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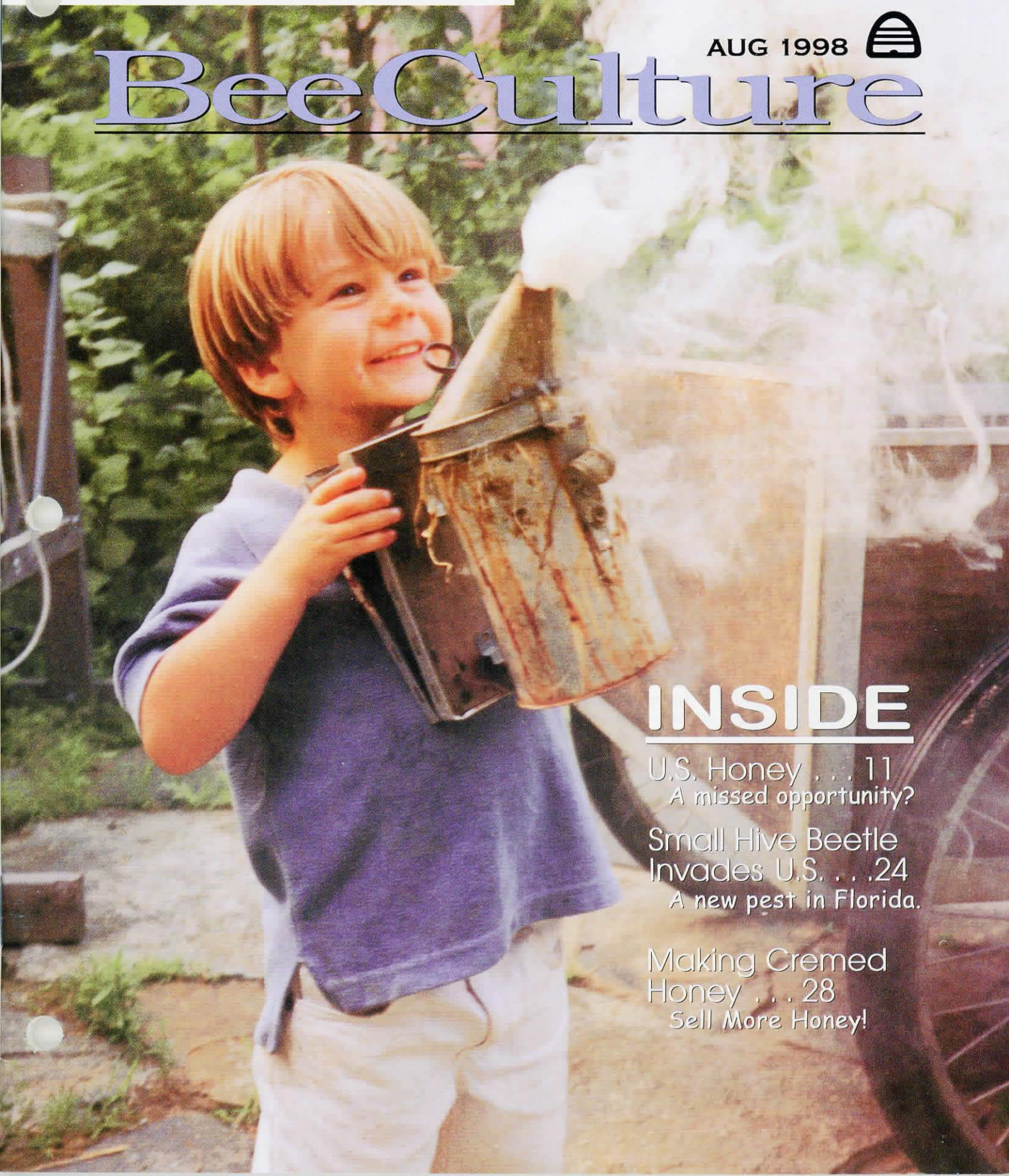


INSIDE

Bee Culture

THE MAGAZINE OF AMERICAN BEEKEEPING

AUGUST 1998 VOLUME 126 NUMBER 8

FEATURES

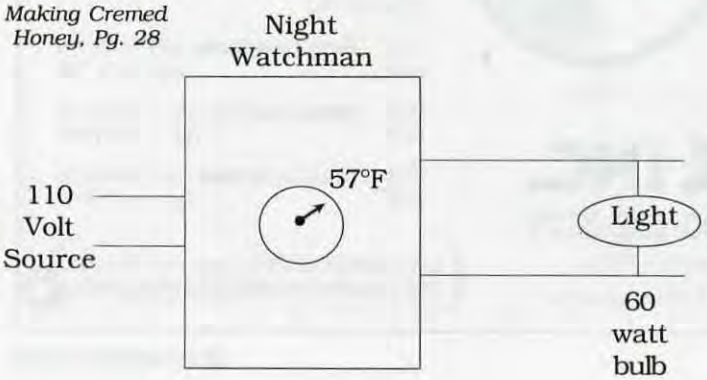
COVER

Brad Berry, 4 years old, is just beginning his journey into the world of bees and beekeeping. His grandfather, Henry Golet, from Old Lyme, CT took the photo and is Brad's companion on this trek. An inquisitive mind, and a caring guide are the primary requirements for this trip. Richard Taylor had both when young, and carefully relates how they led him to a life of bees. Let's hope Brad is on the same path.

photo by Henry Golet

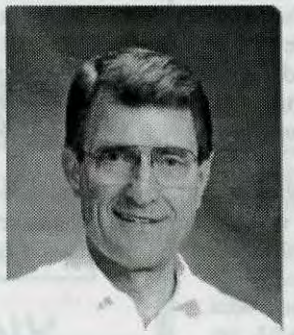
Aethina tumida
Pg. 24

Making Cremed Honey, Pg. 28

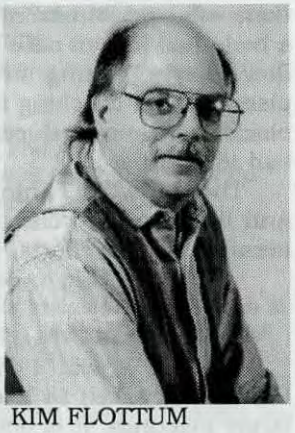


DEPARTMENTS

COLUMNS



JOHN ROOT
Publisher



KIM FLOTTUM
Editor

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INNER COVER

There is a saying environmentalists use – Think Globally, Act Locally – that has taken on a somewhat different meaning for beekeepers this summer. Tom Sanford's account of the small hive beetle found in Florida is the Global part of this, and what you do about it is the Local part.

The introduction into this country of what we consider exotic pests will continue to occur, and with increasing frequency. Because of this we must be prepared to meet, greet and control any and all that wish to make here, home. Meeting and greeting opportunities are in your ballpark - careful observations and a keen eye for 'what's-not-right-here' symptoms in your colonies. That's how *Varroa* and this new beastie were found, and how others will be, too.

Control is another matter, certainly. Other mites, other beetles, other fungi and other bacteria await us, and for the most part we are powerless against them. So far.

Whatever exists, anywhere in the world, will be here, sooner or later. Hope for later; be ready for sooner. They are out there.

•

I'm not sure how accurate my weather forecast was last time...you remember, fast, early spring, then a hot, dry summer. Bees starved in a lot of places the last time that happened. This year the fast, early spring came, but, at least here in Northeast Ohio, the dry didn't follow. As a result lots of honey was produced early, but production slowed, then nearly stopped after that first flush. But there was enough rain, and sometimes too much rain so things pretty much stayed green, at least into July. Bees made some honey, but not lots of honey, or as much as they could have, had the weather been, well, normal.

Not that way in much of the south, though. Hot, dry, fires, more hot, more dry, and more fires. My prediction was pretty close to right for that part of the country. Sorry.

Then, if things hold true, this coming winter should be a real challenge. Lots of snow and cold weather here, and just plain cold in the south (or at least what passes for cold there). Another rough time for bees. And beekeepers. Especially after coming off a particularly hard summer.

Being prepared will help, and keeping tabs of what could be an early fall, and not being caught short for both feed and medications will help. Maybe not taking off as much honey as usual isn't a bad idea, just in case there is an early frost and little or no fall flow. Maybe getting strips on a bit earlier than you originally planned, and checking for winter prep stuff (mouse guards, wind blocks, entrance reducers, wrapping and the like) wouldn't be a bad idea either.

Then, if what I think will happen, happens, you'll be ready. And if it doesn't, your bees will be ready, and make some extra because of your efforts. Like I've said before . . . be prepared.

•

Because of what I do, and because I am willing to travel a bit, I am often asked to address groups of beekeepers at local and larger meetings. It is one of the tasks I enjoy most about this job — getting out and about and meeting people who read, and people who don't read this publication. It gives me perspective, and keeps me humble, all at the same time.

One of the things I frequently talk about is marketing. Now, I'm not the Honey Board, nor am I a producer, producer/packer or packer, so my message comes from a somewhat different perspective. And, most of the people I meet with tend not to be these things either. Primarily, they are sideline and hobby beekeepers who are interested in making back some of what they have spent, and need to get some of those pails out of the (garage, basement, kitchen, honey house - take your pick).

One part of my message deals with what can be produced; another

Continued on Page 46

Think Globally, But It's The Local That Counts . . .

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Bee Culture

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MAILBOX

Honey Board Research

In the June issue of *Bee Culture*, Mark Winston makes some statements which require comment.

There are three national U.S. beekeeping organizations, not two. A new one (COMB) has formed in response to a perceived sell-out by the preexisting ABF and AHPA. The members of COMB believe that the packing industry is exerting their influence in the ABF and AHPA in a fashion detrimental to the interests of beekeepers.

Second, Mark frames support of Apicultural research provisions in the context of the NHB legislation as a "no-brainer". Many U.S. beekeepers with quite adequate brains have studied this legislation and concluded that overall it is detrimental to their interests. Research funding is already authorized by the previous legal framework of the NHB. The question Mark should be asking is, "why hasn't the NHB been consistently funding beekeeping research when they clearly have been authorized to do so for 12 years?" This is not a "no-brainer" and it is a valid and important question.

Joe Rowland
Owego, NY

Editor's Note: *The provisions for the research funding the NHB could engage in were in the food science area, not beekeeping management. Keeping bees does not increase an awareness of, or sales of honey, which is the mandate of the Board.*

Missed Opportunity

I read your article on looking for a beekeeper and no where did you mention an attempt by you to recruit someone into beekeeping. A person who knows the importance of pollination and does not keep bees should be easy to recruit. The need for seven or 10 colonies indicated the farm is small, probably family run. Would someone in the family be interested in beekeeping? A golden opportunity was lost. This farmer has other tools - ladders, sprayers, pruners, etc., why not bees? At $75 per colony for 10 colonies he could purchase 10 colonies, keep them on site and after a few years he would be money ahead. One does not need costly extractors and such, just the basics. Maybe an article on how to keep bees on a shoestring should be written. You could offer a free subscription to get them started. Maybe the farmer is too busy but what about relatives? There are fewer people keeping bees. It's no wonder when we miss chances to recruit new members. I could go on but I think you get the sting of this message

Dan Wojdac

Better Queen Labels

Your article "Uneasy Lies The Head" was great. Might I be so bold as to address the issue of the postal delivery of live queens?

I recently received four queens in the mail. After a six day journey across the state line and sitting in a mailbox that would rival my old 'easy-bake' oven, screen side down on pesticide strips, I marveled at the resilience of these magnificent creations.

My postal worker didn't recognize the envelope as containing live bees. They've always been good to call so I can come and fetch them.

May I suggest to the shippers who aren't already doing so to more boldly mark their packages. Maybe they might be expedited.

Cheryl Wilkinson
Arley, AL

Resurrected Bees

I spray sugar water on all new swarms, it settles them down and then they have something to eat while cleaning up. Had two swarms go together and couldn't find my sprayer so I made one out of a Scope mouthwash bottle. I washed it with soap and rinsed it real good. That is what I used to spray sugar water on bees. I always use an empty super on top of brood boxes so I can just dump bees in and spray them. I put top on box until next day and then check to see if they went down in brood boxes. When I checked them next day, I found every bee dead, or so I thought, in the bottom of the box. I dumped them on the ground. The next day I checked them, but they still were not moving. Second day I took a picture of them, about three gallons of bees. The third day I was surely surprised to find them crawling and flying back to the boxes. There was a couple dozen that were left. Have talked to several beekeepers and they couldn't believe it. The bees laid on the ground for two nights and two days. Third day, around noon when I discovered them flying. Something new everyday.

Charles Yonker,
Letart, WV

Bernie's Bees

My neighbor went with me to pick up 85 packages of bees for our club. On the way he asked a lot of questions. A few weeks later the following arrived. I don't know if it's completely accurate, but it is very interesting.

Brought to WI from CA - 11,039,000 bees.

Brought by Bernie to distribute - 1,260,000 bees.

At 3500 bees/lb, each bee weighs .0045714 oz., or .13 grams.

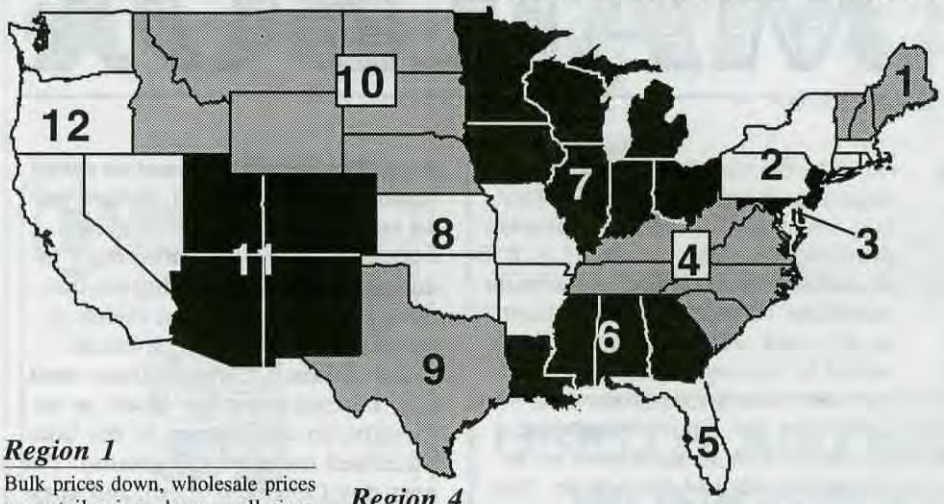
Price/bee - $.00435.

Bernie bought 35,000 bees, added to his 45,000 bees. That many fly about 90,000 miles/day. In a week, Bernie's bees fly the equivalent of over two round trips to the moon....and you thought you were working hard!

P.S. there is a lot of dancing going on, however, 'cause in addition to the waggle and round dances, there is also the 'bug'aloo!

Bernard DeVries
Antioch, IL

AUGUST – REGIONAL HONEY PRICE REPORT



Region 1

Bulk prices down, wholesale prices up, retail prices down – all since last month. Weather a real problem this year, but pests and diseases mild. Most mid-size and larger will need to buy honey to meet demand.

Region 2

Bulk prices down, wholesale stable, retail prices down this month. The weather, coupled with swarming were problems this Spring. But the weather and reduced pest pressure also helped in some areas. Average to large crop expected, with buyers looking for sellers.

Region 3

Bulk pails up but barrel prices down, wholesale and retail steady. The weather caused some problems, but fewer pests helped. Below average crop predicted and buyers looking.

Region 4

Bulk prices down, wholesale and retail steady, but mixed. Weather and pests caused some problems, but helped more than not with some strong flows. Average crop predicted and buyers looking.

Region 5

Bulk pail and barrel prices down, wholesale steady, but retail down. Mites, fires and even beetles a problem, reducing some crops. Average will be up a bit overall, buyers and seller both settled.

Region 6

Prices pretty much steady all levels since last month. Weather a strong factor for favorable crops this year, with averages up all over. But many sellers looking for buyers will increase, and affect prices it is feared.

Region 7

Pail prices up a bit, but barrel prices down. Wholesale steady but mixed and retail up a bit, but mixed, too. Weather and swarming problems this Spring, but reduced mite populations have helped an average to above crop. Buyers and sellers about even, but we'll see.

Region 8

Bulk prices down, wholesale up, but retail down, but not much. Weather, bad weather the big news for the early season, but far fewer mites and disease problems helped. Good to large crops will have sellers and buyers looking.

Region 9

Prices stable, if not great, since last month. Hot and dry the only weather news, reducing the crop in most places. Mites non-event, and buyers will be out looking to fill orders.

Region 10

Prices fairly stable, but seem to be increasing on what's left of last season's crop, finally. Not exciting weather will keep crop average, or a bit below, and sellers will be looking for buyers, later.

Region 11

Prices, though mixed, up a bit since last month, especially wholesale. Good Spring weather helped with lots of swarms, but produced a good crop – certainly a mixed blessing.

Region 12

Prices fairly steady for all classes, but some up, some down. Demand mixed, and causing ripples. Weather the leading crop indicator here. Lots of wet weather has caused all manner of problems, but may help later.

