower as the most effective method for removing bees from honey supers. The bee-blower is a machine which throws a strong jet of air out the end of a hose. It could be battery, electric or gasoline powered. A super is merely placed on end and the bees are blown out the back side by directing the air through the spaces between the combs. It is a clean and fast method and the confused bees merely return to the hive no worse for wear.

Bee blowers can be expensive, however. The average vacuum cleaner placed on exhaust does not have enough power to blow out all the bees. Some leaf-blowers can be adapted for this use.

A final point to remember is not to remove the honey from the bees until it is capped. The "rule of thumb" is to make sure that at least three-fourths of all cells are capped in frames to be extracted. In humid climates, even this guideline may not be sufficient to insure that the honey has had enough moisture removed from it to prevent fermentation. It is always better to be safe than sorry. □



BEE TALK

RICHARD TAYLOR

9374 Route 89, Trumansburg, NY 14886

"There's always a refinement to good ideas — here's one."

Some readers may remember my little old bee truck. I talk about her here every now and then. She is an old timer, and has been taking me in and out of my bee yards for about twenty years without mishap or breakdown, ever faithful. My apiary gear just stays there in the cab year in and year out, along with a big box of smoker fuel. In the spring I just get in and turn the key. The bee stuff is all still right there from the previous season.

Well, this year I thought I'd better get her greased. When I went back to get her, my friend, Larry the mechanic, told me she was about to collapse. The frame was rotting out. We put her back on the lift, and sure enough, the frame was rusting through. Larry could push his thumb right through it. And it was starting to sag ominously in a couple of places. He said it was going to go any day, and that the transmission would then fall right out onto the road. He couldn't very well reinforce it with welding, because of all the rust. If I sold her for a dollar, he said, I'd be cheating the buyer because it could never pass inspection. And that was clearly true. But Larry studied the dismal situation, found a piece of pipe, and got it welded in there more or less, thinking that might postpone the inevitable calamity by a little bit.

So, now I've got my little bee truck back, and I'm driving her with exquisite care, very slow, avoiding bumps. She's registered as a farm vehicle, so I don't have to have her inspected. Nor do I have to have any insurance for her. That saves an awful lot of money. Registration for a farm vehicle is only one dollar per year. So all she is costing me is that one dollar, plus fuel, and maybe

a quart or two of oil for the whole summer. The only hitch is, I can only drive her between home and bee yards, no where else, and the farthest yard is only five miles away. That's fair enough. I wouldn't want to drive her anyplace else, especially in the condition she's in. But I know she's living on borrowed time. One day I'll feel myself sort of sinking through the seat, and I'll hear that sickening thud that will tell me the transmission is lying in the road. That's okay. It is sort of a challenge to see how many more trips I can get out of her, as I nurse her along like the dear old friend that she is. Maybe a couple more years, at a cost of a dollar a year, plus an occasional tankful of gas and a quart of oil. "Use it up, wear it out, make it do, or do without" — those are the words I was brought up to live by. Living that way eliminates a lot of fretting and fussing

and contributes considerably to a quiet sort of happiness.

• • •

This is, however, a beekeeping magazine, and not a journal of automotive engineering, so perhaps I should get to the subject of bees now.

I did come across a pretty good beekeeping idea recently, so I'll pass it along. The idea is to eliminate one of the frames in a round section super, replacing it with two regular wood frames containing drawn comb, having one such drawn comb on each side of the super, towards the outside. That will get the bees up into the super faster, especially if the two combs are sticky with honey. I haven't tried that, but I know it's a good idea, because when I used to raise cut comb honey I would always see that the two outer frames were drawn comb, which I would then extract, using all the frames between them for cut comb honey, beginning with thin foundation.

Now, of course, what you could do, instead of using frames of drawn comb, is put four bait sections in each of the two outside frames. The trouble with that is that you wouldn't have much use for the bait sections when they got filled. They would be of poor quality as comb honey, and difficult to extract, if you tried that.

But the trouble with the wooden frames is, of course, that they have to be of a shorter, unstandard length. In other words, you would have to make them yourself. That's why I haven't tried this brilliant idea.

And now, finally, a word about

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Continued on Page 418

QUESTIONS?

PADGEN PROCEDURE

Q. What does it mean, to "padgen" a swarm of bees? I have checked many dictionaries and experts, without success.

Fred G. Deer
Raleigh, NC

A. The term "padgen" stands for one of the most useful procedures in apiculture. The word is derived, by misspelling, from the name of the British beekeeper, J. W. Pagden, who described the procedure in a booklet in 1870. The procedure is as follows: If one of your colonies swarms, and you know which colony it was, then move that colony off to one side in the same apiary, set an empty hive in its place on the same stand, and hive the swarm there. Result: The newly hived swarm is immediately augmented by all the foraging bees of the parent colony and produces a very large crop of honey, while the parent colony, having lost all of its field bees, throws no after swarms, build up again with a new queen and usually makes a fair crop of honey, too. I have sometimes seen spectacular results from this procedure. The so-called "shook swarm" method of getting comb honey is a variant of it.

IS IT HONEY YET?

Q. When is the best time to harvest the summer crop? As soon as the flow is over? Or should I leave some honey on the hive to carry the bees over until the fall flow?

