

SEP 2001



Bee Culture



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Richard Taylor

Bee Culture

THE MAGAZINE OF AMERICAN BEEKEEPING

SEPTEMBER 2001 VOLUME 129 NUMBER 9

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The evolution of today's smoker begins with a burning stick. This photo was taken at Wooten's Queens, just outside his warehouse. Smokers are an everyday part of life, but that wasn't always the case.

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MAILBOX

Too Much Pollen?

I've worked with bees since the 40's. Have only about 10 colonies and for the last 10-15 years have Wintered them over. Last Fall before covering, I checked the weight to be sure they have enough feed. This spring one of the colonies didn't make it, and in checking the two brood supers, they were still heavy. But instead of honey it was all solid pollen. In all my years, I have never seen that much pollen in one colony. Have you ever heard of something like that? I'd appreciate hearing from you if you have.

Loren Croone
Hudson, WI

Editor's Note: *Pollen hoarding behavior to the extreme you discuss isn't common, but isn't rare, either. It is a behavior that can be selected for, and would be ideal in commercial pollination operations. But, since these bees don't make as much honey as others it probably won't show up.*

Destroy The Enemy

I bought a pre-assembled hive body with frames. The wood was not what I would consider top quality. It had knots in the wood, and there was some cracks, chatter marks on the wood and frayed edges around the handholds. The foundation was fairly good. Some sheets had multiple staple holes or cracks. Will these holes through the plastic center of the foundation allow larvae of parasites to crawl through? I am trying the wax-coated plastic sheets because I think the solid barrier might make the eradication of parasites by the bees easier. Does anyone have information on this?

Actually, I prefer knocked-down hives. Then I can assemble them with glue filling any joints and cracks, and various other touches.

I had "special" military duties and some of this learning can be applied to other fields. "Deny the enemy sanctuary." This, in beehives, can mean to leave no cracks, splits, crannies or cervices where parasites or disease can hide.

I am trying elevated platforms for hives so toads, skunks, bears, etc. cannot reach them. Also, dirt, debris, parasites that lose their grip will fall through the slots to the ground and, hopefully, will not find their way back to the hives. Those parasites that must reproduce in the ground will find commuting difficult. This leaves only flying enemies, who must be dealt with in other ways. Wars whether between nations, men and men or men and animals or bugs can have only one real winner. Destroy the enemy, totally if possible, and your life will be easier and more pleasant.

I used Glidden exterior latex flat-finish paint on the exterior. After the first coat dried, on inspection, I found very unequal coverage. I applied a second coat. Obviously, three coats of this paint are needed. Any suggestions as to the best brand? As with other enemies, weather must be guarded against as well as possible.

I am thinking of painting the inside of the hive to seal the wood. Does anyone have any advice on this? I did paint the inside of the joints, trying to get paint into all cracks to seal them. I wonder about some form of liquid plastic or resin on the inside to armor the wood. The literature seems to lack all comment on this.

I note an odd lack of imaginative procedures among beekeepers. "If it was good enough for grandpa..." Wars can be won by innovation. I suppose some of my ancestors were fools enough to stand in an open field and allow the enemy to shoot at them, even after the disaster to Braddock.

Cannon fodder is cheaper than brains.

I produce a small newsletter and would appreciate any comments that might help people.

Paul Doerr
225 E. Utah St.
Fairfield, CA 94533-5425

Queens, etc.

Just wanted to say I too enjoy the Wise Guy. Sometimes he is almost too critical but so are your readers. He calls a spade a spade.

Also enjoy your articles by Ann Harman. Any article that makes you stop and think or question if it is right and try to find out is good.

I am new to the bee business so maybe I look and question more than old timers.

One thing I am wondering is this. Last year I had hives that lost queens. I couldn't get some of them to requeen. Believe me, I tried different methods. The hives wouldn't even make a queen. Then I discovered I had mites. Is there a connection? The next hive I got that wouldn't requeen, I checked for mites right away. Just losing a queen is going to be a reason to check for mites.

A couple of years ago I had one hive that had the washboard or washwoman sign. The funny-crawling on the outside of the hive behavior bees sometimes exhibit. It was queenless and I had a hard time getting a queen in. Finally one laid and they made their own queen. I had carried the hive off and shook all the bees out and left then come back. Also put a queen excluder over the entrance to try and keep any laying workers out. I put in two queens before one got to lay a few eggs and they made a new queen. This was a strong hive to start with. I am wondering if mites could have been the problem then. Has anyone checked on this? After they made their own queen, they caught back up and did fine. That is, they went into the Winter

Continued on Next Page

MAILBOX

strong again. I lost a lot of my bees last year to mites and some to Winter kill.

We have four hives left so I am starting over again and trying to learn what happened. Part of the hives the bees left, I medicated as soon as I discovered the mites. I was telling an old time beekeeper, Sarge, about it and he told me bees would leave the hives when mites are bad. The odd thing is none left until I put on the medication. Then every few weeks more hives would be empty of bees. From the first of August until October I had bees leave. Finally I got down to 10 hives and they were building up and doing well. This spring after a hard winter, we lost six. Good clusters of bees, with honey on both sides - and dead. The four left are building up and doing fine. Two had new queens. Two had old queens when they went into Winter. Part of the ones that died had new queens.

Joe Reed
Cassville, MO

Hive Beetle Threat

I have been a subscriber since 1939 most of the time, but if you do not mention the small hive beetle, I will have no more need to subscribe.

I think the hive beetle is a bigger threat to beekeeping than all of the other pests and/or problems, (*Varroa*, tracheal mite, foul brood etc.) put together. Last year, all of my bees absconded due to the hive beetle. There is no cure. I had to bury all of my honey crop. It was unfit for human consumption. Even the ants and robber bees would not touch it. I have put out a bait hive but its only occupants so far are the beetles. Scout bees go in but do not approve of it. I cannot see how beekeeping is possible now. I cannot find any news about the beetles in your or other magazines.

Robert E. Taylor
Dunedin, FL

Editor's Note: *The coastal, southern parts of Florida, and coastal areas a bit north of FL are having severe problems, as you discuss. The beetles are migratory, so if colonies, and the ground*

around them aren't treated the adults will spread (see August issue). You can reduce the problem, but not eliminate it by treating with the strips stapled to cardboard on the floor, and spraying outside. Honey house storage needs to be reduced, if the supers get that far.

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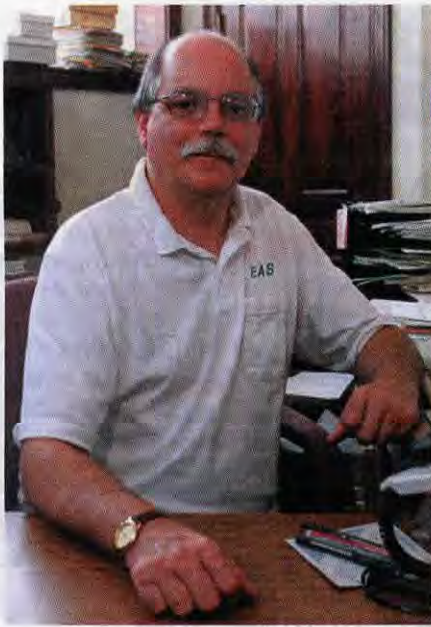
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You've read the books, the articles, listened to the experts, watched the videos, talked to the local wizard, even experimented with a trick or two none of the above have mentioned. But for many, all of these were not enough. Bees died last Winter. In droves in places, en masse in others, inconveniently almost everywhere.

Pre-mite Winter losses were, according to surveys here, in Michigan, Wisconsin, Florida and California, on average 15% in the north, 7-10% in the south. Those are averages. Some years, and some beekeepers are always higher, some lower. Average is what most of us get.

After more than a decade of wrestling with mites however, those averages have climbed to 25% in the north, 15% in the south. Remember, these are averages.

The biggest single factor affecting colony mortality is the all inclusive 'stress. But, just as in your life, 'stress' comes in many forms and many levels. For you - kids, family, yard work, job, money, church, volunteer jobs the list can be long. Any one of these is typically not a serious issue. But sometimes one will flare up and become an all-demanding, in-you-face mess. When two, three or four get that way at the same time (your spouse gets laid off from the job, an ailing parent needs attention, a church newsletter deadline was yesterday, and you're out of milk), stress really happens.

You already know the stress list for your bees. Food, population growth, tracheal mites, nosema, *Varroa* mites, maybe a touch of foulbrood, old comb, north wind, weeks with no cleansing flights, a mouse, room and ventilation.

Study that list carefully and it becomes obvious that we are responsible for creating or allowing all but one of those conditions.

And by removing or not allowing these situations, the stress on a colony and on individual bees is reduced. Simply, your survival percentage goes up.

That's easier said than done, though. But you already know how to take care of these things because of the books, the articles, the meetings and the videos you've come in contact with. And another year's experience or course.

The hardest part is the doing. More stuff, more time, more dollars, more things to remember later, more, (more stress), more, more. We have three options as I see it; 1) don't do anything; 2) do most of it; 3) do it all.

First choice is a good bet for empty wood next Spring. But if you're good at predictions and record keeping (and many are) you'll already know some of these don't or won't exist by the time you close them down, and there's nothing further to pursue (for instance, rows of shrubs that provide some shade in the Summer and wind break in the Winter), so option two is your choice.

Number three, if you didn't pick two, is it if you want bees

next year. Again, your percentage goes up, your profits go up, your expenses go down.

Not, you can't control the weather. That's part of the deal, didn't someone tell you? Oh, get the milk first, you'll sort out the rest on time.

Toward the end of July I was offered the chance to go to southern Mississippi to help evaluate a situation involving mosquito spray and bees.

All sorts of problems exist in this particular case and, at first glance it seems the beekeeper should have compensation due.

Too often though that's not the case. At its worst, honey bees, pesticides and applicators are an unholy mix. Add to this volatile mess county and state level support of the applicator and his or her actions, regardless of public or beekeeper resistance, proof of illegal activity whether intended or not, and it's a no-win situation for the beekeeper.

The result is dead bees, dead colonies, contaminated equipment, unpaid bills and a bureaucracy that tells you to take a hike.

And for some beekeepers it hasn't slowed down one bit in decades. Farming practices are the same, good-ole'-boy support for spray crimes committed is the same, and bees still die. At least any still in the area. There are places in the U.S. that cannot and will not support beekeeping because too

Continued on Page 36

Stress (on you & the bees)

Sanford Retires



Early on...

Our *Beekeeping In The Digital Age* columnist, Dr. Malcolm T. Sanford, stepped down from his position as Extension Specialist in Apiculture at the University of Florida at the end of August this year.

Tom, as we call him here, has produced this column for several years. In the early 90s he had a column here entitled 'Nectar On My Boots'; which looked at bee-

keeping management with a southern flair.

Following is a brief overview of how he got to where he is today

Dr. Malcolm T. Sanford first came to beekeeping through a course at the University of Georgia in 1973. This led to his Masters Degree Thesis: *A Geography of Apiculture in Yucatan, México*. Shortly thereafter he was accepted by Dr. Alfred Dietz as a graduate student and managed the University of Georgia bee yard. After graduating, he became a research associate at the University of Georgia and wrote and appeared in *Bees and Honey*, a Georgia Public Television Program aired for several years on PBS. As part of his training, he also worked for a time at Rossman Apiaries in Moultrie, Georgia. He is a life member of both the Florida and Georgia Beekeepers Associations and a twenty-six year member of the American Beekeeping Federation.

Dr. Sanford was hired as extension apiculturist in 1978 at the Ohio State University. Three years later, he accepted a job as Associate Professor at the University of Florida. His career has consisted of a twenty-plus year love affair writing about honey bees and beekeeping. He has been published in a variety of journals, including *The Speedy Bee*, *American Bee Journal*, *Bee Culture*, *Bee Science* and *Bee Biz*. During the period, he published a monthly beekeeping newsletter both at The Ohio State University (*Beekeeping Notes*) and the University of Florida (*APIS*).

Dr. Sanford is a pioneer of the Information Age. His writings first appeared on the fledgling Internet (then called BITNET) in the early 1980s. His APIS newsletter was one of the first Internet World Wide Web sites that featured information for beekeepers

<http://apis.ifas.ufl.edu/> He writes the monthly column for *Bee Culture* magazine "Beekeeping in the Digital Age," which describes the changes this medium is bringing to how information is developed and used by the apicultural community <http://bee.airoot.com/beeeculture/digital/> Because of his electronic information presence, Dr. Sanford's reputation has spread worldwide as a quality and unbiased source of beekeeping information. He has also attended and published descriptions of international beekeeping events, including several Apimondia conferences (Mexico, Brazil, Hungary, Canada). He has also spent three six-month sabbaticals abroad (Italy, 1989), France (1997) and Ecuador (2000).

Dr. Sanford has been an observer of and published about many of the changes that have revolutionized beekeeping over the last two decades. He co-authored with Dr. Roger Hoopingarner, the first ever chapter on Business Practices in Beekeeping in the 1992 Edition of *The Hive and The Honey Bee* (Dadant & Sons, Inc.) and most recently the Chapter on Introduction of *Varroa* in North America in *Mites of the Honey Bee* (Dadant & Sons, Inc., 2001). He has also been actively involved in deliberations concerning how the beekeeping industry and regulators approached introduc-



... bearded...

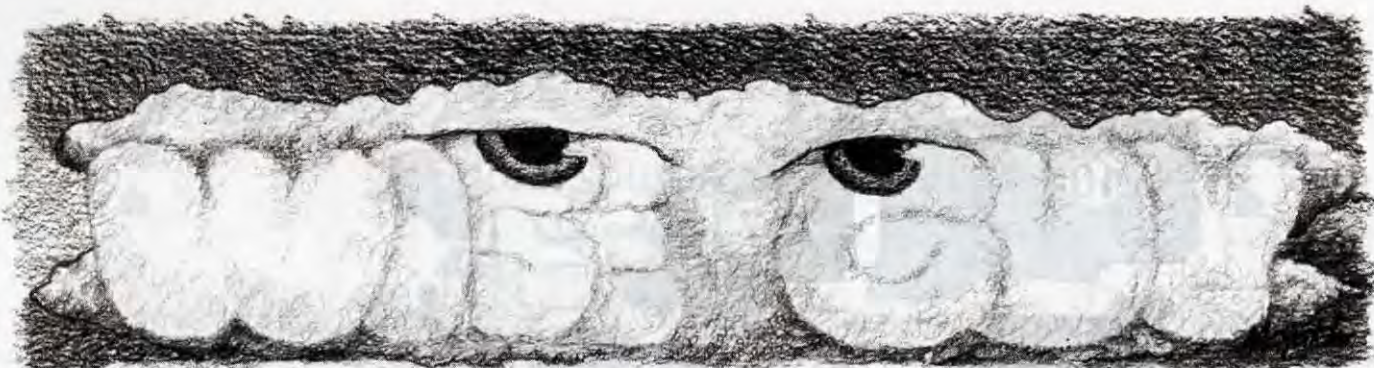
tions of the tracheal mite (1984), *Varroa* mite (1987), Africanized honey bee (1990) and African small hive beetle (1999).

After 20 years of service to the beekeeping industry, Dr. Sanford has chosen to discontinue his service as part of the University of Florida's Cooperative Extension Service. He hopes to remain a vital part of the apicultural industry and that his legacy will "virtually" continue through World Wide Web technology. Throughout his career, Dr. Sanford has won several awards, including the Achievement Award for Extension (Florida Entomological Society, 1992), Service Award (Apiary Inspectors of America, 1997) and Award of Excellence in Extension (American Association of Professional Apiculturists, 1998).

Although pursuing other interests, Dr. Sanford will, for awhile anyway, continue producing his column in this magazine, and, I imagine, writing about bees and beekeeping for a variety of other sources. No matter, we wish him well, and, perhaps even more so, trust he will stay in hive awhile longer. **EC**



and winning awards.



I see a light at the end of the honey business tunnel and it is leading the way for Sioux Honey, a cooperative owned by domestic honey producers who share both the good and the bad in our business. This Spring Sioux Honey expanded by over 50 new members who produce over 12,000,000 pounds of (U.S.) honey each year. If my numbers are correct Sioux now controls about 35% of all the honey produced in the U.S. each year. That's one out of every three drums produced in this country. Or, figured another way, that's over 100,000 drums of honey, or, just over 1700 semi truck loads (that's about 30 a week, all year long). This means, of course that the rest of the U.S. packers and industrial users will have only 130,000,000 pounds of domestic honey at their disposal.

Why would a beekeeper join Sioux Honey? Well, the best reason is that you don't have to beg someone to buy your honey. Sioux Bee picks up your loads when they promise. The grading is accurate and fair. You know how your product is marketed and you see it on store shelves. And year in and year out the price you get reflects the average that meets or exceeds the industry. But the largest factor is that it removes the unknown of who will purchase your product.

