JUN 1999

Bee Culture

Summertime . . .

Meetings · Inspections · Honey Plants

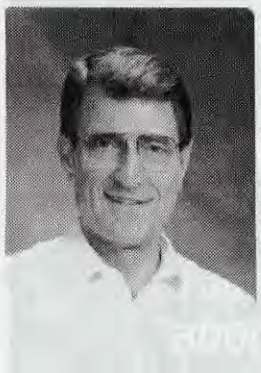
Nucs · Snacks

Bee Culture

THE MAGAZINE OF AMERICAN BEEKEEPING

JUNE 1999 VOLUME 127 NUMBER 6

FEATURES



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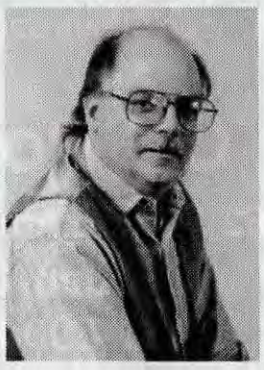

KIM FLOTTUM
Editor

COVER
The lazy, hazy, days of Summer, when work slows to accommodate the heat and if you're smart you save those last few on the end to last; because by then they'll be in the shade – a good place to be at the end of the day.

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Bee Culture

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Disaster Recovery

Disaster recovery is a term computer people use when they try to get all that critical information off your hard drive that just crashed and burned and you hadn't bothered to make a backup. You know, that spread sheet that had all your 1998 sales data on it; or the inventory of bottles and lids you kept; or whatever, that you lost, and need . . . soon and desperately.

The term also applies to other things in life. Like a recent Friday night.

It was about 11:00 PM. I was sitting in my living room about ready to retire for the day. My house sits on a curve, with an intersection veering off at an angle. It's a tricky place, and close calls and squealing tires are not uncommon. But fortunately accidents are uncommon. After a dozen years only four or five close calls have resulted in crunched cars, and only a couple of those were serious enough to let the vested parties make a visit to the local hospital. No one has been seriously harmed by making the choice to go straight without yielding right of way. Messy, yes. Fatal, no.

If you have ever heard two cars collide each going 40 or so miles per hour you will forever know the sound. If you haven't feel privileged. It is a sound, and a feeling like nothing else. That Friday night I heard that sound. No tires screaming, no warning. Just a very loud bang and I knew instantly what had happened. Two cars had met, head on.

I grabbed my remote phone and headed outside, calling 911 as I ran to the two cars, now sitting crosswise in the road.

"Name, address, nature of emergency, injured people..."

People were screaming. A six year old boy was crying. Engines were still running so I turned them both off, did a very quick look-see for major injuries, rounded up the six-year-old, got him away from the glass a gave him a coat. Got blankets for all the rest, and the County Police came. Seven minutes after the call. Fast.

They established traffic control, got ambulances on the way, called the State Patrol, volunteer fire departments, more ambulances and the wreckers. Inside of 20 minutes three county and three state patrol cops were on the scene, one fire truck, two emergency rescue trucks, three ambulances and two wreckers were sitting on, or nearly on my front yard.

The injured parties were whisked off, the small (uninjured) child was taken to his family, the cops slowly drifted off to other responsibilities and finally the two guys who had to move the wrecked cars had the road cleaned off, the cars moved and the quite life on the curve returned. It took about two hours from collision to completion.

What was for me the most interesting part of this, since nobody was seriously injured, was the immense machine that went into motion the second I made that 911 call. All sorts of people and machines were immediately put into motion. Regular, full time emergency people got involved. Volunteer people showed up from all sorts of places and friends and neighbors of those in the accident, and people who lived nearby all got involved to some degree. All for a short, but very intense period of time.

Every body had a job and a responsibility and everybody knew what to do, how to do it and how to make it all work fast, efficient and safe. They made the very best of a very bad situation.

Something similar happened in Ohio the first week of May, after it was discovered that small hive beetles had been shipped into our state. The Ohio Department of Agriculture, which oversees the State Apiary Inspection Service, the Pesticide Control division, The Food Safety division, a Communications division, a Legal Counsel division, and certainly many others, got together and decided that this was an important enough event that something needed to be done at the state level.

Within a week (not that 911 rapid response rate like above, but a week is real fast for a State government to move) of the find a meeting was called with all interested parties (food safety, communications, legal, inspection, state beekeepers association, fruit and vegetable growers, extension and pesticide control) in-

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KEEP IN TOUCH

Write: Editor, 623 W. Liberty St., Medina, OH 44256
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MAILBOX

Producer's Cost

The beekeeping industry is going through the same globalization and vertical integration as the rest of agriculture, currently hogs being the most visible. The more control of packing and distribution along with the more control of production the easier the price can be fluctuated to eliminate the competition. Andrew Carnegie perfected the technique for the industrial revolution. The poultry industry adapted it for agriculture. The hog packers either have the growers over a barrel or they own them. Will the next commodity be honey, grain, or milk? Income returned to the farm after inflation is the same as 1910 (A. Clark, U. Ontario). Where does the rest of the increased food dollar go? To distribution and marketing.

The fairytale is that market profits are distributed to everyone in the system. We should have all learned in Econ 101 the profit is returned to the shareholders. The producer is a cost. In the Wal-Marting of America finding the lowest cost regardless of the consequences is worshiped. When the public is apathetic to the source the packer follows suit by purchasing the cheapest product while maintaining a profit percentage. Who will care if the purchasing price is below our cost of production? This apathy will also increase the blending of analogs.

The beekeeping tradition has been to produce and let someone else market the product. The percentage taken for that marketing has been steadily increasing in all areas of agriculture. By direct marketing, co-ops, and other means the ones that are going to make it will be involved to some extent in getting the product to the consumer. The balance will be economic serfs hoping to receive a profit (see Econ 101 above), subsidizing their operation with other work or retirement income, or will be wiped out.

That is the way I see it.

Doyle Freeman
Cherry Tree, PA

Clean Queen Excluders

I use queen excluders and I always have the problem of getting the burr comb off and getting them cleaned up and ready to use the next year. (The metal bound always have less wax on them than do the wood bound, because they violate the bee space less.)

Scraping is time consuming and wax melters have problems.

The real solution is to use a steam cleaner. Scrape the wax and propolis off both sides of the perimeter frame with a hive tool and also off the one face that is smooth from one end to the other (cross ties are on the opposite side). Then lay an old truck tire down on the concrete and place the excluder over the rim hole (it won't slide around while being washed). This holds the excluder up so the hot water and trash has some place to go.

Between the high pressure and the hot water the wax and propolis come off pretty quickly.

If you don't have a steam cleaner you can rent one. The thing that makes me mad is the fact that I didn't come up with the idea years ago. I also find myself trying to get the excluders cleaner than they really need to be.

If you have a drain in the floor you could put a piece of cheese cloth in it and recover all of the wax.

Jim Higgins
Hillsboro, OH

Apimondia Airfare

Reduced rate round-trip airfares to Apimondia '99 are available from Minneapolis to Vancouver, Canada – but you must take action NOW! A group of 30-40 beekeepers is needed to obtain reduced airfares, departing Minneapolis on Saturday, Sept. 11, and returning Sunday, Sept. 19.

Call Beekeepers and Flight Coordinators Myron and Janet Lindahl at 218.729.7225 immediately for details.

Myron Lindahl
Hermantown, MN

Who Pays?

The April issue of your magazine had a column by Mark Winston explaining why Apistan strips work so much better than the essential oils. The oils need to be formulated to precisely control the dose that is dispersed in the hive, and professor Winston suggests U.S. beekeepers might donate about 1,000 colonies for the testing of new delivery methods for essential oils and other plant-derived formulations to kill mites.

This Canadian professor then suggests our National Honey Board "will soon have available a large pot of research money from the new legislation passed by Congress," which he would like to be sloshed his direction. As you may have noticed, nearly every article written by Mr. Winston seems to affirm the need for more government involvement in our lives, and each month he is beseeching those of us who work in the private sector, to fund and support those who are already living off the taxpayer (i.e., university extension personnel, scientists at USDA, state university professors, and the NHB). To top it off, he would have any royalties made from the future sales of any new miticide formulation developed from this research, to fund future research forever! Talk about job security, this guy doesn't plan on solving the beekeepers' problems once and for always with his research, but eagerly looks forward to spending the rest of his life living off of the money made by beekeepers who will have to pay extra money for this new miticide

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MAILBOX

because of the commission or royalty going back into more "research" being done by taxpayer supported professors.

If we believe in free enterprise and capitalism, then let us use what is available and be content with that, until such time as private corporations or an enterprising person develop a miticide or other remedy for the afflictions of our bees. There is also the option of the larger commercial beekeepers voluntarily donating money or bees to any university or scientist they so choose, but it should not be the role of government or the NHB to force the payment of money from beekeepers to fund research that professors such as Mark Winston ought to be doing on their basic salary.

Leon Moyer
Rogersville, MO

Editor's Note: *The argument made here has long been heard, but never, I believe, been made to work. Technical advances in any industry begin, and are proven to work only because somebody, somewhere invested in research. Whether corporations for internal discoveries or universities for public research, the consumer ultimately pays the bills. Both corporate and government money paid the bills for the original Apistan work. Now, the beekeeper consumer is paying back that original investment.*

Call For Action

We need to make the term "economic externality" a household word. In our case the honey bee pollination (that is rendered free of charge) is called an economic externality. An external economy occurs when action (honey bee pollination) results in uncompensated benefits to others. Entomologists have established a value to U.S. economy in the billions.

At the moment, I am searching the literature for data that will permit me to say: "Failure to recognize the value of free honey bee pollination to the U.S. economy contributes to a market failure for U.S. beekeepers.

Are we stretching a point, if we say that the main produce of the honey bee hives is honey and pollination service? In total dollars honey and pollination (hired) is probably our main sales product. However, honey and hired pollination cannot be called "economic externalities," but free pollination can. As I stated above, this free service is valued in the billions. From this one might safely conclude that honey producers offer two items to the public – honey and free pollination.

General recognition of the honey bee pollination story is not well understood. What reasonable recognition should honey producers receive for this economic externality? Subsidies, outright government purchase of honey, favorable import legislation, and so on? In my view legislation with import protection would be best. Using the term *failure* to describe our market program will immediately raise the check-off buffs' hackles. It might not be appropriate to say our honey market is a failure for the entire industry, since a few lawyers, honey importers, honey packers, and honey board personnel are doing quite well.

In my view, after searching the literature of the several education disciplines that are concerned about agricultural well-being of U.S. farmers, long term legislation is sorely needed (such as import protection) instead of band-aiding antidumping, temporary subsidies, and dumping our whole marketing problems in the laps of an agency such as the honey board. Public awareness of the importance of the externality that U.S. honey producers inadvertently create for farmers, will, in my view, be a first important step.

Public awareness of the pollination externality will give us an opportunity to:

- Give good justification for promoting U.S. honey only
- Have a real chance to get legislation that will protect us from imports
- Give sound reasons for appropriation for research, etc.
- Boast about our role in lending significant support to the U.S. agricultural economy.

And so – stay tuned – your comment is needed. You can help – ask and I will tell, but don't volunteer if your business will suffer. We need your support – any degree.

Glenn Gibson
U.S. Beekeepers
Box 368
Minco, OK 73059
405.352.4944

Protect Those Hives

I took this picture of my beehive wind protector. It was in the *ABC & XYZ* book.

There is a wood working place 1/2 mile from me that makes picture frames from oak. The trimmings they put in large bundles. The pieces come 8, 10 and 12 foot lengths and they're free. I get about 200 good pieces out of each bundle, the rest is kindling. As of today my bees are doing great. They seem to be very strong.

Virgil Downs
Mansfield, OH

Analyzing World Honey

I read with great interest Mark Winston's "Trade Talk" in the December 1998 issue. He raises a subject, world trade, some of us know far too little about and yet are affected by, more and more each day. I agree with Mark that whining does little good for any of us. What we need to do is analyze the world honey market, as he suggests, and find out where we

fit. The world has changed and is continuing to change and we must change with it or be left behind. What *Bee Culture* can do for us is run a series of articles that do just that – analyze national and world honey trade, honey markets, and tell us how U.S. producers fit in and what we can expect from the future and perhaps suggest some business strategies that we can employ to be successful.

Included in these articles would be the relationship between producers and packers and national and international trade. This would tie in the National Honey Board and its current proposal for changing the makeup of the Honey Board. It could also address the issue of whether U.S. Beekeepers should be supporting advertising for all honey or just U.S. honey as an effort to market our product. I am just a little producer and fairly new to beekeeping so I don't have the benefit of Mark's background or contacts to draw from in my analysis of where we stand but perhaps some thoughts would help provide a skeleton on which your articles can hang flesh.

Recalling economics courses from my high school and college days, I remember the explanation of world markets and what happens with totally free trade. First we have the law of supply and demand. If the demand is greater than the supply, the price goes up.

Generally, anyone can get into the business and stay in business, because the supply is short and prices high. Oversupply, supply greater than demand, drives the price down and consequently, only those who can sell at a low price and still make a profit can stay in business. (Isn't this where we are or are headed in the world trade of honey?) The second law or rule is that ultimately, only those who can produce the product the cheapest will remain in business. Example: Two countries, Japan and the United States, both produce apples. To simplify our discussion, we will assume each produces the same quality of product. Under totally free trade, whichever country can grow the product cheaper will end up producing all of that product and the other country will be forced out of business. So, if Japan can produce cheaper apples, apple producers in the United States will eventually be forced out of business. The same would be true for honey producers. So, can U.S. beekeepers compete on the world market – long term? What helps determine the answer?