Todd Farmer
Hagerstown, MD

A. You can harvest the summer crop as soon as it is on the hives, though this is not necessary unless you want to keep it from becoming mixed with later honey. Many beekeepers wait until September and extract all

their honey at once. But if you are producing comb honey you must harvest the supers as soon as they are filled, or nearly filled, to prevent travel stain.

TO FIND A FICKLE FEAST

Q. Can you get comb honey on a buckwheat flow? And is there a market for it?

Wayne Emerick
Hyndman, PA

A. There is certainly a market for buckwheat comb honey, but it is not easy to find since this honey appeals to a very special taste. Some of those who know what it is will go to a lot of trouble to find it. The problems with producing such honey are, first, that buckwheat is a fickle yielder, and must be on the right kind of soil to make nectar, and second, it is a very late bloomer, creating a risk of badly finished sections.

WHICH QUEEN IS QUEEN?

Q. I have a colony that I think is queenless, since I can find no brood and no queen in it. If I introduce a new queen, and it turns out they already have a queen which I overlooked, am I likely to lose BOTH queens?

Verne M. Marshall
Geneva, NY

A. No. It is the new queen that will almost certainly be killed in case there is a queen already there.

Questions are welcomed. Address Dr. Richard Taylor, 9374 Route 89, Trumansburg, NY 14886, enclosing a stamped envelope for prompt response. Canadian stamps okay.

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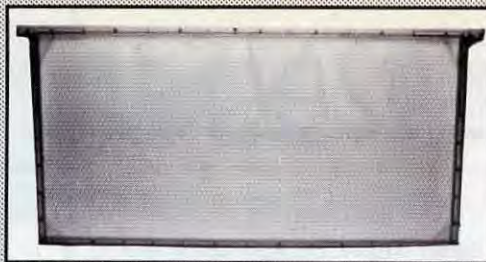
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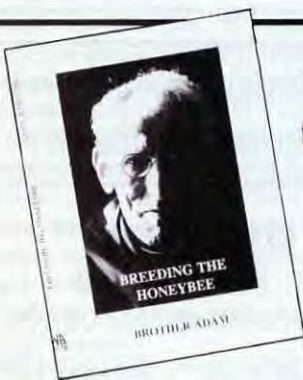
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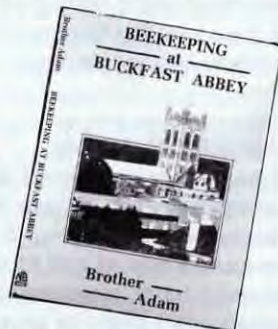
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BEE TALK . . . Cont. from Page 416

tracheal mites. I lost a few colonies this winter, and I'm sure it was mites because there was still plenty of honey in the hives. The bees just sort of disappeared. A queen breeder I know called me the other night to say that the mites are a real big problem down there in the south, and that those are the symptoms alright — lots of honey and no bees. But one good thing about tracheal mites is that they don't leave the hive contaminated, the way foulbrood does. The mites don't survive except in the presence of bees. So you can just swap some combs from a hive that has died out from mites for some combs of brood and bees from a strong colony, give them a new queen, and you are back in business. You will also have gone a long way towards solving your swarming problem for the year.

The mites, it seems, are not a great problem once the weather warms and the bees are flying regularly and building up. They cause trouble when the bees are confined to the hive, in contact with each other all the time, so the mites can move easily from bee to bee.

I'm sure I have a lot to learn about tracheal mites, but that's how it seems now. I've already learned that my previous opinion, that they were not much of a threat, was dead wrong. They are a problem, but not a disaster. As for the varroa mites, we have yet to see. □

Questions and comments are welcomed. Use Trumansburg address and enclose stamped envelope for prompt response. Canadian stamps okay.

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Flowering cherries treat us to a spectacular spring then settle down to being ordinary green trees. Fruiting cherries, on the other hand, give us a spectacular summer with a crop of delicious fruit. Cherries prefer cool summers so it is fortunate that the fruit picks and ships well. All of us around the country can enjoy the summer harvest. Cherries are excellent for freezing and canning so that our enjoyment can be extended year around.

Possibly the only drawback to using fresh cherries is how to cope with the pits. As a child, I never minded using the cherry pitter. I and my friends would save the pits for future use in pea shooters and slingshots. Some kitchen gadgets are a necessity. The cherry pitter, whether large and fancy or small and hand-held, has no substitute.

Honey bees insure a good cherry crop. Studies done 50-60 years ago show that the cherry yield, both sweet and sour, was greatly increased with

honey bee pollination. Nectar and pollen are gathered by the bees. Both black cherry and choke cherry, the wild cherries, are extremely attractive to bees, but the birds are the only ones who truly benefit from the wild cherry crop.

A refreshing juice can be made from cherries and apples. This can be frozen into an ice for a hot summer day treat or canned or frozen to use in a recipe calling for a fruit juice.

Apple-Cherry Juice

3 pounds apples
1-1/4 pounds cherries, pitted
3 cups water
1/3 cup honey, or to taste
Core apples and remove pits from cherries. Grind coarsely or chop fruit. Bring fruit and water to a boil in a 4-6 quart kettle. Reduce heat and cook slowly for about 10 minutes. Strain through a cloth bag. Let fruit juice stand 1 to 2 hours to let sediment settle, if desired. Add honey to juice and heat thoroughly. Freeze or process in hot-water bath for canning. Yields 3-4 pints.

Putting It Up With Honey
by Susan Geiskopf

Sometimes a pie just seems like too much trouble. You are looking for a quick dessert. A fruit cobbler can be the answer to your search.