In recent years, Sioux Honey has spent thousands of dollars on state-of-the-art testing equipment that they know how to use. Nonmembers who sell honey to Sioux are told what was in the honey, every time. Have you ever received that information from another honey marketer? What's more, most times, in my experience anyway, the private marketer and I disagree on the color of the honey I sent. I believe they grade honey to their advantage, or maybe they don't know how to grade

it in the first place. But, every time I've sent honey to Sioux the report has been within two points or less of my reading. Sioux Honey is fair. Their check almost beats you home from the delivery. They work for the beekeeper.

With the number of commercial beekeepers shrinking the concentration of domestically produced honey will be falling into fewer and fewer hands. If this trend continues my numbers tell me that there are only seven beekeeping companies that will control another 10% of the honey produced here. None of these are Sioux members. If you put these seven and Sioux together, there's nearly 50% of the U.S. honey.

Why is domestic production important? We are in a global economy and the world price of honey is our price of honey. But the global economy will someday become the global catastrophe! Follow me for a moment here. Most countries that export honey to the U.S. are developing nations and about every 20 years or so they start developing all over because of leadership changes. The country quickly nose dives and the economy tanks, at least for awhile. In order to get their economy going again, they usually focus on the land, and cheap food starts com-

ing in to the U.S. because our money is good. And, all too often these countries have few, if any environmental laws or regulations. Drug and chemical controls are lax, or nonexistent. When a large industrial honey user in the U.S. gets a load of bad honey, there will be problems.

Is domestic honey important? Listen, all domestically produced food is important. A shortage, whether by stoppage from a developing country's internal problems, or by ransom from a terrorist group threatening to poison our supply is still a shortage...no matter apples, beef, fish or honey. When was the last time you were hungry?

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SEPTEMBER - REGIONAL HONEY PRICE REPORT



Region 1.
Prices steady at bulk and wholesale, but higher at retail since last month. Crop average to a bit low, which will cause prices to rise.

Region 2.
Pails, wholesale and retail all up, bulk steady. Reduced crop this season will cause prices to rise a bit.

Region 3.
Prices steady across the board since last month. Reduced crop will cause prices to at best remain steady. Many will increase.

Region 4.
Bulk prices steady, wholesale and retail down a bit, mostly to accommodate an average to good crop. Prices will remain about where they are.

Region 5.
Pails steady, bulk, wholesale, and retail up a bit. A mixed crop will keep prices steady.

Region 6.
Prices up a tad across the board, especially wholesale. A reduced crop, mostly, will keep prices steady, mostly.

Region 7.
Bulk prices climbing slowly, but all the rest are steady since last month. At best an average crop will keep prices steady to rising a bit.

Region 8.
Pails and bulk prices steady, wholesale and retail up. An average to above crop will cause prices to remain steady, with some increasing.

Region 9.
Bulk and pail prices steady, wholesale and retail up since August. A reduced crop will cause prices to rise, or at best remain steady.

Region 10.
Bulk prices steady, everything else is down. An average crop (so far, it's early) will cause prices to remain the same.

Region 11.
Pails, wholesale and retail up, bulk steady. An average to up-a-bit crop will keep prices steady.

Region 12.
Pails, retail and wholesale up, bulk prices down, for some reason. An average to below crop will keep prices steady.

Reporters were queried on the use of the Loan Deficiency Payment program. Just over 60% of our reporters do not take advantage of the program. Also asked was their opinion of the anti-dumping action. Of the just-about 100 reporters who responded this month, 97.75% favored the action, with only two responding unfavorably.

| | Reporting Regions | | | | | | | | | | | | Summary | | History | | |
|---|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------------|-------|------------|----------|--|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Range | Avg. | Last Month | Last Yr. | |
| Extracted honey sold bulk to Packers or Processors | | | | | | | | | | | | | | | | | |
| Wholesale Bulk | | | | | | | | | | | | | | | | | |
| 60# Light (retail) | 65.84 | 76.25 | 74.00 | 75.33 | 75.00 | 67.50 | 67.86 | 64.91 | 80.00 | 62.00 | 90.00 | 70.75 | 45.00-100.00 | 67.49 | 67.29 | 68.93 | |
| 60# Amber (retail) | 65.63 | 68.19 | 68.00 | 73.67 | 54.00 | 65.50 | 61.25 | 60.87 | 70.00 | 62.00 | 80.00 | 62.00 | 45.00-120.00 | 66.86 | 66.60 | 66.22 | |
| 55 gal. Light | 0.62 | 0.70 | 0.68 | 0.63 | 0.70 | 0.67 | 0.64 | 0.63 | 0.63 | 0.70 | 0.70 | 0.67 | 0.53-0.70 | 0.65 | 0.65 | 0.63 | |
| 55 gal. Amber | 0.62 | 0.68 | 0.63 | 0.60 | 0.68 | 0.63 | 0.60 | 0.60 | 0.58 | 0.68 | 0.60 | 0.63 | 0.55-0.85 | 0.65 | 0.61 | 0.58 | |
| Wholesale - Case Lots | | | | | | | | | | | | | | | | | |
| 1/2# 24's | 29.16 | 32.15 | 31.85 | 32.26 | 31.85 | 26.50 | 27.84 | 31.85 | 30.00 | 31.85 | 31.85 | 32.27 | 21.00-44.40 | 30.16 | 28.59 | 32.55 | |
| 1# 24's | 42.60 | 42.39 | 48.00 | 45.16 | 41.42 | 45.00 | 40.24 | 42.80 | 46.00 | 42.00 | 44.00 | 47.51 | 24.00-56.40 | 43.85 | 43.04 | 45.61 | |
| 2# 12's | 38.07 | 40.27 | 46.80 | 42.85 | 40.33 | 36.30 | 35.70 | 41.33 | 42.00 | 31.80 | 40.33 | 38.80 | 29.40-52.58 | 39.02 | 39.02 | 40.01 | |
| 12 oz. Plas. 24's | 35.24 | 36.86 | 45.60 | 34.57 | 36.69 | 41.00 | 33.70 | 34.44 | 36.00 | 35.40 | 30.00 | 38.63 | 26.00-48.00 | 36.07 | 35.17 | 35.19 | |
| 5# 6's | 41.83 | 44.99 | 47.00 | 46.17 | 46.79 | 36.00 | 39.40 | 39.00 | 48.00 | 37.50 | 46.79 | 45.88 | 30.00-67.50 | 42.87 | 40.63 | 48.52 | |
| Retail Honey Prices | | | | | | | | | | | | | | | | | |
| 1/2# | 1.79 | 1.65 | 2.83 | 2.17 | 1.99 | 1.62 | 1.58 | 1.64 | 1.85 | 1.49 | 1.99 | 2.08 | 0.99-3.59 | 1.81 | 1.69 | 1.80 | |
| 12 oz. Plastic | 2.42 | 2.45 | 2.90 | 3.27 | 2.45 | 2.44 | 1.85 | 2.12 | 2.37 | 1.90 | 2.99 | 2.32 | 1.09-4.50 | 2.39 | 2.20 | 2.30 | |
| 1 lb. Glass | 2.72 | 2.56 | 3.00 | 3.41 | 2.65 | 2.79 | 2.30 | 2.67 | 3.50 | 2.52 | 3.07 | 2.82 | 1.45-5.00 | 2.76 | 2.65 | 2.94 | |
| 2 lb. Glass | 4.44 | 4.20 | 4.80 | 5.77 | 3.59 | 4.26 | 3.91 | 4.65 | 4.78 | 3.91 | 6.49 | 4.51 | 2.20-7.00 | 4.54 | 4.46 | 4.58 | |
| 3 lb. Glass | 5.92 | 5.75 | 7.80 | 7.20 | 5.79 | 6.75 | 5.27 | 6.30 | 6.67 | 5.19 | 6.06 | 5.71 | 3.09-9.00 | 6.09 | 6.29 | 6.59 | |
| 4 lb. Glass | 7.48 | 6.73 | 8.64 | 9.33 | 8.64 | 7.03 | 7.46 | 8.07 | 7.00 | 8.64 | 7.89 | 8.20 | 6.19-12.00 | 7.74 | 7.63 | 7.70 | |
| 5 lb. Glass | 9.25 | 10.12 | 11.00 | 10.61 | 9.00 | 8.25 | 8.80 | 10.98 | 9.00 | 7.90 | 6.99 | 8.20 | 6.99-14.00 | 9.47 | 9.38 | 10.55 | |
| 1# Cream | 3.09 | 3.54 | 3.55 | 3.70 | 3.55 | 2.80 | 2.78 | 3.01 | 3.55 | 3.04 | 3.55 | 3.31 | 2.25-5.25 | 3.15 | 3.30 | 3.20 | |
| 1# Comb | 4.10 | 4.08 | 3.60 | 4.70 | 3.83 | 4.25 | 4.35 | 3.99 | 3.83 | 3.83 | 5.00 | 4.58 | 1.95-5.25 | 4.29 | 4.15 | 4.40 | |
| Round Plastic | 3.51 | 3.11 | 3.60 | 4.50 | 3.51 | 3.67 | 3.97 | 3.66 | 3.51 | 3.51 | 2.85 | 3.89 | 1.85-5.00 | 3.67 | 3.67 | 3.82 | |
| Wax (Light) | 2.41 | 1.94 | 2.00 | 2.43 | 2.03 | 2.00 | 1.49 | 1.98 | 2.05 | 2.03 | 1.50 | 2.10 | 1.05-5.00 | 2.05 | 2.59 | 2.42 | |
| Wax (Dark) | 1.13 | 1.43 | 1.75 | 1.98 | 1.71 | 1.92 | 1.39 | 1.05 | 1.03 | 1.71 | 1.51 | 1.10 | 1.00-5.00 | 1.14 | 2.47 | 2.28 | |
| Poll. Fee/Col. | 37.36 | 42.40 | 40.00 | 38.20 | 30.00 | 39.00 | 38.88 | 41.00 | 20.00 | 37.83 | 37.83 | 34.40 | 20.00-55.00 | 38.48 | 38.07 | 39.93 | |

? DO YOU KNOW ?

Short Course Questions

Clarence Collison

Mississippi State University

During the first week of June I spent three days at the Mississippi State University 4-H Entomology Camp and two days at a beekeeping short course. At entomology camp I was promoting beekeeping and showing them how to work colonies. These young people were fascinated with the bees and most of them showed little fear while I was going into the colonies. They stood next to the hives in shorts and T-shirts with only veils that we had provided. In fact, I often had to ask them to step back a couple of steps so I could remove combs from the colonies. They also enjoyed the fruits of the hive, sampling fresh honey that we had removed from the colonies. For many of the children this was the

first time in their lives that they had ever seen a person work bees. I find that they know a fair amount about bees from TV documentaries and movies, but have never experienced it in person. Beginning adults approach it very differently. They come dressed in their boots, coveralls, gloves, veils and initially keep their distance as you work the hives. Both groups, however, ask excellent questions and soon get fully involved with the instruction that is going on.

Please take a few minutes and answer the following questions to determine how familiar you are with some of the topics covered at camp or in a short course experience.

The first nine questions are true and false. Place a T in front of the statement if entirely true and a F if any part of the statement is incorrect.

1. ___ The old queen normally leaves with the primary swarm during swarming.
2. ___ CheckMite+ (Bayer Bee Strips) hung within the hive are used to control small hive beetle
3. ___ Round section comb honey is easier to produce than square wooden sections.
4. ___ Buckwheat flowers yield nectar only in the afternoons.
5. ___ Dead, deformed adult bees in front of a colony is an indication of a serious tracheal mite infestation.
6. ___ The powdered sugar roll technique is used to sample colonies for *Varroa* mites.
7. ___ The active ingredient in Apistan strips is coumaphos.
8. ___ To date, *Varroa* mites have not been found in Hawaii, Australia and New Zealand.
9. ___ Adult greater wax moths are primarily active during the night.

(Multiple Choice Questions, 1 point each)

10. ___ Honey bees belong to the order _____.
A. Insecta
B. Arthropoda
C. Hemiptera
D. Hymenoptera
E. Homoptera
11. Fat bodies in the honey bee are equivalent to a _____ in a vertebrate.

- A. Kidneys
B. Gall Bladder
C. Pancreas
D. Liver
E. Colon
12. Lyme disease is a threat or concern for beekeepers in some areas of the United States and is vectored by:
A. Ticks
B. Chiggers
C. Mites
D. Spiders
E. Pseudoscorpions
13. Name three other insects that belong to the same order as honey bees. (3 points)
14. Compare the larval diets of bees and wasps. (2 points)
15. What is the primary purpose for using black plastic foundation? (1 point)
16. Explain how a clustered swarm in a tree survives a rain storm. (1 point)
17. Why is swarming a serious problem associated with the production of section comb honey. (1 point)
18. In recent years the American beekeeping industry has sought anti-dumping suits (dumped honey into our market below their cost of production) against what two countries. (2 points)
19. When a mated female varroa mite enters a cell containing a honey bee larva, what are the two sources of food that the mite requires? (2 points)
20. Please explain why queen supersedure rates are so high in colonies suffering from nosema disease. (1 point)

ANSWERS ON PAGE 40

Mark Winston



Backyard Bees

“Wild and domesticated bees are insects, and are easily killed by those pervasive chemicals that backyard farmers overuse as much or more as commercial farmers do.”

Moving into a new home can provide instant connecting moments, watching a welcoming neighbor crossing the street smiling with a plate of warm cookies, or perhaps discovering that the family next door has two babysitting-age daughters.

For me, my bonding flash involved beehives. I study and write about bees as an occupation and sporadically keep hives as a hobby. Thus, I was thrilled when we moved into a Vancouver, British Columbia neighborhood in 1983 and found two beekeepers living across the street.

One was an older retired gentleman with a hive prominently located on top of his flat-roofed garage, and the second a high school biology teacher with ten colonies stuffed into his small backyard. My wife and I quickly joined the neighborhood bee guys with two hives of our own, and enjoyed many years of friendly ribbing each other about swarms, sampling the sweet bounty from our hives, and bragging about how much honey our colonies produced each year.

Keeping honey bees in and around Vancouver may seem a strange hobby from the perspective of a non-beekeeper, but there are hundreds of urban bee farmers and thousands of colonies tucked within city limits, hidden behind backyard bushes or quietly resting high up on apartment balconies. The practitioners of our unusual craft are di-

verse, including well-known journalists, highly successful CEO's, cardiac surgeons, and recent immigrants whose English may be challenged but who speak a common language with other beekeepers.

There are bylaws regulating beekeeping in Vancouver and its suburbs but they are inconsistent, presenting a confusing patchwork of regulations that encourage beekeeping in some municipalities and ban its practice in others, including Vancouver itself. Nevertheless, officials rarely take action against metropolitan beekeepers unless citizens complain, and all but the crabbiest neighbors are usually swayed by a few jars of honey at the end of the season.

Urban beekeepers do produce some honey from their hives, but more significantly we provide an important service for area residents because our bees pollinate gardens, fruit trees, and berry bushes. Our cities may be well-groomed and cosmopolitan, but city gardens and parkland plants need pollination in the same way that flowering plants do in rural and wilderness settings.

Apples, cherries, plums, squashes, raspberries, blueberries, peas, beans, and most other plants need bees to move pollen from one flower to another to set fruit, no matter how urbanized or sophisticated the neighborhood. Without bees, backyard gardening would cease to produce crops and urban ecology would be seriously disrupted.

My wife and I were a part of this beneficial but unheralded Vancouver

subculture for many years, but eventually our daughter's birth put a serious dent in our spare time and we reluctantly left the world of backyard beekeeping. The fellows across the street soon followed suit, as one became too old to climb up to his roof and the other succumbed to the complaints of his long-suffering family.

I didn't think much of it at the time, because our garden was still full of honey bees from other hives in the neighborhood. However, in the mid-1990's the *Vairroa* mite arrived in Vancouver and decimated the managed honey bees. I began getting calls at work from urban gardeners and nature lovers wondering where all the pollinating bees had gone.

This was odd, because the mite affects only honey bees and has no impact on any other species. Yet, no wild bees were filling in for the diminishing honey bee population. Apparently the previous abundance of beekeeping with honey bees had masked the absence of wild bees in our city.

Beyond a few bee specialists, most of us are unaware of the presence and importance of wild bees. Yet unmanaged and undomesticated bees are among nature's most spectacular and abundant creations, with breath-taking adaptations and critical ecological significance in pollinating the flowering plants on our planet.