	Reporting Regions												Summary		History	
	1	2	3	4	5	6	7	8	9	10	11	12			Last	Last
Extracted honey sold bulk to Packers or Processors													**Range**	**Avg.**	**Month**	**Yr.**
Wholesale Bulk																
60# Light	56.50	51.00	52.20	63.67	65.00	52.20	55.00	65.00	54.00	55.53	71.67	57.00	54.00-87.00	67.55	60.91	68.30
60# Amber	54.57	51.67	53.40	58.20	54.00	50.40	52.33	59.93	52.00	58.33	65.00	60.50	51.00-87.50	64.24	56.86	64.83
55 gal. Light	0.61	0.65	0.68	0.67	0.62	0.60	0.69	0.70	0.75	0.75	0.70	0.75	0.66-1.23	0.73	0.81	0.94
55 gal. Amber	0.58	0.58	0.60	0.64	0.60	0.54	0.64	0.68	0.70	0.69	0.66	0.72	0.66-1.15	0.71	0.77	0.91
Wholesale - Case Lots																
1/2# 24's	28.56	26.19	29.26	32.11	21.00	27.50	31.08	35.00	30.00	29.26	30.50	27.60	20.40-48.00	29.11	29.86	30.64
1# 24's	43.63	40.85	43.20	45.44	54.00	41.50	41.60	46.19	48.00	42.00	44.87	45.90	32.40-54.00	43.09	43.06	42.03
2# 12's	39.14	33.44	42.60	44.53	33.60	38.30	39.80	40.07	42.00	37.50	44.30	37.83	29.40-48.00	37.39	39.91	37.90
12 oz. Plas. 24's	36.10	34.24	40.80	39.23	40.00	35.40	35.42	38.06	36.00	34.80	38.70	36.00	34.56-48.00	35.44	35.15	33.86
5# 6's	41.71	36.91	48.00	46.25	48.00	40.58	38.67	42.00	48.00	45.00	43.78	38.58	31.80-52.50	41.22	41.08	37.47
Retail Honey Prices																
1/2#	1.68	1.60	2.83	2.17	1.07	1.71	1.75	1.77	2.50	2.83	1.85	1.80	1.09-2.96	1.76	1.90	1.84
12 oz. Plastic	2.17	2.22	2.35	2.45	1.79	2.15	2.10	2.18	2.75	2.23	2.55	2.13	1.59-2.99	2.22	2.26	2.21
1 lb. Glass	2.74	2.62	2.60	3.10	2.90	2.58	2.60	2.60	3.10	2.29	3.08	2.81	1.99-3.75	2.67	2.72	2.79
2 lb. Glass	4.54	4.22	4.55	4.25	4.38	4.71	4.18	4.64	4.95	4.32	4.47	4.46	3.29-6.09	4.42	4.54	4.53
3 lb. Glass	5.99	6.50	5.75	6.25	4.10	6.18	5.37	6.64	6.00	5.69	6.05	5.66	4.50-8.00	6.08	6.18	6.16
4 lb. Glass	6.95	5.48	6.90	8.16	6.90	7.53	7.80	7.17	7.00	8.50	6.90	6.90	6.00-10.25	7.74	7.90	7.55
5 lb. Glass	8.88	9.38	9.80	10.75	8.23	8.00	8.55	10.25	9.95	6.25	8.58	8.70	6.69-12.95	9.06	9.18	8.80
1# Cream	3.38	3.12	4.22	3.86	4.22	3.07	3.30	3.43	4.75	3.00	3.79	2.86	2.19-6.00	3.13	3.34	3.30
1# Comb	3.84	3.85	3.98	4.24	3.98	4.00	3.38	3.45	5.00	3.98	4.75	4.13	1.95-6.00	4.19	4.14	4.14
Round Plastic	3.81	3.11	3.50	3.91	4.75	4.50	3.61	3.50	4.19	4.75	4.98	5.20	2.60-7.50	3.86	3.66	3.81
Wax (Light)	2.61	4.09	2.38	2.55	2.48	2.68	3.10	2.35	4.00	3.71	2.43	2.67	1.75-6.00	3.04	2.59	2.66
Wax (Dark)	2.33	3.36	2.25	1.37	1.40	2.48	1.99	1.75	3.50	3.09	2.20	2.42	1.20-6.00	2.62	2.25	2.44
Poll. Fee/Col.	35.88	39.83	31.50	35.00	30.00	38.00	36.63	40.00	20.00	37.26	37.26	32.50	15.00-55.00	34.03	37.07	35.58

U.S. HONEY

by Joe Traynor

"Perception is reality to most people, and U.S. honey sellers are missing a golden marketing opportunity."

. . . For purple mountains' majesty *(aerial shot of Wyoming mountainside, covered with flowers – camera zooms in for a tight shot of honey bees working these flowers). . .* Across the fruited plain ... *(follow the bees to a hive, then inside to a comb of honey; then, with rapid-sequence images, follow the comb to an immaculate honey house) . . . follow the honey as it is poured into a glass jar, the jar finally resting on a kitchen table where a typical American family is gathered for breakfast. As the music fades, a voice-over intones:*

. . . American honey – you know it's good . . .

The above is a script for a proposed 30-second TV spot designed to increase sales of U.S. honey.

Let's face it. Cheaper imported honey will always be available to both packers and consumers. In order to maintain or increase prices for U.S. honey, the industry must show the consumer that it is worth paying 20 cents more per pound for home-grown honey. The U.S. consumer must be convinced that U.S. honey is worth that extra money.

One way to improve prices for U.S. honey is to establish consumer loyalty to a particular brand and/or to a particular flower source (you can't import Montana clover honey). Like the honey industry, the U.S. wine industry is faced with cheap imports from Chile, Argentina, Australia, Italy and a host of other countries. Many U.S. wine labels, and varietals, continue to command a premium price because consumers feel they are worth the extra money.

The biggest reason to pay more for American honey is so obvious that it can be overlooked: American honey is made in the U.S. The free-trade climate and NAFTA have served to increase agricultural imports to the U.S. but it has not been a smooth ride for these imports. In the past year there have been numerous stories about tainted produce – food contaminated by pesticides, fungi and bacteria. These incidents have shed a glaring light on a fundamental weakness of food imports: their safety (and their *perceived* safety).

The American consumer is willing to pay more for food that she (he) knows is safe. The U.S. honey industry has been lax in exploiting this Achilles' heel of imports. A stamp or seal should be placed on each jar of U.S. honey with the seal signifying that the honey has been tested for contaminants (chemicals) and has been produced under sanitary conditions (this is not a new idea; it has been proposed by others in the past but is particularly timely now).

Such a program would require some rules, regulations and inspections, anathema to most beekeepers, but strong medicine is often necessary when the patient is in serious condition. Most honey, both imported and domestic, is subject to tests for chemical contamination but honey-house inspections are another story. Certainly there should be some guidelines for honey-house and honey barrel sanitation. The U.S. bee industry could come up with a code, enforced by spot or annual inspections conducted (preferably) by bee industry personnel or, as a last resort, by a government agency. Publicizing this code and using a code or seal on containers to denote that the product inside has been subject to rigorous health and safety standards could be a boon to the sales of U.S. honey.

In conjunction with, or as an alternative to such a "certification" program, honey packers should be required to place the country of origin on all containers of honey sold in stores (again, not a new idea). This is not an unreasonable request, as canned goods imported from other countries state the country of origin as do imported wine bottles. Just because foreign honey is packed in the U.S. doesn't mean it should be exempt from similar labeling. Most consumers are aware that most of the produce found in the grocery store in the Winter comes from Mexico or Chile. When consumers purchase shoes or clothing, the labels state where the item was made. Why should imported honey get a free ride when it comes to truth in (easy-to-read) labeling?

When buying clothing, most consumers opt for the cheapest price if quality appears equal; country of origin is not a significant concern (partly because it is difficult to find clothing made in the U.S.). Buying food is a different story – when something goes into your mouth, you'd like to know where that food product originated. Most consumers are willing to pay more for food produced in the U.S.; some will not purchase food produced outside the U.S. Is it unfair to deprive consumers of the information necessary to make an informed choice when buying food products? The U.S. bee industry should have a strong legal case that would require honey packers to place the country of origin on the label. (In standard-sized, easily read type.) [Currently, many packers label their honey with country of origin, but the type is small, presented in easily disguised colors, or not on the label at all.]

The general suspicion on the part of American consumers toward foreign food products has been reinforced with increased foreign travel

Continued on Page13

Roger Morse

Research Review

"Do bees recognize a queen as a relative? Perhaps so."

We humans are very conscious of our relationship to others. Given an opportunity, we favor our kin over those who are not related to us. Other animals show favoritism, too, so why not honey bees? When we look quickly at a honey bee colony we realize that a queen mates with several drones. This means that a colony is made up of a number of full sister groups that are related to the other sister groups by one-half.

Do these sister groups show any prejudice toward other sister groups? One might logically think that such prejudice might show up when new queens are reared. That is, the members of one sister group might try to favor one of their own full sisters to be the new queen. This question has been researched by several people, and the results have always been, no. There is apparently no prejudice when new queens are reared.

A colony of honey bees can have only one queen, but several queens may be produced during swarming and/or supersedure. However, when the swarming and/or supersedure occurs, the single queen rule must be followed before there can again be harmony in the colony. All but one queen are eliminated. Interestingly, no studies have been made of kinship recognition or preference by workers after the queens have been reared and while new queens are fighting among themselves to determine which one will rule.

The research that has been done up to this time shows that worker bees can distinguish between adult queens that are and are not related to them. It has been suggested that this is done through chemical signals that are released from certain body glands.

A new study from Pennsylvania suggests that there may be prejudice on the part of workers when two or more queens fight to the death to determine who will be the new queen of the colony. How this might come about was determined with the following experiments.

Six pair of unrelated colonies that came from two beekeepers were used in these tests. The colonies were all in three full-depth, 10-frame supers. The colonies were dequeened and 24 hours later, newly hatched larvae were wet-grafted (using diluted royal jelly) into queen cups placed on cell bars in the middle super. The larvae were alternately from the colony used to rear the new queens and the other colony in the pair. The colonies were checked several days later to make certain that no extra queens were reared other than those that were grafted.

On the day the queens emerged, they were marked with colored paints and placed in queen cages. Two queen cages were wedged between frames in four-frame nucleus colonies containing brood and bees related to only one of the two queens. The queen cages were opened simultaneously 24 hours later and the colony and its new queens were left undisturbed for two days. At that time it was determined which queen survived.

There were 24 fights recorded. Queens related to the brood and bees in the nucleus colony won a significant number of these fights. The related queens had a two-to-one advantage over the unrelated queens. In five other tests, one of the two queens died while still in her cage but the important fact was that it was always the unrelated queen that died.

How did these results come about? While there are several possibilities, the authors of this research suggest that differences in attraction between their own and an unrelated queen may mean that the queens were fed differently while confined in their cages. In part, the fact that five queens died while still in their cages suggests there were differences in the way in which the related and unrelated queens were fed and perhaps otherwise treated.

In these experiments it was once again shown that worker bees show no preference as regards rearing their own and an unrelated queen. As an aside, however, it was shown that the young queen larvae closer to the center of the brood nest had a greater chance of survival. While this last is a fact we already know, it is helpful to have such things confirmed.

The tests I describe here do not represent a natural situation. Under natural circumstances, when two virgin queens fight to the death they are full or half sisters, not totally unrelated. However, since these experiments have uncovered what appears to be differences caused by relatedness, we can be certain that the subject of kinship recognition in honey bees is far from dead. BC

References:

Tarpy, D. R. and D.J.C. Fletcher. Effects of relatedness on queen competition within honey bee colonies. *Animal Behaviour 55: 537-543. 1998.*

U.S. HONEY ... Cont. From Pg. 11

by U.S. citizens. Should a U.S. citizen get sick while overseas, that citizen (and his circle of friends) is a strong candidate to buy only U.S. food products in the future.

Certainly some (maybe most) foreign honey is just as safe as U.S. honey; however, the perception of foreign food being unsafe presents a major marketing opportunity for U.S. beekeepers because perception is reality for most people. Why not exploit this weakness of foreign imports to the fullest?

The alternative to some type of plan to show differences between U.S. honey and imported honey is a continuation of the status quo – cheap imports and low prices for **U.S.** honey . . .

. . .*From sea to shining sea.* BC

Joe Traynor is an agricultural production specialist from California.

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?DO YOU KNOW?

Summer Tips

Clarence Collison
Mississippi State University

During the heat of the Summer, many beekeepers are anxiously waiting to harvest the fruit of their labors. Summer management is primarily concerned with maintaining conditions favorable for brood rearing and honey storage. Colony problems that require attention during the Summer are generally associated with queen failure, diseases and mites, pesticide kills or pests such as skunks, bears, wax moths, etc. How quickly a colony recovers depends on how soon the beekeeper discovers the problem after it occurs. Failure to monitor colony conditions can result in lost production and even colony failure. In addition to colony management, it is important to make preparations for handling the honey crop when the harvest begins.

Please answer the questions to determine how well you understand the beekeeping industry.

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

1. ____ Testing honey samples for HMF (hydroxymethylfurfural) is done to determine if the honey is adulterated.
2. ____ Hive stands are an essential piece of beekeeping equipment.
3. ____ The natural diet of adult worker honey bees switches from heavy reliance on pollen to honey and nectar as the bee ages.
4. ____ Wax moths are often responsible for killing honey bee colonies.
5. ____ Queens suffer from all diseases that affect workers and drones.
6. ____ Workers with developed ovaries are found in most normal queenright colonies.
7. ____ Certain hives gain more bees at the expense of others due to drifting. Within a row of hives, honey bees tend to drift from the end hives toward the center hives.
8. ____ Beekeepers should never allow colonies to get down to less than 10 to 15 pounds of honey.
9. ____ Pollen collectors normally make fewer foraging trips per day in comparison to those collecting nectar.

Multiple Choice Questions (1 point each)

10. ____ Movement of colonies to California for almond pollination normally occurs in:
    A. March
    B. February
    C. December
    D. January
    E. April
11. ____ Africanized honey bees continue to migrate in the United States and most recently were found in:
    A. Louisiana
    B. Oklahoma
    C. Colorado
    D. Utah
    E. Nevada
12. ____ Honey bee disease caused by a microsporidian.
    A. Chalkbrood
    B. European foulbrood
    C. American foulbrood
    D. Nosema disease
    E. Sacbrood
13. ____ Honey bees belong to the family:
    A. Megachilidae
    B. Apidae
    C. Andrenidae
    D. Halictidae
    E. Colletidae

14. Dividing colonies is a common management practice used by beekeepers in the spring. Please give two reasons why beekeepers split their colonies. (2 points)
15. One approach to splitting colonies is to divide a hive, providing each half with bees, brood, food, bottomboard and cover, then separating them by at least two miles. The queenless half will raise a new queen from the available brood. What are two disadvantages to using this method of making splits? (2 points)
16. Name three forms of honey that require thin surplus foundation. (3 points)
17. Please explain why fume boards are not effective in cold weather. (1 point)
18. Name two conditions that will produce a spotty brood pattern other than a poor queen. (2 points)
19. What are two conditions that should be considered in determining the number of colonies that an apiary site can support? (2 points)

ANSWERS ON PAGE 42

Mark Winston

Argument

"Argument: A discussion in which disagreement is expressed."

A part of my life that is invisible to beekeepers is that I teach for a living, and generally not about bees. A substantial amount of my time is spent lecturing undergraduate students about biology, on subjects that range from the molecular structure of DNA through to the principles of evolutionary biology. I have delivered about 3,200 lectures to students during my teaching career, give or take a few, and like any repetitive job, it can wear thin after a while.

I taught introductory biology this past Spring, a subject I hadn't taught for some time, and decided to spice things up with a radical new format. Out went the standard textbooks, and in came some provocative new popular science books on conservation and ecology. Also out were exams; I asked the students to deliver oral reports in their tutorials and write an investigative article in journalistic style on an issue where biology and society intersected. Most significantly, I diminished lecture material to a bare minimum, and instead instituted discussion-style class sessions in which I asked open-ended questions and the students were supposed to discuss controversial issues relating to biology.

The response was a resounding thud. It didn't matter what I did; I tried saying outrageous things to shock and stimulate the students to argue with me, to no avail. I asked questions and then simply waited for someone to speak, which led to agonizingly long periods of silence. Once, and fortunately only once, I became so angry at the students' unwillingness to become engaged in discussion that I simply walked out of the class to keep from completely losing my marbles. The only time any decent debate got going was when I announced that next class I would give them more information about their final papers. That session was full, and the previously silent class suddenly became an excited mass of eloquent, interactive, probing and clearly interested students.

Yet, to my surprise student after student came to my office during the semester and told me how much they were enjoying the class, and as individuals they exhibited an interest and a passion for learning and discussion that were totally absent in the large classroom setting. In class, they simply were unwilling to stick their necks out and say anything that might stand out from the pack as being unusual. They had never learned the fun of argument, and each student was terrified of expressing an opinion that might make them different from the others.

I've never had this problem with beekeepers, who love to argue, discuss, dispute, object, and question. Attending a beekeeping meeting is the opposite of my introductory biology class; discussion is the rule, not the exception, and beekeepers will debate the most minor of points far into the night, without resolution. And, beekeepers are singularly unafraid to stand out in a crowd with an unpopular opinion. While this makes for contentious meetings, it sure can be fun.