Cherry Cobbler

4 tablespoons butter, softened
1/2 cup honey
1/2 teaspoon salt
1/2 cup milk
1 cup graham, whole wheat pastry flour or oat flour
2 teaspoons baking powder
1 cup unsweetened cherry juice or other fruit juice
3 cups sweet cherries, pitted
Cream butter, honey and salt together. Add milk and blend well. Combine flour

and baking powder and add to mixture. Blend well. Pour batter into a 2-1/2 quart baking dish. Gently pour the cherries on top of batter to cover. Pour juice gently over berries. Bake at 375° for 45 minutes. Serve warm with a scoop of ice cream. Serves 6.

Honey & Spice
by Lorena Laforest Bass

A famous and spectacular dessert uses cherries. Said to be created for Queen Victoria in honor of her jubilee, Cherries Jubilee is very easy to make. It is at its finest in a chafing dish where the glistening cherries and the flames can be appreciated. However, it also works just fine in a skillet. There is something quite dramatic about spooning flaming cherries over ice cream.

Cherries Jubilee

1 quart fresh cherries, pitted OR
canned Bing cherries, drained
1/4 cup honey (or to taste, depending on sweetness of cherries)
2 tablespoons water
1 teaspoon cornstarch
1 tablespoon cold water
1/4 cup warmed Kirsch
Put cherries, honey, and 2 tablespoons water in a pan and simmer over low heat for about 8 minutes. Drain and return syrup to pan. Combine cornstarch with the 1 tablespoon cold water, add to syrup, and cook over low heat until smooth and transparent. Add cherries and stir until heated through. Pour warmed Kirsch over cherries and ignite. Serve immediately plain or over vanilla ice cream. Yield 4 to 6 servings.

Naturally Delicious Desserts and Snacks by Faye Martin

Cherries are so delicious that I find it hard to believe Parson Weems' tale of George Washington chopping down the cherry tree. What boy in his right mind would ruin something good to eat? □

Food Chamber

Flaming dishes always bring gasps of awe and delight when they are served in restaurants. You will find them easy to serve at home. The best effects are obtained in a flat pan such as a chafing dish or skillet. The alcohol from the brandy or liqueur burns off, so there is no alcohol left in the food when it is served. However, the essence of the cordial is left to contribute a subtle flavor. The secret of a successful flaming dish is heating the liqueur—but not boiling it—before adding it to the dish. Ignite it immediately but do not bend over the dish at this time since the warmed alcohol ignites quickly. Sauces for meats, vegetables and desserts can all be flamed. Use them any time, not just for special occasions. □



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Funny Beesness

ROGER WELSCH

We are two years into a bad drought here at Primrose Farm. Last April we had a grand total of .05 inches of rain — in three separate showers. There is hardly any water in the river, the crops are bad, the pastures are burned up — and all that translates into trouble for our bees, too.

A beekeeper here in town was telling me that he opened a few of his hives the other day and found that the bees were no longer putting honey in the comb; instead he found large piles of brown powder all over the floor of his hives. He couldn't figure out what the brown substance was until he accidentally dropped a little water onto some of the powder he had placed on the kitchen table for examination. It bubbled and fizzed a second or two, and darned if it didn't change into pure honey. His bees, it turned out, were turning out dehydrated honey.

He also claims that his foragers are now in the habit of carrying little canteens with them when they go out into the fields. He applauds the ingenuity of his bees, though, and says he has no intentions whatsoever of interfering with their current efforts of building a little beeswax pipeline from the hives over to his duck pond.

I can handle all that but I really have my doubts about his statement that times are so tough on his bees that they have been making flights into his house to get what nectar they can from the flowers on his wallpaper.

I also received a letter from Walter Burkey of Malvern, Pennsylvania, and he sends along a true story. True or not, it is one of the funniest that I have seen

in a long time. I'm not going to tamper with his words — well, maybe one of his words! I'll just repeat for you what he wrote to me.

Dear Roger,

I enjoy your **Funny Beesness** very much. I have been keeping bees for 51 years . . .

Jim Davis of Conshohocken, PA, produced comb honey and had 50 colonies in his long backyard. One year in swarming season he had four swarms in the air at one time. He had clipped all of the queens . . . so he picked up the queens from the ground, added some room to the brood chambers, and ran the queens back inside. The bees, without their queens, came back to the hives.

The next morning he went out to see if they were settling back to work or were coming out again. As he walked down to the bees, two neighbor women were talking over the fence, and he heard one say, "There goes the old S.O.B. down to stir up those poor bees again!"

Yours for a laugh, Walter Burkey.

And laugh I did, Walter! For your trouble, I'm sending you along a copy of my latest book, *The Liars Corner*. I hope you get a few laughs out of it, too.

If you have a story, joke, tall tale, bumpersticker, or blank check, send it along to Roger Welsch, Primrose Farm, Dannebrog, NE 68831-0106, and if I use your story in **Funny Beesness**, I'll send you a book and a free pass to the National Liars Hall of Fame, right here in lovely downtown Dannebrog. □

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clean, and gives a fresh start to a nearly wilted world.

Wash Rains are often the most dramatic of all the rain types we have. They create light shows and fireworks that make our July Celebrations pale in comparison.

This is also the most confusing month, because July often has both Honey and Wash Rains, and they're hard to tell apart — and most of the time you don't care. Like I said, this is the month of two kinds of rain.