These wild bees range the globe from deeply tropical to arctic. On the equator are found the huge metal-

Continued on Next Page

"It's a small thing, this reduction of bees in cities, but to me speaks volumes about our cavalier habits where other species are concerned."

lic-colored orchid bees, flashing through the rain forest and pollinating their own orchid traplines on their daily rounds. At the Canadian end of the earth are the ponderous alpine-adapted bumble bees, prospering within 800 kilometers of the North Pole, flying at below-freezing temperatures to eke a fragile living out of the arctic tundra.

There are over 20,000 species of these and other wild bees worldwide, but in spite of their diversity, interesting life styles, and vital role as pollinators we know little about their presence and activities within urban habitats. Fortunately for urban gardeners and nature lovers in Vancouver, the recent enthusiasm of two local high school students provided an opportunity to begin studying wild bees in our neighborhoods.

Some of you may recall that I wrote about Alice Miro and Désirée Tommasi a few years ago, who then were students at a local high school and now study at university. They had approached me with a grant proposal to census bees in the city, but this wasn't your ordinary dry scientific plea for funds.

They began with a quote from William Blake ("The tree which moves some to tears of joy is in the eyes of others only a green thing that stands in the way"), and moved on to a fairy tale introduction they had written called "Once Upon a Bee" ("Once upon a bee these small simple animals played a crucial role in preserving the greatest treasure of planet Earth, biodiversity").

Their proposal did eventually get to the hard science, and to our delight received funding from the Montreal-based EJLB Foundation and Vancouver's Canada Trust Friends of the Environment. The results of the Once Upon a Bee project are now flowing in, and have revealed bees with fascinating biographies within our midst, but also low populations that illuminate our failure to integrate nature into urban settings.

The wild bees among us may be

engaging, but they are not nearly as abundant as bees outside the city. We have studied bees in rural habitats near Vancouver, and can capture an average of forty bees per hour on flowers. In contrast, Alice and Désirée collect only four to six bees per hour on flowers at Vancouver park, roadside, backyard, and garden habitats.

This scarcity of bees is particularly startling in Vancouver, which includes the two largest urban parks in the world, a mild climate, meticulously clean and green urban neighborhoods, and towering mountains within sight of the city. Nevertheless, beneath this picturesque veneer lies the tragic underbelly of human impact, the loss of diversity and abundance that follows our earth-renovating practices around the globe.

The underlying reasons for low bee populations in Vancouver and its suburbs are simple: too many pesticides, too few flowers, and reduced nest sites.

Wild and domesticated bees are insects at heart, and are easily killed by those pervasive chemicals that backyard farmers overuse as much or more as commercial farmers do. Bees also suffer from our excessive passion for tightly mowed and chemically weeded lawns, devoid of the flowers so important for their survival and reproduction. In addition, we destroy bee nesting sites as we pour asphalt and concrete over the few remaining wild spaces in our cities, or carefully groom our parks in patterns that delight the human eye but are a death sentence for bees seeking a home.

City dwellers are not alone in their impact on bees; agricultural areas also lack feral pollinators. Wild bee populations are so dramatically reduced on farms that most growers in North America have to rent millions of honey bee colonies every year to pollinate their blooming crops.

In Vancouver and its suburbs,

we suffer from diminished managed honey bee populations because of mite parasites. There also are not enough wild bees due to pesticide impact, our anti-weed vendettas, and disruption of nesting sites. The end result: pollination is reduced, gardens suffer, and nature in our otherwise picturesque city is becoming even more distant.

It's a small thing, this reduction of bees in cities, but to me speaks volumes about our cavalier habits where other species are concerned. Yet, rather than giving in to eco-despair Alice and Désirée are working optimistically to promote urban bee conservation. They tirelessly bring a bright and optimistic display to schools, fairs, markets, and public gardens to encourage practices that increase bee diversity and abundance.

Planting bee-friendly floral species that bloom throughout the spring and summer, reducing pesticide use, letting weeds thrive, preserving nesting habitats, and setting out nest boxes for wild bees are simple management tools that can compensate for our impact on wild bees. Tangible steps, easily accomplished, can bring the buzz of wild bees back to our cities to provide their important pollination services and to remind us that "urban nature" does not have to be an oxymoron.

For more information about Alice Miro, Désirée Tommasi, and the Once Upon a Bee Project, visit www.sfu.ca/~onceupon. **EC**

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

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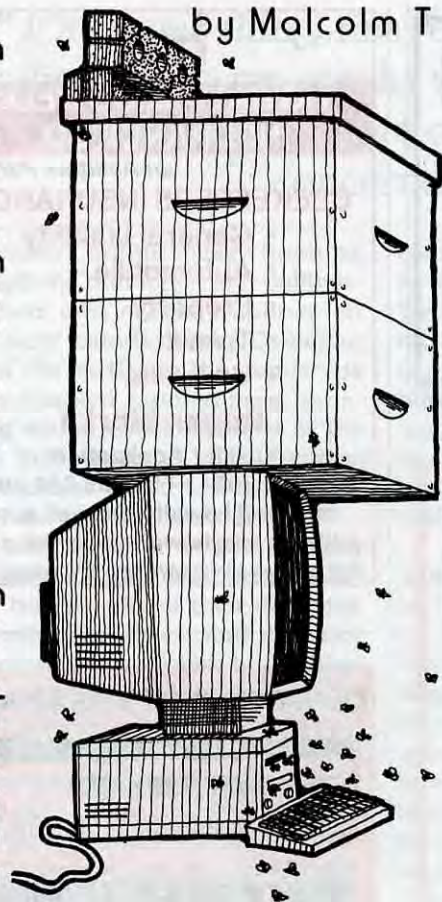
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by Malcolm T Sanford



Latest information is that the antidumping suit will mean the average duties on both Argentinian and Chinese honeys will increase, driving up wholesale honey prices perhaps to the \$.80 cent range. Although encouraging news for many beekeepers who are beset by spiraling upward costs, what if one could get twice to two thirds that price? It is possible, but that means shifting to the retail market. Historically, many producers have not found this to their advantage. Present conditions of constant market changes indicate that this may be worth another look, however, especially considering the opportunities outside the normal (super market) distribution channels. This arena is ripe for exploitation; one indication is that it appears to be where much adulterated product is sold, presumably because not enough authentic honey is available. It includes open-air flea markets and of course farmers markets.

National Farmers Market Week was held August 5-11, 2001, according to the United States Department of Agriculture's Agricultural Marketing Service (AMS). To celebrate, the AMS **World Wide Web** site, exerts viewers to visit this kind of market in one's respective state. A **map** found at the site lists markets in all fifty states. The extent of activity found at farmers markets is revealed through a **fact sheet** that discusses who benefits from and what programs are associated with them.

According to the information, "Direct marketing of farm products through farmers markets continues to be an important sales outlet for agricultural producers nationwide. Farmers markets, now an integral part in

Retailing Opportunities At Farmers Markets

the urban/farm linkage, have continued to rise in popularity, mostly due to the growing consumer interest in obtaining fresh products directly from the farm. The number of farmers markets in the United States has grown dramatically, increasing 63 percent from 1994 to 2000. According to the 2000 National Farmers Market Directory, there are over 2,800 farmers markets operating in the United States. This growth clearly indicates that farmers markets are meeting the needs of a growing number of farmers with small- to medium-sized operations."

Groups benefiting from this important resource include the following:

- **Small farm operators:** Those with less than \$250,000 in annual receipts who work and manage their own operations meet this definition (94 percent of all farms). Some 19,000 farmers report selling their produce only at farmers markets and 82 percent of markets are self-sustaining; market income is sufficient to pay for all costs associated with the operation of the market (not including grant or in-kind support).
- **Farmers and consumers:** Farmers have direct access to markets to supplement farm income. Consumers have access to locally grown, farm-fresh produce and the opportunity to personally interact with the farmer who grows the produce.
- **The Community:** Many urban communities where fresh, nutritious foods are scarce gain easy access to food. Farmers markets also help to promote nutrition education, wholesome eating habits, and better food preparation, as well as boosting the community's economy.

The programs associated with farmers markets include USDA's Women, Infants, and Children (**WIC**) Farmers Market Nutrition Program (FMNP), established in 1992. Eligible participants can purchase fresh fruits and vegetables at participating farmers markets. The program has two goals: To provide fresh, nutritious, unprepared, locally grown fruits and vegetables, from farmers markets to WIC participants who are at nutritional risk; and to expand consumers' awareness and use of farmers markets. Fiscal Year 2000 federal funding for the WIC Farmers Market Nutrition Program was \$15 million. The FMNP operates in 39 state agencies, including 4 Indian tribes, 1 territory, and the District of Columbia.

The Seniors Farmers Market Nutrition Pilot Program (**SFMNPP**) is a new program established by USDA's Commodity Credit Corporation (CCC). Under the program, CCC makes grants to States and Indian tribal governments to provide coupons to low-income seniors that may be exchanged for eligible foods at farmers markets, roadside stands, and community supported agriculture programs. USDA CCC awarded almost \$15 million in grants to 31 states and 5 Indian Tribal Organizations for the new program. State Departments of Agriculture, Aging, Health and tribal governments ad-

ministering the grants developed creative partnerships that are utilizing infrastructure to offer farmers markets to expand to serve seniors, and to certify and distribute benefits to the estimated 370,000 low-income seniors this pilot is expected to serve. At least eleven projects are providing seniors with transportation to and from the markets through a partnership with senior centers, or have arranged for local growers to take their produce directly to senior housing to eliminate barriers of access. Benefits will be available during the 2001 harvest season to purchase fresh, nutritious, unprepared locally grown fruits, vegetables and herbs; these products will be available from 3,500 farmers at 950 farmers markets as well as 560 roadside stands and nearly 90 community supported agriculture programs.

A paper authored by the Oregon State University Cooperative Extension Service analyzes three major farmers markets in the Corvallis/Albany, Oregon area, which attract a large and consistent clientele. "On most market days, between 30 and 40 agricultural producers sell an ever-changing array of products to over 4500 shoppers. Although consumers patronize the markets primarily for the fresh and processed local agricultural products, they also value the social atmosphere. The introduction of additional vendors with new and different products would likely increase the level of consumer purchases. At the downtown markets (especially in Corvallis), many of the market patrons also shop and eat at surrounding businesses. These spillover sales represent an important additional benefit of the markets. While these markets are thriving, there remains room for expansion. This research focused on the questioning of people already shopping in one of the markets. Current patrons are very satisfied. In results not reported here, 78% rated the Corvallis Wednesday market as 'great' and 21% rated it as 'good' Attracting new customers represent a different challenge. Fostering greater visibility for the three markets is probably a critical requirement."

Whereas government aid in terms of price subsidies is usually not available to wholesale producers, a large number of resources exist to help establish farmers markets and assist those who want to sell their products through these outlets. These include a variety of publications, including a brand new (published in 2001) **Farmer Direct Marketing Bibliography**. This sixty-page document catalogs work that has been done over the last two decades. "While some pre-1980 publications have been included, the cutoff date of 1980 was selected based on resource constraints. Twenty-seven functional categories, including private industry, academia, and State and Federal Governments, are represented. References were compiled primarily from bibliographies of individual publications and inquiries distributed on various Internet list servers. The bibliography will be maintained through regular updates." There is also a link to the AMS **Farmer Direct Marketing Action Plan**, which "identifies USDA's role in supporting marketing opportunities for small farmers, defined as farms with less than \$250,000 in annual gross receipts. Collectively, the plan is designed to enhance small farmers' ability to thrive in their businesses by facilitating the marketing of their agricultural products."

Other government-sponsored World Wide Web sites

also describe opportunities at farmers markets. Appropriate Technology Transfer for Rural Areas (**ATTRA**) publishes a *Farmers' Markets Marketing & Business Guide*, for example, that includes specific tips on how to sell at farmers markets.

Beyond the more localized farmers markets, the Web offers other information found at many so-called dot com sites that seek to help farmers market their products. A good example is farmerlink. - <http://www.farmerlink.com/index.html>. The site features classified ads, press releases and even courses on how to be a better marketer. One can also sign up for a free newsletter, which comes via electronic mail and there is a list of partnerships and alliances sponsoring the site. Business services area also available detailing prices from standard ads to full blown web design and maintenance. The **DTN Networx** site also offers a number of "web-hosting solutions, "giving know-how on how to develop a user-friendly, easy-to-self manage electronic store front to generate new customers and to better serve your current customers, by supplying agricultural news, local/national weather, cash bid pricing, site security and more." More generalized information is found in the **Virtual Marketing Library**. Finally, the **National Honey Board** site continues to be a prime source of help and is the first place to look for anyone considering marketing honey wholesale or retail. EC

Dr. Sanford is the retired Extension Specialist in Apiculture, University of Florida. He publishes the APIS Newsletter: <http://www.ifas.ufl.edu/~mts/apishtm/apis.htm>

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Integrated Pest Management of *Varroa* Mites

James E. Tew

The Hot *Varroa* War

Like many who lived through the invasion and establishment of *Varroa* in the US, I have relived the invasion event numerous times in talks and articles. Though our industry is still in a state of shock concerning the cataclysmic events surrounding the invasion, the shock has dulled into something resolute – something unwillingly accepted – but no longer true shock.

Our Chemical Artillery

During the past twelve – fifteen years of the hot war, we fired every chemical weapon we had at *Varroa*. Some of these weapons were more legal than others. The goal of most commercial beekeepers seemed to have been to get the most kill for the least money and that was a realistic philosophy. Our battle with *Varroa* seems to have followed the evolution of several other true military campaigns. At first we had the strength, the stamina needed to outright win this war with *Varroa*. It would be dirty. It would be tough, but we could win this war and get our bee industry back to where it was before the invasion. We increasingly fired more and more chemical rounds at *Varroa*. In and around the battle, there was the occasional voice asking if all of this chemical effort was truly worthwhile? But colonies kept dying and *Varroa* kept colonizing more states so we fired

even more chemical artillery.

Where are we today? We seemed to have very nearly punched ourselves out on the chemical campaign front. We have, time and again, given *Varroa* our best chemical shot. Time and again, *Varroa* populations have taken the hit but have hung on proving themselves an admirable enemy. Could it get worse? Yes. Our industry was forced to fight wars on multiple fronts – tracheal mites, small hive beetles, American foulbrood, and several other bee diseases and pests have required that we concoct a complicated chemical and managerial control scheme – all just to keep a hive's health where it would have kept itself very competently just a dozen or so years ago.

The numbers of lonely voices kept growing. We have killed untold millions of *Varroa*, yet they are still firmly entrenched anywhere they have colonized. What to do? Even more chemical artillery? Slowly and realistically, our resolve to achieve a clear victory in the *Varroa* War has waned. It appeared to many that we were very nearly killing our industry in order to save it. The hot, chemical war was taking a different direction.

The Cold *Varroa* War

Make no mistake. Our chemical years bought us time to accept the reality of permanent *Varroa* populations and chemical control programs allowed us to keep bees during the transition, but many beekeepers began to feel that it was time to adjust our thinking on *Varroa* control.

Our Agricultural Neighbors

The problems of other agricultural commodities have long been beyond our current situation. Books have been written, government programs have come and gone, technical developments have been made, but as with *Varroa*, no true agricultural pest has ever been eradicated. The successes and failures of other agricultural commodities has been an obvious path for us to consider.

When I was taking classes at Auburn University in 1973, the concept of Integrated Pest Management (IPM) was new and nearly heresy in chemical circles. Today, IPM principles are equated with common sense – all the more appropriate for beekeepers to employ IPM prin-

Varroa mites can be ignored for a while, but not indefinitely.



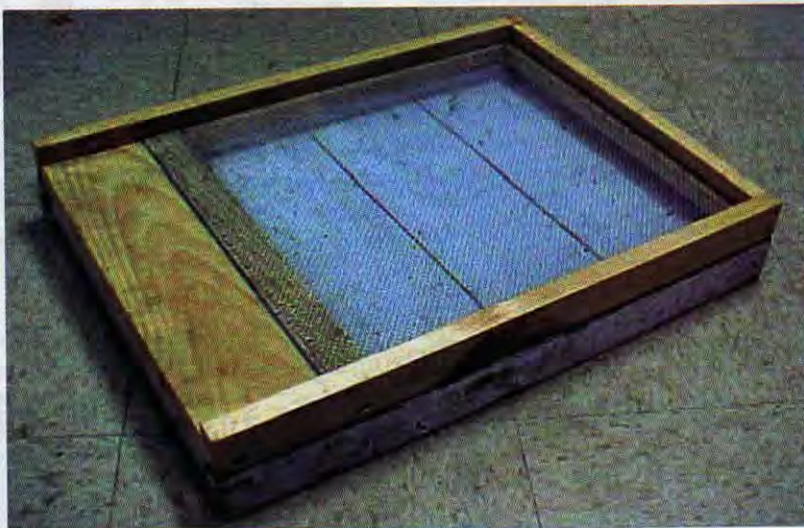
ciples wherever possible. We will still need our chemical arsenal, but we will try to become more sneaky with our *Varroa* control schemes by using different chemical controls whenever possible, developing resistant bee stock, and by improving hive managerial recommendations.