Sometimes the topic of the day is a trivial one rather than a big issue, but even the smallest area of bee management can erupt into lively discussion. I remember one meeting I went to early in my career, a local Vancouver group made up primarily of hobby beekeepers. My talk concerned swarming, but the first question when I finished had little to do with swarming, and had obviously been burning in my inquisitor's mind for some time. He queried my stance on the use of queen excluders, pro or con. Luckily I never got a chance to answer, because the other beekeepers in the room weighed in with their opinions. One faction, of course, was in favor, because keeping the queen confined to the bottom brood boxes made honey pulling much easier. The other faction, as you might expect, was against, because the excluder might restrict the workers' movements up into the honey supers, and thereby limit nectar collection and storage. There were passionate opinions on both sides, and no resolution, but for me it was an intriguing introduction into the lively debate that is so typical of beekeeping meetings.

This bent toward debate is certainly not limited to Canadian or U.S. beekeepers. I was invited to southern France two years ago and went with some trepidation, because the only thing on the program for two days straight was me. My concern was in figuring out how I could possibly fill two days, since the subject they wanted me to talk about, pheromones, usually took me at most an hour to present. So, when I got up to the podium at 9 a.m. to talk, I figured I would be done by 10, and then had no idea what would happen next.

Was I wrong! By 5 p.m. the next

Continued on Next Page

"Once, and fortunately only once, I became so angry at the students' unwillingness to become engaged in discussion that I simply walked out of the class to keep from completely losing my marbles."

day, I still hadn't gotten to all of my prepared one-hour talk. I had no more than spit out the opening sentence of my talk when a hand went up with a question, and it didn't stop for two days. Luckily the French like to have long lunches, because otherwise I never would have been able to catch my breath. This group was hungry for debate and discussion, and their level of knowledge about bees, beekeeping, pheromones, and virtually everything else was extraordinary. They wanted to know the details of every experiment, challenged me to prove statements about my work that most audiences accept at face value, and jumped ahead to wonder about what the next important research steps should be to answer outstanding questions. I furiously jotted down notes and ideas during the two days, and have followed up many of their suggestions in our research program.

I've experienced the same willingness to engage in discussion, argument, and debate everywhere I have gone in the world to speak to beekeepers, from New Zealand and Australia around the globe to England and across to Latin America. One of my earliest memories of life in the beekeeping community was a trip to Guatemala, in which I was taken around by their bee expert Julio Ocheita, to talk with beekeepers about Africanized bees. We stopped in small towns without electricity and large and lively Guatemalan cities, but one aspect was the same no matter where we went. At every stop, there was an intense, lively, and long meeting with local beekeepers that went late into the night, and eventually adjourned to a local cafe to continue discussing bees and their management.

Sometimes tempers can run high at beekeeping meetings, especially among commercial beekeepers who might be concerned that their livelihood could be threatened by whatever positions are supported at the end of the day. I can remember no livelier debates than the ones we had in Canada to decide whether to close the border to imported bees or keep it open when mites were discovered in the continental United States. These discussions had an edge you don't find in debates about queen excluders, and passions ran high. Every beekeeper who rose to speak had a strong opinion, and each represented his or her perceived self-interest eloquently and with style. No matter what the position, each began his presentation by staking out his turf ("My family has been in the beekeeping business for three generations, and . . ."), and then going on to argue in favor of whichever position or subtle shade of a position he supported.

The finest elements of debate could be seen in each speaker, no matter whether he or she had a university education or hadn't seen the inside of a classroom in 50 years. They argued fine points of international law, pulled on the heartstrings of the audience with vivid evocations of their beekeeping history and dreams for the future, posed scenarios that expanded the discussion to include virtually every possible component of whatever decision would get made, and highlighted the gray areas where we simply didn't have enough information to make an informed decision. At times, the discussion did get nasty; even typically civil Canadians can lose their tempers when an issue gets close to home. Yet, the passions that rang through the halls of debate and the articulate nature of the discussions were in the finest traditions of argument and rhetoric.

In the end, one side overwhelmingly carried the day and the border was closed, but whatever the decision, the quality of debate was outstanding. This experience, and hundreds of others I have had when among beekeepers, comes back to me often as I stand in front of apparently brain-dead 18- and 19-year old students, wondering how to evoke the same willingness for discourse at the university that I find so refreshing in the beekeeping community. Sometimes I think our beginning biology students might be better educated by spending a day or two in the beeyard instead of cooped up in a large classroom learning about evolution and DNA. There is something about bees that elicits questions, wonder and speculation, and seems to lead naturally to debate and discussion. And, there's nothing like a sting or two to liven up the day, and perhaps distract students from their flowing hormones to concentrate on what's going on in front of them. Now, if my beeyard was only big enough for 300 students at a time . . . BC

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

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Are You EVALUATING YOUR CROP CORRECTLY?

Richard Bonney

Even with good weather, enough nectar sources and lots of bees, sometimes you don't make honey. Why?

It is not too soon to begin thinking about next year's honey crop. In fact, it is the right time to be thinking about it, and it is best thought of in the context of this year's crop. How is your crop this year? Why is it so good, or has it been poor, or perhaps somewhere in between? Do you have an answer?

Yes, you do have an answer if you have been keeping a simple journal. Nothing elaborate, just a notebook where you can enter day-to-day observations pertaining to your bees. That doesn't mean you enter something every day, but just on the days when you have something meaningful to say. Obvious entries might include dates of specific hive management events—inspections, feeding, swarm control measures, supering, medication, requeening, and many more.

Less obvious entries might include such factors as severe, unusual, or unseasonable weather, or such natural events as skunk cabbage or crocus in bloom, the first robin, or the first or last frost.

Then, of course, we have the question of what is this information going to do for you? It allows you to look back and to fill in the gaps in your memory. How many times have you been working with your bees, made some observation or other, and said to yourself, I'll have to remember that. But did you remember? Based on my own experience, probably not. It gets more difficult when you have more than one hive, and even more difficult when you have more than one beeyard.

Actually, some beekeepers, especially those with a larger number of hives, keep more than one record book or journal, one for specific observations about each hive and each yard, the other for more general observations about weather, forage availability, and the natural world affecting bees. Either way, the information can be invaluable at the end of the season.

All right, now let's talk about how you are going to use this information. The end of the season has come, honey is off, and for the sake of discussion we will say the crop is not great. Why?

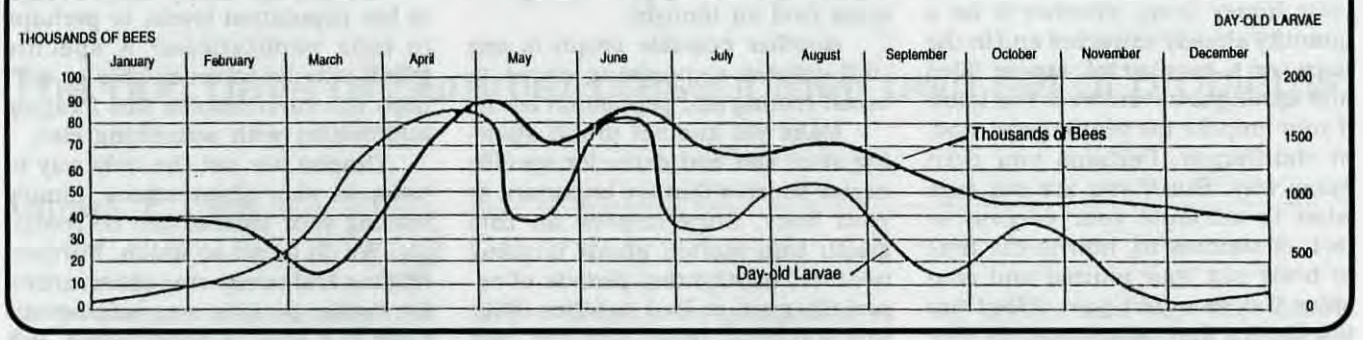
This takes us to considerations of what it takes to make honey. A simple view of this is to say all it takes to make honey is good weather, nectar sources, and enough bees. That is too simple a view, however, We need to step back a bit. We can't do anything about the weather. We can record it in that journal, though. When the weather breaks and the sun is shining it is easy to forget that we had so many days of lousy weather earlier, and to do a proper evaluation, we do need to remember. Nectar plants are something else we do not have a lot of control over. We can do a certain amount of planting to benefit the bees, but for the most part, nectar plants are there or they are not. We will set weather and nectar plants aside here for a bit.

The bees themselves are something a little more under our control. Sometimes this does not seem so, but they really are. It is a matter of establishing that control. I am not going to tell you here how to do that but rather, when to be paying attention, and what your observations at these times can mean as you evaluate your crop.

Earlier, when talking about the prerequisites for making honey, I stated that one of them is enough bees. Let's look at that. How do we ensure that there are enough? First we must recognize that in a beehive no season—spring, summer, fall, winter— stands alone. Each season builds on the previous, and deficiencies of the past will almost certainly be reflected in the future. For instance, poor population in the fall is going to affect the colony's ability to winter well, and will further affect spring buildup. The spring buildup is all important in establishing that necessary nectar gathering population.

With this thought in mind, to

GENERALIZED SEASONAL FLUCTUATIONS OF BEES & BROOD



properly evaluate the season you need ongoing information such as:

- strength and condition of the colony at the start of the past winter
- severity of the winter
- amount of winter stores, both honey and pollen
- winter honey utilization
- the rapidity of spring buildup
- the degree of swarming
- ongoing colony health, including degree of mite infestation
- quality of the queen, as reflected by brood rearing
- foraging efficiency

These factors all pertain to the bees or to the colony itself, but how do they bear on our honey crop? First we need to look at each of them in a little detail, and then we can relate them to the crop. So, taking them in turn, what was the strength and condition of the colony as it went in to the winter? If it was strong and healthy, with plenty of young bees, all was well. Winter is a stressful time, and a colony that is not strong and healthy will not fare well. It will be more susceptible to problems that a stronger colony might shrug off, and will enter spring in a weakened condition, assuming the bees survive until spring. If they enter spring in a weakened condition, they may never catch up during the new season. So, make an entry in the journal. Put it in terms that are meaningful to you, reflecting such information as apparent population and frames with brood. Note also the age of the queen if you know it.

Then, consider the severity of winter and its potential effects on even a strong colony. These effects include: a delayed start to the spring buildup; exhaustion of winter stores; reduced brood rearing during the winter; and excessive die-off of adults. All of these, too, will affect the condition and nectar collecting capability of the colony in the coming season. Keep as many notes as necessary to give you a comprehensive picture of what winter was like as you review this information several months later. Remember, memory is fallible, and it will be meaningful to know when extraordinary weather events took place, and what their duration. The amount of winter stores is in a sense a moot point once the bees have survived winter. Obviously, if they survived, they had enough stores. Simple survival isn't what we want, though: we want them to survive and thrive. With only subsistence rations, they may survive but once again may not develop that good spring population so necessary to a good honey crop. Your notes on amount of winter stores can help you understand why a particular colony was in good, poor, or indifferent shape when spring finally came.

Swarming, of course, negates a good spring buildup, and just at the time you need the bees. After a swarm issues, who is going to collect that nectar? Sure, there are some bees left, but capability is severely reduced, and if there are afterswarms, life in the hive becomes progressively harder. Keep notes on observed swarm preparations, swarm control measures such as hive manipulations, making splits, taking nucs, and the apparent after effects of each.

Colony health, of course is a continuing concern. Inspections and treatment for mites have become routine for most of us, or at least they should be routine. Even so, a record of inspections and treatments is worthwhile, especially for varroa. Brood diseases are with us still of course, and treatments for these should also be recorded.

The queen is an often ignored component of the colony. Many beekeepers have the attitude that if she appears to be functioning well, don't mess with her. (If it's not broke, don't fix it.) However, appearances can be deceiving, and furthermore, conditions can change rapidly, bringing about supersedure or swarming. Both of these are detrimental to colony population. Stay in control, requeening periodically, and keep track of when.

Even with regular requeening, though, we have no guarantees that a queen is a top performer. Monitor her performance by periodically inspecting the brood for amount and pattern. Again, keep notes. An interesting supplementary record here is a week by week graph showing the amount of brood over the active season.

Foraging efficiency is a somewhat vague term, but it is worth some thought. What does it mean? I am using it here to mean the apparent flight activity to and from a hive, compared to other hives, or compared to what you think it should be considering the weather and the apparent nectar availability. Were your bees always in tune with the nectar flows? If not, why? We will come back to that.

It is time to put all of this to-

Continued on Next Page

EVALUATION ... Cont. From Pg. 19

gether. After all, we did start by talking about evaluating the honey crop. Presumably, you have a measure of your honey crop, whether it be a quantity already extracted and in the barn, or a number of supers filled and waiting to be removed. You know if your crop for the year is good, bad, or indifferent. Perhaps you even know why. But if you are not sure what to attribute your success or lack of success to, now is the time to bring out your journal and consider the year just past. What are the factors that contributed to your year? What can you do during the coming year to sustain your momentum, or make things better?

Perhaps you will want to make a series of simple charts showing the factors we have been considering. One such could start with the information shown on the accompanying population graph. Reproduce it, and then superimpose on it population figures for your specific colony as derived from your ongoing observations and notes. Deviations become food for thought.

Another possible graph is one that relates requeening dates to brood rearing and population levels.

Make yet another graph showing start and end dates for specific nectar sources that are important to your bees. Superimpose on this graph information about ongoing weather, highlighting periods of especially good or bad weather. With this you begin to see why the bees benefited or did not benefit from specific crops, and you prove or disprove some of your suppositions. For instance, although I don't have enough data yet, I strongly believe that our black locust flow is largely rained out each year. (Some observations will take several years of data to have meaning.)

Foraging efficiency can relate to at least a couple of your other observations. For instance, does high or low foraging activity relate to high or low population levels, or perhaps to mite populations? A specific graph may be in order here or perhaps you can combine this foraging information with something else.

Graphs are not the only way to interpret your observations. Simply reading your journal can be revealing. We do forget so much. Further, reading and comparing observations for similar periods over subsequent years can also be enlightening. But it is difficult to do any of this without first having a journal. Is it time for you to start one? BC

Richard Bonney is the retired Extension Educator for the State of Massachusetts, and a regular contributor to these pages.

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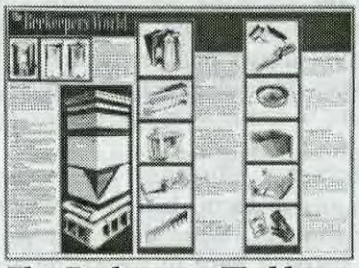

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NOT IN ANY BOOK

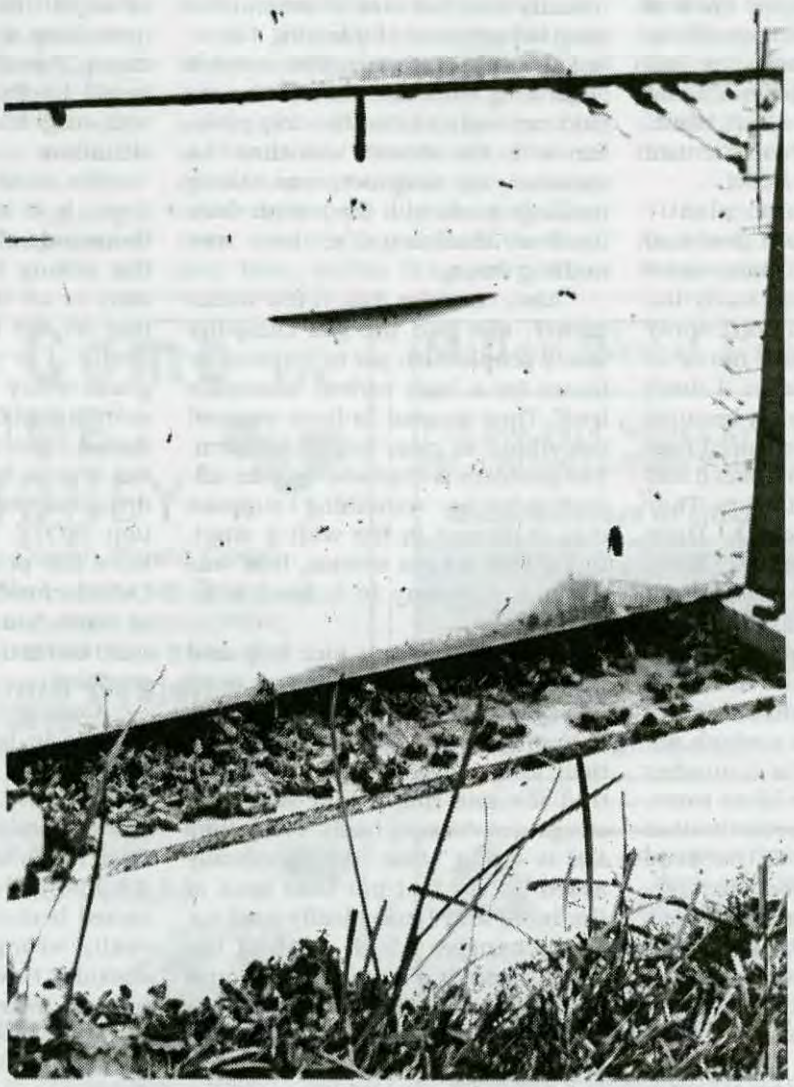
The dog days of Summer present their own set of problems.