Last year the Rain Gods, on a whim it seemed, gave neither Honey or Wash Rains to most of where I live. Was it because they just forgot, or rather thought an appreciative absence was in order? Gods seldom share those thoughts with mortals.

In August, or maybe September, there's a slight change, a subtle difference in the way rains fall. It's in the color of the sky, and how cold the drops are, and it never seems to be as warm after a Fall Rain as it was just before.

From September into October the Fall Rains get colder, the days get shorter and there's always fewer leaves, less color and a somewhat somber mood afterwards. Fall rains are just the opposite of Green and Brood Rains. They are the signal to sleep, the last hurrah of Mother Nature for the season. A season that seems to have started — was it really seven or eight months ago?

Then, again in the afternoon, what seems just another rainy fall day turns cold. The gray is somewhat menacing and the chill in the air says winter coat, not just warm sweaters anymore.

The first Winter Rain falls hard that night, and no matter how much

you deny it you know that once again it's inside time. The wait begins, for those of us who deal with outside growing things, until that first, just-barely-warmer afternoon, and the early spring night when Green Rain falls again.

July is usually an enjoyable month — vacations, picnics, ball games and the like. There's even a three day holiday at the beginning of the month that gives most of us a short respite from the rigors of everyday work.

But for many in the world these opportunities do not exist. Extreme poverty, political oppression and violent aggression top the priority lists for many people in Central America and most recently China. However, there are some who have the same priorities here in America. There is no denying that poverty, oppression, racism, the

subtle forms of discrimination against women, the handicapped and others exist here in our back yard — even our front yards. It is difficult to point accusing fingers with this reputation — He who is without sin . . .

Unlike the misdeeds mentioned above though, we have some very real freedoms not available in those places you hear of on T.V. and read about in the paper — Countries in Central America, South Africa and China. Probably our greatest freedom, and the one I hold most dear, is that which is most often taken for granted. It is, of course, that I can say here what I think and feel; that I can criticize our countries leaders without fear of disappearing in the night; that you can openly read this or other magazines that disagree with our countries policies without fear of reprisal or bodily harm.

Think about these things, even if for only a moment this Fourth of July, the celebration of our freedom. Think about it between picnics and parties, while reading the paper or this article. And have a safe Holiday.

Kim Flottum



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CROFTER ADDRESS

In the article published last month about **Rare Resources**, we inadvertently left off the address of one of the Resources. *The Crofter* grows at Rt. 3 Box 73, Stanley, WI 544768.

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GLEANINGS GLOBE

JULY, 1989

ALL THE NEWS THAT FITS

Industry Shines

Royalty Chosen



Naomi Gunter (above) was selected 1989 American Honey Queen and Jill Mathias was selected 1989 American Honey Princess at the Indianapolis convention of the American Beekeeping Federation.

Naomi is the daughter of Jane Gunter and the late Larry Gunter of Towner, ND. She is a junior at

the University of Grand Forks, where she is majoring in business and marketing.

Jill (below) is a graduate of the University of Pittsburgh and employed by Iceland Seafood Corp. as a research food scientist. Her parents are Stewart and Carol Mathias of Hummelstown.



To have either Queen Naomi or Princess Jill promote honey in your area, contact: JoAnn King, chairman of the American Honey Queen Program, Rt. 1, Box 102, Marion, ND 58466, ph. (701) 669-2296.

Liability Claims

Product liability claims continued their dramatic climb in 1988. The number of federal court cases filed in fiscal 1988 jumped 13% to more than 17,000; or approximately 47 new cases per day. This follows an 11% jump in 1987.

Among the 50 states, PA had the most product liability cases in 1988 — 2,985. OH was next with 2,831 cases, followed by TX, 1,425; IA, 934; NY 792; HI, 501; LA, 489; and CA, 475.

States with the fewest product liability lawsuits were VT and SD, with 18 cases each. They were followed by ND, 20; WY, 22; and DE, 25.

NEW SWEET

NEW YORK. Cumberland Packing, marketer of Sweet 'n Low, has a new diet sweetener called Sweet One. 200 times sweeter than sugar, it will be released in July with a flair — and lots of national TV exposure. Sweet One is the first new sweetener to win U. S. Food & Drug Administration approval in seven years and — unlike aspartame and saccharin — carries no FDA warnings.

Sells Honey

GOLD WINNER

Publix Supermarket in St. Augustine, FL, was announced as the \$10,000 grand prize winner of the National Honey Board and Lipton herbal Tea's "Sweet Things Happen" advertising and display contest.

Retailers across the country entered the contest by setting up special displays and by advertising honey and tea in their local newspapers.

"Anytime we see an opportunity for increased sales, we do it — and this dramatically increased honey and tea sales," said Dave Blankenship, manager of Publix Supermarket. "I never fathomed we'd win," added Blankenship, "but because of the hard work and creativity of the entire store staff, we built an exceptional display."



Dan Hall, National Honey Board, announces contest winner.

"This year's retail contest helped stimulate extra honey sales and retail profits," said Dan Hall, executive director of the National Honey Board. "Retailers are learning that honey promotion can increase their bottom line profits."

Exceptional Extension

Maine Hosts Field Day

The 1989 Small Farm Field Day will be held July 29, 1989, at Wolfneck Farm in Freeport, ME. Richard J. Brzozowski, Extension Agent in Cumberland County, is this year's chairperson for the event. Brzozowski says, "The focus will be on farm profitability. There will be workshops on marketing, organic certification, Maine quality seal and record keeping".