Varroa Is Here to Stay

For the foreseeable future, *Varroa* is here to stay. They have made that very clear. We have to do something else, not just to control *Varroa*, but to maintain the health and integrity of our beekeeping industry. The hot war has faded and the cold war of IPM strategies has begun.

Integrated Pest Management – The Silver Bullet?

The core concepts of IPM are straightforward and logical. IPM recommendations are ecological in approach and require the strategic selection of control methods – of which chemical controls are only one. The biology of the pest must be understood and the level at which the host is truly damaged (the trigger point) must be known. Essentially, IPM accepts the reality that a pest cannot be eradicated, so we agree to use an assortment of control techniques to keep the pest population below the “economic threshold” Anything below that point, *Varroa* populations will be tolerated (and colonies generally are not economically unproductive). Anything above that point, and something must be done.



A screened bottomboard placed on the original bottomboard.

So What Can Be Done?

The common tools of all IPM programs are (in no order of priority): Host resistance (resistant queen stocks), chemical use (Apistan®, Check Mite+® and others), parasites and predators (none available yet), traps (bottom traps, special combs), managerial practices (removing infected drone brood), application equipment (various foggers and strips) and sometimes computer modeling. Until just a few years ago, the beekeeping industry was putting all of its research efforts in the chemical arena, but now resistant stock and various traps are being developed. No doubt other IPM concepts will be developed in the future.

Assaying Procedures

Procedures for estimating *Varroa* populations have been available for quite some time. The ether roll, sugar roll, and sticky boards are examples of IPM population measuring devices. They are reasonably simple to use (when they are used) and the information they yield is invaluable when determining if treatments are necessary.

When to Employ IPM Concepts

So, when do you throw the panic switch? No more logical question could ever be asked, but the answer can be difficult to give. Keith Delaplane, University of Georgia, and Mike Hood, Clemson University, have developed numbers for the southeastern U.S. Other researchers are developing numbers for other regions of the US. Doctors Delaplane and Hood advise that treatment programs should be implemented if a roll test yields 15 mites or if overnight mite drop exceeds about 120 mites (without using any chemical control). These numbers are essentially in early spring (March) or late summer (August). These recommendations may not be appropriate for other regions of the U.S.

Resistant Bee Stock

It was only a few years ago that chemical research for *Varroa* control was the rage. Now, finding or developing resistant bee stock is on the front burner. *Varroa* resistance is not the only desirable attribute but resistance to American foul-brood and tracheal mites is also highly desirable. The danger is that confidence in resistant stock lines may be

too great. Now we appear to be searching for the perfect super-resistant bee strain having given up on the perfect chemical. At the recent South Carolina State Beekeepers’ meeting, Dr. Delaplane said that resistant stock does not presently replace chemical control, but lengthens the interval between chemical application times. Again, for the foreseeable future, resistant stock will be only an attribute of an IPM program. Resistant stocks will not be able to withstand *Varroa* onslaughts without other forms of control to comprise a comprehensive control program.

IPM Sounds Complicated

So why bother with all of this. Let’s just continue to put in various approved chemicals and get on with our bee lives. For many of us, that will continue to be the

plan, but for those of us who have the time and patience, we really should try to reduce our chemical dependency. Why? *Varroa* resistance to our chemical arsenal is already common and will become increasingly more common. In the future, our current control chemicals simply will not work effectively. By using anything else (resistant stocks, managerial procedures, traps, or alternate chemicals), we can buy some time and keep the efficacy of our approved chemicals for a longer time.

And, we reduce our risk of chemical contamination within the hive and in honey. In general, the public is chemophobic. If honey gets a bad reputation, it will take years and more money than our industry has to recover. The fewer chances we take, the longer we survive until the perfect solution does arrive.

For the Risk-Taking Beekeeper

It's true, developing a diversified control program for *Varroa* or any other bee pest is much more complicated than just the, "Spray 'em, kill 'em and count 'em" mentality. Straight chemical control only requires that you put in strips once or twice per year for a predetermined length of time. IPM requires that you manage your pest - in this case *Varroa*. Sample the *Varroa* population, decide what strategies to employ, decide when to change those strategies and learn to live with a controlled population of *Varroa* mites. You will make some mistakes, but you will have some successes, too.

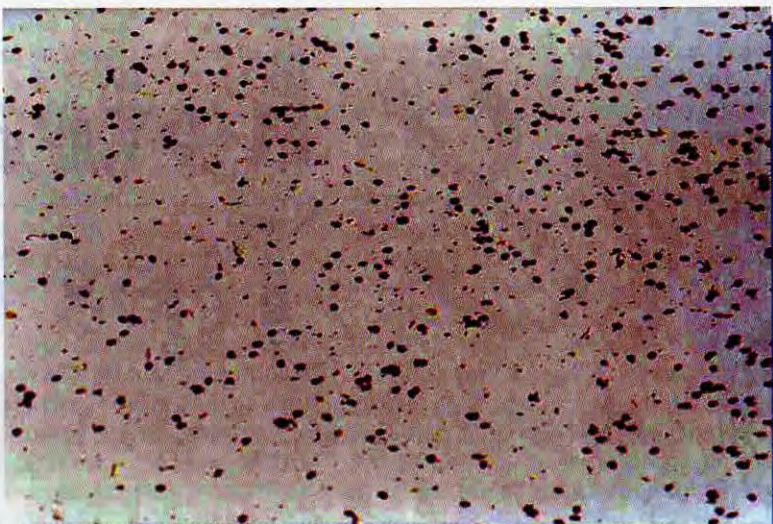
IPM control of *Varroa* may protect us from risks discussed above, but no one said that IPM schemes would be a timesaver and no one has ever said that IPM procedures would be easier than chemical control procedures. More responsibility for decision-making is placed squarely on the beekeeper's shoulders. I suppose this is the price we must pay for not being able to win the hot chemical war.

For the Non-Risk-Taking Beekeeper

Is an integrated control scheme appropriate for all of us? I wish it were, but the answer is no. Some of us allocate more time to our bee efforts than others can afford. Some of us have more experience and beekeeping ability than others. I remind myself constantly that, for most of us, beekeeping is supposed to be relaxing and enjoyable. For the novice, beginning beekeeping can be foreboding enough without requiring complicated IPM schemes for multiple pests. I must also admit that the numbers of beekeepers in the US has essentially been dropping since the 1940's. What do we accomplish if we manage our mites wisely, but in doing so contribute to a continued decline in beekeeper numbers by requiring complex pest control programs?

What To Do?

If you are unable to use IPM schemes, use the chemical program and follow label instructions. As soon as you can, seriously consider implementing IPM strategies for pest control. This arena will be developing for many years to come.



Overnight drop of Varroa on a sticky board. Too many mites here.

What if you don't want to use chemicals¹ at all? Then don't use them. Use all components of IPM such as resistant stock and screen bottom boards but exclude the chemical component. But you must be prepared for colony losses much more frequently than others who use more aggressive control schemes. Many of us are accustomed to a healthy hive living in perpetuity, but those days are probably gone. Nowadays, a beehive prospers only as long as there is some form of mite control. A beekeeper who never uses chemical control should be prepared to make more splits from healthy hives or to buy more packages.

If possible, isolate your yards from neighboring beekeepers. Easy for me to type but hard for you to do.

The Armistice Between Beekeepers and Varroa

We haven't won this war. In fact, we may not win it for many years to come. Mites have taken our best shots and have survived admirably. We simply cannot continue to universally recommend chemical control as our primary weapon. It's not easier, it's not faster, but integrated management of *Varroa* and other hive pests is better for our bees, our industry and better for the quality of honey. As soon as you can, work on breaking your chemical dependency. Good luck. You're going to need it. **BC**

Dr. James E. Tew, State Specialist, Beekeeping, The Ohio State University, Wooster, OH 44691, 330.263.3684, Tew.1@osu.edu

¹ For the sake of this discussion, I am including "natural" chemical control in the general chemical category.

18

Extracting Tips & Tricks

John Caldeira

Read this before you harvest, and save time, money and grief.

Having recently extracted this year's honey crop, I am reminded of the perils that exist. There are some things a beginning beekeeper should know to help things run smoothly on extracting day. For the benefit of beekeepers with a few hives who do not have a permanent honey house, I offer the following axioms and suggestions for bringing the honey from hive to home. They are meant to supplement the information in books where everything seems so simple and easy. Many beekeepers, including myself, have learned some of these self-evident truths the hard way.



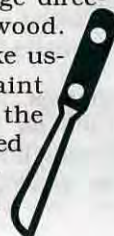
Honey is sticky. It will drip. Every doorknob, shoelace, telephone and radio button that is touched while uncapping or handling wet frames will become sticky. Walking spreads the honey around on the floor. A bucket of water to rinse hands and a dishtowel are essential in the extracting room, especially if you are married and want to stay that way. Turn on the fan and radio, and get everything else ready, before getting all sticky. The garage, basement, barn or porch are usually better places to extract than the kitchen, providing you can keep the honey clean. Watch the kids, the cat and the dog.



Bees are attracted to light. Straggler bees left in the supers will find their way into the extracting room and will tend to fly towards a window or light bulb. A small exit near the top of a window will allow them to return to their hives if they are nearby. If the hives are not nearby and you have a lot of bees in the room, hanging a few drawn frames near the top of the window with a caged queen will provide a place for them to settle and create a nice nucleus colony when you're done. A vacuum cleaner hose is an alternative. Don't extract directly under the only light bulb in the room. If all else fails, a spray bottle with soapy water will dispatch the stragglers, leave no dangerous residue, and keep your windows clean.

Bees away from their hive are not inclined to sting. Bees carried into the extracting room in supers are normally extremely gentle, with no brood or queen present. However, they are very adept at stinging the finger that accidentally crushes them while picking up a frame or super. Beware.

Household items work. •A serrated bread knife makes a good uncapping knife. Use a sawing motion. No need to heat it. Change directions if it catches the wood. Some beekeepers really like using a hot-air electric paint stripper to quickly melt the cappings, but I haven't tried it. •Kitchen strainers, nylon paint strainers, and



women's nylon stockings can serve as good honey filters. Clean ones, of course. •Tupperware and Rubbermaid both make good plastic containers to hold honey and cappings. Honey is acidic, so don't use items such as aluminum and galvanized steel that will react with the honey acids. Stick with plastic, stainless steel or glass.

While there is a good household substitute for most extracting equipment, there is no good substitute for a good centrifugal extractor.

Settle your honey. Be patient. Almost all debris left in the honey after filtering will either float or sink within a few days, so bottle from a spigot just off the bottom of a container when possible.



If there is no nectar flow, bees will rob honey. If the honey in an extracting room is more appealing than local flowers, the neighborhood bees will try to feast on it and tell all their friends. Extracting is best performed in a closed screened room such as a garage, basement or barn, or outside after dark. I heard a story about a guy that brought some supers into his basement to extract the next day, but he left a window open. The next day he found that his bees had brought half the honey back to their hives.

Use 8 or 9 frames spaced evenly in a 10-frame super. The thicker comb means almost no scraping with the fork. After bees have drawn out the foundation the

first season, return only 8 or 9 frames into each extracted super to make the next crop easier to uncap. Uncap all the way down to the wood on the top and bottom bar, regardless of how far the comb is drawn out, so the comb will be nice and even next year.

Propolis sticks to almost everything. Extracting is a great time to clean propolis off the box edges and frame-rests, but if they are going to be scraped it is best to cover the floor with old cardboard, newspaper or a plastic painter's tarp so there won't be little propolis reminders of the extracting experience. Wax isn't quite as bad, but almost.

Butyric acid (Bee Go) really stinks. It works great, and is the best way for most hobby beekeepers to clear bees from the supers. The bees don't get as angry as brushing or blowing them, but that smelly fume board belongs behind the garage or near the fence when you're done. The bottle belongs in a plastic bag inside an old coffee can or something else that won't tip over; this is stuff you do not ever want to spill. The almond-smelling Benzaldehyde smells better and works okay in cooler weather, but it still belongs outside, as do the newer, less obnoxious products. Bee escape boards work okay too, if you can install them the day before extracting, have enough escapes for every hive, and don't have too many holes between the boxes where the bees can enter and rob the honey. My equipment is old and leaks.

Borrow or share. Most hobby beekeepers will only use their extracting equipment one or two days each year. The rest of the year it typically gathers dust in an attic, garage or basement. Thus it is very practical and economical for several beekeepers or a beekeeping association to share equipment. The expense is avoided, and it also eliminates the need for storage space. So borrow or share, and use some of that money saved to buy a few of the nice non-stick polyurethane candle molds. If you must buy, a good quality hand-crank 4 frame extractor will suit most beekeepers better than 2 or 3 frame models, since it reduces the spinning work and thus

greatly shortens the extracting time.

Two is best. One person uncapping frames while the other spins the honey. Very efficient and the conversation can be good. It's not very stressful to a relationship either, unlike hanging wallpaper.



Warm honey flows best. Warm honey spins out of the comb faster and more thoroughly in the extractor. It also strains faster through a filter. Honey at 80°F (27°C) or higher will be extracted most effectively. This is normally not a problem in the summer, but in cool weather a light bulb under a stack of supers overnight can provide a lot of heat if the escape of the heat is controlled. Don't melt the wax.

Extracted honey absorbs moisture. It is also effective in catching insects, so keep honey covered, and put it in sealed containers or bottle it as soon as practical.

Have enough containers. Enough containers need to be on hand when extracting, so it is good to learn how much capacity you'll need before extracting. In rough numbers:

- a. A shallow super will typically yield between 25 and 30 pounds of honey, or 2 to 2 ½ gallons.
- b. A medium (6 5/8") depth super will typically yield between 35 and 40 pounds, or 3 to 4 gallons.
- c. A full-depth box will typically yield between 60 and 70 pounds, or 5 to 6 gallons.

Actual yields vary due to the number of frames, how well they are extracted, age of comb and other variables.

Cappings hold a lot. Wax cappings can hold 10% or more of a beekeeper's honey crop. Cappings should be drained of honey through screening. After draining, the cappings wax can be melted into a block. Melting is best accomplished using a solar wax melter, or by heating the cappings in an inch of water in an old pot. Feed the




honey-water back to the bees. Solar wax melters really do work well – use double-paned framed window glass and build around it. Alternatively, the cappings can be put in a shallow pan, placed in an empty super on top of a hive and cleaned by the bees. When done the wax is clean and the bees got the honey.

Use once, then not again. Melted wax leaves a waxy film on every pot, spoon, dipping cup or strainer it comes into contact with. Crock pots with an inch of water are good for melting cappings that have been drained of honey, but the pot will never be the same. Old crock pots are also near-perfect for melting wax during candle making, and they are often available at garage sales. Heat to between 150 and 180 degrees Fahrenheit; no need to boil.

Bad comb and rotten boxes should be replaced while extracting. Extracting provides the perfect opportunity to cull bad combs, frames and boxes that need paint or replacing.

Have replacements on hand on extracting day. When short a few frames, frame feeders (also called division-board feeders; the kind that normally replace a frame or two) can be put in the empty spaces in the supers so any burr comb built there will be inside the feeder where it will actually be useful to prevent drowning when it is time to feed.

Let the bees finish the job. Whether intending to return the supers to the bees or store them off the hives, the bees do a great job of drying supers after extracting. A stack of supers can be placed on a hive, over an inner cover, and they will usually be dry the next day.

Every beekeeper has unique conditions, and there are many good beekeepers that use different methods, so enjoy experimenting with what works best! 

John Caldeira is a sideline beekeeper from Dallas, Texas. john@outdoorplace.org <http://www.outdoorplace.org/beekeeping/>

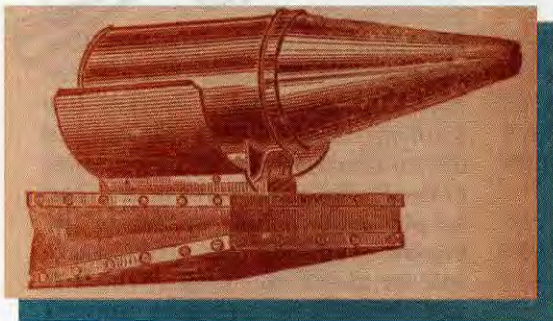
SMOKER HISTORY

From Burning Sticks To Today's Smoke Engines.

Richard Dalby

Who first discovered that honeybees could be controlled with smoke we do not know? In all likelihood the discovery was made long before the advent of written history. Different people in different parts of the world probably observed the phenomenon over the centuries until it became a well-known fact, at least among beekeepers. And yet, for centuries, the use of smoke to control bees, or at least make them sting less, remained largely a haphazard affair – a matter of smoking sticks or crude firepots or bundles of dry grass.