James E. Tew

So what's your bee story? Every beekeeper has at least one. Each of you, by now, has had similar events and happenings in your bee operation. At this point, some of you have kept bees for several years, while others of you only started this past season. Having had some experience under your belt, how do you feel about keeping bees at this very minute?

For whatever reason you started to keep bees, most of you felt the same emotions at first – probably confusion, mixed with a small amount of fear, all topped with an abundant amount of enthusiasm for the new venture. If, perchance, you have had good luck with your bee project, the confusion should have begun to subside and the fearfulness of the craft should have totally passed. Most of you should now be worried about "supering" or the performance of the queen. I expect your inner cover is in the "Summer position" and your "bee space" is correct and you have watched your colonies rear drones. In short, you can now speak like a seasoned beekeeper. If things are going along so well, why do some of you feel a sense of letdown at times?

Essentially, the first phase of your beekeeping venture is passing. Even if you quit right now, but start again at some time in the future, you will always have kept bees before. You will never again be a new beekeeper. From the initiation of your colonies from packages in a hectic Spring to the first signs of a waning Summer, there is simply not as much expected of you during the Summer months. Your grass grows, your garden matures, and there are picnics to attend. The season's first bee-push has passed. In spite of all you can do, you may find yourself cooling a bit. In reality, that cooling process is healthy for your future beekeeping venture. It's good to come back down to a more normal level of interest. I don't think society could stand us if we all lived our lives in a constant state of beekeeping passion. If you are one of the ones having some of the feelings that I am describing, just stand by. Your feelings are normal, and Autumn looms, bringing with it a whole list of reasons that your bees will need you once again. It's all part of maturing in beekeeping.



How many dead bees is too many?

After nearly 25 years of keeping bees, I still love the craft as a whole, but there are several parts of bee-

Continued on Next Page

ANY BOOK ... Cont. From Pg. 21

keeping that I could really do without. Though excessive stinging and too much heavy honey come to mind, I am specifically referring to the "Fearful Neighbor Syndrome." Innumerable times, I and others have written about concerned neighbors who are "severely allergic to bee stings." You are instructed to educate the person, explaining all the reasons bees are good for them and their gardens. Offering locally produced honey and working your bees only when the fearful person is not around are common recommendations that are made to a threatened beekeeper who is faced with community criticism. But . . . until you have looked your neighbor in the eye and tried to implement these recommendations, you don't know the full ramifications of such advice. It's just not an easy task, in a short while, to change another person's entire outlook on a long-held belief.

I live in a pleasant, plastic neighborhood. Homes are neat and nicely maintained. For many more reasons than bees, I am clearly the one who's not in step. I don't spray every weed that has the nerve to germinate within my lawn. I don't obsessively cut grass simply because I should, and I have downsized how much I decorate for Christmas (I still use the old style colored lights. They work fine. At least I do take them down shortly after Christmas.) While mowing our respective lawns from our respective riding mowers, my neighbor flagged me down one afternoon a few weeks ago and asked if I had put bees back in the hives at the rear of my property – which adjoins a soybean field. For a number of years, I had kept two hives there, but the mites and procrastination finally got them. There the dead hives sat. Beacons to poor management. I assured her that there were no bees back there (though I was careful not to say that I have always planned to put them there again). She said that her birdbath near the rear of her house was ringed with several hundred honey bees taking water. Sensible birds were nowhere in sight. When asked what was causing this, I explained how the shortage of rain was forcing the bees to forage there. Once rain showers were common, the bees would find more readily available water sources and all would be well again in the thirsty bird community. But, to myself, I did wonder why she would have such a problem. There were no bees in the area and wild honey bees are rare. I really was surprised that so many bees would turn up. No matter. There was grass to mow and time was passing. Later that evening, I received a phone call from an Ohio State bee lab co-worker who told me that, on the previous night, he had put a strong hive back in my apiary behind my house for a short observational study we were doing. In sad fact, it was my bees drinking from her birdbath. Without knowing, I had told a beekeeping falsehood.

Consider this. My neighbor had recently sent her lawn mower to the shop to be repaired for having a mysterious lack of power. After a week of dinking with the mower, the repairman realized that the only problem with the mower was that the operator, my neighbor, was taking too large a cut with the mower deck too low. Mechanically, there was nothing wrong.

Also, consider this. A few weeks earlier, she had the gas company safety people rush out to inspect her house for a high carbon monoxide level. They seemed to have stopped everything to cater to her concern. The problem is that she has an all-electric house - something I suppose they explained to her with a snarl. If she had no gas service, how was the gas company to inspect anything?

My neighbor is a nice lady and we coexist very well. So where is all this going? She's working diligently to maintain her home with the practical knowledge she has. She has told me she has a fear of insect stings and "reacts badly every time she is stung." She had specifically asked me if I had put bees back in the hives and I specifically said no. Unknowingly, I had not told the truth. Though she keeps her house looking great, she doesn't always know the actual mechanics of what she is doing . . . and she doesn't like bees. Now do I follow my own advice? Do I go to her and confess that those were, in fact, my bees trespassing on her property? Do I explain the benefits of pollination to a person whose opinion has long since been turned against bees? Do I offer to supply her with a lifetime of free honey? Do I really believe I can change her mind? I have long since found that telling someone, such as you, what to do with a beekeeping problem and actually performing that recommended solution myself are two quite different things. The honest answer to this situation is not in any book. Up until now, I have just been tactfully avoiding my neighbor. Should I add that technique to my list of suggestions for dealing with concerned neighbors? "When confronted with concerned neighbors, just avoid them." Disappointing as it may be, sometimes keeping bees in your back yard while neighbors are concerned just may not be worth the hassle. Even the editor of this magazine, has had to move bees due to a neighbor's concerns. Though commonly addressed in all beekeeping books, dealing with neighbors is frequently a dicey situation.

On these hot, late-Summer days, it is not uncommon to see thousands of bees clustered outside the colony entrance – something akin to all the hive's denizens sitting on the front porch, where it's cooler. I'm not trying to second-guess every beekeeping book ever written, but the common recommendation – give them more space – may not always be the solution. In fact, doing nothing may be the best solution. (NOTE: The bees should always have the proper amount of space. Colony crowding, except occasionally in comb honey production or queen cell initiation, is rarely recommended.)

Consider this: Let's say it's 98° outside in late Summer. It's sultry and humid. Thousands of bees are on the front of the hive. Though it could readily be done, opening that hive, under those hot, crowded, conditions, will require a heavily protected beekeeper. Is there anything really wrong with hot bees being outside? Having 15 supers on a hive with an internal hive temperature of 98° will still have thousands of bees on the outside. Try this. On a hot Summer evening, leave the comfort of your air-conditioned home and take a midnight stroll to the hive. I bet you'll find most bees sleeping outside. Yet the next day, they will frequently be gone – looking for water or shopping for nectar and pol-

len. Bottom line – keep the appropriate amount of extra space on your colony, but don't get too concerned if bees hang outside on hot days or hot nights.

But what if you do notice dead bees at the colony entrance? Suppose they generally are not the old, tattered field bees, but nice, healthy bees (other than being dead)? How many is too many? This is a common pesticide question. During late Spring and Summer, bees can frequently be killed by pesticides. It is an annoying fact of beekeeping. Some texts recommend closing the bees up and keeping them watered down during actual spray applications. I don't know of anyone who's actually done that. What to do? Again, probably nothing. If things are bad enough and the crops being treated are so near as to expose your hives to pesticide drift, consider abandoning that yard. Of the estimated 50 locations I have had during my 20 years at Ohio State, I have abandoned only one yard due to excessive pesticide kills. Grapes were the crops being sprayed in that instance. In all honesty, there is very little you can do to protect your bees from the *occasional* pesticide hit. Near my lab are some impressive flower gardens that both people and Japanese beetles come to visit by the thousands. The insecticide Sevin®, is used to control the beetles, but I can't tell that it has much effect on the human visitors. Our approach to this annual kill has been just to accept it as (somewhat) inevitable. We make certain that affected colonies are constantly queenright and either combine or feed affected colonies. Other than that we do nothing. I find this to be another situation where my practical options are limited. We either go or stay in this home yard. Staying is a lot easier. The bees are resilient.

All this adult bee population variation frequently means that your colony populations within your apiary won't be the same – similar, but not the same. With the exception of colonies positioned on the ends of rows which tend to pick up drifting bees, colonies populations do vary, over time, within the apiary. This year's strong colony is next year's average colony. Variables are everywhere. Strong colonies swarm. Weak colonies supersede. One colony is damaged more by pesticides than the colony positioned next to it. Yet, we are always told to keep our colonies standardized – both in equipment and in population. It's not as easy as it sounds and may not be worthwhile. True, keep the equipment standardized as much as possible. Watch the strong colonies for swarming and watch the weak colonies for signs of recovery, but don't drive yourself crazy trying to have all colonies look exactly like each other. Such a yard would only be found in an apiary in Nirvana.

Honey bees are micro-livestock. As such, they are far from mechanical. There will be constant ups and downs – even after you have spent years working with bees. Your goal should always be to have more "ups" than "downs." Good luck. BC

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Aethina tumida - A New Beehive Pest in the U.S.

Tom Sanford

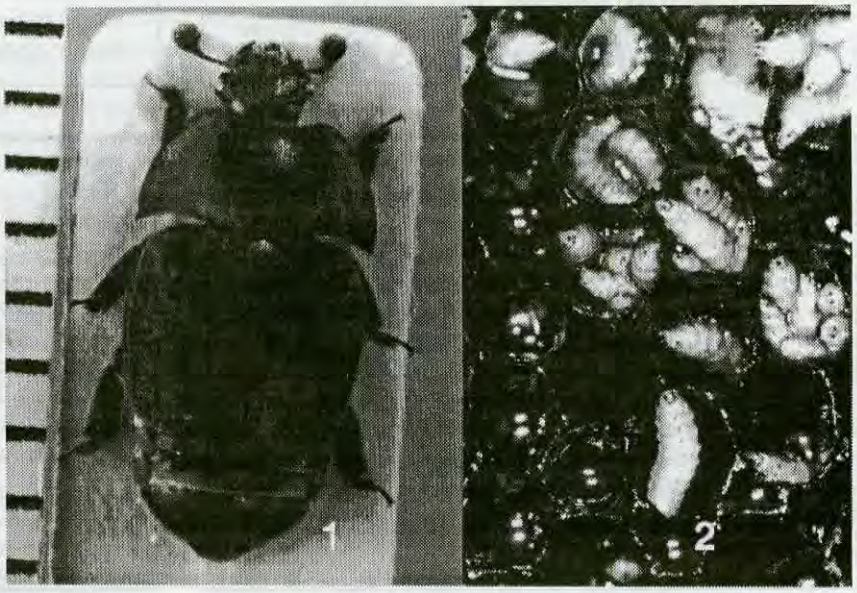
The mantra of free global trade continues to be heard around the world. As part of this philosophy, acronyms have sprung up like weeds across a cultivated field. These include the likes of the North American Free Trade Agreement (NAFTA) and The General Agreement on Tariff and Trade (GATT). Although globalization is considered by most pundits to be "good," there is often a price to pay. One is the possible loss of jobs in a region or industry as shifts in labor costs create opportunities for some at the expense of others. Another is the impact of world movement of biological material around the globe. Examples are legion, from humans and mosquitoes to moths and mussels.

Beekeeping is no stranger to this phenomenon. The honey bee itself is an introduced species in North America as are many of the crop plants it pollinates. In France, an introduced plant, the Black Locust, from the eastern part of the United States is one of that country's most important nectar sources. In Florida, the melaleuca tree *(Melaleuca quinquenervia)*, a relative of eucalyptus introduced from Australia, was originally thought to be potentially harmful to beekeeping. The tree's strong-tasting nectar, it was feared, would contaminate the citrus and palmetto honey crops. The concern was unfounded. Instead, the plant became extremely useful to beekeepers as a prime nectar source for buildup and maintenance in the Fall of the year. However, it has also been blamed for everything from being a fire hazard in urban areas to drying up fragile wetlands like the Everglades. Thus, a widespread campaign is under way to rid the state of as much of this "noxious weed" as possible.

Both the tracheal and *Varroa* mites are recently introduced species that have greatly affected North American beekeeping. Most certainly their coming was the result of increased movement across the world by ships and airplanes. After introductions of these extremely damaging parasites, it was anticipated that perhaps only a few other organisms might be introduced that would greatly affect North America's beekeeping industry, the Asiatic bee mites, *Tropilaelaps clareae* and *Euwarroa sinhai.* These remain on the Animal Plant Health Inspections Service's (APHIS) list of potentially damaging organisms.

Not present, however, on APHIS' list is *Aethina tumida*, the small hive beetle from South Africa. This organism merited only a few paragraphs in the second and third editions of ***Honey Bee Pests, Predators, and Diseases*** (Cornell University Press, 1990; The A.I. Root Co., 1997). In his description of this insect in both editions, contributing author Dewey M. Caron wrote, "One can only hope that the beetle will not be transported to other beekeeping areas." Hope springs eternal, but *Aethina tumida* showed up in southeastern Florida in the spring of 1998, and Florida agriculture commissioner Bob Crawford has formally asked the U.S. Secretary of Agriculture for assistance in determining appropriate regulatory action.

How the small hive beetle made the long trip from



The adults (Fig. 1) are broad, flattened beetles about 5-7 mm. long and dark brown to nearly black in color. The larvae (Fig. 2) are elongate, whitish grubs which under magnification can be seen to have rows of spines on the dorsum. Adults and larvae inhabit beehives, where they feed on stored pollen and honey. Combs are damaged and brood killed by the burrowing of the beetle larvae, and bees have been observed in Florida to abandon combs once they are infested. As an infestation grows, the honey ferments, and bubbles out of the cells. The fermenting honey is said to have the odor of decaying oranges. Pupae are white to brown and are found in the soil beneath hives. In South Africa, development from egg to adult required 38 to 81 days, with five generations a year possible during the warmer months. The beetles are likely to be able to infest the nests of wild bees, as well as feral colonies of honey bees. – Michael C. Thomas (DPI Photos by Jeff Lotz)

its African homeland remains an enigma. The first sign of its presence was a large number of larvae (worms) found in honey extracting rooms. The larvae superficially look like those of the wax moth (*Galleria mellonella)* and were considered so at first. Both wax moth and beetle larvae can occur together in the same honey bee colony. On closer inspection, however, it becomes clear these are not the growth stage of Lepidoptera (butterflies and moths), but are in fact that of Coleoptera (beetles). Like moths and bees, beetles have the kind of insect development called "complete metamorphosis." This characteristic lifestyle begins with an egg, which hatches into a feeding larva (grub or caterpillar) that completes its development during a resting stage (pupa), and finally emerges as an adult, complete with six legs and two pairs of wings, the reproductive phase. While wax moth larvae have many uniform, small "prolegs," beetle larvae possess three pairs of larger, more pronounced legs near the head. Another difference is that the beetle larvae do not gain as great a size as do wax moth larvae before pupation. They also do not spin a cocoon in the hive, but must complete their development in the soil outside the beehive. The adult beetle is red just after pupation and then turns black. It is fairly uniform in color, moves rapidly across the comb, and is extremely difficult to pick up by hand because it is covered with fine, hairlike spines. It is visible to the naked eye and about a third the size of a worker honey bee.

So far, *A. tumida* has only been found in three Florida counties (St. Lucie, Indian River and Brevard). The Florida Apiary Inspection Service is combing the state for other infested hives. In the meantime, a movement moratorium has been implemented in Florida. Colonies can be relocated after being cleared for beetle presence by a Florida Department of Agriculture and Consumer Services inspector. This procedure, was revisited during a July 7, 1998 meeting of Florida's Honey Bee Technical Council, but the outcome was not available at press time. Most of the heavy honey bee movement has already occurred, as the citrus flow is concluded and colonies have been transported to other sources. Hopefully, those that have been removed were not contaminated, but this is yet to be established. Any beekeeper seeing either adult beetles or larvae in colonies should contact an apiary inspector for verification.

The good news is that the beetle is not considered a problem in South Africa and rarely actively destroys colonies. It is in the family named Nitidulidae, a group known as "sap beetles." It is also a scavenger and, like the wax moth, must have pollen for protein to ensure its development; there is little evidence it attacks any stage of the honey bee life cycle. The bad news is that it is an introduced species and may be more damaging than in its homeland. After looking at heavy larval infestations in St. Lucie County, it is difficult to reconcile the rather benign reputation it holds in South Africa. Literally thousands of the larvae can be seen in heavily infested colonies. They crawl out of colony entrances or across honey house floors in an effort to reach soil, where they burrow to complete their development. This larval army, along with its effect on stored honey as described elsewhere, is a chilling sight indeed.

Published references and electronic communications from South African beekeepers and regulatory authorities indicate that beetle infestations in their country are not common and are generally the sign of sloppy beekeeping practice. This is because, like the wax moth, the beetle is a scavenger and must get a foothold in a colony before it can reach population numbers sufficient to undermine a beehive. At this time it is difficult to say how aggressive the beetles are in causing colony mortality in Florida. Suffice it to say that some experienced beekeepers have seen strong colonies quickly collapse, which they blame directly on the beetle.