The site of the field day is especially suited to the demonstrations, exhibits and displays, as it is an organic beef farm operated by the University of South-

ern Maine with many acres of farmland on the shore.

The Small Farm Field Day is sponsored by the Maine Cooperative Extension Service, The University of Maine Experiment Station, Maine Organic Farmers and Gardeners Association, Maine Department of Agriculture, Food and Rural Resources, The University of Southern Maine and The Soil and Water Conservation Service.

MORE NEWS ON ORGANIC FARMING AND ORGANIC PRODUCE ON PAGE 425.

Best in the West

WAS Helps Beekeepers

Top names in the field of beekeeping headline the WAS meeting to be held August 7-10, 1989, in San Francisco.

Starting Tuesday morning, Howell Daly talks about bee populations. Then Eric Erickson, Tucson Bee Lab, explains current research from his arena. Robin Thorp follows, then Norm Gary explains beekeeping in an urban setting.



Wednesday has Christine Peng talking about beekeeping in China, Eric Mussen discussing beekeeping laws and Wayne Getz on bee biology.

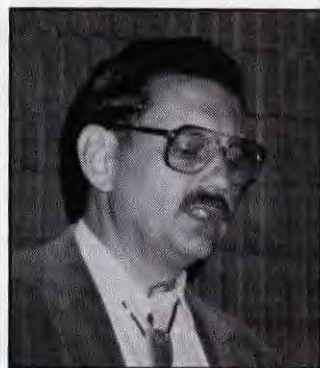
Thursday starts with Justin Schmidt, USDA Tucson, discussing swarm trapping and Rob Page, newly moved to Davis, explaining mite resistance.



Eric Mussen, CA State Extension Apiculturist, will explain beekeeping laws and regulations, and how to make mead (an interesting mix).

A great selection of workshops is available every afternoon covering such topics as processing beeswax (Wayne Robertson), candle making (Mike Burgett), microscopes and bees (Stan Williams), educational programs (Larry Connor), Comb honey (Tom Muncey), Marketing (Mike Agnew), Artificial insemination (Sue Cobey), Observation Hives (Robinson & Koelling), Making Mead (Eric

Mussen), and queen rearing (Randy Oliva).



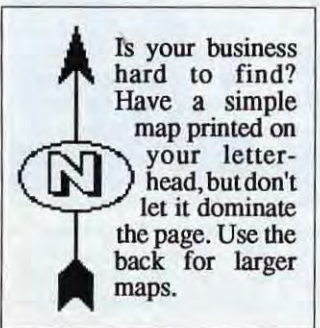
Dr. Eric Erickson, Research Leader, USDA Honey Bee Lab, Tucson, AZ, will discuss current research at his lab.

WAS is rapidly becoming an industry event, and the '89 meeting is no exception. Plan now to attend, and visit beautiful San Francisco while you're there.



Dr. Rob Page, recently moved to UC Davis, will discuss resistance to mites in honey bees.

For more information, schedules, travel information, forms or whatever, contact Stan Williams, Dept. of Biology, San Francisco State University, San Francisco, CA 94132 (415) 338-1695.



Already Moving West

FIRE ANT CONTROL

LEWISBURG, PA. Researchers believe it may be possible to control colonies of red fire ants by exposing them to minute amounts of a natural chemical that would prevent them from producing new queens, according to a Bucknell University researcher.

The red fire ant was accidentally imported into the United States earlier this century and is regarded as an agricultural pest in at least nine southern states. Further, it is also dreaded for its venomous stings, causing pustules and painful swelling and sometimes inducing severe allergic reaction.

Under a grant by the Research Foundation of the American Farm Bureau Federation, Bucknell associate professor of animal behavior, David Fletcher, is currently researching pheromones — chemical produced by the queen that regulate reproductive behavior in a colony. At a sufficiently high concentration, those pheromones will inhibit the development of other queens, and in even higher concentrations, will cause the workers to become aggressive, killing excess queens until the level of the pheromone is optimal.

"If the level of pheromones in the colony remains high, there is evidence that the workers will kill even their own mother queen," said Fletcher. "Pheromones are extremely potent

chemicals. In terms of biological activity, even a high concentration is still a minute amount."

The colonies live in conspicuous mounds up to 18 inches high on pastures and croplands. These mounds frequently damage harvest machinery on flat farmlands, where the mounds can number as many as 300 per acre. Fire ants are also a menace to beekeepers working near them, and to colonies. Ants can kill a weak colony.

Aside from being a menace to agriculture, the insects are a "people pest", especially to the young and to elderly people with heart conditions. Widespread applications of pesticides to control the insect over large areas have been banned by the Environmental Protection Agency, although a number of home remedies of toxic chemical applied to the individual mounds are permitted and are "safe enough" if correctly used, Fletcher said.

Although the fire ant population is concentrated in the Southeast, Fletcher said the continuing spread of the ants threatens the rest of the United States. "I see no reason why they shouldn't continue to spread northward, even though the climate they are getting into is much colder than the one in which they evolved. All they have to do as the winters get more extreme is dig deeper into the soil to get below the freeze line," Fletcher said.

Stay Cool

Interview Advice

"When talking to reporters, you must communicate your information concisely, believably and in an easy to understand manner," says James Lukaszewski, director of Executive Programs.