No more. Today's beekeeper can buy a gleaming new smoker, in a variety of sizes, from any bee supply dealer or manufacturer. What he or she will get, for a reasonable price, is an essential piece of equipment which will efficiently produce smoke as needed and deliver it where needed. (Yes, smokers do seem to go



Bingham Smoker

out at the most inopportune moments, but a good cleaning or a change of fuel will usually work wonders.) Today we take the smoker for granted and it generally serves us well. After all, the smoker as we know it today has been around more or less forever. Or so we think.

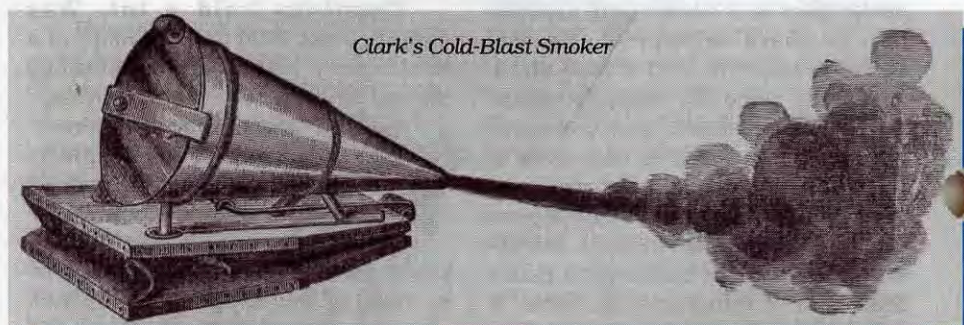
Actually, the smoker, in its present form of bellows attached to a fire chamber (sometimes called the stove or fire pot) has been around only since the latter 1870's, and most of the pre-1900 models still around present a strange appearance indeed. Your first thought on seeing one might well be "Who put the bellows on upside down?"

Let's go back a bit in time and take a look at how our modern bee smoker came into existence. It is a tale that illustrates the old adage that necessity is the mother of invention.

In 1853 two books appeared that would change the course of American (and world) beekeeping. First in importance was *Langstroth On The Hive And The Honeybee, a Beekeeper's Manual*, by the inventor of the movable frame hive, L. L. Langstroth. Here Langstroth put beekeeping on a scientific and practical footing and detailed the advantages of his moveable frame hive. Some would call this the most important book on bees ever written. The other book of major influence and importance was *Mysteries Of Beekeeping Explained*, by Moses Quinby. This book, too, was both scientific and practical and represented the author's 25 years of beekeeping experience. These two books, each in its own way, laid the foundation for the advent of large-scale American beekeeping. Langstroth became known as the father of American beekeeping; Quinby, with his interest in bees as a vocation, came to be known as the father of commercial beekeeping.

With Langstroth and Quinby showing the way, several bee journals (including *Bee Culture*) coming on the scene, the invention of the extractor, the availability of movable frame hives, interest in beekeeping in America soared. But we still did not have a reliable and practical means of smoking the hives to control the bees. It was obvious that the old ways of smoking bees with bundles of grass or smudgepots or whatever would no longer do in this new age of movable frame hives and centrifugal force honey extractors. The search was on for a better bee smoker.

To suggest what the state of affairs was at the time, there was an article in one of the journals in 1867 in which details were given on how to use a fire shovel with a little fire on it to smoke bees. Using a pipe filled with tobacco and blowing the smoke into the hive was a popular method for a long time. But the amount of smoke produced was not always adequate to the task at hand, particularly with a crosshive or in colder weather. Various types of pans "were used for holding a small fire



Clark's Cold-Blast Smoker

Simplicity
Cold-Blast
Smoker



made from some material which smoked freely, and this was blown across the hive by means of expelling the breath."

Herrod Hemsall in his book, *Beekeeping New and Old*, tells of the show held by the British beekeepers at the Crystal Palace in 1874. A prize was offered for the best method of quieting the bees. F. Cheshire won with a contraption made with a briar root pipe and rubber tube. By alternately pressing and releasing the tube,

the smoke was driven out the hole in the stem. A very small volume of smoke could thus be produced. [Frank Pellett, *History of American Beekeeping*, 1983]

The intrepid A. I. Root was always seeking to improve the bee equipment of his day. In his charming autobiography we can look over his shoulder as he experiments:

"My first smoker was a tobacco rolled up in a rag, and I blew the vile stuff in the bees' faces and eyes under all circumstances and conditions.... After a while I left out the tobacco and tried the rags alone, which worked very well. Pretty soon Mrs. Root got out of rags, since I had burned so many, and it was a bother to be fussing so much, rolling them up; so I felt very grateful to Dr. C. C. Miller, when he paid me a visit and demonstrated that rotten wood is not only as good, but even better. After that I had my chunk of rotten wood and went on my way rejoicing until I burned up a hive of fine Italians by a spark in the sawdust." [Root's book, *An Eyewitness Account Of Early American Beekeeping* - is available from the A. I. Root Company for only \$3.67, which includes shipping in the United States. Do yourself a favor and get a copy]

A modest improvement in smoker technology came in the form of a tin tube approximately eight inches long and 1-1/2 inches in diameter. Each end held a wooden plug and each plug had a hole in it that measured about a quarter of an inch in diameter. Some were fitted with a more elaborate mouthpiece than others and some beekeepers made their own. Detailed instructions for making one appeared in the July 1877 issue of *Gleanings In Bee Culture*. Sometimes known as a Doolittle smoker, the devices were adver-

tised for the price of 25 cents. When filled with some sort of fuel and lit, this smoker made directing the smoke more efficient, but in practice they were typically difficult to use. The beekeeper had to blow through one end to make smoke come out the other. Often he wound up smoking himself more thoroughly than his bees. In *Quinby's* book, he had described such a tubular smoker (though his was even smaller); noting that it soon went out when not being blown through.

Speaking of *Quinby*. He was well aware that a better way of smoking bees had long been needed. He had noted in the *American Bee Journal* in July of 1874 that "success in bee management depends upon the judicious use of smoke." He had, he stated, long sought to find a way to apply smoke conveniently and effectively, without the beekeeper having to huff and puff. The next year - 1875 - *Quinby* arrived at the fundamental principle of the modern bee smoker when he added a bellows to a tin cylinder and connected the two by means

of a small metal tube which directed the air from the bellows into the fire chamber. Unfortunately, *Quinby* died later that year and had little opportunity to profit from or improve his fundamental invention. Nonetheless, though others would add incremental improvements to *Quinby's* basic idea to make it better, credit for the basic insight belongs to *Quinby*.

First to market with a smoker based on *Quinby's* idea of a bellows attached to a



Bingham Smoker

fire chamber may have been T. F. Bingham. His bellows smokers appeared in bee magazine advertisements in 1877. They were priced at \$2.00. Bingham obtained a patent on his smoker and manufactured them for many years. In later years the Woodman Company made

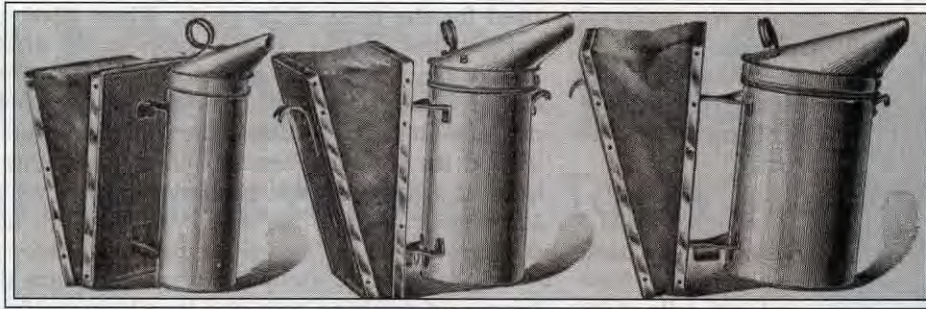
them. Bingham made a number of incremental improvements to his smokers. Since the curved nozzle (or top, cap, or lid, whichever term you prefer) had not yet been thought of, Bingham added a curved piece of metal, held in place on the nozzle by a piece of coiled wire, to help direct the smoke downward onto the frames. The coiled wire also helped in removing or replacing the cap when it was hot.

A.I. Root found *Quinby's* new smoker invention to his lik-

Continued on Next Page

Cornell Smoker





Three sizes of
Corniel Smokers

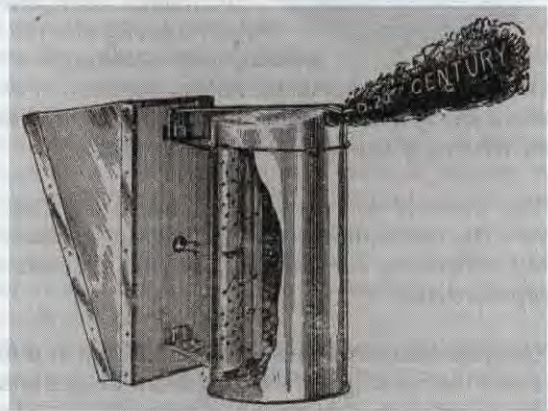
ing.

"I had heard of Quinby's smoker having a bellows. I could not imagine how a bellows would add to its efficiency... On actual trial, however, I found that Quinby's new smoker had many qualities that I had not given it credit for. It was light, very neat... It would also drive bees anywhere I wished with such ease and speed and with such an extremely small amount of smoke that it was an agreeable surprise on first using it." [A. I. Root, An Eyewitness Account...]

Like Bingham, A. I. Root deserves credit for improvements he made to Quinby's original idea.

"In 1877 I made my first bellows smoker, taking the idea from another beekeeper, who used a teakettle affair, in which a fire of rotten wood smoldered. The kettle part, however, was small, made of tin, and covered with an inverted funnel to direct the smoke. To prevent it from being

overturned I mad the base large like an oil can... The bellows underneath was simply a strip of strong leather tacked to the edges of two square boards. In order to have nothing to get out of order I dispensed with valves entirely and simply cut a hole in the bottom of the "kettle" to match a similar one in the upper board of the bellows."



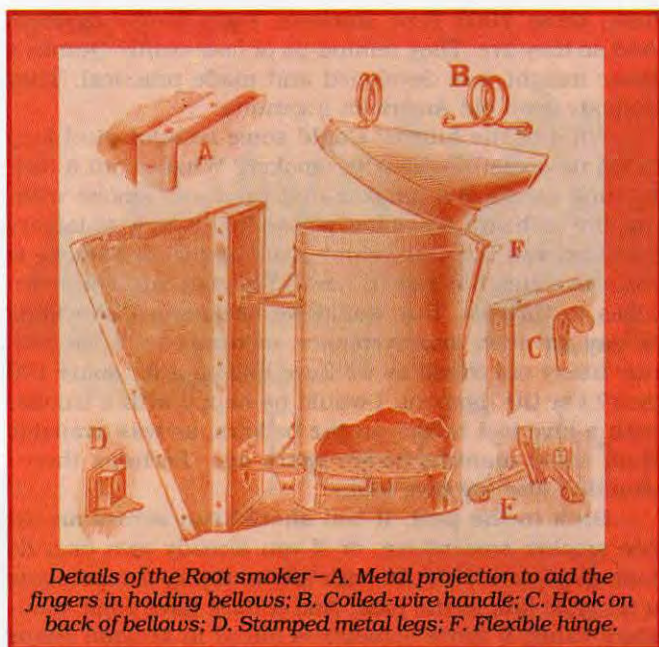
Danzenbaker Smoker

The Simplicity Smoker



Well, the larger base was certainly a step in the right direction, since many of the early bellows smokers were rather top-heavy and had a tendency to topple over when set aside. And doing away with the direct connection between bellows and fire chamber created a small draft hole which helped keep the smoker lit when not in use. Smokers of the original Quinby design, with a direct metal tube from bellows to fire chamber, were prone to go out readily. Moreover, the direct connection made it possible to suck sparks or embers back into the bellows, causing damage. Apparently T. F. Bingham had also had the idea of leaving out the metal tube between bellows and fire chamber. This was a fertile time for various improvements to the smoker and it is sometimes difficult to determine just where credit is due.

During the 1880's, the pages of the bee journals sometimes heated up with a debate over which was better, the hot-blast or the cold-blast smoker. The difference has to do with where and how air is introduced into the fire chamber from the bellows. Quinby's smoker, Bingham's, Root's (and modern smokers) employ the hot-blast principle in which the blast of air from the bellows enters the fire chamber below the burning fuel and is forced through the fuel and out the nozzle. Some felt this technology had its defects. In a letter published in *Gleanings In Bee Culture* in February of 1879, John G. Corey wrote as follows: "All smokers made on



Details of the Root smoker - A. Metal projection to aid the fingers in holding bellows; B. Coiled-wire handle; C. Hook on back of bellows; D. Stamped metal legs; F. Flexible hinge.

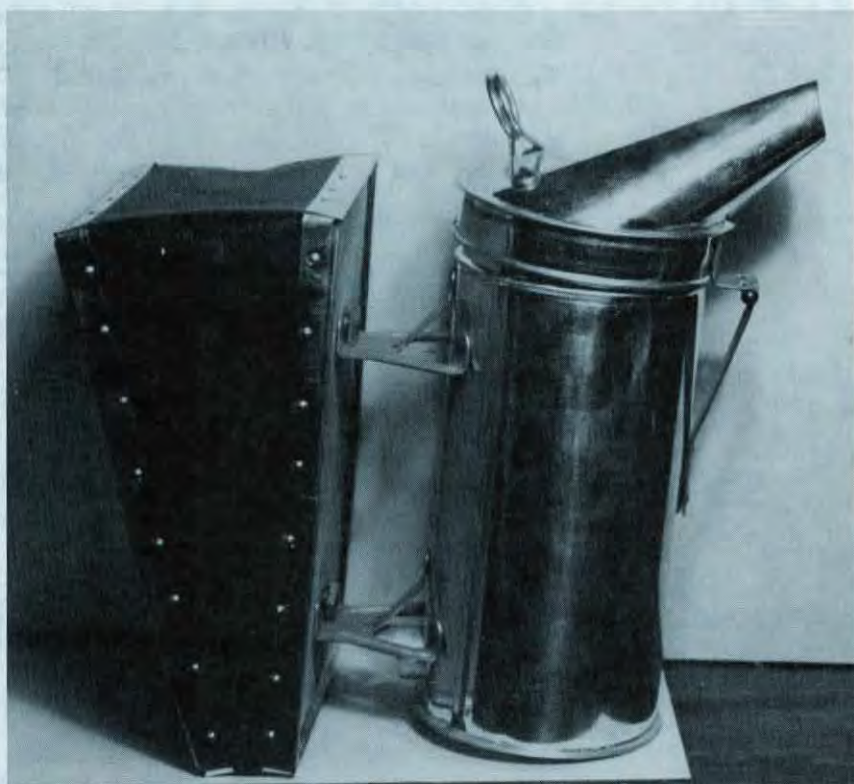
the principle of blowing a blast of air through the chamber containing the fuel are defective for this reason. The fuel is made to burn up rapidly, and worst of all, the smoke is hot, and who has not noticed how hot smoke irritates bees instead of quieting them?" Part of the problem Corey describes probably had to do with the inverted funnel design of the tops of many of the early smokers, which necessitated turning them almost upside down to get the smoke into the hive. Sparks and embers could drop out onto the bees. That would irritate them, no doubt. At any rate, in the issue mentioned Corey's smoker and A. I. Root's were diagrammed and compared. Though much like Root's, Corey's smoker made use of an inner cone "to permit blowing the smoke from in front of the fire." [Pellet, *History of American Beekeeping*.]

Now on to the cold-blast principle in a more popular form, as described by Paul Jackson in his book titled *Smoking Allowed: A Pictorial Past Of Honey Bee Smokers In The United States*. Here's what he writes about the Clark Cold-Blast Smoker, which first appeared in 1879:

The "cold-blast" principle was invented almost simultaneously in 1879 by J. G. Corey of Santa Paula, California, and by Norman Clark of Sterling, Illinois, each without knowledge of the other. Clark's was the better design, and further improvements led to the Clark Cold-Blast Smoker. The "cold-blast" principle meant that the air was forced directly from the bellows by means of an internal tube to a point inside the firebox, but above the fire. This made it possible to send cold, smoke-charged air out the spout onto the bees. The disadvantage of this smoker was that when set down for a short period of time, it would readily go out. This meant the smoker had to be relit for nearly every hive. This smoker was so popular, however, that over 20,000 were sold in a short period of time. The Clark Smoker was sold for less than half the price of others on the market... [Anyone wishing to take a closer look at the development of the smoker should get a copy of Jackson's book. The book is a treasure trove of pictures of old smokers with their history and technical details. Available from A. I. Root Company].