Perhaps the best and most complete study done on the beetle is "The Small Hive Beetle, *Aethina tumida*", by A. E. Lundie (Union of South Africa, Science Bulletin 220, 1940, 30 pp.). It appears to be a tropical insect and not reported in temperate areas. This may mean fewer problems for colder portions of North America. According to Dr. Lundie, the most objectionable behavior of the larvae is that they defecate in honey. This, presumably in conjunction with secretion of other materials into the honey, eventually results in fermentation and frothiness that has the characteristic odor of "decaying oranges." The fermented honey runs out of the comb and may pool on the bottomboard or honey house floor. At that point, honey bees will ignore the mess and may even abscond. Beetle larvae will heavily damage delicate, newly manufactured comb, causing honey to leak out. However, old brood comb reinforced with bee pupal skins can withstand heavy larval infestation without disintegrating. As a remediation technique, the objectionable, fermented honey can be washed off with a garden hose and the bees will often resume their activity to clean the comb.

Dr. Lundie says that the principal time beekeepers have trouble is when combs of honey stand for long periods in the honey house prior to extraction, especially those that contain pollen. Cappings set aside during the extracting process may also become "wormy." Honey left over Porter bee escapes for a period is also at risk. All these lead to infestations because honey bees are not available to remove either larvae or adults from the colony. Thus, Dr. Lundie concludes, "Any factor which so reduces the ratio of the population of a colony of bees to its comb surface that the bees are no longer able to protect this comb surface adequately is a precursor to the ravages of both the wax moths and *Aethina tumida*."

Maintaining adequate bee populations is already a common beekeeping practice in both Africa and Florida. The bees in Africa, however, are different from those in most of North America. *Apis mellifera scutellata*, the African honey bee, has radically different behavior from that found in the European *Apis mellifera* bee, managed by the beekeepers of North America. It is already known that African bees, in the face of light predation or perturbation, readily abscond. In doing so, they leave behind a nest heavily infested with all kinds of possible organisms. Dr. Lundie suggests that this behavior may be a reason why American foulbrood has never taken hold in South Africa. Scavengers like wax moths and *A. tumida* remove abandoned nests so quickly that the disease reservoir ceases to exist. European honey bees

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BEETLES ... Cont. From Pg. 25

are not as likely to abscond as African bees; they also may not be as hygienic in the nest. Both are reasons that their relatives, Africanized bees, are thought to be more tolerant of the *Varroa* mite. Another African honey bee, *Apis mellifera capensis*, is affected by the beetle, but appears also to be withstanding its effects.

What do inferior hygienic behavior and the lack of a tendency to abscond portend for North American bee colonies invaded by *A. tumida*? Dr. Lundie provides a hint of this in his publication, saying that when honey bees cannot eject the beetle easily, strong and weak colonies may be equally affected. In addition, even in South Africa, at rare times the beetle can heavily affect colonies.

The cry for control measures has already reached a crescendo in affected parts of Florida. This is no surprise when one is confronted with colonies that appear to collapse overnight into a frothy mass correlated with high infestations of beetle larvae. *A. tumida* is at its most vulnerable when the larvae leave the hive to pupate in the soil, and this probably represents a good starting point for beekeepers to experiment with controlling this insect by cultural means. Perhaps the larvae can be trapped somehow before they reach the soil. Soil conditions also become important; the larvae may not pupate effectively in too dry, too sandy or too wet conditions. Dr. Lundie reports some indications that larvae infested with a soil-dwelling fungus died. Certain ants or other insects may prey on the larvae. The imported fire ant (*Solenopsis invicta)* in the southern United States comes to mind.

Dr. Lundie reports that stationary colonies are more vulnerable than those that are moved. Thus relocating colonies may break the beetle's life cycle, a classic control measure used elsewhere in agriculture. Certainly the bees' self-cleaning behavior itself should be used to the utmost. Colonies will probably vary in their ability to withstand infestation and should be monitored for the ability to do so. As part of this, beekeepers should be very careful not to provide more exposed comb than the bees can adequately cover, or purposefully infest a colony that doesn't already have beetles. The beetle's arrival could signal a paradigm shift in honey bee management. It is possible that standard practices like stacking empty or weak colonies on stronger ones, making weak splits, and/or liberally exchanging combs may no longer be good options.

Chemical control, either in stored supers or in live colonies, for *A. tumida* appears to be problematic. There are no registered materials in South Africa, and there has been little research on this front. Beetles appear to be most damaging when supers are full of honey, and any pesticide application is contraindicated because of possible product contamination. The possibility of killing large infestations of beetle adults and larvae by using pesticides inside a colony, while not harming bees, mirrors the current dilemma in *Varroa* control.

Researchers are now attempting to grapple with this new problem. In the meantime, the following is suggested:

• Beekeepers should constantly monitor their operations for presence of the beetle. Detection is relatively easy. The beetle larvae can be examined for the six rather large legs on their front end; wax moth larvae have uniform-sized prolegs. The Florida Department of Agriculture and Consumer Services has mailed a pest alert along with photos to all registered beekeepers in Florida. It is also available on the World Wide Web in Adobe Acrobat format at <http://gnv.ifas.ufl.edu/~entweb/aethina.pdf>. In contrast to those of the beetle, wax moth larvae do not usually move toward light, leave a colony, or burrow into the soil. Adult beetles are easy to spot, uniform in color and about one-third the size of an adult worker bee. They run rapidly run across the combs and can often be found hiding in places that are not accessible to larger-bodied honey bees. Until more is known about the beetle in a particular area, it should be assumed that it is far more aggressive a scavenger than the wax moth and may overwhelm even strong, healthy colonies.

If *A. tumida* is suspected or detected, the following precautions are suggested:

• Be scrupulously clean around the honey house. Leave filled supers standing only a short time before extraction. Beetles may rapidly build up in stored honey, especially where honey has been stored over pollen.

• Be careful stacking infested equipment or extracted supers onto strong colonies. Beekeepers doing this before the beetle was identified may have inadvertently dealt a deathblow to uninfested, healthy colonies by providing space for the beetles to build up that the bees could not protect.

• Pay close attention when supering colonies, making splits or exchanging combs; all these activities could provide room for the beetle to become established away from the cluster of protective bees.

• Monitor colonies for hygienic behavior; are the bees actively attempting to rid themselves of both larval and adult *A. tumida*? If not, replace them.

• Experiment with traps in an attempt to keep larvae from reaching the soil where, they complete their development. Try moving bees from place to place. Adult beetles can fly, but their range is not known with certainty. Some areas may be much more hospitable to beetles than others due to local soil conditions.

• Forget chemical control until research promises some answers. No materials are registered; no materials are legal. Most compounds that kill beetles will also kill honey bees.

The arrival of *Aethina tumida* is not good news for beekeeping in North America. This beetle adds to an already large litany of beekeeping challenges. It is everyone's hope that this insect will not be a significantly worse problem than in its homeland. Until this is known, however, it must be considered an aggressive scavenger that in many instances will overwhelm even relatively strong colonies of North American honey bees of European extraction. Finally, it is a wake-up call. Serious consideration continues to be given to the risk of moving biological material across international borders, and the beekeeping industry should not consider itself immune to the consequences of this potentially harmful practice. BC

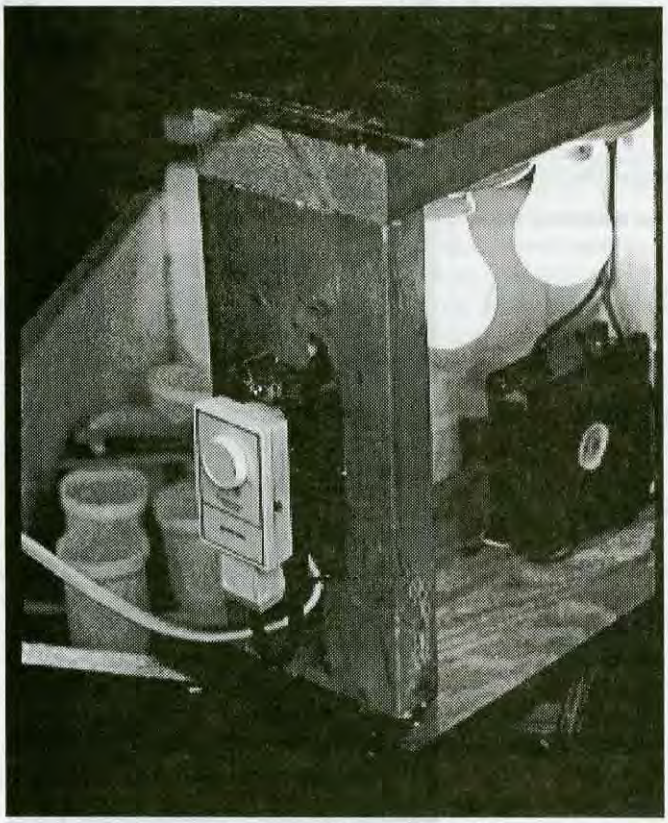
Tom Sanford is the Extension Specialist in Apiculture for the state of Florida.

MAKING CREMED HONEY

Rick Green

Try this easy way and sell more honey

My first attempts with cremed honey were primitive. I would buy it already made at wholesale and resell it for a small profit. As I sold more and more, it became apparent that I would have to make it myself for it to be profitable. The Dyce process description for making cremed honey is formidable. After reading it, I wondered how I was going to grind honey crystals to make the fine seed crystals required for a smooth creme. If the honey sets too slowly with improper temperatures, or if you begin with large crystals, the resulting product is gritty. There is a simple solution to both problems: Purchase a good product to start with and mix it with room temperature liquid honey that has been previously heated to remove any large crystals, and let the mixture set at the optimal 57°F.



The box that supports the monitor, bulbs and fan.

My next attempts were better. I hand-mixed 25 percent creme with the liquid honey, filled the containers, and put them on the basement floor. In the Summer the filled containers were placed in 60-pound pails and were buried to the lids in well-shaded soil. Both schemes produced a soft creme in four to five weeks. It was not as stiff as I wanted, and it was difficult to mix. I also wanted a better mixing solution so I could use less creme to start with. The Dyce process says that as little as five percent starter is needed if the creme and liquid honey are well-mixed.

I solved the mixing problem by using a half-inch power drill with a mixer blade attached. The blade can be purchased from Betterbee and works nicely. I found by working the mixer up and down while it is turning that all levels in a 66-pound batch are well-mixed in less than 10 minutes. So far, I have had excellent results with 60 pounds of liquid honey combined with six pounds of starter. That is 10 percent seed creme. I have had such complete mixing and consistent results even with 5.5-ounce containers that I am hesitant to use the minimum recommended amount, or five percent creme, which is three pounds of creme in 60 pounds of liquid honey.

Next, I have found a neat way to hold the temperature of the mixture at 57°F. With an insulated box, two light bulbs, a surplus 110-volt fan and a device from Honeywell called the Night Watchman, I have built a simple circuit to regulate the temperature. See the photos and schematic diagram.

The Night Watchman was designed to signal to a neighbor while you are away that your furnace has gone out and your house is getting cold. A dial on the Night Watchman sets a temperature threshold. When the temperature inside your house reaches the threshold, then light bulbs set in the window go on. I attached two light bulbs and a fan to the Night Watchman and placed everything in an insulated box. The fan insures an even heating throughout the box, and the lights are attached in parallel to prevent the fan from burning out if only a single bulb were used and it went out.

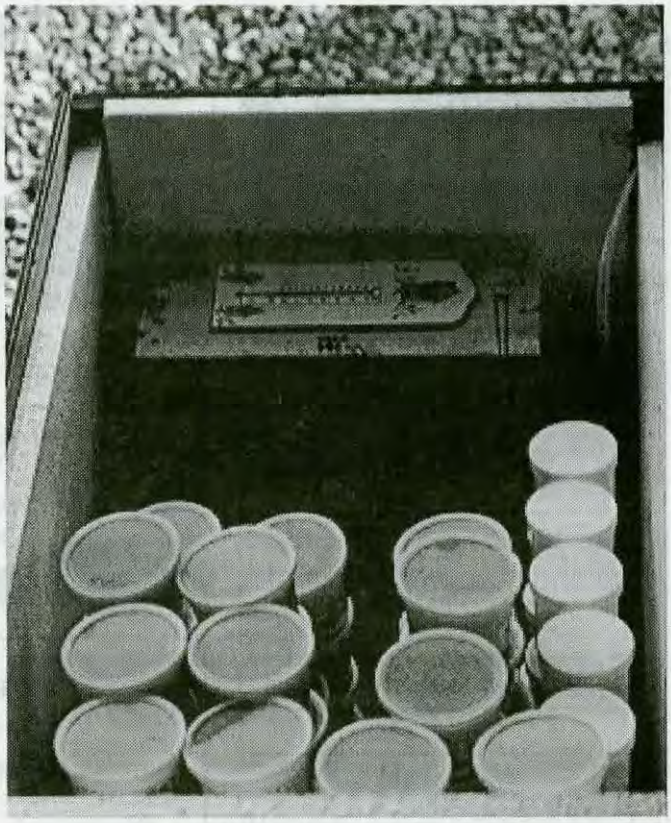
The temperature adjustment on the Night Watchman permits some fine-tuning of the system to start with. I tested everything for a few nights and found that the temperature varies by a few degrees. On very cold nights, when the temperature drops below the teens, I have found temperatures inside the box as low as 44°F. The resulting creme has not varied in quality, but I still wished I had used more than one inch of foam insulation.

This scheme works well when the outside temperature stays below 57°F. The lights and fan turn on, heating the inside of the box. When the outside air temperature starts to climb above 57°F, then a modification needs to be done. The earth down a few feet remains near 55°F year-round, so I plan to bury the box in the ground during the Summer. A cool root cellar would work nicely; placing the entire box inside a large walk-in cooler would work also.

I am very satisfied with the results so far. I produce just over 100 pounds of cremed honey with every batch in two to three weeks, and it is firm. I have more than recovered my original investment of $30-40. While I have not tried it, I believe that a well-insulated, larger box would make much more product at a time.

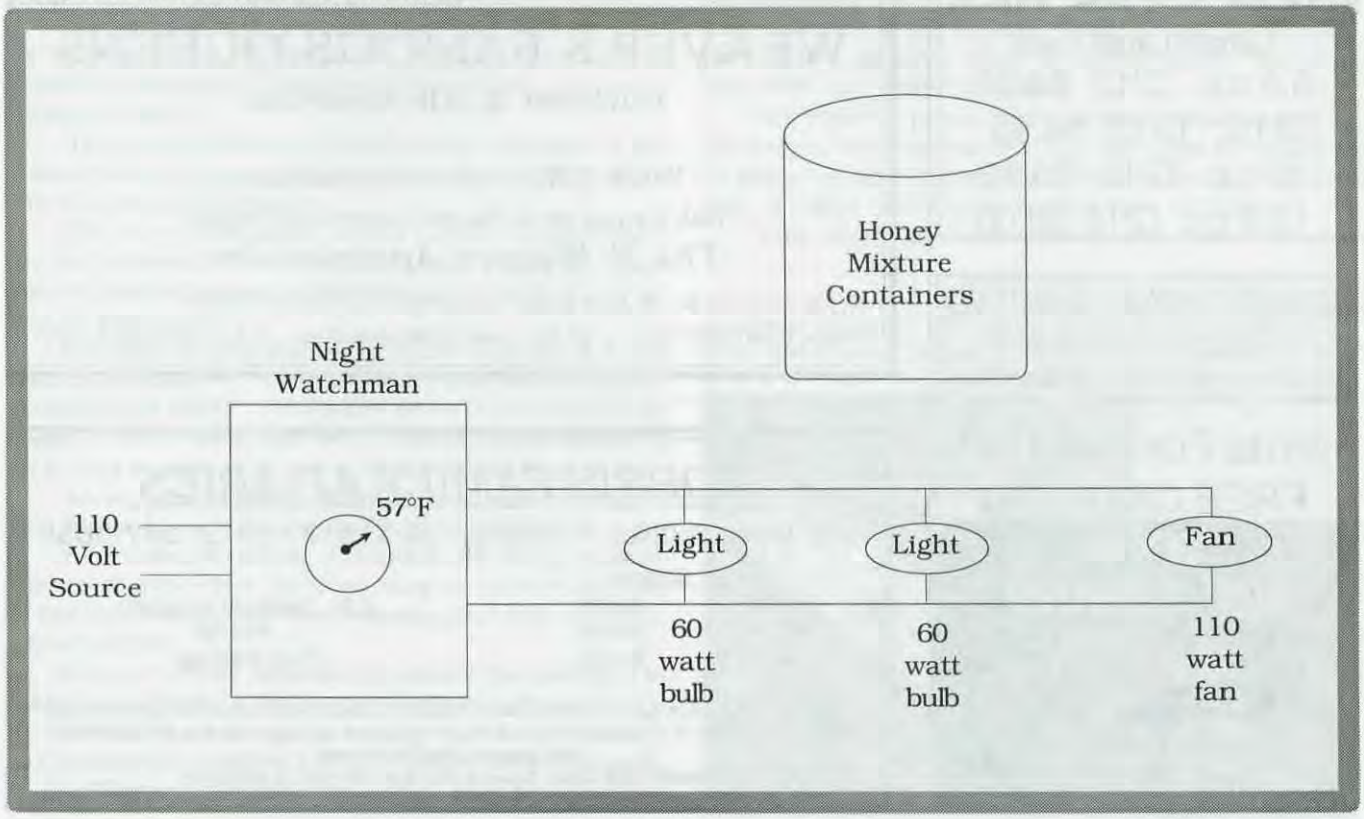
Please let me know if you have any improvements upon these efforts to make cremed honey. I am also looking to hear from anyone experienced with making flavored cremes. Creme honey is profitable and there is good demand for both small and large containers. If you have yet to make creme, hopefully these ideas will help you get started. BC

Rick Green makes cremed honey and keeps bees in Ballston Lake, NY.