Lukaszewski offers these suggestions:

- Be an excellent listener — answer reporter's questions responsibly.
- Be complete — if you define a problem, offer a solution
- Control your ego

- Translate jargon into people-oriented terms
- Be a good story teller — relate situations with anecdotes if possible
- Understand your business — but don't be afraid to say "I don't know"
- Have a sense of the public — talk to the people who don't understand what you do, and find out what it is they fear, or don't understand
- Tell the truth — always

Off-Shore Sales Increasing

Get 'Export' Advice

Companies considering exporting should take advantage of the following free services offered by the U. S. government:

- The Overseas Private Investment Corporation (OPIC) provides "country information kits" that outline market opportunities in developing nations. Contact OPIC at 1615 M Street N.W., Suite 400, Washington, D.C. 20527 (202) 457-7200.
- The U. S. Trade and Development Program (TDP) has more than \$25 million available to fund feasibility studies of export potential in new markets. Contact the TDP at Room 304, SA 16, Department of State, Washington, D.C. 20523 (703) 875-4357.
- The Interagency Task Force on Trade offers the *Exporter's Guide to Federal Resources for Small Business*. The booklet provides financing sources for small companies, summaries of agency programs, agency contacts for international trade, and a section on speakers bureaus. Contact the Superintendent of Documents, Washington, D.C. 20402-9325.
- The Foreign Credit Insurance Association (FCIA) offers a list of established credit information sources throughout the world. The *Guide to Sources*

of Foreign Credit Information includes reports on buyers in each country. FCIA can be contacted at (212) 227-7020.

And More . . .

American processors can share export costs with Export Trade Certificates of Review, created by the Export Trading Company Act of 1982. In short, the certificates provide anti-trust protection for joint export activities between small or medium-sized companies.

It is not necessary to set up a separate trading company to qualify for the certificate. The beauty of the program is its tremendous flexibility — and the sharing of agreed-upon costs.

"For example, companies can sign a contract for a specific amount of time to export a food product to France," explains Tom Stillman, director of the Office of Export Trading Company Affairs, United States Department of Commerce. "They can share market research, start-up, warehousing and shipping costs. The risk liability is not as great. You can structure the joint venture any way you want."

For more information about the certificates, call Tom Stillman at (202) 377-5131.

Good Business

TRADE SHOW TRICKS

Selling products should not be the only objective when participating in trade shows. In fact, trade shows are an effective medium for obtaining a variety of marketing objectives, including:

- Introducing new products. New product samples can be distributed to potential buyers.
- Penetrating new markets. Direct contact with retailers, wholesalers, and sales reps presents opportunities for reaching new customers and territories.
- Conducting market research. Questionnaires & interviews can be used to get valuable feedback on what customers think about your company and products.
- Increasing name recognition.



The B. J. Sherriff booth has both new and standard products and the company owners conduct one-on-one customer contact.

Trade show booths that prominently display the company's name and logo can reinforce

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Food Values Steady

The farm value of food is the same today as in 1982. But the retail cost of those purchases is up 16%, says Allan Lines, agricultural economist at Ohio State University. In 1980, about 37% of the consumer's food dollar went to the farmer. Except for a

slight upturn in 1984, that percentage has declined to 30%. Higher food prices are largely the result of additional processing and packaging, not higher farm prices. Consumers willingly pay for this, he says, but need to recognize what the extra cost is for.

buyer awareness of the company's presence in the industry.

- Improving customer relations. Presidents, CEO's and other top executives meet customers and potential customers one on one.



Iva Stoller, Stoller Honey Farms in Ohio, mixes display with one-on-one customer contact. The Stollers enjoy the company of friends and beekeepers, too.



The National Honey Board Display typifies excellent name recognition techniques.

Beekeeping No Exception

Ag. Jobs Decline

The number of people engaged in direct agriculture production in this county has been declining for over 100 years. However, in some areas the trend seems to have leveled off.

"The decline has been felt in every aspect of agricultural production", says Dr. James E. Tew, Instructor of Beekeeping at Ohio State University's Agricultural Technical Institute in Wooster, OH.



Dr. Tew

"Ten years ago I had classes of 20-25 students, and more always asking", says Tew in a recent interview with *Globe* staff. "This year we've only got six." He added, "When I was a college student, we held beekeeping classes in auditoriums, but now those same classes have been cancelled, or are held in much smaller conference rooms".

A related industry, Horticulture, has had the same problems and faces many of the same challenges. Manny Shemin of Shemin Nurseries in Greenwich, CT, gave some startling statistics.

"Enrollments in Horticultural Majors are down", he said. "Between 1975 and 1985, MI State went from

494 to 130 students; Iowa State from 223-96; Illinois from 239-99; and Wisconsin from 300-102," quoted Shemin. "The trends are obvious."

Jobs, too, are difficult to find in both fields. Not general labor jobs so much, but management level positions. Both industries are rife with family operations, making positions for outsiders difficult to find. A four year college graduate in horticulture can expect to start at between \$12 and \$18,000 a year, if a job can be found.

"Four year degrees in apiculture are scarce, and jobs more scarce," says Tew. "Regulatory positions or owner/operators are about it, and salaries are not fantastic."

Tew says that two year school graduates tend to do better, though, but it is usually hands-on work, with wages on the low side.