One input is labor costs, as mentioned by you, Kim Flottum, in one of your recent "Inner Covers." Here in the state of Washington, the citizens recently passed an initiative that raises the minimum wage significantly and that also ties the minimum wage level to inflation. To suggest that the minimum wage is too high or that people living on minimum wage jobs are making a satisfactory living, makes one appear callous at a minimum and totally uncaring and not in touch with reality. If we were only competing with other U.S. beekeepers whose workers have similar standards of living, and face the same labor problems the answer might be yes, we can afford higher labor costs until we collectively price our product right out of the market – people cease to buy the product because it is a luxury not a staple item. However, the standard of living in other countries is not the same as the U.S. and the recent recession in Asia and around the world has only exacerbated the problem. Troy Fore with the American Beekeeping Federation has reported that Argentina is now selling honey in the U.S. for a lower price than China was when the anti-dumping suit was filed, and at this price, Argentina is not dumping honey but selling it for more than they can get at home. (An appropriate aside would be to mention that Argentina devalued its currency in 1995, more on that later.)

To overcome high labor costs, use technology. As far as I can determine for the most part, the U.S. honey producers are using the latest and best methods available. We have been able to compete in the past because demand was greater than supply or other countries lacked an industry or because many of those that had an industry lacked the latest methods or equipment. That is changing for our detriment. As the rest of the world gets better, we lose our ability compete because the competition edge goes back to those with lower labor costs.

Get bigger. This is what is taking place not only in the bee business but most of U.S. agriculture as well. Dr. Michael Burgett, Oregon State University, has been tracking commercial beekeeping operations in the Northwest for many years. Commercial beekeeping businesses are growing each year in the number of hives being operated. This spreads the labor cost and the cost for trucks, fuel etc. as beekeepers try and minimize costs per hive. Beekeepers are also setting (renting for pollination) each hive more times per year. What is the downside to this? Can a beekeeper with 4000 hives really give them the attention they deserve? In other words, can one afford the labor costs? Is comb inspected as often as it should be? Or do we just throw terramycin patties in each Spring to mask our lack of weeding out frames that have AFB spores? Inspect for failing queens or just take the dead outs and refill them with splits the following Spring? Necessary methods of operation change when the size of the business changes.

Make your money from pollination fees not honey. In the Northwest, between 65 to 70% of the income to commercial beekeepers comes from pollination fees (Dr. Michael Burgett). But at what cost to beekeeping families? Six or more weeks on the road moving bees. What does that cost?

Devaluation of Currencies. A discussion of foreign trade is not complete without discussing currencies and standards of living between countries. One of the reasons honey prices are low in this country is because of devaluations of foreign currencies. When a foreign country devalues its currency, United States products become more expensive to that country's citizens and its products become cheaper to U.S. citizens. Argentina, Mexico, Brazil and now

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MAILBOX

four Asian countries have devalued their currencies. I had an opportunity in February to discuss this subject with Dr. David Schweikhardt, agricultural economist, Michigan State University, at an American Farm Bureau Federation national Leadership Conference. He confirmed my worst fears when he said his sources indicate that China has already made the decision to devalue its currency, all we are waiting for is the timing of the announcement. If China devalues its currency the American Bee Federation's lawsuit to halt importation (dumping) of cheap Chinese honey will become superfluous. There is nothing one can do to compete with devaluations. The standard of living in the United States is at one end of the spectrum, the top, and most of the rest of the world is at the bottom. If you think the rest of the world is going to raise its standard of living without the United States having its standard of living going down, I believe you are in for a rude surprise. You might ask Mark Winston if he would support Canada raising its exchange rate from 65 cents to the dollar to an even dollar for dollar! How would that effect the sale of honey between our two countries?

As you can tell by now, I am pessimistic about U.S. beekeepers as well as most U.S. agricultural producers being able to compete in the international market long term, primarily as a result of the differences in standards of living and devaluations of foreign currencies. An example: Apples, Washington State's premier agricultural industry. "It has been estimated that, in 1997 China had almost seven million acres of apple orchard, of which about 30 to 40% had yet to come into production. (If you think the honey market is in oversupply, just think what is going to happen to the apple market.) In comparison, Washington State probably has about 200,000 acres," according to Geraldine Waner, *Good Fruit Grower*, December 1998. This year was a record production year for Washington apple growers. Unfortunately, with the Asian economic crisis apples were left on the tree for lack of sales. Apples that normally could have been sold for juice – at a profit – were not used because China sold juice to the U.S. market at a price so low, apple growers could not even afford to pay for the labor to pick the apples. The apple industry is now looking towards an anti-dumping suit. While NAFTA may benefit some U.S. agricultural producers in the short term, in the long term, I am unconvinced that it is our best interests, primarily because our standard of living will have to come down in order for us to compete with countries with a lower standard of living.

Let me give you another example. One of our Washington State beekeepers made a trip to China a few years ago. What he saw was a beekeeper living in a tent with his family and all of his beekeeping equipment. When the weather turned cold, the government loaded the beekeeper, his family, beehives and equipment on a railway flat car and transport him to South China where he would live, making honey during the Winter months. Can we compete with that?

I end with a reference back to Mark Winston's citing New Zealand finding a niche market. Is it really in the best interests of U.S. beekeepers to promote all honey? Maybe, given the above, we should be promoting only U.S. honey! Maybe the Honey Board should be changed to only represent and promote U.S. honey. Why should U.S. beekeepers promote the selling of Canadian or Chinese honey? Who in Canada is promoting sales of U.S. honey? I speak to the public quite often about bees. I am generally asked the question, "Bob, what can we the public do to help with the pollination crisis?" My answer is in the form of another question. "How many flowers in the U.S. did the bees producing Canadian honey pollinate? The answer, None! If you want to help U.S. beekeepers buy U.S. honey, and better yet, find a local beekeeper and buy their honey!"

I know many in U.S. agriculture support NAFTA and many beekeepers support the National Honey Board. I ask you, Kim Flottum, and Troy Fore and Mark Winston to bring in the experts and tell me where the above reasoning is wrong. (It would be nice to hear that I am.) Have the trade experts and economists tell us that we can produce honey as cheaply as China and there will be greater demand than supply. But if they can't do that, then maybe you should tell us that we should be banding together as U.S. producers, and employing market strategies that sell U.S. honey!

Robert Bower
Olympia, WA

In the May issue of *Bee Culture* we previewed a new product called Liquid Bee Smoker. This product can be purchased from: Liquid Bee Smoker, 6539 West Olive Avenue, Fresno, CA 93722, 559.277.8456.

Kudos To Lloyd Spear

I have been an avid reader of *Bee Culture* for the past 12 years. I tell anyone I meet that wants to start beekeeping to subscribe. I have mentioned in a post or two to BeeL that the magazine is good and getting better. There are good articles in every issue and I enjoy the Inner Cover too. Richard Taylor's articles are always good and I really liked the last one because I am good friends with and a neighbor of Herman Danenhower, who was the subject.

My purpose of this message is to comment on the articles written by Lloyd Spear. Last May he wrote one that really had some great management tips. I told him how good I thought it was when I spoke with him at EAS. I tried some of what he said this year and was very pleased. I hope he will continue to write and you will continue to publish his articles.

Ron Bogansky
Kutztown, PA

INNER ... Cont. From Pg. 6

vited to develop an action plan. There were those who favored burning and immediate depopulation, those who thought quarantine was best, and those who thought intense scrutiny and wait-and-see would be better.

The discussion was, to say the least, focused and intense. The Ag leadership and the pesticide regulatory people were the most conservative. The beekeepers, growers and the inspectors were the most liberal and the final outcome was more beekeeper oriented than not, but compromises were made on both sides.

The similarities of these two events is what interested me. The 911 call initiated a whole series of events, actions, reactions, and responses. The ramifications of the accident will continue for quite a bit. Undoubtedly insurance companies will be involved, along with their attorneys, investigators and others. The police, both county and state will continue to follow this, making sure all the right things get done relative to their expertise. Medical follow-ups will go on, especially for the lady with the broke-in-eight-places leg. Some summons will be issued because some of the people were not wearing seat belts and bills for the wrecker companies, car repair (or destroy) companies will cycle through all this.

That 911 call really started a lot of work for a lot of people. Avoiding that accident would certainly have saved everybody a lot of work, money and grief. Of course some of these folks are in it for the emergency. After all, what would a 911 operator do if there were no 911 calls?

The reaction of Ohio's Ag people surprised me a bit. They didn't get this excited when varroa arrived, or tracheal mites, I'm told (I wasn't here for tracheal mites, and not involved with the State Beekeepers when varroa showed up). And the Director of the Department himself was at the meeting, directing traffic for awhile, until the Governor called and needed him to do something else (we all have those people in our lives).

The Director's people kept things going and at the end nearly everybody had a task. The communications, inspections and extension people were to put together a packet of information to send to all 3000 or so registered beekeepers in the state. The pesticide people were to investigate the possibility of problems with the new treatment used for the beetle. The legal people were to look into quarantines and embargoes, and the State Beekeeper's Association was to round up a list of all the beekeeping associations in the state so the communications people knew who to contact at that level.

Now all of these people, whether the local and state police, the volunteers, the State Ag people, and all the rest that you don't see doing the support things in the background are in the business of dealing with events like this. They will tell you, however, that if this emergency hadn't come along they really did have enough to do, thank you. But it's their job to do these kinds of things. I'm glad. That's what we pay taxes for. I willingly pay their salaries. And I willingly support any way I can the volunteers that don't get paid. All of these people, in their own way, contributed to a disaster recovery.

•

This is the time of year when keeping bees gets to be a bit routine. The rush of spring is over for the most part, and the hectic pace of harvesting hasn't quite begun, at least in earnest. It's maintenance time - checking for supers, cleaning up after vandalism or bear, mowing, replacing busted covers, fixing that plank that goes over the creek, getting rid of the poison ivy that's always underfoot, and all the other mundane things that good, dedicated beekeepers do, every summer, all summer long.

And, unless all of your bees are in your backyard, you need to go somewhere to do these things. Are you ready, really ready to go somewhere? For instance....

Where are your outyards? Really, exactly where are your outyards? This may seem a tad silly because *you* know exactly where they are, but does anyone else in your family know where they are? If you leave at 10:00 some Saturday morning, telling everyone you will be back in time for the BBQ at the Wilson's at 3:00, and you aren't, where do people start looking? Who do they call to see if your truck is still there? Was that on Long Road, or Lang Road? Where oh where has our beekeeper gone?

So. Make a map. An exact map of where those beeyards are. Make it so your teenage daughter, who has never been there and has been driving for only a month can find it. Use colored pencils or markers to show exactly where that turnoff into the pasture is, and how to open the gate (and how to close it so the cows don't get out). Mark exactly how far from the last turn that entrance into the pasture is - .3 miles is *not* about a half mile, it is exactly .3 miles. Mark it so.

Who lives nearby? The landowner may, or may not so calling him may give some clue to your whereabouts, but then again it might not. Does anybody live near your beeyard? Not on the road maybe, but just over the hill on the adjacent property? Is there anybody, anywhere that can go and see if your truck is still there, if there is no other transportation at home? Remember your teenage daughter who just started to drive is out with friends and won't be home till ... who knows when? If there is a number to call, what, and where is it kept? On the map would be best, but if the map is in the glove compartment, what good is it going to do your family? Make sure house numbers, road intersections, landmarks (large red barn, green house, junk yard) are on the map, too. First Responders really need these things when they go looking for bodies. Keep it simple for them, and easier on your next of kin.

Have a plan. Maps, phone numbers, directions, neighbors, other phone numbers, lock combinations . . . all these so somebody can find you. Why?

Well, accidents happen. Lawnmowers, weed eaters, chain saws, even hive tools all have sharp edges and all can, and in the right place at the right time will inflict deadly injury. Not to mention heat prostration, dehydration, chuck holes, tire ruts, snakes, and even an allergic reaction that any self-respecting 10 year veteran should never have. All of these have happened to people I know, and probably people you know, even if they aren't beekeepers. Cell phones have

reduced the isolation we actually try to achieve when out in the beeyard, and they, too, are worthwhile for the type of emergency I am imagining. So, now people know how to reach you, and maybe you can call to let them know there is a problem (assuming you have a cell phone, which many, including me, do not). What to do in the mean time, while you're slowly bleeding to death? What, you left your first aid kit at home? Where is your common sense? What were you thinking when you left home? (Can't you just hear your mother's voice here?).

So. You're headed out to a yard. Just like a hundred times before. Nothing's ever happened, nothing will this time, right? Well, humor me a moment and lets take a look at some of the things smart people consider important when doing just what you are doing today. Let's first look at a first aid kit, and yes, you should have one. No arguments now.

You can get a commercial kit. A good idea because they usually have everything you need, and maybe more. But if you want to make one up it's pretty easy, and maybe cheaper. Here's what the experts recommend be in one of these, the one you keep in your truck...all the time.

* Several large sterile, or at least clean dressings. Dish towel size or so. The 8 inch by 10 inch by half inch commercial kind work well and are easily available. These are for pressure bandages.

* Something to hold them on...duct tape works well and should be in your truck anyway. This is the pressure part of the pressure bandage. Besides, it's hard to drive holding one hand on your chain saw-mangled foot.

* Band-Aids. Lots of them in lots of sizes. They stop bleeding and keep things clean.

* If you carry a lunch bucket or chest, put in some ice. Good for sprains, and emergency water if needed.

* A blanket. For shock. For warmth if you get stuck overnight (worst case here, but why take a chance?).

* A sting kit. Yes, you need a prescription. But can you take that chance, so far from home and help? And what about the landowner that stopped by or friend that comes along - just to watch - who didn't know they were allergic?