Insulated box with fan and honey inside.

INSULATED BOX DIAGRAM



BEE TUBES

A VARIATION ON THE DISPOSABLE POLLINATION UNIT USED IN THE U.S.

Alan Harman

Innovation comes in many forms. This one's round.

A new Australian system for pollinating high-density orchards – based on the tubes used to ship bees between Australia and Canada – has resulted in orchard fruit yield increases of up to 176 percent.

The lightweight cardboard beetubes were created by Rob Manning, project manager with the Western Australia Department of Agriculture's animal research and development services division.

They can be used singly for orchard pollination or grouped on a star picket for crop pollination.

Manning based his work on the fact that since the development of trellis-supported plantings, tree density has increased about eight times from that of the older, open-planted orchards.

Some of the trellis systems in Western Australia are up to 750 feet long.

"Two things have been overlooked when trellis systems are built and managed," he said.

"Orchards with high-density plantings allow no room for beehives to be placed in the orchard. They have to occupy spare space adjacent to the orchard, or at some distance from it.

"The orchardist loses the efficiency and yield of the leased honey bees – yield reduces as the distance from the beehives is increased.

"The other overlooked aspect is that research done on the number of hives required was based on wide-spaced plantings of up to 300 trees a hectare (2.47 acres, or 120 trees/acre).

The high-density planted orchards have up to 2,500 trees a hectare (~1,000 trees/acre) and Manning said growers who asked, "How many hives to the hectare for plums?" have been told two to three hives, when, in fact, they require a lot more for adequate results.

"As an estimate, it might require a minimum of 12 beehives a hectare for the trellised orchards," he said.

If dormancy-breaking chemicals are being used on the trees, even more beehives may be needed because of the sheer volume of flowers coming out over a shorter period of time.

Because of this, Manning produced the beetubes to place honey bees at the heart of high-density orchards.

He took the tubes used to ship bees from Australia to Canada and modified them for honey bee pollination.

In Western Australia the tubes, with bees, sell for A$45 (U.S.$30.15) each.

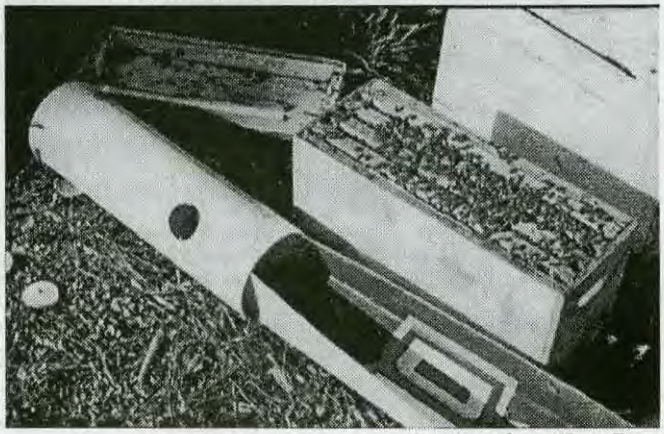
Beetubes are filled by shaking seven frames of bees – about 9,000 bees – onto a piece of corflute, which is slid into the beetube. An old queen from the same hive is walked into the bottom and the cap replaced. Other queens are caged before being placed inside. A queen excluder is used to keep the queen from swarming, to help with pollen transfer, and to help increase pollen collection. After shaking, beetubes are kept for a minimum of four weeks before they are leased or sold.

After the bees have been placed inside the beetube, it must be removed to another area and fed regularly with sugar syrup or disease-free (Zero Honey Culture Test) honey water mixture to give them an adequate source of carbohydrate and to enable the colony to rapidly build the wax comb so the queen can commence to lay eggs. Sugar candy has been used in a 17.5-ounce block, wrapped in greaseproof paper, and placed in the bottom of the tube. In some instances, beetubes also have to be fed in the orchard. Without food in the early part of the season – when it is also cold – beetubes have died out within 10 days.

The building of wax comb takes a minimum of 14 days when the bees are fed. The beetubes are ready to be placed in an orchard about two weeks after the first sign of pollen is observed coming into the tube.

"This allows the beekeeper to cull those beetubes

Beetubes are filled by shaking seven frames of bees onto a piece of corflute which are slid into the Beetube. The queen from the same hive is walked into the bottom and the cap replaced. Other queens are caged before being placed inside.



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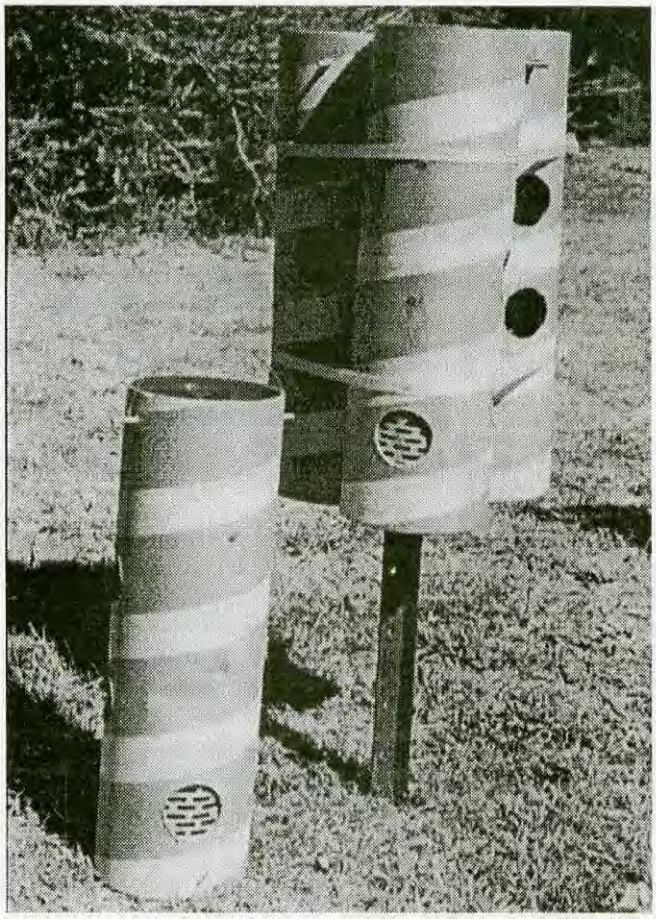


Single Beetubes used for orchard pollination or grouped on a star-picket for crop pollination.

that are not collecting pollen because the queen bee has not survived or is not laying," Manning said.

Manning said a properly developed beetube has an average of four square meters of comb, which requires large quantities of pollen and nectar to sustain the young worker bees.

The tubes were tested in a plum orchard 60 miles north of Perth in 1996. After a few weeks in the orchard and under the heaviest rainfall recorded in 15 years, they were removed from the orchard and frozen in the laboratory.

Measurements of the honey bees' activity indicated the benefit of the tubes – in addition to their ease of transport and handling. (More than 100 beetubes can be delivered on a one-ton utility truck, reducing the transportation costs of pollination services.)

A second experiment, this time over two years, was conducted in a trellised cherry orchard northeast of Perth within a few weeks of the first test. This orchard had previously used beehives.

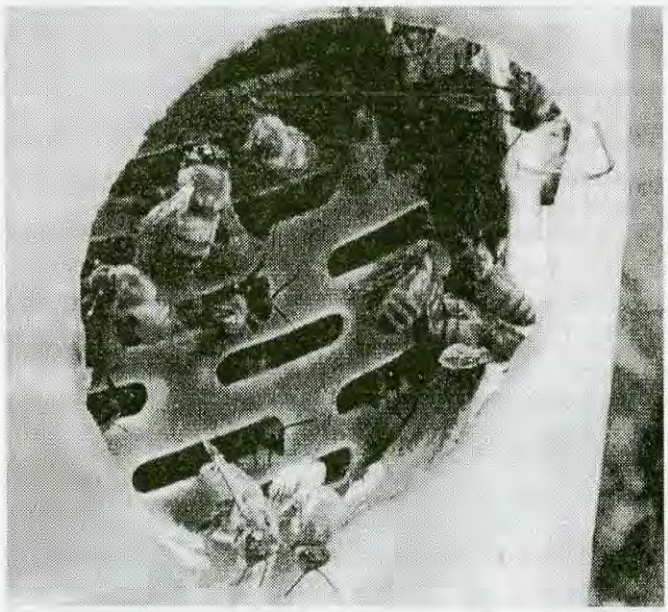
The experiment was on three rows of 13-year-old trees. The first 37-tree row contained eight beetubes, the second row contained no beetubes, and the third row contained three bee tubes.

The results showed a 167 to 176 percent increase in cherry production.

The fruit yield increase achieved by using the beetubes was significant – going from an average of 14 kilograms a tree to an average of 32 kilograms a tree.

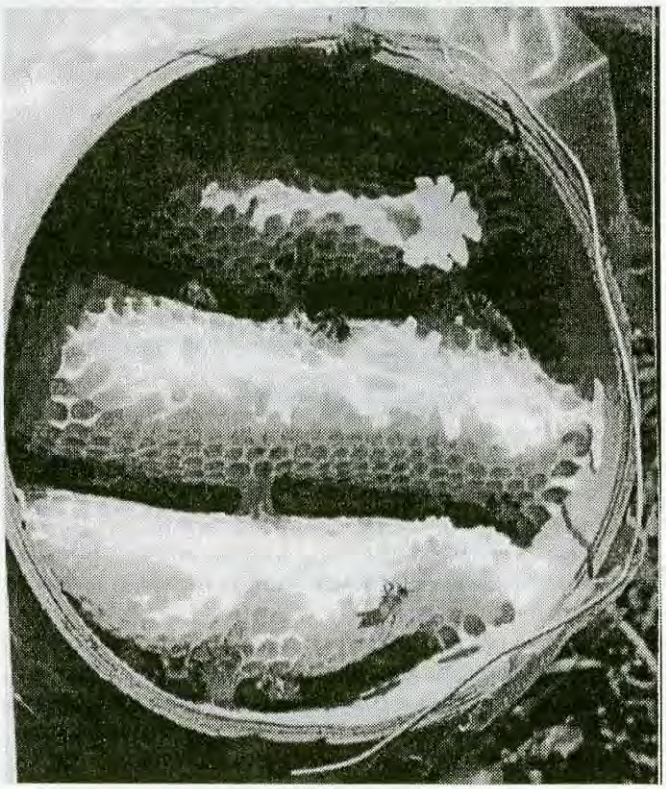
In the row of trees where no beetubes were used, the yield was an average of 18 kilograms a tree.

"Beetubes, placed at one tube per eight productive trees, or one per 12 trees with every third a pollenizer,



A queen excluder is used to keep the queen from swarming, to help with pollen transfer and helps in increasing pollen collection.

A properly developed Beetube has an average of four square meters of comb which requires large quantities of pollen and nectar to sustain the young worker bees.



Over 100 Beetubes can be delivered by a one-ton truck reducing transport costs.

are an outstanding alternative to traditional beehives," Manning said.

Provided the beetubes have been adequately fed or have enough honey stored, they can be kept in a cool room at 45°F for a week. They will consume nearly one kilogram of honey during this time.

The beetubes – 21 inches tall and about six inches in diameter – are designed to be disposable. Under the state's Beekeepers Act, beetubes are allowed to be used for eight weeks after being placed in an orchard or crop. After that they have to be disposed of by the beekeeper or the grower.

They are lightweight and can be easily shifted by growers at night if spraying has to be carried out. Manning said pollination services will be cheaper because there is no need for the beekeeper to return to the orchard to carry out this work.

Last year the beetube won two awards – an innovation and technical excellence award from the Western Australia government and the innovation award at the state's premier horticulture event, the Karragullen Horticulture and Machinery field day.

Western Australian Primary Industry Minister Monty House said the state award was in recognition of the outstanding contribution to the apiculture industry.

"These awards are based on peer and industry nomination, and as such reflect your colleagues' high level of respect and admiration of your work," House told Manning.

Last year – when the beetubes were first offered for sale – some 200 were sold. This year about 1,000 might be involved in pollination, and Manning said this is putting pressure on suppliers.

A number of beetubes were used last year in stone fruit orchards, and some made long journeys in chiller trucks at 41-46°F to Broome and Derby in the far north of the state for melon crop pollination.

Part of the increased demand is coming from growers with orchards under bird and nail nets – recent experiments in these enclosures showed fruit yields increased substantially when beetubes were used.

Development of the beetube has also brought about a change to the Beekeepers Act to enable the frameless beehives to be used legally in Western Australia.

"In a short time, the beetubes have had a remarkable effect on grower awareness of the importance of the honey bee to horticulture," Manning said. BC

Alan Harman is a free lance writer and contributes to many newspapers and magazines, and often to this one.

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This Year Have An EXTRACTION PARTY

Howard Scott

Every September, you pull out the extractor, clean up the hot knife, and begin the arduous process of harvesting the year's crop of honey. Certainly there's a sort of satisfaction in seeing the end result of your (and the bees') efforts, but let's not kid anybody. It's demanding, sticky and sweaty work. Even if you use powered extractors, it's still . . . no fun.

So here's a suggestion. Why not get together with two or three or four beekeepers and process your honey together? Make an event out of it. Call it an extraction party. Celebrate the arrival of Fall. Start out in the morning and process one beekeeper's honey after another until it's done. Invite interested neighbors to watch. Have a spouse make a picnic lunch. And turn the task into a fun undertaking.

Last Fall, we did just that. Peter Chamberlain, Ben Natale, Connie Gagnon and I, all small-time hobbyists with one to three hives apiece, had a wonderful time in September. In fact, it was so much fun that we did it a second time at the end of the month. Thinking back to the years I spent in my basement, toiling away on the manual cranker, working until my body was almost doubled over in pain and my arm hurt so much it throbbed, I want to say that an extraction party is the way to go.

Let me first answer objections that might be running through your mind:

• It is not difficult to keep honey and wax separate. You process one person's honey at a time, and pour the honey into that person's containers. To empty the extractor, tip the unit on edge and let the bottom layer flow out. Place wax slurry in a pail or plastic garbage bag. Then go on to the next person's harvest. In this way, each harvester will gather his/her own produce.

• Three or four people can easily work together. One cuts the cappings. Another runs the extractor. A third is in charge of straining the honey and handling changeovers. A fourth can relieve the others. The uncapper, especially, needs frequent breaks. With this division of labor, you can get the process going and continue until completion. Of course, you need adequate space for four people to work. It can't be a little corner in a dark basement.

• You can process a lot of honey in a five-hour stint. How much honey? Maybe 350 pounds with one hot knife and a four-frame electric extractor. With an eight-frame extractor, it goes even more quickly. A second hot knife also helps because uncapping frames usually takes longer than extracting. To make a generalization, two people are twice as efficient as one, so that each person will process his honey in half the time he would take doing it alone. Three are not three times as efficient, so it takes more time, but three people usually have more fun. Call this "Howard's Rule of Marginal Extraction Efficiency."

• Beekeepers love to share equipment. As if those into beekeeping didn't know, most beekeepers take pride in their setups. Don't be shy about asking a beekeeper to use his honey house. He'll be delighted to show you his/her ingenious system, and to relate to you his years of accumulated knowledge. Moreover, he'll appreciate the company.

If three or four of you decide to make a party and borrow a beekeeper's facility, you might, in return, agree to process some of his honey, or give him some honey out of your combined harvest. Possibly, you could leave the honey that's fallen into the uncapping tub. His expense will be minimal – only the electricity consumed in the extracting – so it will not be burdensome to pay him fair compensation.

Here is what you need: one or two hot knives, a wire mesh and tub to collect slurry, a capping scratcher, an electric extractor, a double strainer, several buckets with covers, and bottles if you really want to do it all. My suggestion, however, is to do the bottling at home and concentrate on getting the processing done. Those white 40-pound pails can be had at bakeries, restaurants that make pastries and coffee shops. Some places might give them away. Others might charge one or two dollars for them. Be sure you collect the cover with the tub. Finally, always have a pail filled with hot water available for cleaning your hands.

Hint: Although a manual extractor will work, an electric extractor makes the work so much easier that beekeepers should find someone

Uncapping . . .

Continued on Next Page

and loading . . .

who owns powered equipment.

Here is how it goes. One person starts uncapping wax with a hot knife. Presuming you have a four-frame extractor, once four frames are uncapped, the extractor operator can start extracting. Either the extractor operator or another person times the extracting. With our extractor, we have found that two minutes is sufficient to remove the honey. Less than two minutes doesn't do the job adequately, and more than two minutes is overkill. It helps if someone has a watch with a timer. Another option is to use a basic kitchen timer. After two minutes, the extractor operator reverses the frames and runs the extractor for another two minutes. Then the frames are taken out, and hopefully the uncapper has four prepared frames ready to go.

and straining . . .