For a time, it seemed that the cold-blast smoker might become the standard type. But, as the hot-blast smokers improved in design and efficiency, cold-blast smokers faded from the scene. The cold-blast types had their faults. As mentioned, they would go out readily when set aside. And as the 1917 edition of the *The ABC & XYZ of Bee Culture* has it:

"For a large volume of dense smoke, the hot-blast smokers are far superior. ... One must work the bellows of a cold-blast almost constantly in order to get a smoke dense enough to subdue bees. Even then the force is too strong; while a hot-blast furnishes a gentle breath of strong smoke that will conquer." [p. 658]



An A.I. Root smoker made in the 1950s



Original Quinby Smokers

And so this 19th century technological battle was decided. The hot-blast design would reign. Somewhere along the line A. I. Root and other manufacturers added a metal tube aligned with the hole in the bellows and projecting halfway or so into the fire chamber under the grate. The tube prevents sparks from being sucked from this opening with the release of the bellows. This anti-spark tube also reduces fuel consumption and made more efficient use of the blast of air from the bellows. It is found on smokers to this day.

By 1903 the A. I. Root Company was offering smokers in three different sizes (Junior, Standard, and Jumbo). If you wanted one made of copper, they were available as well. All were fitted out with nifty new nozzles that were compact and highly functional. They

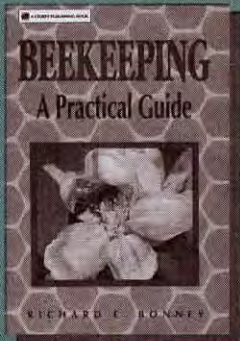
look, these 1903 Root smokers, surprisingly modern. And so they are. They remind us of how swiftly Quinby's basic insight was developed and made practical. They embody good old American ingenuity.

What of the future? Could some technological leap bring us something new in smoker? What about a self-lighting smoker? A smoker that produces smoke without fire or heat? A smoker whose fuel supply is factory installed and lasts for years? A smoker whose smoke is toxic to mites but not to bees? You can add your own ideas to this list. But would we beekeepers be willing to pay for such improvements, or would we stick with our trusty old friend as we have known it for some 100 year? For the moment, I would be happy with a smoker with a hive tool holder on the bellows, as was available from some manufacturers years ago. Perhaps then I wouldn't lose my hive tool.

Back to the past. If you should run across an old bee smoker somewhere, or if you already own one, do take good care of it. As with any antique, it represents a tangible link to the past. And it does have some monetary value, if those sometimes found in antique shops are any indication. (Many antique dealers don't even know what they have is an old bee smoker. They just know it's decorative and charmingly quaint.) We beekeepers should remember that old smokers embody much of the history of American beekeeping. They all have a story to tell. **BC**

Richard Dalby keeps bees, and writes about beekeeping from his home in Levan, UT.

Dick Bonney's Best...



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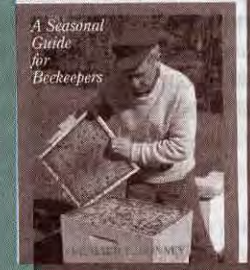


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A Collection of Beehive Crud

Bad Things – Good Hives

Well, I need some descriptive words to go here, but none are jumping out. I found a few things wrong in the yard. These problems in the BC Yard are not insurmountable, but they are problems. Last week I worked some of the colonies and found an interesting motley collection of problems and successes. I have never claimed to have a chokehold on good luck in beekeeping. I can do no more for my hives than you can do for yours. Sometimes, it just seems that bad things happen to good hives. I don't know why, but I am trying to learn to accept these setbacks and still look toward one day having the perfect yard. But not today.

Laying Workers

In months past, I wrote of a nice swarm that I hived just after it issued from one of my colonies. I photographed it, wrote about it and hived it. I hived the swarm in a 5-frame nuc and set it back in the yard to settle down. Piece-of-cake! Everything went great. Last week I went to the new hive to transfer it to a deep hive body and found that the swarm had dwindled from five pounds to about a pound of bees and had a healthy number of laying workers. The classic indicator of multiple eggs in single cells was present everywhere. I don't know what happened. It was a prime swarm when I retrieved it. Now it was a nearly useless little blob of discouraged bees.

What to do with a laying worker colony?

Most of the time just combine the colony with another stronger colony. By the time the laying workers have developed, the colony has depleted itself of many of its stores and most of the bees are old and worn.

Laying worker colonies are difficult to requeen. Workers consider the hive to be queen-right and will resist the introduction of a new queen. I don't hear it too much any more, but many of the older bee books gave a procedure for dealing with laying workers that was simply wrong. The beekeeper was instructed to remove a laying worker colony some distance away (25-50 yards) from the permanent location and dump the bees out. Healthy bees

Multiple eggs in a laying worker colony.



A failed queen (drone layer).





Thick mat of bees making queen-finding difficult.



One of two package colonies that are in great shape.

would promptly fly back to the original hive site, while the heavy, egg laying workers would stay behind being lost and confused. Wrong, wrong. It is now reported that laying workers may actually take an occasional foraging trip. Laying workers clearly know the lay of the land and will fly back to the original home site as quickly as a normal worker.

So what did I do with the colony? Nothing, yet. I will combine it and present a report to you on that procedure, but I have been in no hurry. The damage is pretty much done.



Two cells of American Foulbrood.

A Failing Queen

After having dealt with the laying worker colony, I opened a strong, populous colony positioned next to it and found that it was not as strong or as populous as I was expecting. What now? I pulled out a comb with a lot of drone brood and made a mental note that that comb should be replaced. The next comb out was no better. This hive did not have a comb problem but clearly had a queen problem.



About three pounds of pollen drying in a large shallow pan.

A nearly filled propolis trap. A few remaining streaks are open.



A nice shaded Tennessee beeyard.



Replacing the Queen

True story follows. The first frame I pulled out had the queen on it. I commented that seeing her was too easy as I replaced the frame and pulled out another. That's when I began to learn that this colony had a queen problem. I quickly went back to the frame on which I had just seen the queen. She was nowhere to be found. Ultimately, Dave and I had to completely close up the colony, wait for a half hour or so and look again. Finally, we re-found her and replaced her with a commercially produced queen. The bees in this hive had a quirk that was annoying – they would form a thick mat on the comb thereby hiding the queen. Most bees do this to some degree, but this colony went far beyond what was necessary.

Though I have frequently said that I didn't always replace queens in a timely way but this colony really needed a new queen and I didn't hesitate.

American Foulbrood – What next?

One of the plastic colonies in my yard had a slight case of American Foulbrood (AFB) several years ago. I wrote about it. We removed contaminated frames and treated with Terramycin and all was well for three years. Now it is back. Honestly, in classic form, I think I am responsible for the reoccurrence of the disease. I used some old comb and upon very close scrutiny, we could find an occasional suspicious cell in some of the old frames. I thought I had looked at the combs very well before I put the extra deep on the colony, but apparently I did not. At this very moment, I have not decided what to do with the colony – treat or destroy. It is a strong colony and the infection is slight, but it is there – no doubt. I suspect we will once again destroy the worst frames and go with the Terramycin treatment again. I know that many of you do not like using drugs or chemicals. Neither do I, but this is a good colony in international plastic equipment. I really hate to destroy both the bees and the uncommon equipment – and all because of my error.

2001 Package Bee Development

From previous articles, you may recall that I installed two new packages that I got from Wilbanks Apiar-

ies last spring. The packages arrived in good shape, but I had to hold them over the weekend. Finally, I was able to install them and as I admitted before, I freely used drawn comb and capped frames of honey. Thankfully the package colonies look great. They had done a great job of drawing out all the new foundation and had put up a reasonable amount of honey – even though this has not been a great honey year.

We put on another deep, but I really doubt that much more will become of the honey crop from these colonies. The 2001 nectar season, in my area, has been erratic and unexciting. As with package bees from many package producers, the bees are gentle and productive. They are a joy to work and a testament to good queen stock.

Mixed Progress on the Propolis Collection Effort.

For an update on the propolis collection business, I present the following report. The colony on which I placed the trap indeed filled the trap with colorful new propolis and it smelled good. It only took about a week for the trap to be completely filled.

But the problem...

I have been having a problem getting the propolis out of the trap. I froze the trap for several days and thought that it would shatter out of the frozen trap when it was twisted and warped. Not so. In fact almost nothing happened. The propolis stayed stuck. No doubt, I don't know enough about propolis trapping and there is some easy technique for emptying the trap. I will try some other things. In the interval, any experience from you on how to clear the propolis from the trap?

Pollen Trapping

The pollen-trapping caper went along fine. You may recall that I put on one pollen trap last spring and reported straightaway that the trap began to garner pollen pellets. I left it on for several weeks and emptied it several times. Ohio is not a major pollen producing area. My pollen crop was always only about three to four pounds.

Modest pollen processing.

All I did with the pollen was su-

perificially clean it by hand and air dry if for several days in a large shallow pan. This pollen will only be used for bee feed. After it dried to a hard gummy texture, I froze it for use next winter and spring. Overall, I only got about ten pounds or so. I will probably use some kind of extender with the pollen to make it go farther.

More Locations for the BC Operation

Not necessarily because everything is going so smoothly, but because my descriptions of beeyard successes and failures could profit from the expansion, I would like to announce two new yards that will occasionally merit discussion. One location, currently having two 5-frame nucs headed by New World Carniolans that I recently put into full depth colonies, is in my backyard. I will use this second location for supporting the operations in the primary BC yard.

A Tennessee Location.

As a second location, I have asked my brother, Dwight, to allow me to use his yard in Franklin, Tennessee as a discussion yard. Whenever possible, Dwight and I will share procedures and techniques and I will report on them in this series. One primary reason for the Tennessee location is the differences in seasons in the late Winter and early Spring. It will benefit me to be able to discuss early spring operations rather than continually describing snow and cold that commonly runs into early May here in my area. Life in the BC Yard will not change.

Next time

I suppose plans are made to be changed. Some things are on schedule while others are not. However, think that I am still winning more than I am losing. The upcoming month will be a busy one. ☐

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FARM MARKET IDEAS



Do the best with what you have and try some of these ideas this year!

Ann Harman

Farmer's Markets come in all sizes, shapes and descriptions. Some are simple, selling fruits and vegetables only as the local gardeners have them available. Other markets are large and have assigned spaces for the vendors.

Some are in parking lots; one I know of is in a huge barn—really a very nice barn. Most Farmer's Markets are seasonal, selling the produce as it becomes available. One market I know of opens back up in December to sell Christmas trees and other seasonal items.

Is your honey being sold at a Farmer's Market? It's an ideal place for honey. People come to Farmers'

Markets to buy—fruits, vegetables, flowers, perhaps jams, breads, pies. Honey fits into the image of these homegrown goodies.

However, you, or someone who knows not only about honey but about your honey, has to be present. Only you can decide whether you have the time to invest in staffing your table one or two mornings a week. Yes, you can be absent some days but you will have to cooperate with the person organizing the market and the requirements they set.

A Farmer's Market is a wonderful opportunity to talk to customers about honey bees, pollination, and, of course, honey and its wonderful attributes.

You will find regular customers

who have seen something on television coming to ask you questions or tell you what they discovered. Repeat customers are the mainstay of your business – listen to them. Learn their names and be able to welcome them—by name. New customers will overhear this. If they decide that your stand is a nice, friendly place offering something good, they will be back for more honey and education into the world of honey bees. Yes, they will bring you their stories about bumble bees and yellow jackets and stings.

Listen to them as best you can unless you are chaotically busy. Then ask them to return when you have a minute to talk.

Selling at a Farmer's Market can lead to some bad decisions by beekeepers. Some of those can be corrected by a little common sense, others by some planning. If you are contemplating selling honey and hive products at a Farmers' Market, and even if you are now, look at the various stands around the market and see which ones look appealing and which seem to be knocked together. Visit other markets and take a critical look at the stands there.

Did you select a rickety old card table for your display? Why? Do you honestly think it looks "farmerish"? Well, it doesn't. It looks like you had nothing else and didn't care. You can use an old card table provided you cover it up with some sort of tablecloth. Fabric shops have a nice assortment of cloth with bees, and even plastic tablecloth which is easy

to wipe clean.

Make the cloth generous enough to reach almost to the ground. If that table is really rickety, don't use it.

If it decides to sway or collapse, I don't even want to think of the mess. Inexpensive but sturdy tables with folding legs can be purchased at many large stores.

Invest in one. Besides you can always use it for picnics at home. These larger tables need a tablecloth, too.

Leave the front of your tablecloth – the part that hangs down – free of signs, flowers and decorations. I once saw, at the beginning of the day, a lovely display of silk flowers fastened to the front of a decorative burlap tablecloth. In a short time the flowers were bedraggled and falling off.

People stand close to the table and brush against them; children pluck the petals; signs get torn. Besides people standing in front of your table prevent the sign from being seen.

If you want to have a sign, particularly one that says "local honey" then put it up high enough to be seen. Check with the market organizer to make sure a sign is permitted or if there are size limitations. By the way, letters two or three inches tall are not legible on a sign to attract attention. Think six inches or more. And keep it simple.

Nothing to hang the sign on overhead? Try this. Get a tall, stout wooden pole. Handrailing poles work well. Then, get an old five gallon pail,



some ready-mix cement and a piece of plastic pipe (just a bit longer than the pole). Mix the cement, put it in the pail, put a cap (duct tape) on the bottom of the pipe and put it in the center of the pail and fill three-quarters full of cement. Instant base.

From the top of the pole, hang banners (with two honey signs) dropping down . . . Local Honey. Weight them so they don't blow. Put two, facing different directions, at 90° (not 180°).

A good table, an attractive sign you better have lots to sell. Don't skimp on your display. Get as much as you can, safely, out so people can see it. They won't buy the last one (usually), so have plenty available.

So your "table" is the tailgate of your pickup. Does the bed and tailgate look like its last trip was to the dump? OK, you just had a couple of bales of straw in it. Your customers do not necessarily know that it was just straw. It looks like mystery dirt. Sweep it out, wash the bed and tailgate. Then consider a tablecloth for the tailgate where your honey will be on display.

Is all your honey in glass jars? Have you even considered squeeze bears or squeeze skeps or other plastic squeeze containers? Bears sell very well at Farmers' Markets. But their biggest advantage is that they are plastic. They bounce when they land on the ground or the asphalt of a parking lot. Avoid catastrophes. Arrange bears or other plastic containers on the corners and sides of your table, even along the front. If customers brush against them you will not have broken glass mixed with sticky honey to clean up.

Furthermore it saves your having to continually say "be careful" to your customers. Some of them will wonder why you don't do something to avoid a problem.

Do women put their large purses down on top of your jars? Or someone who has just purchased a large bag of cherries or tomatoes needs to set it down in order to choose their honey and pay you. There's a catastrophe in the making. Usually it isn't just one jar that goes down. You can end up with a domino effect with containers tumbled in all directions. Try leaving a blank space in the middle of the front of your table.

Don't worry about having to explain the blank place - your customers will recognize and appreciate a spot to put something down.

It seems that the twenty-dollar bill is the standard amount of money used to buy something these days. One jar of honey - here's a twenty. Another jar of honey - here's another twenty. Pretty soon you have a fistful of twenties and a rapidly dwindling supply of ones and fives. The other participants in the Farmers' Market are in the same situation. So there is really no way to look for change. Two things can be done to help this problem. The most obvious is, of course, to have twice as many ones and fives as you think you will need. The other is to thank your regular customers for having the correct amount, or close to it. Enough thanks and they will remember the next time.

I knew one beekeeper who refused to put the purchases in a bag of any kind, paper or plastic. Customers like a bag; customers are used to a bag.

Buy something at a supermarket and it gets put into a bag. Customers at Farmers' Markets do not expect fancy bags. They are perfectly happy with bags you have saved as long as they are clean and not torn. Your cost of recycled bags is nothing. Therefore you can even afford to give the customer a bag to put more purchases in. However, do not hesitate to buy bags so you do not run low. Consideration is appreciated. Otherwise you just look cheap.

Comb honey and creamed honey are difficult to cope with in hot weather. They are best kept in a cooler with a little ice. A sample jar or piece of comb can be placed on your table for display. However, when the creamed honey begins to develop a layer of liquid on top, it is time to remove it from display. Now what? Try rotating the jars of creamed honey so that a cool one is always out and the warming one goes back into the cooler. In this way you will not continually lose a jar of creamed honey and your product always looks nice. Your regular customers will

know you are taking good care of the creamed and comb honey.

Wax ornaments and particularly candles also require care during very hot weather. Unfortunately when these are put into a cooler with too much ice the wax develops a bloom which looks a bit strange to customers. Work out a balancing act, similar to the creamed and comb honey, between wax that is too cold and is too hot.