"Interest in beekeeping has remained about the same though," says Tew, who is also the State Extension Apiculturist. "My calls are the same, and the questions are the same."

"A notable exception was the beekeeping course taught at the University of Wisconsin this past year," says Dr. Charles Kovel, Entomology Dept. Chairman. "Attendance and enthusiasm were both up."

But he adds, "It's true about the face of agriculture changing. Today, only 17% of our Ag. students have an Ag. background and 40% are women. A big change from even 10 years ago".

Tew summed up with, "We're in the down side of the cycle, but life is easy, for the most part, for people in this country right now. That will change, and when it does, agriculture will again become important".

Confusion Continues

MORE ON ORGANIC

In the wake of two tainted food scares, prices for, and interest in, organically grown foods have dramatically increased. Prices for organic apples in WA have gone to \$48/box, while regular apples are in the \$11-\$13/box range.

A Louis Harris poll indicates that over 80% of those surveyed would choose organic food if given the choice. But only MN, WA and TX have recognized certification programs. However, there are many associations that produce certified organic crops nationwide.

Meanwhile, several groups are taking the National Resources Defense Council to task for their report released this spring on

Alar. Many questions have arisen regarding techniques, peer review and other problems. Also, the CBS TV show, *Sixty Minutes*, has not changed their coverage, nor, it appears, checked their facts. This from several toxicologists and pharmacologists. Spokesperson Christine Chaisson, formerly with EPA, who now heads her own risk assessment firm says that the NRDC estimates of risk were several thousand-fold too high, and some estimates were totally incorrect.

Clearly the issue is not settled, but ground work for microscopic media attention has been laid. Honey, like apples and grapes, is only another commodity to be explored as a public health issue.

Battles Loom

Legislative News

• SUPPORTS KNOCKED

"High Price Supports failed in the 50's and 60's, and there's no reason to believe they'll do any better now," Clayton Yentter, Ag. Secretary stated recently. He went on to say that U. S. Agriculture is operating in a global market now, and price supports defeat that system.

"The loan, or support program is there when prices decline," Yentter said, "and when they rise, the loans can be repaid."

Meanwhile, Robert Denman, National Farmer's Union director said, "We think... the way the government programs have been run is the trouble, not the programs themselves." The NFU is calling for increased price supports, loan rates and supply management levels for the 1990 farm bill.

• SUGAR BATTLE NOT SWEET

Current sugar policy, which includes protective quotas on imports of cheaper foreign sugar, and price guarantees for American Producers may soon dissolve, if some in congress have their way. Sen. William Roth, Jr., R-Del., and Sen. Bill Bradley, D-NJ., have introduced legislation to change all this, especially reducing the price support from 18¢/lb to 12¢/lb over four years. The bill would also gradually increase the amount of sugar imported annually by 500,000 tons.

"American consumers now pay nearly three times the world market price," says Roth. This comes to nearly \$3 billion annually.

Right behind the congressional sponsors are the industrial users of sugar and other sweeteners. Tom Harman, president of Sweetener Users Ass'n, says, "Domestic sugar growers are completely insulated, no matter how low the market price may fall."

However, Eiler Ravenhold, chairman of the American Sugar Alliance, says world market prices are, "an inaccurate, inappropriate and unfair standard," by which to compare U.S. costs. "It is the nature of the world sugar market that makes protection essential," Ravenhold concluded.

Preparing for Rio

Apimondia Meets

The Executive Council of Apimondia met in early April at the International Headquarters in Bucharest. Participants were: R. Borneck, (France), Apimondia President; C. Tonsley (Great Britain), Prof. Dr. V. A. Gubin (USSR), Apimondia Vice presidents; Dr. S. Cannamela (Italy), Apimondia General Secretary; Prof. Dr. D. Sulimanovic (Yugoslavia), Eng. E. Marza (Romania), Dr. W. Ritter (FRG), Prof. H. Wiese (Brazil), members; as well as J. Tarrega (Spain), K. Vesterinen (Finland), Dr. J. Szakmar (Hungary), members of the Apimondia Auditing Commission; and H. Ostach (Poland), President of The XXXIst International Apicultural Congress of Apimondia.

Also participating were: Prof. Dr. O. Van Laere (Belgium), who presented the report of Prof. F.



Ruttner, President of Bee Biology Standing Commission; A. Kuzba (Poland), who presented the report of Dr. A. Stojko, President of Apitherapy Standing Commission; C. Constantinescu (Romania), Director of the International Beekeeping Technology and Economy Institute of Apimondia, who presented a report on the editorial activity of the Institute and H. Spitznagel (Canada), who presented a report on the present working stage of the "Who's Who in Apiculture" volume.

Promotion Programs Examined

COLUMBUS, OH. Promotion helps sell farm products but does it improve producers' incomes? The answer is a big "maybe", says Eugene Jones, Agricultural Economist at Ohio State University. Promotion programs are one of the most debated marketing issues in agriculture these days. Whether they're worthwhile depends on who you talk to, he says.

Jones has studied the importance of commodity promotion and the bottom line, he says, is that generic promotion is here to stay — whether or not it improves farm income.

"A lot of producers now think they have to initiate these programs just to keep their sales from declining — even if their sales are OK", Jones says. "It has to do with competition from other commodities."

The kind of programs Jones analyzed are called generic promotions. Basically, they're advertising that focuses on a product and not a producer. Campaigns such as the "Milk Kick",

"Beef: Real Food for Real People", "Pork, the Other White Meat", and the various honey promotions are part of generic promotion projects. Nationally, 90% of all commodity producers contribute about \$560 million to promotion each year.