Sometimes the extractor will start to jump. When that happens, it helps to have a few bodies who can lean on the machine. (Having it firmly attached is much better.) Periodically, the utility person will open up the extractor tap, let the honey flow into a bucket, and make sure that the double strainer is tightly secured. At the end of processing, the extractor is tipped on its end – put boards underneath to raise its back sides and the bottom honey flows out. Meanwhile, the slurry is collected in another bucket. Now, the next beekeeper's honey can be processed. In this manner, every member of the party will get his/her honey processed. When the processing is complete, you take out the extractor and hose it down (with hot water), clean off the other equipment, and sweep up the honey house, so that it's ready to be used by the next person.

Hint: Label white buckets with indelible marker to avoid any confusion. If you use plastic garbage bags for slurry, use masking tape with your name on it on the bag's surface.

What do you gain from processing honey using this teamwork approach? For one thing, you'll have a deadline which will force you to get the chore done. For another thing, you'll learn something. It is inevitable that when three or more beekeepers get together, some information is exchanged. This is Howard's Rule of Beekeeper Fraternization. At one extraction party, I learned a little improvisation that still brings a smile to my face. We were talking about smokers, and Ben said that he puts a cork into the nose of his smoker when he's finished with it to extinguish the fire. He added that the next time he has to smoke, he just lights the remains and adds a few more pine needles. I turned and looked at Ben. Twenty years I'd been smoking bees, and I never read, heard, or thought of that little nugget of wisdom. When I asked Ben why he never told me about this invention, he looked at me and said, "What invention? It's just something I do." We

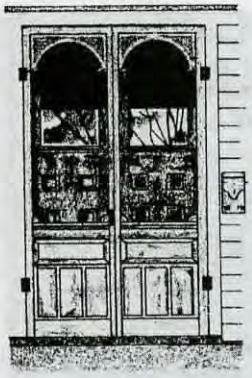
and when you're finished, it's party time.

take genius where we find it, even at an extraction party.

And finally, you have fun with a capital "F." Each party, we invited groups of people to watch and ask questions. One group decided to make a fancy lunch, with all kinds of gourmet appetizers. Another group had a honey-tasting contest, trying to decide which of our bees produced the best honey. For the benefit of our curious onlookers, one of us 'hams' went through our basic bee lecture, starting with the life cycle of the bee and moving on to colony organization to colonization to flower pollination to honey production. Of course, when any group left, we'd carp in unison our familiar litany of stale bee jokes, "Hive a nice day," "I'll bee seeing you," and "bee-have." Anyhow, suffice it to say that we beekeepers thoroughly enjoyed ourselves. We'll be back next year to do it again.

Anybody else want to invite us to an extraction party? BC

Howard Scott harvests honey and parties in Pembroke, MA.



Ann Harman

Home Harmony

Caring For Fruits & Veggies

In our zeal to have our fruits and vegetables appear clean and fresh, we do the most remarkable things to them. The poor things get washed, scrubbed, sealed in plastic and refrigerated, whether it does them any good or not. I was prompted to write about our mistreated vegetables when a well-meaning friend presented me with a wonderful gift – fresh asparagus straight from the garden. Actually what I received was asparagus whose tender heads had turned to green slime. What was salvageable I ate, but most of it ended up in the compost pile.

What had been done to ruin the asparagus? Well, it had been picked, thoroughly washed free of garden grit and, still wet, sealed in a plastic bag. This then was put in the refrigerator to await my visit. What could have been done instead? Well, it could have been picked minutes before I left for home and given to me still gritty (after all, my own home-grown veggies are full of garden grit). Or it could have been picked and, still gritty and dry, been put into a bag, paper or plastic, unsealed, and given to me. I could have washed off the grit just before steaming and eating. No green slime.

Most vegetables and many fruits store better dry than wet. So do your scrubbing and washing just before eating or cooking. Will a fruit or vegetable ripen after it is picked? Is it better to refrigerate, or not? That depends on the particular fruit or vegetable. One rule easy to follow is that if a fruit or vegetable will ripen after harvesting, it should not be put in the refrigerator. Some fruits and vegetables will not ripen after being picked, no matter what you do. After checking with a number of gardening books and cookbooks, I have discovered much conflicting information about both when to pick and what to do with the produce after picking. Unfortunately, we have no control over what supermarkets or roadside stands do before we make our purchases. Those of us who garden may have found by experience what fruits and vegetables like so we can take better care of them.

Stone fruits, like peaches, need to be picked ripe and handled gently. If picked green they may soften – but that is not an indicator of being ripe. After softening, these fruit will wither, perhaps developing decaying, moldy spots resulting from bruises. Sometimes we find peaches that look beautiful, but upon cutting them we find the interior is mushy and brown. Now we have an indication of too-long storage at too-low temperatures.

Pears, on the other hand, should be picked before they are fully ripe. They will ripen if held between 60° and 65°F. However, if the temperature of storage is too cool, pears will develop a mushy, brown center just like peaches.

Berries, especially strawberries, should never be washed before storage. Soft ones should be removed before storing. The same treatment is recommended for grapes. Berries and grapes can be stored in the refrigerator, but like many fruits, flavor is better when they are served at room temperature.

Mushrooms store best if kept cool and somewhat dry. They should never be washed, then stored. The new perforated plastic "vegetable bags" are excellent for keeping mushrooms. You can buy a nice, soft mushroom brush to clean the mushrooms just before using. These brushes work well since mushrooms do not like being washed.

Cucumbers should be refrigerated because they will lose moisture if stored at room temperature. However, if left too many days in the refrigerator, which is a prolonged exposure to cold, cucumbers will develop pitted, mushy spots. Eggplants will do the same thing. So chill both cucumbers and eggplants and use them soon after picking or purchase.

Potatoes are an interesting case; they seem quite immune to abuse, but they are particular about storage conditions. If potatoes are put in the refrigerator, the starch begins to convert to sugar. If stored in the light they turn green and should not be eaten. So store potatoes in a dark, cool, dry place.

Cantaloupes can be a real problem. When a cantaloupe is ripe, it separates from the vine and the stem end is depressed and callused. If picked before the stem separates, no more sugar will develop; therefore the flavor will be rather bland and uninteresting. Only cut cantaloupes should be refrigerated since best flavor and aroma are found in room-temperature fruit.

Citrus fruits are easy. Although these fruits do not ripen after harvest, quality is preserved if citrus fruits are stored in the refrigerator.

What about bananas? We buy them unripe and let them ripen at room temperature. But what happens when we put them in the refrigerator? The skins turn black-brown, that's all. The banana inside is perfectly edible and the degree of ripeness is the same as when you put it in the refrigerator. Only the skin appearance looks weird and perhaps a bit unappetizing. Ignore the skin – you're taking it off anyway.

The most conflicting information concerns tomatoes. I recently read an article by two professors at Penn State that gives probably the best, up-to-date storage facts. Obviously a tomato at its best is one that has ripened on the vine, you have just

picked it and are going to eat it before you leave the garden. But tomato plants have a habit of producing way too many tomatoes. Do not put them in the refrigerator. It seems that a tomato will lose its aroma and flavor after just 40 minutes in the refrigerator. Vine-ripened tomatoes will keep in a warm, dry place for up to two weeks. If you wish to ripen a tomato, one professor suggests putting it on top of a refrigerator for faster ripening.

Some vegetables do not get along with one another. Do not store apples and carrots together. It is the carrot that becomes bitter. Keep onions and potatoes apart, otherwise the potatoes will spoil faster.

MELONS WITH LIME

Now that we have conquered green slime, pitted cucumbers and unhappy carrots, it is time for some recipes for our pampered vegetables and fruits.

3 tablespoons grated lemon peel
1 tablespoon honey
1/2 cup lime juice
2 cups honeydew balls
2 cups cantaloupe balls
mint leaves for garnish

Mix lemon peel, honey and lime juice. Place melon balls in a glass or ceramic bowl, add mixture, and refrigerate 2 hours. Garnish with mint leaves before serving. Yield 6 servings.

Feasting On Raw Foods
Ed. Charles Gerras

TOMATO FRAPPÉ

We frequently use tomatoes in salads or in casseroles. If you have been kind to your tomatoes, please try this frozen tomato mixture. It is a wonderful addition to a Summer dinner.

2 cups peeled, seeded and chopped tomatoes
6 peppercorns
1 bay leaf
2 whole cloves
2 tablespoons honey
1 teaspoon salt
1 lemon slice

Combine ingredients in a saucepan and simmer for 15 minutes. Rub through a sieve and pour sieved mixture into a freezer tray. Freeze partially, about 20 minutes, then stir well with a spoon. Freeze another 20 minutes and stir again. Freeze until firm. Fill sherbet glasses and serve as an accompaniment to meat, fish or poultry. Serves 4.

Tomatoes
Margaret Gin

POACHED PEARS OR PEACHES

This next recipe is quickly made and is an excellent dessert either warm or chilled.

1/3 cup honey
1/2 cup water
1/4 cup sweet white wine or orange juice
2-1/2 to 3 inches stick cinnamon
1 teaspoon vanilla
4 medium pears or peaches, peeled, halved and cored or pitted

In a large skillet bring honey, wine, cinnamon, vanilla and water to boiling. Add pears or peaches. Reduce heat. Simmer, covered, for 10 to 15 minutes or until tender. Remove cinnamon. Serve warm or chilled. Serves 4.

PAPRIKA-CUCUMBER SALAD

Cucumbers are always plentiful in Summer. Here's a recipe that uses quite a few and is a nice change from just sliced chilly cucumbers.

4 to 5 cucumbers
salt to taste
1/3 cup white wine vinegar
1/2 large onion, sliced paper-thin
2 teaspoons sweet paprika
1 tablespoon minced fresh dill weed or 1 teaspoon dried
1-1/2 teaspoons honey
fresh-ground pepper to taste
pinch of hot paprika (optional)

Peel the cucumbers, cut in half lengthwise, and seed them. Slice the cucumbers crosswise thinly, toss with a generous amount of salt, and leave them to drain in a colander for 1/2 hour. Prepare the dressing by combining the vinegar, onion slices, paprika, dill weed, honey and pepper. Stir well and put aside for 1/2 hour. Give cucumbers a quick rinse and pat dry with a towel. Then combine the cucumbers and the dressing and toss until all the cucumber slices are evenly coated. Chill the salad for at least 20 minutes and stir again before serving. Serves 6 to 8

The Vegetarian Epicure Book Two
Anna Thomas

MARINATED MUSHROOMS

To use those mushrooms up quickly you can use this delicious marinade. These are good to munch on while you are waiting for the steaks to finish grilling.

1/3 cup red wine vinegar
1/3 cup oil
1 onion, thinly sliced
1 teaspoon salt
2 teaspoons minced parsley
1 teaspoon mustard
2 tablespoons honey
1 pound fresh mushrooms (select small, bite-size ones)

In a saucepan, combine all ingredients except mushrooms and bring just to a boil. Pour over mushrooms and let sit at least overnight in the refrigerator. Garnish with a sprig of parsley and a slice of lemon.

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Richard Taylor

Bee Talk

"My thoughts sometimes go back to those golden hours, and to my first two beehives out under our pear tree."

I was surprised to learn from Roger Morse this morning that I have been doing these "Bee Talks" since March 1970. Of course, that's nothing compared with how long he has been contributing to this magazine – 50 years or more, I would guess – but still, it is a long time. With this month, it adds up to 342 "Bee Talks," if my arithmetic is correct. I've made a lot of friends through these talks, most of whom I shall never have a chance to meet, but I continue to encounter them, at bee meetings and the like, and they have kind things to say.

Well, it is written in the book of Ecclesiastes that for everything there is a time, and a season; in other words, there is a time to do something, and a time to stop. And I got the feeling not long ago that the time to wind down these "Bee Talks" has perhaps arrived. I'm getting old (78), and I doubt that I have much more to say. Indeed, I find that I am pretty much repeating myself whenever I talk to beekeepers, so maybe I should consider that I have had my say and let younger heads move in.

This, of course, gives me what all old people imagine is their God-given right to reminisce, or in other words, to become tedious old fools, boring everyone to extinction with fond reflections on past things. Whether I have that right or not, that's what I plan to do this month and maybe a couple more, telling myself that those 342 contributions over the years, with never a missed deadline, entitle me to something like this. So now I'll go back to when I was a kid, and the reader, having been warned, can turn the page.

My love for bees was a natural outcome of my boyhood fascination with insects and, especially, ants. This – plus, of course, my interest in girls – was what consumed my mind as a kid. Actually, the interest extended to all living things, and I would read about animals late into the night, rationing the pages so as to have more to look forward to the next night. In school I had to sneak encyclopedias behind something else, so I could read about the ants and homing pigeons and this sort of thing, constantly fearful that I would be caught at such frivolous pursuits when I was supposed to be memorizing Shakespeare or something like that. I have sometimes wondered, since then, whether today a boy would be reprimanded for reading encyclopedias. The view back then was that if young people were enjoying something, then they shouldn't be doing it.

Well, you can imagine what happened to me when, in this state of mind, I was walking around one day and came upon two hives of bees, with the bees flying in and out! Bee books now consumed my time, and especially, the *ABC & XYZ of Bee Culture*, which I practically memorized. Soon I had two hives of my own, one of which I purchased, bees and all and ready to go, for $4.50, and the other the product of my own crude carpentry. I was in the business of producing comb honey, made from the sweet clover that then bloomed everywhere. I went up and down the street selling these for 15 cents each, or two for a quarter. (Those were the days when a quart of milk cost a dime.)

This, perhaps I should have mentioned, was in a little town in Michigan, and it was at this time that I caught the attention of a very old beekeeper who didn't have much except for his bees, and who got around in an ancient Model-T Ford. His apiary was in a beautiful grove of Black Locust trees outside the town, and I would go there with him to help and to learn more about bees. I became aware of, and still vividly remember, the intense happiness I felt, riding along with this old man in his old open Ford, moving about in that lovely Locust grove, helping him with the lifting, and being there with the bees. It was a kind of happiness that I have known from no other source, and it has come back to me over and over through the years as the bees became an ever greater part of my life.

The ancient Greeks had a word, *eudaimonia*, which has a large place in the wonderful, ethical writings of that period, and which is usually but inadequately translated "happiness." It means something perhaps closer to "blest." Literally, it means "to be possessed of a good daemon," and the idea is that whoever is thus possessed is blest beyond measure, or as we might say, supremely happy. It was, of course, the goal of the philosophers to discover the path to this state, for they quite rightly supposed that there can be no more worthy purpose in life than to achieve it. Well, there is no doubt that the honey bee has been my precious daemon all these years. It has been the source of a vast treasure, not of gold, but of a different kind, best expressed by this strange and rare word, *eudaimonia*.

Before I was out of high school, I bought an apiary from another old man whose poor health compelled him to sell out. I think the apiary cost me $80 of the money I had saved from selling newspapers. This was without doubt a foolish thing to do,

Continued on Page 46

Questions?

Freezer Method?

I have always been able to control wax worms in my honey supers by wrapping the supers in plastic and putting them in a freezer for a couple of days. This year I tried this method with some brood chambers and it didn't work. The brood chambers had some honey and pollen in them. I bagged them and left them in the freezer for four days at 0°. Several weeks later I found them infested with wax worms. I bagged them again and returned them to the freezer for another four days, then turned the freezer off, leaving the brood chambers inside. On examination I found lots of dead wax worms, but one still alive. I thought the freezer method destroyed wax worms in all stages. What went wrong?

Donald L. Moore
Elon College, NC

I have for years used the freezer method to kill wax worms and wax worm eggs in my comb honey and found that a temperature of 0°F. works every time. One year, however, a helper removed the honey very soon after the thermometer had reached 0°, and one section only, developed wax worms. Evidently the cold had not penetrated to that section. I think this is what happened in your case. Even though the thermometer reads zero, you should not conclude that the cold has penetrated all the combs. It is like the Thanksgiving turkey you left out to thaw. The giblets in the center where the warmth had not yet penetrated were still frozen hours later. You note that there were still honey and pollen in the combs. It takes a long time for cold to penetrate these, and any eggs buried there, deep in the super, will still be viable for some time after the rest of the comb areas have gone down to zero.

No Time!

What if you have filled supers on the hive but no time to extract? Should you just leave the supers on the hive?

Richard T. Dallas
Ozone, AR

Yes. If you take them off and store them you will get wax worms. Many beekeepers just wait until the end of Summer, then do all their extracting at once. The only problem with this is that the early honey, which is usually light and mild, gets all mixed in with the late honey.

Effective Strips

When pulling Apistan strips apart, is it possible to rub some of the fluvalinate off, reducing their effectiveness?

J.B. Barrett
Gaston, IN

I have wondered about this myself, but in a video demonstration I watched, the beekeeper pulling the strips apart, with bee gloves on, seemed unconcerned about the possibility of this occurring.

Unfinished Sections

What can you do with unfinished Ross Round sections?

Name Withheld

You can cut out the centers, which are capped over, let them drain on some sort of grid, put them in jars, add warm liquid honey, and sell the mixture as chunk honey. I have found this enormously successful at my honey stand. Or, you can do what John and Kathy Marshall, in Johnson City, TN, do: "When using Ross Rounds you often get a number of rounds that are not filled out and are not attractive. Sometimes whole supers will not be suitable for marketing as the bees have only filled out the center of the round. What to do with these sections? Make strained honey from them. We open the Ross frame and mark the "bottom" of each round with a permanent marker before removing them from the frame. Once marked, the rounds are removed and the cappings are opened with a capping scratching tool. The sections are then placed in a container so that they are standing on edge with the mark pointing up. Since bees build wax cells with a slight slant, this allows the honey to drain out. The container is then placed in a very warm location such as a sunny porch or deck. Usually 90% of the honey will drain out in half a day. It's important not to get the container too hot or the wax will melt and distort. Now here's the good part. Once the honey is all drained out, the round sections can then be placed back into the Ross frames and the super put back on the hive. The bees refill the super in no time as they are now working with drawn comb."