Is your stand in the Farmers' Market under a tree that continuously dumps an assortment of insects, leaves and miscellaneous bits down onto your table? The shade is wonderful but the tree stuff is not. If it is all right with the market organizer, fix a cover or tent over your stand. If this is not possible, keep a dust cloth or feather duster handy to flick particularly obnoxious bits away. Keep a fly swatter handy for flies and yellow jackets. The non-beekeeping public will consider those yellow jackets unfriendly honey bees - not a good image for our bees.

Are you doing anything to increase your customer's use of honey? I am sure you hear customers telling you "I just put it in my tea." And you nod and say "That's nice." And it ends there. Each purchase can include some information on uses for honey, what to do with crystallized honey, care of honey, recipes with honey, flavors of honey, honey flowers. Much information is available. But it is up to you to develop some handouts.

Handouts these days should be short and readable. Too many words and your nicely-prepared handout will be tossed aside. It is much better to give small amounts of information at many times instead of too much information at one time. With the use of computers today an attractive small handout can be prepared and then printed on colorful paper. Yellow for honey tips, green for honey plants, gold for flavors. Pink might be a good choice for recipes. Many people have a recipe box stuffed with newspaper clippings and white pieces of paper. Pink would stand out and be noticed. Have several kinds of recipe handouts. One

much poison exists. Aren't you glad your kids don't live there? So beekeepers quit or move. And fewer bees die.

Some places are hot on an occasional basis. Pests flare up and it's spray or die. Or, weather gets in the way of what should have worked in the evening, and daytime sprays go on. Usually, maybe even often, bees and beekeepers get caught here. But the communication between those spraying and those sprayed is improving - though often at glacial speed. So here, pesticide kills may be the exception rather than the rule, and a beekeeper can survive and bounce back. Especially if there's some proof of error and accompanying compensation - which doesn't happen just all too often.

But pesticide kills still occur. And even the unexpected loss of a colony to mites is not as devastating as the gut-wrenching feeling when you chance on a colony in its absolute prime that has lost the battle with an agricultural poison. Thirty, forty, fifty thousand dead and twitching bees spread out in front of the entrance, with larvae pulled from their cells mixed in for kicks - like a carpet laid out from the wide open gates of hell.

If you've had a whole yard, where 10 or 20 or more colonies are like this the battlefield is past gut level sickness. The smell, after a day or two is unlike anything you've experienced. The odor of American Foulbrood can't touch it. Rotten eggs, potatoes and onions don't compare.

And the quiet. Maybe a few, but only a few bees in the air. Nothing stirs. No buzz. No whirr past your ear. No flash of light off the wings going by. No streams of bees falling out of the sky to land and unload. None leaving. No play flights. No sound. No movement. Nothing but the smell and the silence and the death and the loss.

The outcome for a colony hit like this is certain. And any remaining honey, brood and pollen inside must suffer the same fate of the match, only you get to deliver the final blow. It's like putting down a favorite pet.

There are some things you can do to mostly avoid this activity. Know

what's growing where your bees are visiting. Know what sprays are applied to what blooming crops so you can, 1) avoid the area; 2) talk to the farmer/sprayer and anticipate the problem; or 3) have packages ordered to replace the dead.

Of course, like the mosquito spray mentioned above sometimes the spray comes to you and your bees don't even have to go looking for it. Registration with the local authorities, adherence to label laws and common sense . . . none of these make a difference most of the time. Dead bees are the result.

No, the pesticide/honey bee conflict hasn't, and won't go away. But to be fair, the abuses of yesterday are a bit fewer. Sprayer training and registration, EPA oversight, label changes, expensive lawsuits, less toxic chemicals and improved IPM practices have all combined to reduce bee losses, in most places.

Of course one of these improvements has been the introduction of crops that produce their own pesticides. Who knows what these will bring. But I'll bet beekeepers are one of the first.

Last month's issue with the feature on candles left out an important bit of information: Don't heat beeswax directly over an open burner or flame.

For some time this Summer we've been short staffed for a whole variety of reasons. As a result each in turn has done double, sometimes triple duty. Like any small operation, it's what you do. We hope it hasn't been too noticeable.

But we're all recovered and returned and are back to full strength and full speed, ready for whatever comes down the pike.

We hope you, too, are ready for Fall and Winter, and are making plans already for next year. It's time to sharpen those hive tools, find one more new market, and double check your colony for the onslaught of Winter. Next year will be better.

Ann Harman

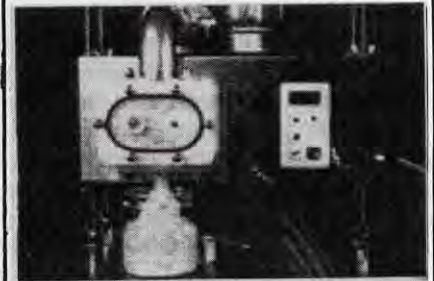
could be for easy, quickly-made dishes; another could be just a cookie recipe or something simple for children to make.

Handouts can be seasonal, too. Now autumn is coming. Recipes for autumn produce - apples, pumpkin, winter squash and pears would be appropriate. As the season draws to an end, recipes suitable for Thanksgiving and Christmas can be given, along with your address and phone number so that your sales continue into the months without a Farmer's Market.

Farmer's Markets are fun. You will meet many people, both participants and customers. The markets provide you an opportunity to match your honey up with other produce. Strawberries and honey are a perfect match. Honey makes an apple pie perfect. So set up your strong table, covered with an attractive tablecloth - and smile! ☺

Ann Harman is a sideline beekeeper and international marketing consultant.

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Richard Taylor

Bee Talk

“It is work, and the tons of honey that are spun out through the warm Fall days between trips to the yards restore both my body and my mind.”

In most branches of agriculture harvesting is the most rewarding phase. It is the time to taste the fruit of one's labor and measures one's success. It is not always so in beekeeping, for the gathering is not a straightforward matter of reaping and taking. The bees, never tamed, do not always yield up what they have gathered with the docility of domesticated flocks. Yet an experienced apiarist has learned their ways and knows how to steal away with their precious honey before they are even aware that he has done it. If their resentment is roused by this, then their owner, if he knows what he is about, is miles away by the time it happens.

The commonest mistake of inept beekeepers is to try taking the honey on a hot day when the flowers have dried up and the bees, already in a sour mood, are ready to take out their frustration on whatever moving thing draws near their hive. Sometimes, too, a careless beekeeper permits sticky honey to become exposed in the yard under these already stressful conditions, by breaking bits of honeycomb or by using a mechanical bee blower which requires breaking the supers apart before blowing the bees out, creating drizzles of honey here and there. This can create a frenzy of excitement in the bees. The air becomes filled with them, and no veil or bee suit is total protection against them. What should be a joyous task becomes irksome, nerve-racking toil, tempting novice beekeepers to wish they had never gotten into such business.

I harvest my comb honey supers as they become filled throughout the

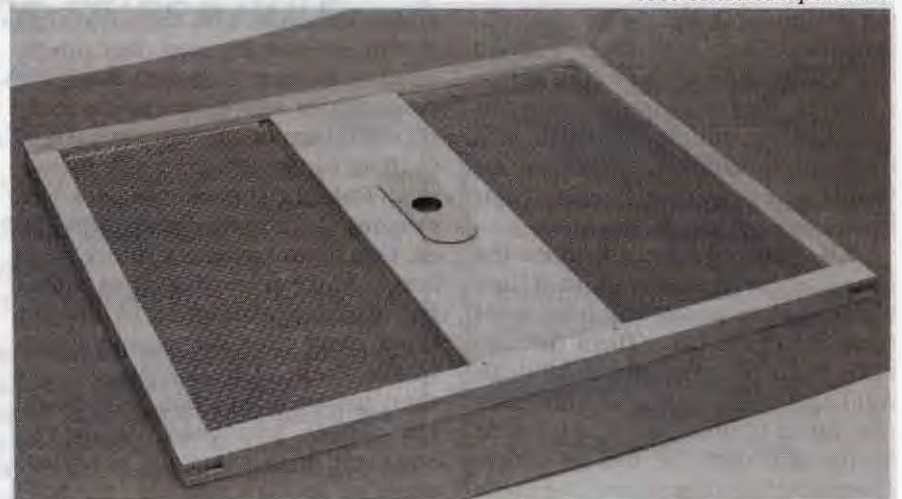
season, beginning in July. Escape screens, which permit the bees to move downward a few at a time into the hive below, but do not allow them to return, are inserted under the supers. Cleverly arranged little wires spring nearly shut behind them as they pass through, permitting only a one-way passage. After a day or two the supers are empty or nearly empty of bees, and I simply walk away with my bounty. Any bees still remaining are sent flying with a few good huffs and puffs as I walk off, for a comb honey super is not so heavy that I cannot hold it in front of my face and blow into it. At the same time I can savor the sight of the lovely comb sections and make a preliminary assessment of their quality. I do not think of comb honey simply as good food; it is the distilled nectar of flowers sealed into snow-white waxen cells of the most exquisite beauty.

The means of harvest is about the same for the honey that will be spun from the combs in my extrac-

tor. It does not matter how long it has been on the hives, for even though the cappings of the combs may have become darkened by the thousands of bees moving over them day after day, this makes no difference whatever in the honey that will be spun from them. When there has been a heavy flow from the locusts or other early sources I try to make preliminary harvest early in the season, mainly to have it on hand for the hundreds of people who are eager to buy it. But there is no need to do this. If the honey flows are slow and drawn out, so that it takes most of the Summer for the supers to fill properly, then the harvest can be put off to September and the honey will be just a good. In that case, however, it is harder to keep the different honeys separate.

By early September, the time of the last and largest harvest, the days are usually bright, pleasant and cool. The hives are tall and loaded with honey. Those that have three shallow supers on them will

A screened escape board.



give me nearly a hundred pounds. Some will give me more, some less, but when I average a hundred pounds overall for the season I am content. This adds up to a ton of honey from an average yard of 20 colonies.

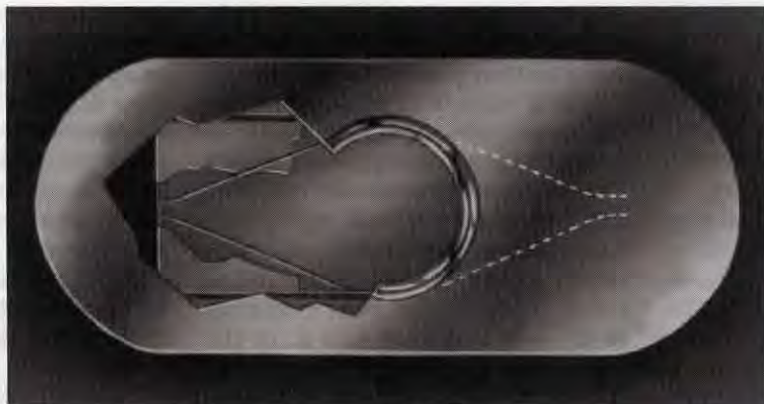
A day for harvesting is at hand, then. There will be more harvest days in other yards, and another day to return and finish the work at the yard I have chosen for this day. Every such day will be pleasant if early snow does not overtake me. I have learned the pitfalls to avoid, learned how to avoid stings, how to avoid straining my back and limbs, and how to avoid excessive perspiration. There will be time, as I proceed with the work, to appreciate the crisp air and bright sun that only autumn provides, and to relish the sight of the goldenrod and wild asters on every side. Sometimes where the soil is very rich the goldenrod grows higher than my head and I must pick my way through it to find the hives it conceals.

The bees have an air of contentment. Their hives are filled and they feel secure for the Winter – a state of being that has been the purpose of all their gathering. They would feel less secure if they knew what is about to happen, but it will take another million years of evolutionary change to teach them the meaning of the beekeeper who now approaches. They long since learned the significance of the bear, whose name in Slavic languages means "honeyeater" but the methods of a beekeeper are more deft and subtle than the rampaging bear's. Their brains are no match for mine.

Of course, I do not menace the bees. I am going to take most of their honey, but they will still have more than enough to carry them through until Spring when their colony life will begin anew. And it is not unfair that I take it either, for it is because of my skill and the means I have provided that they have been able

to gather so much more than they need in the first place. Left to themselves in the hollow of some tree they would gather much less. I have earned what I shall take.

I go about the work with my veil tied snugly, my bee suit zipped up securely and my trousers tucked into my boots. My bee gloves, with their long gauntlets, are there if I need them, but I probably will not. It is doubtful whether my bare hands will receive more than one or two stings possibly none at all, and the greater dexterity of bare hands is worth this insignificant risk. My smoker is fueled, smoldering well, and my pockets bulge with spare twine, corncobs and burlap scraps for occasional refueling. Another



The secret of the escape.

pocket holds a roll of masking tape and scraps of newspaper, which I shall need before long.

Now to begin. I approach the first hive from behind and pry up the top two supers, leaving them tightly stuck together by the propolis the bees have applied to every crack. Just a few cool and gentle puffs of smoke tell the bees they should stay where they are, and they do. They are in no way harmed, but an instinct tells them to guard their precious stores and be prepared to fly off with them in case fire, suggested to them by the smoke, really threatens. Raising the two supers and drawing them toward me an inch or so, I tilt them forward with one hand and hold them effortlessly at a near balance for a moment while my other hand slips the escape screen under them. The two supers are then lowered onto the screen and the whole business is shoved squarely into place. A generous piece of asphalt shingle, softened

slightly by the warm sun, is laid over the crown board (inner cover) hole where it fits snugly, keeping any bees from entering by that route. Now the job is virtually done for that hive, but the hive cover is left off for the time being while exactly the same procedure is repeated for every other hive in the yards, perhaps twenty or so in all. By that time I have slipped escape screens under a thousand or more pounds of honey, and yet I have done no strenuous lifting at all, only a brief balancing act at each hive.

Next I return to the hive I began with and scrutinize the supers above the escape screen for any crack or opening through which bees could enter and rob out my crops, which they will almost certainly do if they can. That is why the hive covers were left off: I want to be able to see that all crown boards, as well as the supers themselves, are perfectly bee-tight. There are always a few that need a bit of chinking and taping over: That is why I have the newspaper scraps and masking tape in my pocket. Where there are holes

and cracks large enough for a single bee to pass through there are by this time several bees clustered, bees that have emerged from the supers. They are a dead giveaway, drawing my attention instantly to the leaks I am looking for. If I had new equipment these precautions would not be needed, but most of my supers are old, some are very old and weathered and cracked and chipped here and there. When I am satisfied that all is tight and bee-proof I replace the covers and the brick that belongs on each and the work is done for the day.


There is time to count the supers and calculate roughly the wealth they will add to my pocket. Forty supers will yield well over a half-ton of honey and many hundreds of dollars. A day or two later, or a week later if I am busy with other things, I return to gather up the supers, heavy with honey but empty of bees. I load them one at a time onto my truck and my little trailer and cover them well in order

to keep temptation away from the bees. The loading up can sometimes be done without even wearing a veil, for the theft is so swiftly performed that the bees do not even know what is going on.

The last super having been loaded, it is now time to gather the escape screens still on the hives, and here smoker and veil will be needed again. A billowy puff of smoke goes right down through the escape screen before I even pry it loose. The screen is removed and replaced by the crown board and cover. Bees still clustered on the escape screens are dislodged with a single sharp blow in front of the hives, and I am then ready to drive off with my crop.

This is the harvest accom-

plished, a different yard each week, sometimes two at a time, always with a least two such procedures at each yard. Meanwhile, I spin out the combs in my honey house and store them away, emptied of honey, ready to be used again next year.

It is good work, and the tons of honey that are spun out through the warm fall days between trips to the yards restore both my body and my mind. The sight and fragrance of a hundred or more gallons all ready to be drawn off into glass jars is by itself enough to ease whatever effort it took to get them. 

Richard Taylor is a philosopher and lifelong beekeeper who lives in the Finger Lakes region of New York.

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?Do You Know?