* Water. For washing your hands when done, getting all that sticky stuff off and keeping your truck and steering wheel clean. For drinking. For washing a wound. Water is important. Fill a jug, keep in the truck and don't worry about it. But have it.

First Responders recommend the following actions if an emergency occurs. Even when you are with someone things can go wrong....

* Don't panic. You can help.

* Do you know CPR? Learn it. Take a class. Save a life.

* Locate the injury, if necessary control the bleeding. Fast. Use those bandages.

* Splint fractures, or at least immobilize the victim so it doesn't get worse.

* Get help. Use your cell phone if you have one. Take the injured person if moving is possible. If not, take care of the injuries and then get help. If you are alone...hope that that map back home works.

* If you get to a phone, be prepared to give the following information to the 911 people...

* Exactly where is the victim.

* Where are you calling from, exactly. What is the phone number, and who are you?

* What kind of accident occurred and what is the nature of the injury.

* What has been done already to help.

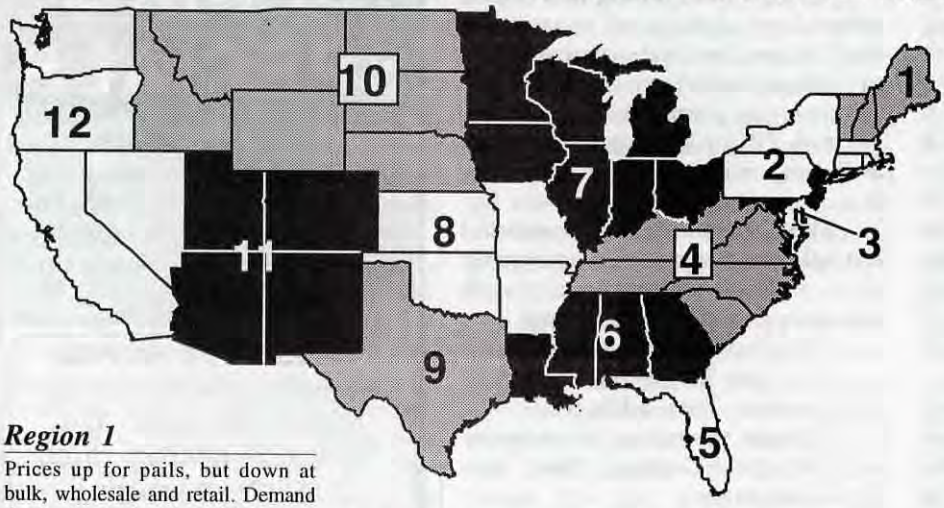
* Will someone meet the EMS truck at or near the scene, and what obstacles should be expected (remember that plank across the stream?).

* And remember...don't panic.

The title of this article is Disaster Recovery. It probably could have been called being a Mom....If you are a Mom much of this probably sounds familiar. If you're not, allow this to sound like your Mom used to, or still does. It also sounds much like the Boy Scouts – Be Prepared.

So. Until next time, keep your hive tool sharp (but be careful), your smoker lit and your first aid kit full. It's a dangerous world out there, and we're all we got.

JUNE – REGIONAL HONEY PRICE REPORT



Region 1

Prices up for pails, but down at bulk, wholesale and retail. Demand decreasing, but sellers claim prices steady. Packers squeezing producers though, with imported products.

Region 2

Prices down across the board, but only a little since last month. Demand, though has been steady at all levels, and bulk and wholesale prices steadier than most.

Region 3

Bulk prices down a bit, but wholesale, pails and retail steady to up a little. Demand steady to down a little, but buyers still available at bulk, wholesale and retail.

Region 4

Reported bulk, pail and wholesale prices and demand down, but demand strong, and prices up at retail. Imported pressure not to strong here, but it is pushing prices.

Region 5

Prices pretty steady across the board as demand steady, so far. Bulk prices iffy due to specialty crops. White honey demand up here, but price not reflecting that.

Region 6

Prices retreating even further, but wholesale only slowly. Demand steady to increasing, especially at retail. Imports not a serious problem here, but some pressure to lower prices being felt.

Region 7

Prices up for pails, steady at bulk and wholesale and up for retail. Retail demand steady, wholesale slowing a bit. Pressure to lower retail and wholesale picking up, but imports not a strong contender anywhere retail or bulk.

Region 8

Prices up for pails, steady for bulk and wholesale and up a fraction at retail. Retail demand steady to up, rising at wholesale but imports pressing at bulk.

Region 9

Pail prices up, bulk and retail steady, but wholesale down. Retail demand up, but barely. Wholesale demand down. Strong pressure from packers to lower price due to imports.

Region 10

Bulk and pails steady, wholesale and retail down. Retail demand only steady, as is wholesale demand. Price lowering to sell common. Packers buying, but pushing to lower to compete with imports.

Region 11

Prices down except at retail, and not too much change there. Demand at producer level way down, but pressure to lower prices low, because most can't sell.

Region 12

Pails up but bulk still down. Wholesale steady and retail prices up a bit. Demand increasing at both retail and wholesale, but bulk, except for white, not moving much.

	Reporting Regions												Summary		History	
	1	2	3	4	5	6	7	8	9	10	11	12			Last	Last
Extracted honey sold bulk to Packers or Processors													**Range**	**Avg.**	**Month**	**Yr.**
Wholesale Bulk																
60# Light	60.67	53.60	60.00	64.60	55.00	60.00	63.57	69.00	82.00	76.00	85.00	59.25	42.00-135.00	71.55	58.22	57.55
60# Amber	58.32	51.96	60.00	59.80	54.94	56.00	68.14	70.80	81.25	62.00	80.00	61.00	30.00-125.00	69.83	55.93	54.24
55 gal. Light	0.62	0.62	0.62	0.65	0.54	0.60	0.66	0.62	1.62	0.63	0.60	0.58	0.55-.75	0.62	0.69	0.74
55 gal. Amber	0.60	0.58	0.60	0.61	0.53	0.55	0.62	0.60	1.60	0.60	0.60	0.56	0.49-.70	0.60	0.63	0.71
Wholesale - Case Lots																
1/2# 24's	28.39	26.69	30.39	31.36	20.00	27.83	30.03	30.39	26.34	30.39	25.00	30.80	20.00-42.00	29.16	30.50	29.11
1# 24's	42.84	40.67	46.80	45.38	37.00	42.50	43.19	39.92	45.45	43.21	38.00	46.73	28.00-62.40	43.60	43.27	43.09
2# 12's	37.20	36.15	45.60	42.40	35.35	38.30	39.19	40.10	34.42	37.50	28.00	37.70	15.00-52.80	38.26	39.15	37.39
12 oz. Plas. 24's	35.15	34.97	43.20	36.90	35.62	36.40	36.73	34.74	29.23	37.60	28.00	36.16	21.00-50.00	35.86	37.21	35.44
5# 6's	40.38	42.36	54.00	46.37	45.38	42.58	38.64	39.00	41.08	41.25	28.00	37.17	28.00-67.00	41.15	41.45	41.22
Retail Honey Prices																
1/2#	1.84	1.69	2.83	2.17	1.28	1.66	1.89	1.76	2.63	1.59	3.10	1.86	0.99-4.00	1.86	1.81	1.76
12 oz. Plastic	2.21	2.12	2.50	2.24	2.02	2.07	2.15	2.20	2.49	2.32	3.40	2.13	1.39-3.59	2.24	2.23	2.22
1 lb. Glass	2.83	2.43	2.90	2.84	2.40	2.57	2.63	2.62	3.27	4.12	3.20	2.79	1.58-7.65	2.82	2.66	2.67
2 lb. Glass	4.49	4.32	4.80	5.00	5.00	4.28	4.56	4.52	4.49	4.26	4.80	4.28	3.49-6.49	4.56	4.51	4.42
3 lb. Glass	6.29	5.85	7.50	6.21	7.03	7.12	6.57	6.41	6.69	5.77	6.00	5.63	4.70-10.00	6.39	6.35	6.08
4 lb. Glass	7.60	6.73	8.15	7.80	8.15	9.25	8.60	8.15	6.93	8.50	8.15	6.00	6.00-10.50	7.95	7.93	7.74
5 lb. Glass	9.22	9.17	11.00	9.16	9.73	11.60	9.44	10.99	8.75	8.95	9.00	8.35	5.78-14.00	9.42	9.35	9.06
1# Cream	3.27	3.10	3.61	3.64	3.61	2.88	3.55	3.20	4.07	3.89	3.63	2.80	2.00-5.50	3.33	3.16	3.13
1# Comb	4.05	3.65	3.50	4.19	4.05	4.88	3.86	3.83	5.50	4.05	5.50	4.65	1.95-6.00	4.20	4.17	4.19
Round Plastic	3.75	3.11	3.50	3.75	4.12	4.50	3.57	3.66	5.50	4.12	3.75	4.18	2.50-6.00	3.85	3.65	3.86
Wax (Light)	2.48	2.99	3.00	1.78	1.18	2.75	2.47	2.13	3.50	1.43	2.50	2.49	1.00-6.00	2.49	2.16	1.81
Wax (Dark)	2.18	2.25	2.75	1.55	0.90	2.68	2.35	1.85	2.75	1.35	2.00	1.96	0.90-5.50	2.18	1.94	1.62
Poll. Fee/Col.	36.27	39.25	35.00	33.71	27.50	38.00	37.56	40.00	27.50	37.36	50.00	37.71	20.00-55.00	37.07	38.20	34.03

Y2K

Another Beekeeper's Bug

Kim Flottum

If you are like most of us, you are by now nearly insensitive to anything associated with the first three letters in the title of this article. It is used - by the media, by government agencies, by hucksters and swindlers and scare mongers and end-of-the-world doom sayers - to gain some measure of attention to a message they want to spread. Some are legitimate, some are questionable but sincere, others are taking advantage of a situation that most know only a little about, and the rest are just plain greedy.

But there is a speck of truth in much of what you are not listening to or reading anymore. This digital phenomenon is real. It will cause some things to not do what you expect them to do, and you will be acutely aware, come sometime after January first next year, that all is not right in the world. But what won't be right? That is THE question. And, since nobody has all of the answers, knows everything that can go awry, can predict where and when these things will or won't happen, nearly anything you can think of can mess up...or so somebody, somewhere will tell you.

We went looking for those things that those in the know are worried about, specifically those things that may touch the world of honey bees, or beekeepers. What we found out has been just a bit unsettling.

This situation, as explained to me by several people who are making a living fixing it, is often called an engineering trade off. Programmers 'traded' valuable storage space early in the computer industry's development stage by making dates two digits instead of four. The space saved, and the money saved since they started that is said to be far greater than the money needed to change it, now that space is no longer a premium. Think of it like inexpensive wooden beekeeping equipment. You pay less for it initially, far less sometimes, than for the high quality stuff, but the quality is far less and you spend time (or not) cleaning the mess because of small discrepancies in bee space here and there. A trade off. Add to that the fact that most of us use equipment from several manufacturers and the complexity of the problem compounds. You wind up saving money in a variety of ways, but having a variety of problems to contend with. One of which is, to use the computer industry's term, 'shortsightedness'. The trailer you bought to hold 50 colonies is fine, until you grow to 100. The extractor you bought to hold 60 frames is fine, until you grow to need one that holds 160. You didn't prepare because you never thought you would get that big. Or, if you did, by then the trailer or extractor would have worn it self out and the replacement would serve the size of the business at the time. Take a look at a gas pump. Will gas ever go over $9.99? Before the pump wears out?

By far the majority of the people who subscribe to this magazine live in the country, suburbs or small towns. About 20% of you own and routinely operate computers. All of you use electricity, drink water, drive some sort of vehicle, eat, use the phone(s), have money (even a little counts), and, interestingly, read (at least this magazine). So, when we went looking for those things that could go wrong we started with this magazine.

Our computer guru here at the Root Company, Curtis, is loaded with specific kinds of Y2K information, because if our system breaks because of something he didn't fix, it will be his door very upset people will be pounding on.

He started with the computer our mailing list is on. "It won't work," he said, "because your machine isn't yet set up to deal with adding years to the "00" thing on the subscriber list. It can be though, by using software from the company that made the program initially. Piece of cake."

O.K., one down, or at least identified. You'll get your magazine on time after this December (well, it will be if the Post Office is working, but that's another story).

We have a very old Mac sitting around that gets used for some of the work that gets done here. "Nope, won't work either, or at least I don't think it will. You can turn it on and all that, but when you go to save a file that was already created, the date thing may not be able to handle the math. Try a date test and see," Curtis said with a smile. We haven't yet. Can't afford to lose what's on there, and don't have another Mac to transfer it too. But we will, I guess, just as soon as we can. Another glitch found, but not yet solved.

Then there are all the desk tops that sit here and there. Some old, others not so old, some pretty new. All with one problem or another, just some bigger than others. We'll go to the web sites of the manufacturing companies and with luck download something to fix each of them. All but the Mac anyway.

The rest of the company is working pretty well (because Curtis has been working on them for a couple of years - replacing, repairing or just ripping out). So it seems we will be in good enough shape to produce and mail the February issue of the magazine. See, some things won't break until *after* the first of January, maybe a long time after the first.

But, bees and beekeepers will be far more directly affected by this than the mere fact of your magazine arriving on time, or not. So, since there are a few months left, and now that you are thinking about it, really, I'll ask you the question I was originally was going to start this article with...