Hollow Log Hive

How can I get a colony of bees out of a hollow log and into a hive? And should it be done in Winter or Summer?

John Brenneman
Ashland, OH

One way is to cut the log open and fasten the pieces of comb containing brood into empty frames, using string wrapped around the frames to hold the pieces of comb in place. Combs containing only honey can be pressed and strained to salvage the honey. The bees will soon fasten the brood combs in and eat away the string. It is a messy job, but I have done it, and it works. Be sure to get the queen. The other way, which might or might not work, is to turn the log upside down, so the combs are upside down, and set a hive with foundation or drawn comb over it, with the area between them wide open, so the bees can eventually work their way up into the hive.

Questions are eagerly solicited. Send them to Dr. Richard Taylor, Box 352, Interlaken, New York 14847 (not Medina) and enclose a stamped envelope for direct response.

Answers!

Richard Taylor

?Do You Know? Answers

1. **False** Chemical testing of honey for HMF (hydroxymethylfurfural) is normally done to see if the honey has been overheated or not. Honey adulteration is normally determined by measuring the stable carbon isotope ratio. The basis of this test is the difference in 13C/12C ratio between honey plants and corn and cane plants.
2. **False** Hive stands are not an essential piece of beekeeping equipment. In principle, they support the floor of the hive up off the ground, which reduces dampness in the hive, extends the life of the bottomboard and helps keep the front entrance free of grass and weeds. Many beekeepers support their hives on pallets, concrete blocks, railroad ties, etc., rather than on commercial hive stands.
3. **True** During the first five or six days of adult life, worker bees consume large amounts of pollen to obtain the protein and amino acids required to complete growth and development. If young adult worker bees do not consume needed proteins, their brood food glands will not develop completely and their royal jelly will not support normal growth and development of larvae or egg production in the adult queen. The requirement for protein decreases when worker bees discontinue nursing activities (between 10th and 14th day of adult life). Subsequently, the chief dietary constituent becomes carbohydrates obtained from nectar and honey.
4. **False** Wax moths are sometimes accused of killing bee colonies; however, they are not capable of doing so. Whenever colonies become weakened or die during warm weather, wax moth larvae quickly reduce the combs to a mass of webbing or debris. Conditions that render colonies susceptible to wax moth depredation include lack of food, disease, failing queens, queenlessness, pesticide poisoning, etc.
5. **True** Queens suffer from all the diseases that affect workers and drones, even though the diseases are most prevalent and usually diagnosed within the worker caste.
6. **True** Although a significant amount of egg laying by workers does not occur in queenright colonies, workers with developed ovaries are found in most normal colonies.
7. **False** Within a row of hives, bees tend to drift from the central hives toward the end hives, resulting in the two end hives being the strongest colonies in the apiary.
8. **True** Colonies should never be allowed to get below 10 to 15 pounds of food at any time; otherwise, optimum conditions for brood rearing are not present. If reserves fall below this amount, colonies should be fed or they will likely face starvation.
9. **False** Loads of pollen are usually collected more quickly than those of nectar. Thus nectar gatherers make approximately five to eight trips and pollen collectors seven to 13 trips per day.
10. B) February
11. E) Nevada
12. D) Nosema disease
13. B) Apidae
14. Increase colony numbers
    Replace Winter losses
    Control swarming
15. There will not be any population growth in the queenless half for at least 40 days by the time a new queen is reared, goes on her mating flight, begins to lay eggs, and new brood begins to emerge. Since this new queen is reared under the emergency stimulus, older larvae are selected and poorer queens are produced.
16. Cut comb
    Section comb honey
    Chunk honey
17. The two chemical repellents (Benzaldehyde and Butyric Anhydride) that are legal to use to remove bees from honey supers must volatilize in order to drive bees downward. Benzaldehyde works best at temperatures of 65° to 80°F, whereas butyric anhydride works better from 75° to 88°F.
18. Factors that can cause a spotty brood pattern other than an old or failing queen include: Colonies lacking sufficient storage space (honey supers) during a major honey flow.
    Brood diseases
    Lack of food or food of poor quality
    Too few bees to keep brood area warm
    Pesticide poisoning
    Too much inbreeding
19. Abundance of nectar and pollen plants in the area
    Number of other colonies within flying range of the apiary

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

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

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

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Glean•ings

AUGUST, 1998 • ALL THE NEWS THAT FITS

Baton Rouge Funding Up

USDA ANNOUNCES '98/99 BUDGET

ARS currently has $5,193,000 for honey bee research in 1998. For the 1999 budget, the appropriations process is still underway, but the House has passed a $300,000 increase for honey bee research at ARS' Baton Rouge Research lab and the Senate has passed a $250,000 increase for the same lab. The conference committee will have to work out an agreement.

As for CSREES (Cooperative State Research, Education, and Extension Service), research on Africanized honey bees has been funded for 1998 at $291,000 with no increase for 1999.

So the USDA budget for honey bee research totals $5,484,000 for 1998 – with the funding for 1999 still up in the air.

Canadians Have New Secretary

HEATHER CLAY TAKES OVER

Heather Clay has been selected as the new executive secretary of the Canadian Honey Council. She will begin working for the CHC in Summer. Beekeepers can contribute a tax deductible donation to the Canadian Bee Research Fund or join the CHC and receive *Hivelights* magazine by sending their check to: Canadian Honey Council, c/o Heather Clay, 234-5149 Country Hills Blvd. N.W., Suite 236, Calgary, Alberta T3A 5K8.

NH BEEKEEPER OF THE YEAR

At the annual meeting in March of this year Florence Chamberlain was presented with the NH Beekeeper of the Year Award.

One of the requisites to receiving this award is to make a contribution to the education of other beekeepers, the public, and especially children. Florence has instructed students in beekeeping for a number of years and has been a mentor to individual children starting them in beekeeping. I think, however, that one of her greatest contributions is in her day-to-day willingness to share information with the novice beekeeper, which occupies a great deal of her time. Florence is employed as the Essex County Bee Inspector in Massachusetts and is a commercial beekeeper.

HONEY BOARD NEWS

The Latest Numbers From Research Dimensions

Research Dimensions' packer tracking study, based on data from 15 honey packers representing approximately 50 percent of all honey sold, reported that total honey sales in April were up 7.25 percent compared to April of last year. The following are changes by segment:

Export ..... +2.52%
Retail ..... +2.98%
Foodservice ..... +25.36%
Bulk ..... +4.32%

•

Domestic Honey Assessments Peak, Imports Plummet

For the first quarter of 1998, domestic assessments were at the highest level they have ever been while import assessments were at their second lowest level. For the period January through may, import assessments were down each month compared to the same respective month last year. Total import assessments to date are $474,000, down 40 percent from the same period last year. Assessments from domestic production, however, are up 37 percent, accounting for more than 60 percent of total assessments this year. This surge in domestic assessments has kept the combined import and domestic honey assessments just slightly below last year's level.

•

If You Can't Go To The Show

If you're unable to attend SIAL '98, *Global Food Marketer* has some tips for getting your exporting business moving. In its May/June issue, the magazine says one-on-one meetings are the first step toward building a relationship with foreign customers. "These meetings are the perfect opportunity for exporters to share information and get to know their buyers," reports the publication. "Patience, however, can play a significant role in the process. Overseas business is generally conducted at a much slower pace than business agreements in the U.S. Foreign buyers are not looking for the quick sale. Instead they want to ensure a reliable and trustworthy partner for the long term." Before any meeting with importers, *Global Food Marketer* recommends exporters follow the three "Knows."

- Know the market – "If exporters are not adequately prepared for the meeting, the buyer may doubt the company's commitment to the market. Exporters should be knowledgeable about potential customers, competitors and importing requirements."
- Know the customer – Exporters should "demonstrate an interest in the buyer's culture and be sensitive to their business needs."
- Know your company – "When meeting with foreign buyers, exporters need to be specific about their goals, production capabilities, promotional support and pricing."

$6. Rural Heritage, 281-B Dean Ridge Lane, Gainesboro, TN 38562. (931) 268-0655

THE SCOTTISH BEEKEEPER. Magazine of The Scottish Beekeepers' Assoc. Rates from D.B.N. Blair, 44 Dalhousie Rd., Kilbarchan, Renfrewshire, PA 10 2AT, Scotland, U.K. Sample $1.

DIE NEUE BIENENZUCHT Monthly magazine for beekeepers interested in German beekeeping. Hamburger Str. 109, D-2360 Bad Segeberg, Germany.

IBRA is *the* information service for beekeepers, extension workers and scientists. For more information contact: IBRA, 18 North Road, Cardiff CF1 3DY, UK. Telephone (+44) 1222 372409. Fax (+44) 1222 665522.

SCOTTISH BEE JOURNAL. Monthly magazine. Sample copy from Robert NH Skilling, FRSA, 34 Rennie St., Kilmarnock, Scotland. $4. per annum.

BEE CRAFT – Monthly journal of the British Beekeepers Association. Subscription, including postage is £13.68 surface mail to Mr. L. Connor, P.O. 817, Cheshire, CT 06410.

THE AM. BEEKEEPING FEDERATION needs your support. For information, membership application and sample of bi-monthly News Letter write to: THE American Beekeeping Federation, Inc., P.O. Box 1038, Jesup, GA 31545-1038.

IRISH BEEKEEPING. Read An Beachaire (The Irish Beekeeper) Published monthly. Subscription $15./year, post free. Mr. Seamns Reddy, 8 Tower View Park, Kildare.

THE AUSTRALASIAN BEEKEEPER. Published monthly by Pender Beekeeping Supplies. Send to: The Australasian Beekeeper, PMB 19, Maitland NSW 2320, Australia. Sub. $US 27. per annum, Surface Mail (in advance). Payment by Bank Draft. Free sample.

BRITISH BEE JOURNAL. Month single copies 33p + postage. $15./yr. U.S. Annual subscription postpaid. Subagent: 46 Queen St., Geddington, NR Kettering, Northants, NN14 1AZ, Eng.

Bee interested. For beekeeping information read the AMER. BEE JOUR. For information write to: AMERICAN BEE JOUR., Hamilton, IL 62341.

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

THE NEW ZEALAND BEEKEEPER. National Beekeeper's Association of NZ. Write for rates & indicate whether airmail or surface. NZ BEEKEEPER, Farming House, 211-213 Market Street South, P.O. Box 307, Hastings, NZ.

SOUTH AFRICAN BEE JOURNAL. The official organization of the S.A. Federation of Bee-Farmers' Associations. Sample copies only available on receipt of a donation. P.O. Box 41 Modderfontein, 1645, South Africa.

BEE TALK ... Cont. From Pg. 40

for I had not yet learned anything about processing and marketing honey and, besides, I was only a couple of years away from going off to college. Still, I felt that I had to have the bees, and my mother foolishly let me do it. I did learn quite a lot more about bees during the brief time I had the apiary, but I don't remember now what happened to it. I must have sold it when the time for college arrived.

Adolescence is so filled with turmoil, and I'm sure mine was, too, but still, I had found a direction of sorts, and it would profoundly affect the decades to come. My thoughts sometimes go back to those golden hours, and to my first two beehives out under our pear tree, to the old man and his ancient, rickety car, and his apiary out in the Locust grove. How thankful I have been to have grown up in a town where bees were kept, and to have had a loving family to encourage my interest in them. And I have often thought, that if you do not find happiness in your youth, then you are in danger of never finding it at all, but instead, chasing after specious goals, such as wealth, status or acclaim – things we were never meant for, but which can be nonetheless intoxicating and seductive. BC

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INNER ... Cont. From Pg. 6

discusses places to sell honey; and a third deals with pricing. It's this last item that tends to be the most controversial.

Profit, certainly is one determinate used when setting price, but so is image, cost (usually an unknown), packaging, and location. All play a role. But what should be the most important, at least in my opinion, is cost. What does it cost to produce a pound jar of honey? Do you know how much it costs to produce a pound jar of honey in your operation? Most beekeepers don't.

What's even scarier though, is that in my experience, many queen producers don't know how much it costs to produce a queen. Not a clue. Well, maybe a clue, but not much more. Competition, and 'how-much-can-we-sell-it-for?' tend to have more weight than the actual cost.

This was driven home recently when I was talking to a friend who is interested in producing queens to sell for next season, and he quoted me the price he intends to sell them for next year.

"Too low", I said.

"Whadaya mean, too low", he replied. "That's how much everybody else sells them for, or about that much, anyway".

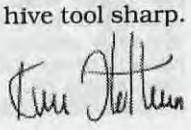
"What's your cost?", I asked.

End of conversation. He hadn't raised queens before so didn't have that figure right at hand.

Now that makes some sense, I guess. He starts by meeting the competition, just to stay in business, at least for the first year. That's how a lot of beekeepers sell honey. They start by meeting, or just beating the competition just so they can sell that honey. Cost doesn't enter into the equation. Then, because that worked last year, it continues, and cost still doesn't enter into the picture. This can continue as long as profit isn't important, or bankruptcy hits.

Before the heaviest part of the selling season starts, and you're making candles and ornaments and gift packs and the like, ask yourself - how much does this cost? Then, and only then can you set a price.

In the mean time, keep your smoker lit, and your hive tool sharp.



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Questionable Questions

Larry Goltz

Dr. Richard Taylor's Question and Answer page in *Bee Culture* has always intrigued me in that he can give sensible answers to sometimes difficult questions. It is a tribute to my friend's wealth of practical knowledge, which he acquired after many years of beekeeping. I think I speak for many when I offer thanks, well-deserved, for giving straightforward and practical advice for both beginners and we who, if not through need, are curious about some puzzling aspects of beekeeping that are not answered in the many references. Having also been in the position of having to answer questions about bees and beekeeping, I must commiserate with Dr. Taylor with respect to the difficulties of answering some of the questions that arrive in his mail. Knowing beekeepers, I suspect his mail contains little interrogatory gems that defy elucidation, even with the author's well-known ability to explain the complexities of the bee world. I have long visualized Dr. Taylor receiving and filing questions away in a cabinet drawer under such labels as "Unanswerable," "Ignore," "Needs Further Research," or, perhaps, "This Guy Must Be Out Of His Mind."

I'll take the liberty here of projecting my answers to imaginary questions that have never appeared in print, questions that would probably be filed in the last category by Taylor.

Q. Can I make a living from a hive of bees?
A. Only if you live unpretentiously.

Q. If I reversed brood chambers in a two-story colony every other day for 10 weeks will my colony be stronger?
A. Maybe, but you would certainly be.

Q. My bees put up a fabulous crop of honey this year, but I could detect not a single flower within miles of the hives. Where could the nectar have come from?
A. I have no idea. Perhaps, as they say, it came from the fence posts.

Q. My son is interested in beekeeping, but before I buy him a hive, where can he learn about bees and beekeeping?
A. Ignore everything that has been written and start by directing him to access www.airoot.com/beeculture/index.htm on his PC. It'll teach him that all he needs to keep bees is an updated computer.

Q. How can I prevent swarming?
A. Swarming is good. How otherwise would beekeepers continue to fall off ladders, get stung unmercifully collecting them, become public exhibitionists catching them, take time off work to answer calls to "collect" nests of yellowjackets, and be deprived of smugly predicting that swarms ignored will soon harmlessly depart?

Q. How do you keep from being stung by your bees?
A. By avoiding coming within a quarter-mile of them. I have been stung a few times over the years by violating this commandment.

Q. What are the chances of my becoming rich by investing in the bee business?
A. My advice is to play the slots in Las Vegas instead.

Q. I plan to set up a honey stand with payment by the honor system. How should I word the instructions?
A. "If you take honey and don't pay, a hidden electric eye will activate the trigger mechanism in a land mine buried beneath your car."

Q. How do bees get back to their hives from miles away?
A. Easy, they fly.

Q. *Schiessen*, after years of keeping bees in my native land and many times being stung, allergic I have become.
A. Stop, should you, keeping bees.

Q. Are men better beekeepers than women?
A. I would not touch that question with a ten-foot hive tool.

Q. I am making a profit from my bees. How can I avoid paying taxes?
A. Sell your bees and send the proceeds to the IRS.

Q. Is smoking necessary when opening a beehive?
A. Very essential, but don't inhale.

Q. If they had the opportunity to live their lives over again what would most beekeepers choose to do?
A. Marry rich.

Q. How many bees in a colony?
A. Too many when they are ill-tempered and too few when there is a good honey flow.

Q. Do bees respect their keeper by not stinging?
A. I wouldn't know. Apparently I have never gained their respect.

Q. Do bears eat honey?
A. Of course they do, and that is good. That is why so many bears are tolerated. By their gluttony they compete with humans, thereby stimulating demand for honey and enriching beekeepers.

Q. Do bees, as they say, actually stock our food supply by their pollinating activities or is this a fallacy?
A. This is pure conjecture. Our food supplies are stocked by grocery clerks working nights.

Q. Have you ever received a stupid question from a beekeeper?
A. Never before; yours is the first.