"Commodity promotion programs have expanded rapidly during the 1980's and I would predict a similar trend for the 1990's", Jones says. "Most of that effort focuses on changing consumers' attitudes toward a commodity by providing information about product characteristics."

For the most part, generic advertising has increased demand for the commodities it promotes, Jones says. Studies have shown that promotional programs are generally effective in increasing producers' incomes. For example, milk advertising in New York increased net returns \$2.20 per farmer for each dollar spent in the early 1970's. A more recent study estimates returns of \$1.45 to \$2.02 for every

\$1 potato growers spend on advertising. Jones says most commodity promotion studies show similar results although advertising of brand-name orange juice appeared to reduce overall sales in the orange juice industry.

Generic promotions are typically paid for by automatic deductions from producers' sales, but some are totally voluntary. Most programs give producers a chance to get their money back if they don't want to participate in the promotion.

That refund causes much of the debate about generic promotion, Jones says. Large producers get more total benefits when sales are increased. Beekeepers,

for instance, that are wavering between staying in production and leaving the industry get the most benefit because the promotion generates enough extra sales to keep them in business, he says.

Marginal producers and the very large producers are most likely to want their promotion money refunded.

"The free rider problem has always been an issue in debates about generic promotions", Jones says. "The problem is, it's often hard to see the impact of these programs at the individual level", he says. "That's what causes the controversy. But I don't see generic promotion going away."

IRS LOOKS HARD . . .

Whether the IRS considers a sideline enterprise a business or a hobby significantly affects deductibility of related expenses. If the enterprise is considered a legitimate business, and expenses exceed income, the resulting loss is fully deductible. However, if the activity is a hobby, deductions cannot exceed income. Further, deductions are allowable only to the extent that they exceed 2% of total adjusted gross income.

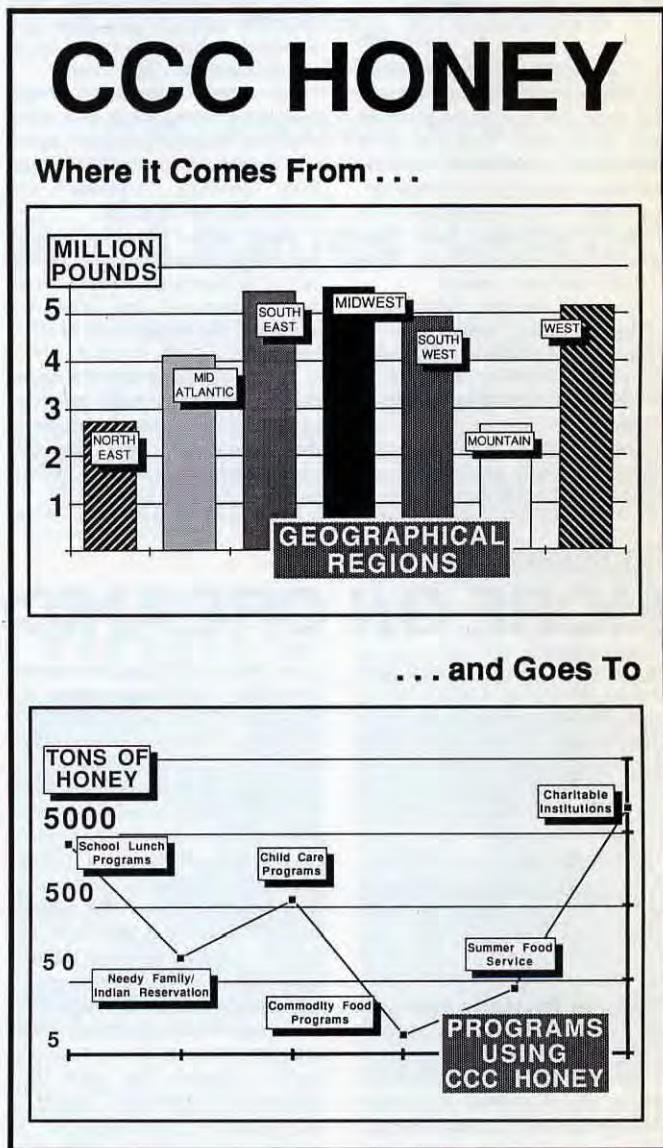
The primary criteria used by the IRS when making a business-versus-hobby determination is the taxpayer's intent to make a profit. Generally, an enterprise is presumed to be a business if it is profitable during any three of five consecutive years. When this is the case, the IRS must prove the lack of a profit motive.

When the enterprise does not meet the three-out-of-five-year test, the IRS makes the determination based on a nine factor "facts and circumstances test":

- 1) Is the enterprise carried out in a business-like manner, including accurate bookkeeping?
- 2) Are accepted business practices employed, or are the services of experts utilized?
- 3) Has a substantial amount of time been devoted to the activity?
- 4) Are assets likely to appreciate in value?
- 5) Have other unprofitable enterprises of the taxpayer been converted into profitable businesses?
- 6) Are start-up expenses customary and reasonable?
- 7) Is the amount of occasional profits reasonable?
- 8) Is substantial income earned from other sources?
- 9) Does the activity involve recreational or pleasurable activities?

Source:

Small Business Tax Control,
Tax Brief 181.





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