"How well do you know your neighbors?" Because you will, much better than you do now. Stay tuned. Y2K really is a beekeeper's bug. BC

"JANUARY 1 IS A SATURDAY. SO IF THE WORLD COMES TO AN END FOR A COUPLE OF DAYS, IT'LL BE OK. WE'VE ALL HAD WEEKENDS LIKE THAT."
Reed Hundt, former FCC chair

?DO YOU KNOW?

Flowers Bees Visit

Clarence Collison
Mississippi State University

Colony development and productivity are indirectly related to local weather patterns as well as major and minor floral sources in the immediate area of the apiary. Major honey flows depend on a few plant species which yield nectar abundantly and are readily available. Large acreages of flowers are needed to produce surplus honey. Besides the two or three main annual sources, there should be a great variety of minor plants yielding both nectar and pollen throughout the season to support the colonies between the main flows.

It is important for beekeepers to know the primary floral sources of the area, and when they normally bloom. Management efforts toward developing strong productive colonies must coincide with these major honey flows, if the potential for maximum production is going to be realized. Then as conditions allow, the bees can gather as much nectar as possible. Please take a few minutes and answer the following questions to determine how well you know your floral sources and their importance to colony development and productivity.

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

1. ___ Cotton has both floral and extra-floral nectaries.
2. ___ Oaks are early spring sources of nectar and pollen.
3. ___ Fresh pollen and nectar in the spring serves as a strong stimulus for brood rearing in a honey bee colony.
4. ___ California poppy is an excellent honey source in the southwest.
5. ___ Yellow jessamine is a source of nectar that is poisonous to bees.
6. ___ Honey produced by colonies in the almond orchards is of superior quality and is sought by honey packers.
7. ___ Wind-pollinated flowers produce a greater abundance of pollen than those pollinated by bees.

Listed below are several species of floral sources important to honey bees. Match the floral source with appropriate description and characteristics. (1 point ea.).
A. Spring Beauty; B. Yellow Rocket; C. Basswood, Linden, Lime Tree; D. Tulip-tree, Tulip-poplar, Yellow poplar; E. Mesquite; F. Privet; G. Corn, Maize; H. Willow I. Milkweed; J. Chicory; K. Red Clover; L. Skunk Cabbage

8. ___ A large tree with large greenish-yellow flowers, orange on the inside, that blooms in the spring and produces large quantities of dark red honey with a distinctive, pleasant flavor.
9. ___ A species of mustard that often takes over the country side in the spring and sometimes yields a strong, rich yellow honey.
10. ___ Shrubs or trees with catkins of yellowish flowers in the spring, the female and male flower clusters are on different trees or shrubs.
11. ___ A tiny, perennial herb with long slender leaves, and white flowers with pink nectar guides. Common in most eastern states and is commonly visited in the spring for both pollen and nectar.
12. ___ A shrub that is often planted for hedges with clusters of white flowers. The honey is dark and rather strong with a slightly bitter after-taste.
13. ___ Low herb that grows in wet areas with a spike of greenish flowers enclosed by a thick leaf splotched with purple, brown and yellow-green with an opening on the side through which the bees can enter. The earliest source of pollen in many eastern states.
14. ___ A tree with clusters of cream-colored flowers that are attached to a leafy bract and the nectar collects in the sepals. The honey is water-white with a good but slightly strong flavor.
15. ___ A straggly tree with twice compound leaves and long clusters of greenish-yellow flowers. It blooms in the spring and again in the summer.
16. ___ A legume with large heads of rose-purple flowers with tubes too long for honey bees to reach all of the nectar. They do visit the flowers for pollen and when other nectar sources are scarce, they also get some nectar.
17. ___ The tassels produce vast quantities of pollen which is frequently collected by honey bees. No nectaries are found on the plant.
18. ___ A herb with round heads of peculiar purple flowers which often trap small insects by clipping masses of pollen on their legs and mouthparts.
19. ___ A herb with blue composite flowers which close in the afternoon. It has a long blooming period in the summer and produces yellow honey with a bitter flavor.
20. The clovers are considered to be the most important American honey plants. Name three species of clover important for honey production. (3 points).
21. Most flowering plants produce nectar, pollen or both and are worked by foraging honey bees. Name three characteristics that determine the value of a particular plant species toward surplus honey production (3 points).

ANSWERS ON PAGE 56

Roger Morse

Research Review

"There are several ways to reduce drifting in an apiary."

Drifting is the accidental movement of bees from one colony to another. Drone honey bees seem especially inclined to drift into a colony not their own, but workers and even queens will also do so.

A new paper on drifting worker bees appeared recently. It was a horrible thing that was poorly designed, and contained undocumented speculation. Among other things, it was stated that drifting may lead to reduced honey production. I know of no data to prove that this is true, but the paper did give me the idea that it is time to review the subject of drifting and what is known about it. I suggest, for reasons I outline below, that it is worthwhile to reduce drifting in your apiary.

Why reduce drifting?

One strong reason to reduce drifting is to slow or prevent the spread of disease. The thought that you may reduce the spread of disease comes from observations made by apiary inspectors who have repeatedly put into print and have told me that drifting is the most common way in which American foulbrood is spread. What has been observed is that the colonies next to those that are heavily infected are the ones most likely to become infected next.

Another reason to reduce drifting is that queens that are mating from colonies in the process of superseding may fly into the wrong hive. The rate at which supersedure takes place varies depending upon a beekeeper's management scheme. However, no one can eliminate all supersedure, and since it does occur we should take precautions to reduce queen drifting when it happens.

I have visited with several queen breeders who use mating nucs. These are little colonies with a thousand or so bees each. I was once in a mating yard where there were 2,000 of these mating nucs placed about four feet apart. When I made the comment that there was probably a great deal of queen drifting, the queen breeder agreed. However, if his mating nucs were eight feet apart, the apiary would have covered four times as much land, and he felt the walking distances and especially the time consumed would be too much and he was willing to accept some loss. On the other hand, I have been told about a beekeeper who requeens colonies, not nucs, with queen cells. He places his colonies about eight feet apart around the edge of a large field. His goals are different, and he wants no queen drifting. The data this beekeeper has gathered shows there is too much drifting of mating queens when the colonies are on four-hive pallets (four colonies per pallet).

Does drifting reduce honey production?

I can find a great deal of speculation about this question in the beekeeping literature, but I have not been able to find any data to prove that drifting decreases or increases overall production in an apiary. Beekeepers have observed that if you have a row of colonies, many of the bees will drift to the ends of the row and these colonies will produce more honey. When the colonies are in two rows there is a tendency for bees to drift into the front row over the back row. There is also a 1934 paper cited by C.R. Ribbands in his 1953 book with the title *The Behaviour and Social Life of Honeybees* that states that honey bees are more likely to drift into hives painted darker colors and that such hives will produce more honey. However, none of this information means that overall production in an apiary will be reduced by drifting.

Commercial beekeepers I have talked to about drifting have shrugged their shoulders and have told me they don't worry about it so long as the bees bring in honey and put it into one of their hives.

Fighting among drifting bees

There is no question that honey bees can distinguish between members of their own colony and others in the field. In fact, this Spring I have been gathering data about fighting between bees from two colonies about to swarm that were both trying to occupy the same bait hive. Through observation, but again with no statistical data, we know that there is almost no fighting among bees from different colonies in an apiary when there is a good nectar and/or pollen flow. However, there can be serious fighting between bees from different colonies when there is a dearth, but at such times flight from colonies is much less so the fighting is also reduced.

How to reduce drifting?

There have been several excellent studies on drifting, especially by Drs. John Free of England and Cameron Jay of Canada, both now retired. They have found you may do several things to reduce drifting. You may place colonies farther apart, paint supers different colors or use different designs on them, avoid

Continued on Next Page

NEW

Uncapper Dakota Gunness has released their Model 100 uncapper made to fit the capabilities of hobby or sideline beekeepers. Based on the same principle as the larger Model 200, the unit has 2 motors, one to drive the belt that carries the frames, and one to drive the upper and lower adjustable chain flails, which are the same as those from the 200 model. The 110 volt, 50 or 60 hertz motors can be mounted on either side so a beekeeper can adjust to fit comfort or space in the honey house. The unit handles 12 frames a minute, and is designed to be operated by one person. Two make it go even faster. Frames can be loaded directly into the extractor after being uncapped. The cost of the unit is about half of the 200 model so it is in reach of most small scale beekeepers. It will keep up with, even with one person working, extractors handling 2 to 50 frames. For more info contact Dakota Gunness at P.O. Box 106, Abercrombie, ND 58001, 888.553.8393.

World Economic Plants: A Standard Reference. 784 pages, hard cover. By John Wiersem and Blanca Leon. Published under a cooperative research and development agreement between ARS and CRC Press of Boca Raton, Florida. $125.00. Contact CRC at www.crcpress.com/catalog for purchase information.

This book is an update of Agricultural Handbook 505, published in 1977 and updated in 1986. The original covered 3000 plants, the new edition covers 10,000. The authors are from the taxonomy and systematic botany arm of ARS in Beltsville, MD.

There are over 15 economic topics covered, plus scientific names, common names, synonymy, geographical distribution, plus an incredible amount of other information about the plants listed in the book and their uses. One of the topics covered is bee plants, though not as detailed as the authors, or beekeepers would like. It is, however, an incredible resource, and the most important part of it is that portions can be found on the web, and as updates become available these will be posted on the web also. This is similar to the Pollination Handbook updates available on *Bee Culture's* web page.

This is probably not a book for the average beekeeper, but it is without parallel for plant researchers, horticulturists, agronomists and others.

Smoker Fuel What self-respecting beekeeper would actually buy smoker fuel? Especially when tons of it just lay around for the taking? Well, the times they are a changin', because for the first time ever a commercially made fuel is available and is being sold by all, or most all beesupply outlets. Its success is based on three things it seems: wide spread availability, very low cost and the fact that it works consistently.

It is made of raw compressed cotton plugs formed to fit in standard smokers. The technology that produces this has been around for a bit, but never used in this way. The standard 4 inch wide plug will burn for about 2 - 3 hours under normal use, longer for those who use smokers only once in awhile. Already used in many commercial outfits because of availability, reliability and cost, this product will undoubtedly find a place in the stable of beekeeper's tools. While pine needles and punk wood will never go away, beekeepers in locations without these resources will find this product useful.

A word on use. This plug should be lit from the top and the burning end left facing up, which goes against the grain of anybody with smoker lighting experience. Premier Bee Products manufactures the product, but it is available from nearly every beesupply outlet.

RESEARCH ... Cont. From Pg. 17

placing colonies in straight rows, and plant trees or build other landmarks between colonies.

The first research to show that honey bees can see different colors and distinguish between different designs was that by Karl von Frisch. I recommend every beekeeper have a copy of his *The Dance Language and Orientation of Bees* that was published by the Belknap Press of Harvard University Press in 1967, which reviews this and other experiments von Frisch undertook. What he and his students found was that honey bees see four colors distinctly: yellow, blue-green, blue and ultraviolet. Honey bees do not see the red end of the color spectrum, and they see red as black. We do not see into the ultraviolet. Painting supers, covers and bottomboards different colors is clearly one way to reduce drifting and may be the cheapest and easiest thing to do.

Professor von Frisch also investigated what designs bees can see. He found that bees cannot distinguish between a solidly painted two-inch diameter circle and a square that is two inches across. However, they can distinguish between a solid line, an X and a solid circle or square. BC

Mark Winston

Scholars

"We each have our traditions, language, subtle biases and unspoken rules that govern our actions, and perhaps appear confusing, contradictory, and at times dense to others looking in as we perform our jobs."

We inhabit a society rich in subcultures, with innumerable groups expressing diverse ethnic, employment, religious and neighborhood persuasions. Each of us interacts extensively although superficially with other cultures, coming into contact with many clusters of interest groups briefly each day as we move through our complex lives. One of the secretaries in my Biological Sciences Department is a young Hindu fellow who just recently returned to India for an arranged marriage. We chat occasionally about his beliefs and the circles he travels in, and I get a glimpse of his culture through these conversations. Nevertheless, his language, heritage and fundamental beliefs remain as only snapshot images for me, but of course are deep and fertile for him. I bring my car into the shop for some repairs, and while we may discuss replacing my brakes or fixing a sticky lock, the rhythm, tools and daily cycle of my mechanic's job are like a foreign culture, with its own rules and constructs. This morning I turned on the radio to find out how much rain to expect, but beneath the public weather report lies a discipline of weatherpeople, talking in a language of isobars and a subtext of low pressure regions that is commonplace to their existence but a mystery to the rest of us who simply want to know whether to bring our umbrellas to work.

I, too, live within many subcultures, not the least of which is the scholarly subculture of the university professor. We have our traditions, language, subtle biases and unspoken rules that govern our actions, and perhaps appear confusing, contradictory, and at times dense to the non-professors looking in as we perform our jobs. On the surface, we spend our time teaching, conducting research, and contributing to the proliferation of committees, but underneath the externally visible manifestations of our profession lies a rich lode of history and pursuit of knowledge that may not always be easily accessible to those outside our guild. Our world is one of grants and fellowships, manuscripts and publications, and at the core, a belief that scholarly activity is a worthy pursuit in and of itself, regardless of whether it produces a product or leads to new jobs.

There is no higher accolade in my profession than to be called a scholar, and no greater achievement than to produce a body of work that is considered scholarly by my colleagues. A scholar is a "learned person," one who "possesses or demonstrates profound, often systematic knowledge," someone who is "erudite," or "possessed of deep, wide learning." Pursue these words in a dictionary or thesaurus, and you'll find definitions replete with terms like "wisdom," "enlightenment," "insight," and even the unexpected "common sense." These attributes are not always apparent when you see us in action. At our worst, a snapshot glimpse may find us bickering with each other, gossiping about a colleague, or subtly demeaning the recent findings of a fellow academic with disdainful and cynical dismissal. Yet there are times when we fly, and can there be a more uplifting expression for the human spirit than those insightful moments when we realize something new?