Answers

- 1. True** The old queen of a colony normally leaves with a primary swarm, provided that her wings have not been clipped and she can fly. Once the colony has succeeded in capping one or more queen cells, then the old queen and 50 to 60% of the workers leave as the primary swarm.
- 2. False** When treating a colony infested with small hive beetles, CheckMite+ Bee Strips are stapled to the bottom of a piece of corrugated cardboard that is laid on the bottom board of the hive. Small hive beetle adults seek dark refuges within the hive and congregate under the piece of cardboard, and thus come in direct contact with the pest strips.
- 3. True** The production of round section comb honey in comparison to the basswood sections is easier since bees do not like to work in the corners of basswood sections. The round sections are easily filled thus providing completely filled sections, whereas, the basswood sections often have open corners. Leaving the basswood sections on the hive longer in order to get fuller sections often results in increased travel stain which reduces the quality of the section.
- 4. False** Typically honey bees work buckwheat flowers only in the morning when nectar is available. As might be expected, it is reported that bees working fields of buckwheat become very cross in the afternoon after the nectar flow has ceased.
- 5. False** Colonies with extremely high *Varroa* mite populations often contain adult bees that are deformed resulting from the feeding of the mites. Dead and deformed bees are usually seen around the hive entrance. The degree of damage depends on the number of mites parasitizing each bee pupa. One or two mites will cause a decrease in vitality of the emerging bee. Higher numbers of *Varroa* per cell result in malformations like shortened abdomens, misshapen wings, deformed legs or even death of the pupa.
- 6. True** The Powdered Sugar Roll Technique is a relatively new sampling method for *Varroa* mites. Brush approximately 500 bees into a glass quart jar with a number 8 mesh lid. Add 1-2 teaspoons of powdered sugar to the jar. Roll jar in your hands to distribute sugar and allow the jar to sit for a few minutes. Invert the jar and shake the mites and sugar onto a piece of paper to recover the mites. The bees will remain in the jar, and mites and sugar will pass through the screen.
- 7. False** The active ingredient in Apistan Strips is the synthetic pyrethroid fluralinate. Coumaphos is an organophosphate and the active ingredient in CheckMite+ Bee Hive Pest Control Strips.
- 8. False** Hawaii and Australia are currently free of *Varroa* mites. In 2000 *Varroa* mites were found for the first time in New Zealand.
- 9. True** At night, greater wax moth adults become very active like most other moth species. Mating occurs after dark in vegetation near the hives. The greater wax moth mating system is unusual in that the male attracts the female. To attract females, males release a sex pheromone and emit short pulses of ultrasonic sound. After mating, a female lays eggs in small cracks and crevices, typically in the hive or stacks of stored combs.
- 10. D) Hymenoptera**
- 11. D) Liver**
- 12. A) Ticks**
- 13. Horntails, Wasps, Hornets, Mud Daubers, Ants, Sawflies, Velvet Ants, Yellow Jackets, Carpenter Bees, Bumble Bees, Leafcutter Bees**
- 14. Larval honey bees are fed royal, worker or drone jelly, a glandular secretion of nurse bees. The older honey bee larval diet also consists of some pollen, as well. In comparison, the wasp larval diet is composed of meat coming from insects, spiders etc.**
- 15. Black plastic foundation is a relatively new product that is currently being used by many beekeepers. It is much easier to see eggs in the bottom of cells that are constructed from black foundation in comparison to white plastic and yellow beeswax foundations.**
- 16. Clustered honey bee swarms survive rain storms by having the bees on the outside of the cluster orient in the same direction so that their wings act like shingles shedding water.**
- 17. Only the strongest colonies should be used for the production of comb honey. In order to produce section comb honey, strong two-story colonies are normally reduced to a single hive body with a single section-comb honey super initially. This extremely crowded condition quickly provides the impulse to begin preparations for swarming.**
- 18. Argentina, China**
- 19. The female *Varroa* mite when she is ready to lay eggs moves into brood cells containing young larvae just before the cell is capped. They go to the bottom of the brood cell and immerse themselves in the remaining royal or worker jelly. She engorges on the jelly, then she begins feeding on blood of the pupa.**
- 20. Queen supersedure rates are high in colonies with nosema disease because infected queens cease egg-laying and die within a few weeks of becoming infected.**

There were a possible 25 points in the test this month. Check below to see how 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 Pathology at Mississippi State University, Mississippi State, MS.

GLEANNINGS

SEPTEMBER, 2001 • ALL THE NEWS THAT FITS

HONEY BOARD NEWS

NEW OFFICERS The National Honey Board elected Gene Brandi, Lose Banos, CA, as its new chair during the Board's annual meeting in Minneapolis, June 16. Jill Clark, Lancaster, PA was elected as vice chair and David Allibone, Sioux City, IA, was elected secretary/treasurer. Two additional Board members, Bob Coyle, Bellevue, WA, and Lee Heine, Hustisford, WI, were elected to serve on the Board's Executive Committee.

The Executive Committee is responsible for the conduct of duties and policies outlined by the National Honey Board.

Chair Gene Brandi has been a beekeeper for 23 years, and manages 1,800 honey bee colonies for honey and beeswax production and provides pollination services to almond, alfalfa and melon growers.

KIDS AND HONEY Most kids eat honey and see bees around them without knowing about the complex and cooperative effort bees go through to make honey. With that in mind, the National Honey Board has created an educational program about honey production that includes an in-depth teacher's guide and creative video for 4th through 6th graders. The program is called "The Honey Files: A Bee's Life" and it makes learning about bees and honey, fun and easy. The teacher's guide contains 96 pages full of worksheets, class activities, games, fun facts and more. The 20-minute video has a comical host who lightheartedly goes through the exploration of bees,

Vice Chair Clark, daughter of a lifelong hobbyist beekeeper, is director of marketing and technical services for Dutch Gold Honey.

Secretary/Treasurer Allibone is Executive Vice President of Sioux Honey Association and has been employed there since January, 1974.

Executive Committee members Coyle and Heine complete the slate of executive officers.

Bob Coyle is President of The Coyle Group, a company focusing on international trade, with a major emphasis in the import/export marketing of honey.

Lee Heine has been a beekeeper for 25 years and manages 700 bee colonies for honey production and pollination services. He is past president of the Wisconsin Honey Producers and past chair of the National Honey Nominations Committee.

pollination and of course, honey!

Jami Yanoski, the National Honey Board's Marketing Manager, spearheaded the development of the "The Honey Files: A Bee's Life". According to Yanoski, "Dr. James E. Tew, PhD., a well known entomologist at Ohio State University Bee Lab, reviewed the teacher's guide and made recommendations on text and illustrations.

The educational program, including guide and video, is \$15.00 (shipping and handling included) takes about four weeks for delivery. With "The Honey Files: A Bee's Life," kids across America and beyond will learn about bees, honey and all the many sweet uses for honey.

NHB DISPLAY KIT Whether you are setting up a honey display at a local farmers market or an educational bee display at your county fair, the National Honey Board's new "Naturally It's Better With Honey" Display Kit can help.

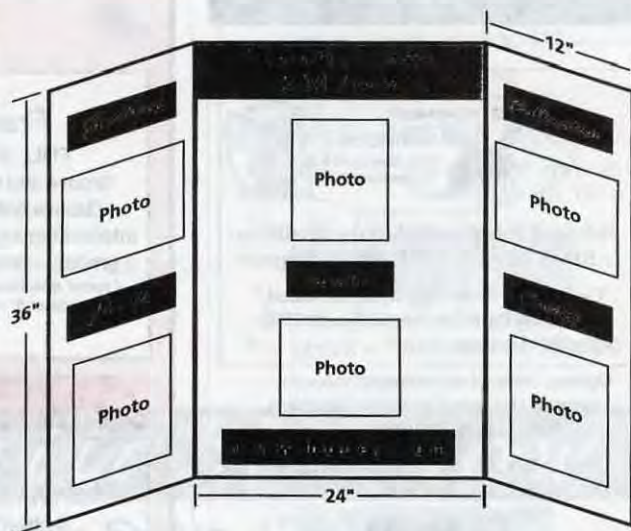
The kit includes a variety of tools to sweeten your display including:

- A foam core display board
- Graphics and signs with Velcro adhesives
- Posters
- Recipe cards
- Honey bee trading cards

- Reproducible honey tip sheet
- Reproducible kid's honey bee coloring pages
- Reproducible kid's activity sheets
- Pencils
- Specialty Item Catalog

The kit also includes a display tip booklet with ideas about how you can customize and expand the display.

Order your kit by sending \$50 to The National Honey Board, 390 Lashley Street, Longmont, CO 80501-6045. Please allow three to four weeks for delivery.



ARGENTINE HONEY PRODUCERS PROTEST

Hundreds of honey producers in beekeeper suits sprayed smoke canisters and waved banners outside Government House, protesting a hefty new U.S. tariff on Argentine honey imports.

The demonstrators, who set up hives with live bees on a downtown boulevard, maintained Argentine

honey was being unfairly hit by a tariff in excess of 50 percent.

The dispute has gained media attention since a decision by the U.S. government to penalize Argentina for subsidizing honey production.

"Honey, we've got problems!" read one headline in the English-language daily, the *Buenos Aires Her-*

ald. The newspaper noted that Argentina exports 80,000 tons of honey abroad each year, half of it bound for the U.S.

American producers have complained the subsidies allow Argentine honey to sell in the U.S. at much lower prices, stinging local competitors.

Argentina's government contends

the money it gives to honey producers is a tax refund.

Argentina only consumes 5% of the honey it produces, while exports net as much as \$100 million annually, according to *the Herald*.

A final hearing will be held later this year for both Argentina and China.

Reduced Pollination

FERAL HONEY BEE PESTS?

A proposal to declare wild European honeybees pests in New South Wales is causing concern and controversy.

The decision, due soon from the National Parks and Wildlife Service, would see feral bees targeted in an eradication program that would likely involve the use of poisons.

Beekeepers have warned that such a baiting program would also kill managed and native bees and other nectar-eating insects. A number of native bird species catch honeybees as part of their diet and could be killed if they ate bees which had been poisoned.

If bees are declared a pest, apirists would be banned from putting their hives on government land, including national parks and state for-

ests sources of a lot of honey.

An independent scientific committee responsible for additions to the Threatened Species Conservation Act has made a preliminary decision to list competition from feral honeybees as a threaten to native wildlife. It argues that feral bees inhabit tree cavities that could be used by native bees, mammals and birds.

The state apiarists association said an extermination program using poisons or pesticides would never be accepted because research showed native insects were also attracted to the bait stations.

Orchardists in the Blue Mountains outside Sydney depend on feral honeybees to pollinate their crops because the area has few managed hives.

OBITUARIES

Margaret Seidleman 85, of Inoia, Michigan passed away on February 20, 2001 at the Clark Retirement Community in Grand Rapids, Michigan. As one of the framers of the Michigan Beekeeper's Association, she was a very active voice in many aspects of the beekeeping industry in Michigan. Margaret was secretary of the MBA for over 25 years, superintendent of the apiaries department at the Ionia Free Fair for over 50 years, a member of the Ionia County Beekeepers, and the promoter of the idea of a Honey Queen for Michigan. She was also the chairman for the National Honey Queen Program for several years. Margaret, with the help of others, annually set up a honey booth at the Michigan State Fair in Detroit, answering questions about honey and honey cooking.

Looking back, the MBA will remember Margaret as a truly remarkable woman who spent hours and days working for the beekeeping industry. She could organize a convention, give a report, or a pep talk or scolding when needed. She was a woman of exceptional energy and ability, which will be remembered in the minutes of the association meetings for years to come.

Gaston McCraney, 73, died on July 8, 2001 in Nashville, Tennessee. He was an active member of the Tennessee Beekeepers Association and the Nashville Area Beekeepers Association throughout his beekeeping career. He was well known in the Nashville area for his "local honey", talks to school children and talks to other civic organizations.

Gaston completed all of the requirements for the Master Beekeeper Program headed by the late Leslie Little. His knowledge of beekeeping assisted numerous individuals in beginning their beekeeping hobby or enabled those already with honeybees to increase their honey production or other hive products.

Keeps Out Nasties

AUSSIE BEEGUARD

Western Australian beekeepers backed a new surveillance program to protect their A\$1-million industry from exotic pests.

The Western Australian Farmers Federation beekeepers section annual conference voted to endorse Beeguard and its implementation by the state's department of agriculture.

Beeguard involves quarantine and surveillance measures covering national quarantine, state quarantine, farm-level biosecurity, surveillance, eradication and containment, control and management, and research and development.

"The W.A. bee industry is worth \$1 million to the agricultural/horticultural industry for its pollination activities alone. Anything that can aid in the protection of the apiary industry must be given priority," beekeepers section president Stephen Fewster said.

"The plan protects the W.A. industry from exotic diseases and incursions entering from international and interstate markets, chemical residues and contaminants, endemic diseases and intrastate threats arising from the movement of bees for pollination services."

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BOTTOM ... Cont. From Pg. 48

bladder and knock each other over. Now without even getting up, he could reach over, grab a hunk of comb and squeeze it into a primitive bronze cylinder shaped vessel filled with a bitter fermented drink.

For some reason, women found this behavior irritating and early man found himself and his dung hives sitting outside the hut. So he loaded up his fishing raft with his hives and floated up and down the Nile River fishing and beekeeping - the first migratory beekeepers and the truly golden age of beekeeping for Man.

From the time of Aristotle to Quinby was the great age of Scientific Discoveries. For example, Swammerdam in the 17th century discovered the queen was in fact female. Up to that time, men thought hives consisted of one happy king, surround by thousands of women. Men learned from the honey bee that it was far less trouble to have one wife and multiple hives than one hive and several wives. This freed up a lot more time for observation and experimentation. Men discovered that if hives were placed low to the ground with the entrance at the bottom, women were at a great disadvantage with their huge flared skirts as the bees always headed out and up when defending their hive. Amelia Bloomer spoiled that great innovation by inventing bloomers.

Perhaps the greatest setback to the establishment of male superiority in beekeeping was the Rev. L.L. Langstroth's movable frame hive. What can you expect from a wienie girl's school administrator? Now it was easy to manipulate hives with a minimum of disruption and stings. Men made halfhearted attempts to regain their former position. They wore dark suits and ties while working bees without veils and gloves. But now the white triple-layer lead-foil-lined NASA surplus space suits allow anyone to keep bees in perfect safety.

Perhaps we men should hang dung pots 50 feet up in trees, grabbing the honey and bungeeing down. But no, we must look boldly to the future. And there is hope. Someday soon, a university sociology professor/beekeeper will invent a radioactive miticide **BC**

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In the Beginning, man and woman were created equal. Yes, males have always been bigger and stronger than females, but prehistoric women could outrun men. We know this from the fossil records which show that while women had shorter legs they had much larger thigh muscles two million years ago. By the time men invented clubs for catching women, women's nails had grown long enough to provide effective protection. Even to this day women paint their nails a bright red to warn men, "don't mess with me, buddy."

After the fall, male hominids became superior to females and they have spent the rest of history trying to convince women of that fact. Man invented the flint razor to scrape the fur off their faces as women looked on in terror and awe. By the time males really figured shaving out, so few were left that women were forced to share husbands. Even up to the 19th century men kept women from voting until they replaced the straight razor with the safety razor and lost women's respect.

History can be most clearly understood as males attempting to impress females and females pretending not to notice. This fundamental and irrefutable interpretation of history is perhaps best illustrated by the history of beekeeping as read in the pages of sedimentary rock fossils from the time of the primitive *Australopithecus* to the most highly evolved of modern men, the university sociology professor or the modern beekeeper.

The earliest days of beekeeping were recorded for posterity in a cave painting drawn by a second grade Neanderthal girl. We know this famous drawing was the work of a second grader by comparative analysis - check out the drawings taped to the walls in the local elementary school. We also believe this girl got into deep trouble by using indelible ink on her mother's freshly scrubbed cave wall and probably never heard the end of it till the end of her "nasty, short, and brutish" life.

This drawing shows a woman harvesting honey comb from a hole in a cliff. We know it is a woman from the long hair and large thighs. She is carrying a purse from which spills stuff that typically spills from purses - crumpled Kleenexes, tubes of bear grease mixed with pigments, etc. At first, women were superior honey hunters and gatherers because they were faster runners. Honey bees moved their hives into cliff clefts and tree hollows. Running isn't much use when you are hanging 50 feet in the air by a vine. So early women deceived men by feigning helplessness. "Honey, if you want honey in your gourd of coffee this morning, you'll have to get it yourself. I have to paint my nails." So Man took the vine that Woman used to climb the cliff and in a sudden flash of brilliant inspiration, tied one end of his ankle. Climbing up to the bee's nest, he grabbed a hunk of comb and leapt - the first bungee jump.

Several hundred thousand years later an unknown mathematical male genius invented the first law of bungee vines which is to subtract the height of the jumper from the length of the vine before the jump. Once again beekeeping technology could move forward.

For several million years, men robbed bees in their nests in cliffs and trees. Women could only look on in admiration and raw envy. Then one day, about 4000 BC, as a woman walked to the well with a large clay pot on her head a swarm

of bees descended into it, the clay hive was invented by women by accident. Once again, women could handle bees as well as men. And women were better beekeepers because they could grab the comb and run faster than men. Man quickly improved on the woman's technological advance by finding a simpler, less expensive material and constructed the dung hive. He then chiseled holes in the walls of their stone house, placing the hives half outside and half inside the living room. Now he could recline on a lazyboulder and look out a roughly rectangular window where huge Neanderthals were paid enormous quantities of clam shells to run back and forth with an oblong inflated pig

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A Brief History Of Beekeeping

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