We train the next generation of scholars in a system not too different from medieval apprenticeship, putting an upcoming academic through 10 years or more of poverty, indentured overwork and menial tasks before allowing him or her to join our profession as a fully practicing member. First, a professor-to-be has to navigate through undergraduate training, taking a mind-numbing series of courses for four years in order to even begin to think new thoughts. The fortunate few who excel can then apply for graduate school, and if accepted, face an additional five to eight years of gradually expanding horizons as a doctoral student. A graduate student has to face grilling at every stage, from grueling committees of faculty members who scrutinize their research proposals to formal examinations where their knowledge of every aspect of their discipline is dissected and questioned.

Finally, the students that make it to the end of their training have to defend their dissertations in a public forum, giving a formal talk followed by an inquisition from an examining committee. This group of senior faculty members subjects each candidate to probing questioning that makes the previous rites of

"We train the next generation of scholars in a system not too different from medieval apprenticeship, putting an upcoming academic through 10 years or more of poverty, indentured overwork and menial tasks before allowing him or her to join our profession as a fully practicing member."

passage seem benign. Indeed, the word "defend" means "to make or keep safe from danger, attack or harm," and our putative doctoral student has to protect his work successfully from verbal attack before being allowed to move on. At its best, this system coronates new knowledge with a stamp of approval from the weighty scholars in its field, but at its worst leaves the poorly prepared student a quivering mass of jelly, confidence shattered, and a future that is at best . . . dismal.

Those who not only pass but excel can look forward to the next stage of our profession, the postdoctoral fellowship. The training is not over; our student may now have a Ph.D. degree, but must spend many more years toiling in someone else's laboratory at relatively low pay before being allowed to move into even the lower levels of the professor profession. The typical postdoctoral fellow will move to a different university and laboratory, and perhaps move more than once, with no guarantee that the postdoctoral position will lead to a real and permanent job and often with a spouse and young family in tow. The word "fellowship" is an interesting one; it means "the companionship of peers in a congenial atmosphere" in addition to "a financial grant in a university or college." While postdocs (our shorthand abbreviation) do learn further skills and techniques, much of the experience is designed to be a culturing one, further and subtly molding potential professors into scholars who at their best can commune, discuss, and probe in an atmosphere where no thought or opinion goes unexamined.

The next winnowing process occurs through job interviews, in which a few short-listed applicants are brought on campus to be grilled, roasted, and deep-fried. Eventually, the contenders get either the "we had a large number of excellent applicants and unfortunately didn't choose you" letter, or else the phone call they have dreamed about for 10 years from a department chair or dean, informing our postdoctoral fellow that a job offer is in the mail.

Even at this stage the scrutiny hasn't ended; in fact, the worst is yet to come. A new faculty member must apply for grants to get money to do the research that will decide whether he or she is granted tenure five or six years after the job starts. "Grant" is another of those academic's words with many meanings: "to consent to the fulfillment of," "to accord as a favor," and "giving of funds for a specific purpose." A grant is all those things, fulfilling the deepest dream of an academic to pursue wisdom and knowledge, and of course providing the tangible means to do so. If successful, our new academic will indeed find out something new and important enough to justify tenure, and perhaps even move on in our profession to a reputation leading to more grants, fellowships, sabbaticals, and the most precious gift of all: release time from teaching and administration to pursue yet more knowledge.

No matter how advanced a professor may be, or how high he or she might travel in his or her profession, the scrutiny never ends. Each manuscript we write for publication is reviewed and criticized by a jury of peers engaged by journals to accept or reject submissions, and every talk we give discussed and dissected in academic hallways for days after the presentation. Professorship is not a job for the overly sensitive or insecure, and certainly no place for those who mix up self-worth with criticism of an idea.

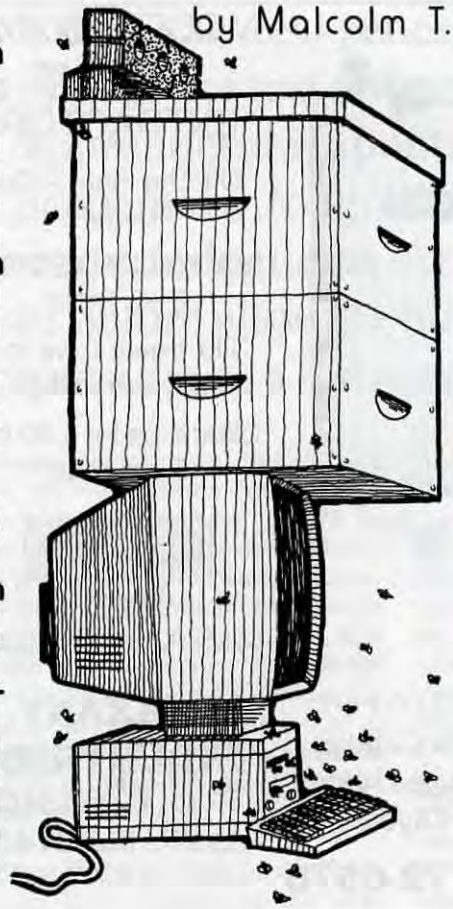
Perhaps the biggest difference between being a beekeeper and being a professor is not that beekeepers heft supers from hive to truck while professors heft manuscripts from one pile to another. No, our professions differ most profoundly in a single word: "scrutiny." A beekeeper's job is performed out in the beeyard, usually alone or with one or two employees, and how well or poorly the job is done is not of much interest to anyone but the beekeeper and his or her banker. For professors, we put ourselves forward for scrutiny at every stage of our careers, and if anything, the criticism and close observations of our colleagues intensify with time. Committees, students, colleagues, grant review panels, deans, chairs and our fellow professors comment on our work, dissect our findings, and survey every aspect of our job performance.

No, it's not a job for the shy and retiring, for the sensitive and withdrawn, but I wouldn't have it any other way. At the core of being an academic remains the kernel of new knowledge, and the rigorous examinations we undergo are the only way of insuring that being a scholar will produce fine scholarship. My culture is one whose currency is a new idea, whose coin is an accepted manuscript, and whose ultimate reward is in some small way to express the human spirit's quest to understand who we are and why we are here. Sure, we can be small and petty, we can turn inquisitiveness into inquisition, and we can stifle the spirit of a faint-of-heart student. Yet, we do get it right sometimes, and then we soar. BC

Mark Winston is a professor and researcher at Simon Fraser university, Burnaby, B.C. Canada. he is program director for Apimondia 1999.

Beekeeping In The Digital Age

by Malcolm T. Sanford



The National Honey Board

Ever since its inception, and many years before in fact, the concept of a national honey marketing order or check off program to help market the sweet has been controversial. In the 1980s, however, it became apparent that something drastic needed to be done to give a boost to a honey market weakened by foreign imports and a loan come price support program that was getting out of hand. A crisis was finally reached when Commodity Credit Corporation warehouses across the nation were filled with half the nation's honey crop, much of it being given away to school lunchrooms or through other government food programs. Thus, in cooperation with the United States Department of Agriculture, honey industry leaders came up with the Honey Research, Promotion, and Consumer Information Order, authorized by the Honey Research, Promotion, and Consumer Information Act. It was signed into law October 30, 1984. This Act authorizes the National Honey Board (NHB) to collect assessments and carry out the Act's provisions. As part of its duties, the NHB has a large presence on the World Wide Web. The main **URL is http://www.nhb.org/.**

The NHB site contains a detailed **history** of the Act. It has been continued by referendum in both 1991 and 1996. At the latter date it was approved by 82 percent of the producers and importers who voted. Collectively these folks represented 77 percent of the honey produced in and/or imported into the United States at that time. The current assessment is one cent per pound due from the first handler and importer for any beekeeper processing over 6,000 pounds of honey. Those processing less than that amount can seek an exemption if they so wish, but exemptions are not automatic. The act was amended in 1991 to eliminate refunds of assessments.

On June 23, 1998, the Act was **again amended** by industry leaders to: (1) require the Honey Board (Board) to reserve 8 percent of its funds annually for beekeeping and production research; (2) authorize the Board to conduct projects for the purpose of enhancing the image of honey and honey products, including the development of recommendations for purity standards and standards of identity for honey and honey products, as well as a quality assurance regulatory program; (3) require that 50 percent of the members of the Board be domestic producers; (4) add two handler members who are also importers; (5) change the nomination procedures and eligibility requirements for importers on Board; (6) eliminate the public member position on the Board; (7) decrease the assessment paid by producers from 1 cent per pound to 0.75 cents per pound; (8) add a new assessment of 0.75 cents per pound on handlers; (9) increase the assessment on imports from 1 cent per pound to 1.5 cents per pound; and (10) change the voting requirements for referenda. These amendments will soon be published in the Federal Register. When the sixty-day comment period expires, a referendum will be scheduled, probably in late 1999.

It is not the purpose of this column to lobby for or against either the Act or its proposed amendments, most of which have to do with setting assessments. Rather it is to describe the NHB's value to the beekeeping industry as generator and distributor of a vast amount of information about the beekeeper's major product. A question rarely stated in the current debate about the Board's future is where would the honey industry be in the present food marketing environment without this organization developing and disseminating the kind of information it does?

Unquestionably, the National Honey Board's web site is the best place to start for anyone interested in producing, consuming and/or marketing the sweet. The NHB has two **URLs**. The one mentioned above (**http://www.nhb.org/**) is for general information. It has links to **food service professionals, food technologists**, and the **honey industry**. Those interested in finding honey sellers will want to see the **Honey Suppliers Directory** in the first section. This, like many of the NHB's publications, is available in a file format known as .pdf. This stands for the Adobe Systems Inc.'s portable document format, which can be downloaded and/or read directly using the Adobe Acrobat® reader, available **free** on the Web to any interested party. The advantage of this is that downloaded documents maintain their original formatting, something standard **.html** documents do not. Also found in this area are links to **nutritional information, storage and handling,** and a wide variety of other topics.

The food technologist's link has some new features, including a **selected list** of scientific references, the **Honey Hotline Newsletter** (in .pdf format), written especially for food technologists, a list of **analytical services**, and an extensive array of **fact sheets** about honey use in many products. The NHB also runs its version of a **virtual press room**. Here are seen press releases sorted by audience, including general, foodservice and food technology. A final area contains many topics of interest to the honey industry. These include quarterly **sales data**, export import **resources**, which tell interested parties how to get into that specialized business, and an index the Board's **quarterly newsletter**. Another important resource is the current makeup of the NHB's **governing body** as appointed Dan Glickman, United States Agriculture Secretary.

The other National Honey Board **URL** is dedicated to more in-depth data about honey (**http://www.honey.com/**). It features a **honey history** and **glossary**, as well as links to different specialty varieties available in the **United States**. Following that specific link one can learn all about the south's unique honey from the Florida panhandle, **tupelo**. A large number of **recipes** are also found on this site, including those for **bread machines** and **home beer brewing**. A special area in this section is devoted to children. **Facts about bees**, **a honey trivia quiz**, **honey games**, and **resources for teachers** would all seem to contribute to a strong future source of honey consumers.

Beyond its Web site, the NHB contributes in other ways to the education of both honey producers and consumers. It periodically runs **sales seminars** and is ever present at national and local beekeeping meetings. Finally, the HNB is an official sponsor of this year's Apimondia meeting in **Vancouver**, BC Canada. BC

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Rulison Honey Farms

A Family Tradition that has changed with the times.

Lloyd Spear

"Mother, Mother," said Earl, running into the house after school, "there's a huge bee swarm on the fence post down the road." According to family legend, the year was 1891, and Earl was 12 years old. "Well, get a box and go get them. We could use the honey," replied Earl's mother. Earl and his brother, Will, went off to get the swarm. Two years later, in 1893, Earl's notebook, which has been preserved, documents that he had 13 hives and was regularly selling honey. Earl went on to found Sunnyside Apiaries, later called Rulison Honey Farm, which has now been run by Rulisons for three generations.

Two of Earl's sons, John and Howard, entered the business in their youth and continued it after Earl's death in 1959. As with Earl, beekeeping was not a sideline to John and Howard, but supported their families. Of John's and Howard's children, one son from each family stayed in the business, and for the best part of the past 20 years, Gary and Mark Rulison, cousins, have continued to operate Rulison Honey Farms.

Although I have lived only a few miles from Rulison Honey Farm for the past 30 years, and have known of them for most of that time, I did not meet Mark and Gary until preparing this article. To me, it is clear that it is a combination of their extraordinary management skill and willingness to work hard that lets them support two extended families with approximately 1,600 hives in upstate New York. Not surprisingly, these skills involve primarily production and sales, and Gary and Mark have freely shared their knowledge in the hope that others will benefit.

John and Mary Elizabeth, Mark's mother and father.

"A lot has changed," Gary told me on a late June day. "We used to have eight to 10 people working full-time during the Summer. While all the family still helps out in some way, most of the work is now done by just Mark, Matthew (Mark's son), myself and a hired hand for three to four months. We have fewer hives, but collect and process more honey than ever."

Today the Rulisons' 1,600 colonies (down from over 2,000) are in approximately 60 locations, some of which have been in constant use for 50 years. Most of these locations are in the historic Mohawk Valley, along the Mohawk River and the former Erie Canal. While agriculture is the largest industry in New York state (despite being headquarters for companies as large as IBM, Eastman Kodak, Xerox and Corning Glass), in many counties the population today is lower than during the Civil War. Montgomery County, where most of the Rulison yards are located, is one of those. Too remote from major cities for housing subdivisions, and too hilly and cut up by roads for large plantings, many former farms are gradually reverting to the fauna of 300 years ago. The first areas to be abandoned were the ridges and steep hills, and today they are again well-forested. Two native trees, Basswood and Black Locust, are plentiful and are excellent nectar sources. Beginning in the 1950s, flatland farms began to be abandoned, a trend that continues today. These fields provide an abundance of dandelions, sumac, knapweed, goldenrod and aster. In addition, late in the Summer, the dairy farmers often allow the alfalfa and clover to bloom. Thus, forage may be more available today than at any time during the past 50 years.

Mark and Gary did not automatically come to succeed their fathers in the business. In fact, both were on paths to other careers. Gary said "I didn't know what I was going to do, except that I was not gong to be a beekeeper." Mark "had not ruled out going into the business, but was a sociology major in college and never seriously considered continuing in the business. I still remember going to beeyards with my hands in my pockets (to avoid getting stung) and hating what seemed to be our fathers' favorite saying, 'There is always something to do.'"

During the early 1970s, Gary's father, John, became seriously ill, and Howard, Mark's father, could not keep up the business alone. Gary returned to help, and a short time later Mark returned as well. Deeply religious, both feel that their eventual choice of career was the Lord's will. This recalls another part of the Rulison family oral history. When Earl was considering another vocation, his mother counseled, "Remember, Earl, God sent those bees to you."

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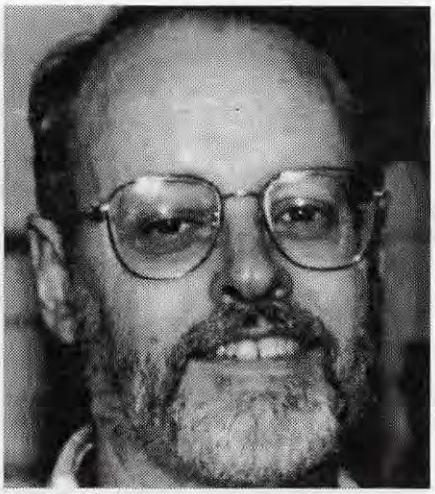


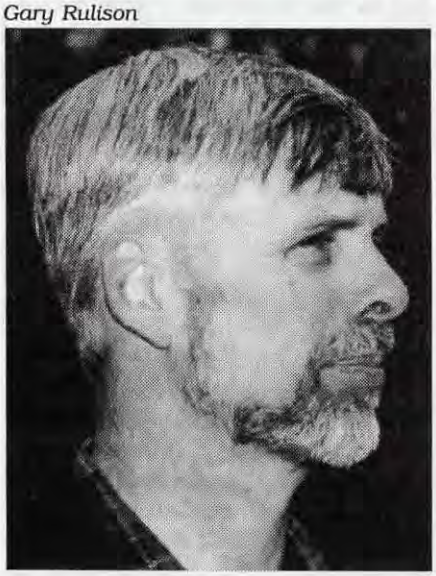
Mark Rulison

Gary and Mark feel that their success is due to "taking good care of the bees" and "taking care of our customers." Like most beekeepers in upstate New York, they lost 40 percent of their hives to *Varroa* during the Winter of 1995-'96. "We used strips," said Mark, "but got them in late, so they were not as effective as they could have been. Today we try to have all the supers off by the middle of September so that we can have the strips effective for two full brood cycles before Winter."

"We also start putting strips in during March for the Spring treatment," added Gary, "and use grease patties and dust with Terramycin in the Spring for tracheal mites and foulbrood, and keep plain grease patties on as much as we can throughout the Summer."

The Rulison hive setup is somewhat unusual. They overwinter in two deeps, plus a Western (6-5/8") on the bottom. The two deeps, of course, provide plenty of food for the Winter plus extra space in the Spring in case Gary and Mark are delayed getting to the yards to add supers. They feel the primary benefit of the Western on the bottom is added ventilation and clustering space. Gary explained, "We hardly ever have beards of bees clustering on the outside of the hives. An added benefit is that if a mouse gets into the hive, it is likely to destroy only the combs in the Western, and the empty frames probably provide the added ventilation and clustering space as well as full frames would."

Gary Rulison



In the Spring, before dandelion bloom, they add two deeps for extracting supers. At the same time, they provide a new, more spacious entrance by offsetting the first deep from the second by about one inch. "This gives the bees a somewhat larger entrance that is significantly higher than that provided by a bottomboard," explained Mark, "and significantly increases nectar gathering by keeping the bees flying instead of clustering on the outside of the hive." (An added benefit is the lower yard maintenance because weeds and grass can be allowed to grow without blocking the entrance.)

In addition to producing over 100 tons of extracted honey, the Rulisons do some pollination and raise some comb honey. "We rent out approximately 250 hives for pollination," explained Mark. "That is about the number we can handle with just the two of us, and without investing a lot of money in lift trucks and pallets. However, we provide exceptionally strong hives, which justifies a premium charge compared to other beekeepers. We provide our standard hives of two deeps and a Western, and make certain that each hive has at least six frames of brood in the top box, plus a good bee population in the middle box. Twice that we know of, apple growers had our hives compared with those supplied by others, and both times we were told ours were clearly superior as pollinators."

"During the 1960s we would also produce around 25,000 comb honey sections a year," said Gary. "I can remember 10 people in the honey house at one time, most of them family, and most of them working on comb honey. Today we produce 3,000 to 4,000 sections a year, plus some cut comb, and always sell out early. If we had more labor, we would produce more, as it can always be sold and brings premium prices."

Comb honey supers on top of deeps. Note offset super for entrance.

Mark and Gary produce their comb honey sections from splits headed by Carniolan queens purchased in the current year. Otherwise, they do not raise or purchase queens or do regular requeening. "However," said Gary, "in recent years we have purchased so many Carniolans to replenish those lost to mites, that the queens in our yards are now largely Carniolan. We are very pleased with their production, gentleness and overwintering."

Back in the days when all beehives in New York were registered, studies at Cornell consistently reported statewide average yields of 60 pounds. The Rulisons' colonies would average 80 to 100 pounds. "Since the Winter of 1995-'96," explained Mark, "our yields have sky rocketed." "We think the primary reason for the increase might be the elimination of feral bees," continued Mark. "We always knew they were there, but never had any way of determining their impact on production. We now think it was really significant, as we can't think of anything else that would be causing our averages to increase so substantially."

As expert as Gary and Mark are at producing honey, a real key to their success and prosperity is their ability to sell their honey directly to retailers and processors. "We have had many customers for 40 and 50 years, and even today some remember our grandfather delivering by

horse and buggy," said Mark. "We each have our regular delivery routes, and think it is important that customers can deal directly with us as beekeepers. We will pack in the size containers our customers want, and put on our label or let them use their own. We try to always be fair, not only in terms of quantity and quality, but also in pricing. For example," continued Mark, "during 1997 none of our customers paid $2 a pound for our honey, although we think others may have been charging that much. Likewise, today we are not having to take the large price reductions other beekeepers are experiencing. The downside is that we are almost directly in the retail business because we always have to be in a position to keep our customers' shelves filled. This makes it difficult to get a vacation."

Mark and Gary evaluate a colony.

Mark and Gary's success demonstrates that it is still possible to make a living at beekeeping with good locations, hard work, ingenuity, attention to detail and treating customers honestly and fairly. "We also have the benefit of being able to raise our families outside the pressures of the cities and suburbs," said Mark and Gary. "We just wish we could spend more time with them, but that would probably be true no matter what we did."

While most of us are beekeepers on a level that is important to us but not critical to our well-being, it is both instructive and gratifying that operations like the Rulisons' still exist, and I hope they will for the indefinite future. BC

Lloyd Spear is a round comb honey producer living in up-state New York.

DROUGHT

Our Summers are getting drier. Plan ahead for water shortages by establishing bee forage less demanding of water.

B.A. Stringer

Recent years have shown a tendency toward drier Summer conditions in many areas of the United States. Now is a good time to plan ahead for Summer water shortages by establishing garden bee forage that is less demanding of water. When water becomes less available or more expensive, the most valued garden plants are first in line for irrigation, often at the expense of thirstier plants. By establishing drought-resistant flora and then watering infrequently but deeply, you will be able to enjoy a full garden without wasting water. You can conserve water by utilizing principles of xeriscaping (derived from *xeros*, meaning dry), where suitable plants are grouped according to their water needs. Other keys to successful xeriscaping include soil improvement to promote root development, reduction of turf area, and the use of mulches and efficient irrigation systems to cut water needs.

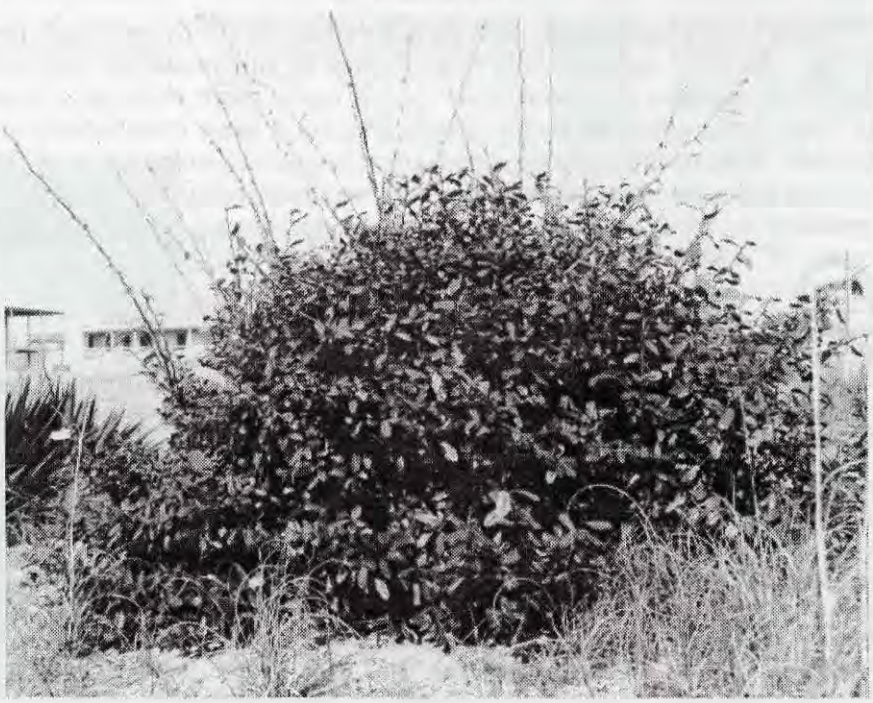
Drought-resistant plants often share some features that differentiate them from their more thirsty relatives. Their leaves are frequently hairy, or are grey, silver or white in color. In many cases the leaf itself may be green, but a dense covering of hairs gives it a pale cast. These fuzzy plants sometimes become waterlogged if irrigated from overhead, such as by sprinklers, so use drip systems or soaker hoses to maintain the plants' good looks. This method also minimizes evaporation and delivers water only where needed.

For this column, I have chosen a variety of plants that are reasonably able to survive dry times once they're established, but remember that all plants need some water during the year. One of the most critical times for watering is when the specimen is new and is "finding its feet" in its surroundings. Water is essential at this time to replenish moisture lost during transplanting and to start fresh root growth into the surrounding soil. Water the transplants deeply and slowly at least three or four times during their first year in your garden, soaking the soil thoroughly. Once the roots reach far enough into the soil where moisture is available even in the dry season, extra watering will not be necessary.

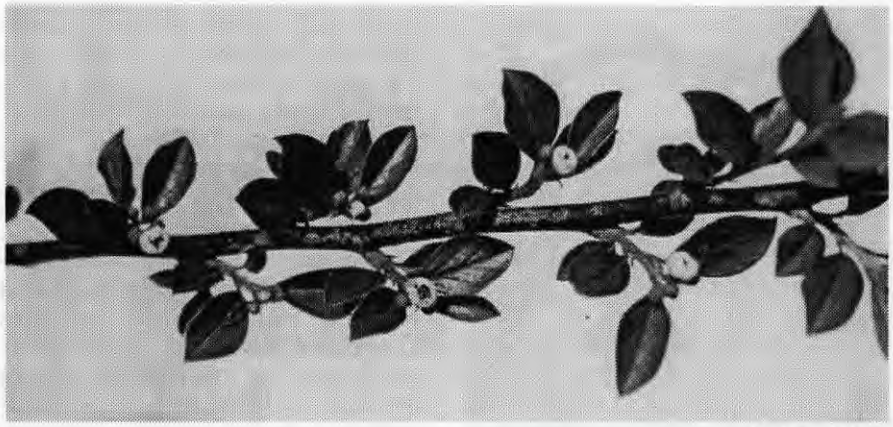
Mulched plants, in sheltered spots with deep soils, stand a better chance of survival in dry conditions. Plants may require more water if they are in an exposed or windy position, or if the season is unusually hot and dry, if the soil does not hold water well (such as sand), if the soil is very shallow, if there are many other plants competing for the water, or if there is no covering or mulch to conserve surface water. Try to plan your garden to lessen the plants' water needs.

Make sure you choose suitable plants for your site – your local nursery is a good source of information about what will do best in your particular location. Don't overlook plants which are native to your area, those which survive all seasons with their only moisture dispensed from Mother Nature's watering can. Even in the confines of a small garden, there are many micro-climates, and when you add one plant, you alter the immediate environment for others nearby, so finding the best plant for a specific spot may take some experimentation. Let's look at some camels of the

Ornamental Olive



plant world, those which can take a good drink early in Summer and then keep on flowering for the bees when the heat is on.



Cotoneasters

SHRUBS

Shrubs can be particularly valuable in a dry landscape because of the amount of bloom they provide compared with the amount of ground space they occupy. Once established, with their roots deeply set, they are frequently long-lived and keep looking good with reasonably low maintenance. For example, Manzanitas (*Arctostaphylos species*) are evergreens with attractive red or purplish bark. The waxy, urn-shaped flowers supply nectar and pollen for bees, and are followed by tiny applelike fruits which attract birds. Blooming early in the year, about February to April, Manzanitas (Spanish for little apple) need sun and good drainage. Hairy Manzanita, *Arctostaphylos columbiana*, is used in highway landscaping because of its ability to thrive on natural rainfall alone. Bearberry, *A. uva-ursi*, is an excellent ground cover for northern climates and coastal areas.

Ornamental olives (*Eleagnus* species) include deciduous and evergreen shrubs and small trees with silvery leaves and inconspicuous, fragrant flowers. During their June bloom, they are a source of nectar for bees. Russian Olive, *Eleagnus angustifolia*, is an attractive small tree growing to about 10 feet in height. The deciduous Silverberry, *E. commutata*, native to Canada and the northern United States, is a good choice for colder areas.

Commonly called wild lilacs or buckbrush, the many *Ceanothus* species supply both nectar and pollen for honey bees. One of the hardiest evergreens in this genus, *Ceanothus thyrsiflorus* bears lovely blue flower clusters and is appropriately called 'Blue Blossom,' worked mainly for pollen. If you are looking for native species, *Ceanothus sanguineus*, usually called Wild Lilac, thrives on scant rainfall. Deciduous types tend to be more salt-tolerant for coastal areas. Water *Ceanothus* only during the first dry season in your garden and, after that, the plants should not need Summer water at all.

Evergreen, with glossy green leaves and flowering from Summer through Fall, *Escallonia* makes an attractive hedge or screen. Because the shrub tolerates salt well, it also has merit in coastal gardens. The abundant flower clusters may be white, pink or red, covering the bush with color. One of the most widely planted, and one which bees work for nectar and pollen, is 'Apple Blossom' a variety of *E. langleyensis* with pink buds opening to white flowers from May until frost.

In good conditions, Hebes, formerly known as shrubby veronicas, grow quickly and bloom profusely, with white, pink, purple or blue clusters of flowers. The small shrubs teem with honey bees gathering nectar throughout the Summer bloom. At home in arid conditions, the low-growing, white-flowered *Hebe pinguifolia* bush is also suited to coastal conditions. Its grey leaves are often edged with red, making the plant interesting even out of its Spring bloom. Other Hebes, with varying hardiness and drought tolerance, flower later in the Summer.

The invasive spread of Scotch Broom, *Cytisus scoparius*, from cultivation has given the Brooms (*Cytisus, Genista* and *Spartium* genera) a bad reputation. However, cultivated forms and named varieties of Scotch Broom have been tamed for the garden but are still loved by bees, and are available with red, orange, pink, purple or yellow flowers. Most reach mature heights of under six feet. Salt-tolerant and hardy, these shrubs are, in some seasons, heavily worked by bees for nectar and brownish-orange pollen. If you need larger plants, try Atlas Broom, *C. battandieri*, which will reach to the house eaves in a mountain of yellow in Summer. On the small end of the scale, *C. beanii* forms a knee-high bank cover. Other Brooms to consider for bees are the low, spreading *Genista lydia* and the head-high Spanish broom, *Spartium junceum*, which bears fragrant yellow flowers from July to frost.

Cotoneasters are good sources of both nectar and pollen for honey bees. Among over 100 kinds, there are about 20 that actually do better in dry soil than in moist. The flowers tend to be small, pink or white and quite inconspicuous, but extremely attractive to bees. In addition, birds like the berries of these salt-tolerant shrubs. Use Creeping cotoneaster, *Cotoneaster adpressus*, as a ground cover which molds itself to hollows in rocks or garden. Parney Cotoneaster, *C. lacteus*, makes a head-high evergreen fountain with red fall berries. Rockspray Cotoneaster, *C. microphyllus*, with its tiny evergreen leaves, is a particularly good cover for dry banks and often displays brilliant Fall color. The fan of herringbone-patterned branches of *C. horizontalis* spreads neatly over the ground or up against a wall, the little flowers covered with bees at bloom. Its leaves turn red, then bronzed, in Fall, and it will grow in all but the coldest areas of the country.

HERBS

Most of the aromatic herbs, imparting both color and fragrance, are also drought-tolerant, requiring minimal watering once established. Nurseries and mail order outlets offer at least six English lavender (*Lavandula angustifolis*)types, from the large "du province" to the dainty "munstead." The plants bloom in late Spring through early Summer, most with the characteristic

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DROUGHT ... Cont. From Pg. 29

lavendar-colored flowers, although "Jean Davis" is pink. Lavender is pretty in borders and along paths where you can smell the scent of the leaves as you brush by the plant. Try planting it as it grows wild in the Mediterranean countries of its origin, massed with Rosemary and Spanish Sage.

Rosemary, *Rosmarinus officinalis*, provides nectar and some pollen in its blue Spring flowers, as well as aromatic leaves for culinary use. There are many named varieties which range in size from the head-high 'Tuscan Blue' to 'Prostratus', a creeping ground cover. Rosemary must have good drainage and a porous soil to grow well, and looks lovely draped over a low stone wall.

Sages are, botanically speaking, the genus *Salvia*, although there are many other plants commonly called Sage which belong to other genera. Bees work the flowers for nectar. Garden sage, *Salvia officinalis*, bears fragrant blue flower spikes, and has roughly textured green, golden or variegated leaves which are used to flavor foods. More frost-tender, Spanish sage, *S. lavandulifolia*, grows knee-high and has violet flowers on a bright reddish calyx. This is the one that grows wild with Lavender and Rosemary in its native habitat.

As well as being valuable in the kitchen, thyme is favored by bees for its copious nectar and some pollen. The low-growing forms, about 12 inches tall, include Common Thyme (Thymus vulgaris), the most widely cultivated species for culinary use. Try the silver form, *T.v.'Argenteus'*, for its delicate lilac flowers, a cool counterpoint to Summer's hot colors. Lemon Thyme, *T. citriodorus*, which has an intense citrus aroma, is also available in a golden variegated form. For multipurpose ground covers or mats, you and your bees may like Mother-of-thyme, *T. praecox arcticus*, on which purple flowers shimmer all summer, or the fuzzy-leafed Woolly Thyme, T. pseudolanuginosus, a contour-hugging species.

PERENNIALS

Perennials are excellent value in a landscape, as they return year after year once settled in. For masses of golden daisylike flowers, supplying nectar and pollen all Summer, try Coreopsis, a clump-forming perennial with flowers held well above the narrow leaves. Coreopsis grandiflora is widely adapted throughout the country, while C. verticillata is the most drought-tolerant. Coreopsis looks striking massed in beds or in combination with Gaillardia.

Commonly called Blanket Flower or Indian Blanket, *Gaillardia grandiflora* is a source of nectar and pollen through the hottest part of Summer and Fall. There are many varieties, so choose single-flowered forms if you are planting with bees in mind. The daisylike flowers are red to bronze with maroon or golden bands, growing up to four feet tall. They look attractive in a sunny bed with golden Coreopsis or yarrow. One gardener recommends interplanting Blanket Flower with Gentian Sage (*Salvia patens*) as a blue contrast. Blanket Flowers need good drainage to ensure healthy, long-lived plants.

From late Spring through Summer, the Red Hot Poker, Kniphofia uvaria, sends up shoulder-high stalks with clusters of orange, red or yellow flowers. Bees crawl right inside the tubular flowers to gather both nectar and pollen, and hummingbirds also sip at the same cup. As long as the plants have good Winter water, they thrive in any Summer. The long, straplike leaves remain green all year, forming clumps which increase in size each season.

Although their common name is not very flattering, Fleabanes (*Erigeron spp.*) complement any garden and also provide a source of nectar for bees. Their bright daisy-like flowers thrive in full sun, but prefer part shade in very hot areas. Seaside Daisies (*Erigeron glaucus*) have two-inch-wide lavender flowers in Spring and Summer. The plants grow about one foot high and have blue-green (glaucous) foliage. Santa Barbara Daisy (*E. karvinskianus*) grows as a trailing plant about knee-high, with white or pinkish 3/4-inch flowers appearing in early Summer through Fall. This drought-tolerant plant is native to Mexico and may naturalize easily.

One of the many Sages.

ANNUALS

Few annuals are able to survive and bloom through Summer on extremely limited water, as all of their growth from seed-sown through bloom to seed-set is completed in a single season. Plan your garden to allow a little extra water for these bright stars to flourish. Annuals that show their true colors in drier conditions can provide a show with minimum maintenance and, in addition, may reseed themselves each year.

Seeds of the annual Coreopsis, often called Calliopsis, can be sown in place in full sun in dryish soil. Varieties of *Coreopsis tinctoria* include dwarf and double types, but choose the single, sunflowerlike kinds for best bee use. Calliopsis will grow up to three feet tall. The flower

colors are in shades of yellows, oranges and reds, all with dark brown centers.

Cosmos species can be good fillers in your more permanent plantings. Their daisylike flowers yield both nectar and pollen for bees, and their seeds attract birds. This fast-growing annual looks deceptively delicate, yet is quite resistant to drought and will self-seed readily after blooming all Summer and Fall. Removing the spent flowers will prolong the bloom.

California Poppies, *Eschscholzia californica*, are usually grown as annuals, although they are actually perennials. Bees gather golden pollen from the two-inch silky flowers. The petals of the native form, the state flower of California, range in color from deep orange through pale yellow, while garden forms have been produced in shades of yellow, orange and red to white. Good for naturalizing, the plants spread from seed, producing a carpet of finely divided blue-green foliage topped with colorful flowers. Choose single-flowered strains such as "Sunset," and sow the seeds where they are to grow, as they do not transplant easily. Trim dead flowers to prolong the bloom, and enjoy the birds that are attracted to the seeds.

SUCCULENTS

Contrary to what you might expect, many succulent plants, with their fleshy leaves, are not heavy drinkers. Stonecrops, *Sedum* species, are low-growing perennials with scores of small flowers clustered in large heads, sources of nectar in Spring or Summer. There are numerous species, including about two dozen that survive in many hardiness zones. Low litter plants, they are useful ground covers but cannot withstand foot traffic. Goldmoss Sedum, *Sedum acre*, is extremely hardy and bears yellow, starry flowers in Spring, above ankle-high foliage. It grows well over walls or between stepping stones or as a ground cover, as it roots along its trailing stems. For copper-red blooms throughout Fall, try the related variety, 'Autumn Joy'.

Although most Ice Plants are actually perennials, they are not Winter hardy and are treated as Summer annuals. Botanists have recently reclassified these plants, formerly known as *Mesembryanthemum*, into a variety of genera with equally convoluted names. Perhaps the best known is the Livingstone Daisy, *Dorotheanthus* species, with nectar and pollen in its bright daisylike flowers. These colorful flowers open

Sedum

in sun and close in shade from mid-Summer through Fall.

Plan for dry times ahead by finding and establishing bee forage plants which do not have great Summer thirsts. You will have the pleasure of watching your garden continue to grow and attract bees while your water bill shrinks. BC

Bertie Stringer is a frequent contributor on the topic of Bee Plants. She grows them all around her home in Blodgett, OR.

SUMMER INSPECTIONS

Inspecting your colonies at this time of year is an important management requirement. It insures your colony is, and stays healthy, enables it to continue to expand, and prevents minor problems from becoming full-blown emergencies.

However, inspections should be planned, with a goal in mind and preparations in place to take action for most of the common problems you will find. Inspections will disrupt a colony's activities for a bit, but proper technique and appropriate timing will reduce the disruption to a minimum, and make your inspection profitable . . . and enjoyable.

There are three components of your colonies' condition that should be monitored now – queen condition, food and diseases.

Roger Morse

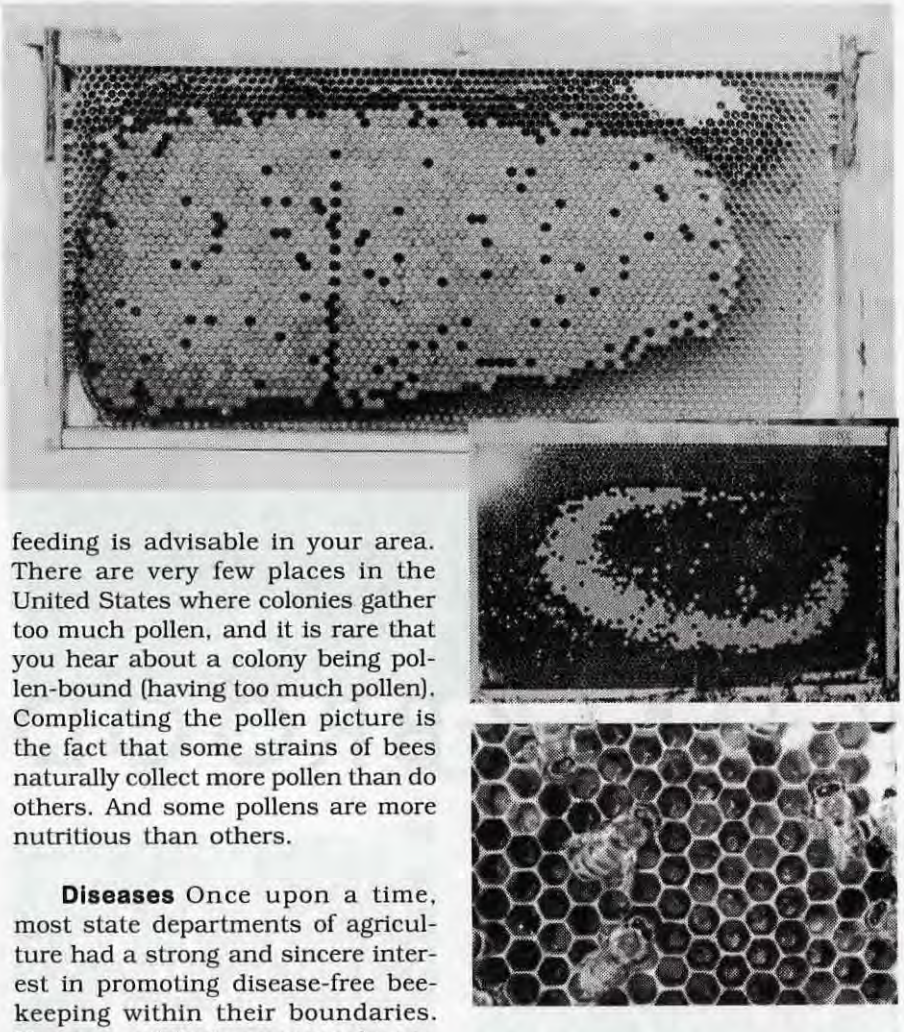
The Queen You can tell almost nothing about the condition of a queen or her abilities by looking at her except that she may be large or small, light or dark, or clipped or otherwise marked. But these things are not important. What is important is the queen's brood pattern. When we open a colony we want to know the following: Is a queen present? Is brood production equal to that in other colonies? Is the brood compact, and has the queen missed only a few cells as she lays eggs? Is the colony congested, and are there signs that it may swarm? We ask these questions to determine if the colony will be a good honey producer, or if we rent bees for pollination, to determine if there is, and will continue to be, an adequate number of workers in the hive.

If eggs are present, we assume a queen is present. There is no need to see a queen to determine if this is true. If the brood pattern does not meet certain standards, the colony should be requeened to produce the maximum amount of honey. Experienced beekeepers can assess a queen's condition by examining only one, sometimes two frames from the brood nest. The best way for you to learn how to measure the quality of a brood pattern is to examine a series of colonies and to compare one with the next.

The Brood Queens lay eggs in expanding concentric circles. The eggs should be upright and centered in the bottom of the cells. In any part of the brood nest the brood should all be about the same age. As we move around the brood nest, we should find eggs next to eggs, larvae next to more or less the same age larvae, and adjacent pupae should also be of similar age. Since we cannot see the pupae in their capped cells, we look at the cappings over the brood. They should be of the same color and uniformly convex, both of which conditions are indicative of their age. We worry about cappings that are caving in or that are dark.

Some queens live longer and are more active than others. Queens of the same age in different colonies may show extremely different patterns, production or capabilities. A beekeeper should never hesitate to replace a failing or even a questionable queen. Since trips to the apiary are time-consuming, it is best to correct poor situations as one proceeds with colony inspections. I have had some beekeepers tell me, and I think they may be right, that you should have 10 percent nucleus, single-story colonies in an apiary to use for requeening colonies with failing queens.

The best way to requeen is first to find and kill the old queen, which is usually not too difficult in a weakened colony with a poor queen. The nucleus colony, with the young queen, is placed above the dequeened colony's brood nest with a piece of newspaper between the two. Trying to requeen a mature colony using a queen in



A good brood pattern (top photo) will have few missing cells and adjacent brood will be of similar age. A pattern often seen in the center photo may mean the queen has quit laying (swarming, queen loss, disease), or that those cells that appear *empty are actually filled with younger brood and eggs (bottom photo). Look closely before judging.*

a queen cage often fails, but uniting two colonies with a sheet of newspaper between them is almost certain to succeed. A few six- to 10-inch-long slits should be cut in the newspaper to enhance ventilation and to make places where bees from the two colonies can start to tear the paper apart and remove it. The weaker of the two colonies, which is almost always the one with the new queen, should be placed on top.

The Food There is a temptation to harvest as much honey as possible and often to overharvest. It must be remembered that honey is the chief food of the adult honey bee and that when bees are actively rearing brood they need a good supply of sugar to obtain the necessary energy to produce heat to keep the brood nest warm. They also need an abundance of honey to feed the larvae and make royal jelly that is used for brood and queen food. I think most beekeepers would agree that in the Spring a colony should have a reserve of 20 pounds of honey *at all times*. In the Fall, depending on whether you Winter bees in one, two or three supers you need 40, 60 or even 70 pounds of honey in the North. Less reserve honey is needed in warmer climates, but probably 20 pounds is needed everywhere.

Pollen is the honey bee's source of protein and fat. Bees can survive for short periods of time on their body reserves, but when they are rearing brood they need a good supply of pollen. There is no good way of measuring pollen reserves, and experience and conversations with local beekeepers are the best way to determine if supplemental pollen feeding is advisable in your area. There are very few places in the United States where colonies gather too much pollen, and it is rare that you hear about a colony being pollen-bound (having too much pollen). Complicating the pollen picture is the fact that some strains of bees naturally collect more pollen than do others. And some pollens are more nutritious than others.

Diseases Once upon a time, most state departments of agriculture had a strong and sincere interest in promoting disease-free beekeeping within their boundaries. However, political pressures change, and in the past 10 years we have seen the loss and/or weakening of several state apiary inspection teams. There has never been a national bee disease inspection task force, though the United States Department of Agriculture has provided a free diagnostic service that still exists today.

I rank bee diseases as follows as regards their seriousness: Varroa, American foulbrood and in the northern states, tracheal mites. These three are the most serious by far and are followed by chalkbrood, European foulbrood, nosema and sacbrood in that order. These last four diseases are usually more serious in the North and in the Spring, suggesting that they are diseases that are more common when colonies are under stress.

Varroa disease, caused by a mite, tops the list and is unquestionably the most serious honey bee disease in North America. It was first found here in 1987, so good information about the life history of the disease is not found in many textbooks and bulletins. Now there are questions about whether or not *Varroa* mites have developed resistance to fluvalinate, the chemical that has given excellent control of *Varroa* mites during the past few years.

American foulbrood is the second most serious disease in North America. It is a special problem for two reasons: The first reason is that it may form a spore (resting stage) that may remain alive for 75 or more years. The second problem is that many beekeepers, especially beginners, have relied heavily on their state apiary inspectors to check their colonies and also to keep the surrounding area free of the bacteria. We are finding in my state, for example, that since we have lost our bee disease inspection force, American foulbrood is becoming widespread and destroying many colonies.

Tracheal mites and chalkbrood were both found within the past 25 years in North America. We have no

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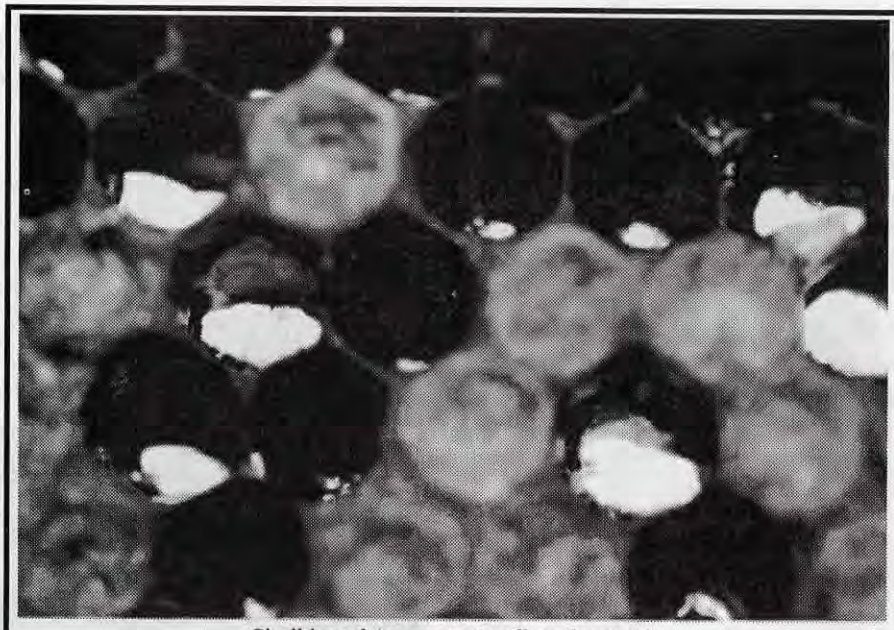


Chalkbrood 'mummies' still in the comb.

CHALKBROOD

I am seeing too much chalkbrood both in my own bees and in colonies in other beekeepers' apiaries. I have just reread the chapter by Drs. Gilliam and Vandenberg in the third edition of *Honey Bee Pests, Predators, and Diseases* to refresh my memory about what we know about this disease.

Chalkbrood is a fungus that attacks and kills only honey bee larvae. It gets its name from the fact that the freshly killed larvae are almost pure white. The mummies turn gray or black as the fungus grows, and arms of the opposite sex, called + and -, come together and form fruiting bodies or spores that are the reproductive stage. Spores may remain alive and infect bees for up to 15 years.

Chalkbrood has been known to exist in Europe since at least 1913 when the first observations on it were published. It was first found in the United States, in California, in 1968. I remember when it was first found in New York state in about 1972. Hundreds of colonies of German black bees that were common in the southern tier of New York died from the disease. The black bees were especially susceptible to chalkbrood, which tells us that some bees are more resistant to the disease than are others.

It is suspected that chalkbrood found its way into the United States on pollen that had been imported from Europe to feed bees. In 1972, it was found in British Columbia and Saskatchewan in western Canada. By 1980, 12 years after it was first found, it was nearly everywhere in North America.

Biology According to research done in Great Britain, honey bee larvae are most susceptible to the disease when they are three to four days old. They are especially likely to die from the infection if they are chilled briefly about two days after ingesting a dose of spores. The spores that the larvae take in germinate in the larvae's gut, and thereafter growth of the fungus is rapid.

Controls No chemical is registered for chalkbrood control in the United States, though some materials are used in other countries. There has been considerable research on chemicals that might be used for chalkbrood control, but nothing that is practical and safe has been found. A weak solution of thymol is effective experimentally, but this material is not practical since every comb and the interior of the hive bodies must be sprayed. Other candidate materials have much the same problem. Because chalkbrood can be controlled by other means, it is not likely that there will be much more research on chemical control.

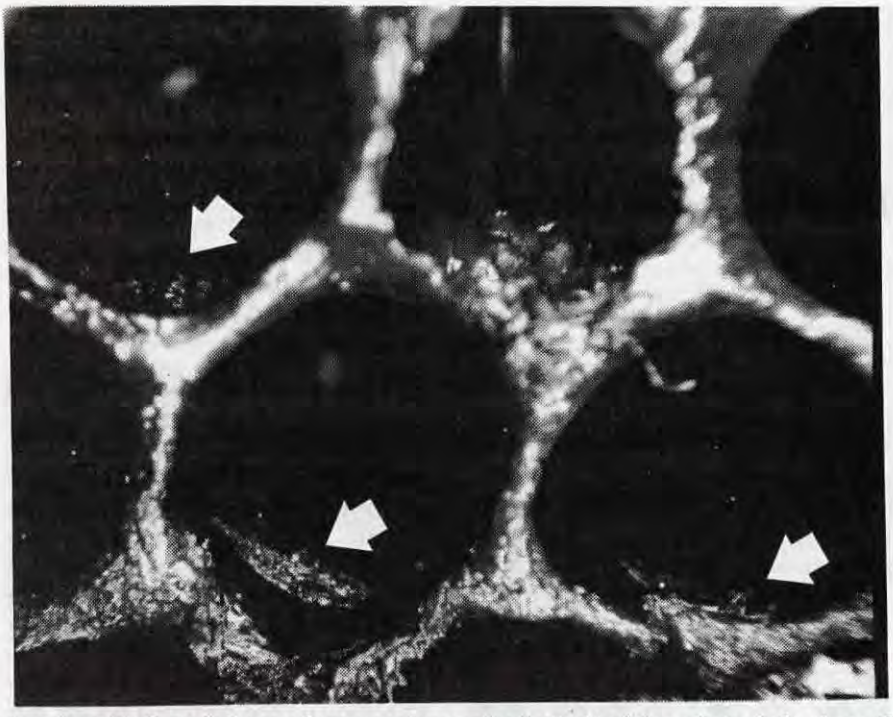
Drs. Gilliam and Vandenberg write that in their opinion, "chalkbrood is a stress-related disease." They state that the best protection against chalkbrood is keeping strong colonies. There are other stress-related diseases of honey bees such as European foulbrood, nosema and sacbrood. We know from studies on these diseases that keeping colonies exposed to a maximum amount of sunlight and having bottomboards dry is helpful. It is important to keep colony entrances free of grass that might have a cooling effect and interfere with ventilation. Using apiary sites that slope slightly to the east or south works best.

Stock Selection Tests done for hygienic behavior in Denmark showed that after four generations of selection and breeding, colonies headed by queens from this improved stock had a less than 10 percent chalkbrood infection rate vs. over 70 percent for the test colonies at the outset. In other words, stock selection can be used to reduce chalkbrood infections.

What to do? We can reduce chalkbrood infections by selecting the best locations for apiaries and by selecting stock. Stock selection is important, simple and easy for those who grow their own queens. The most important guideline is to select breeding stock from colonies that have never shown any signs of chalkbrood. Those who do not grow their own queens can improve the situation in their apiaries by marking and requeening any colonies that show signs of chalkbrood, which indicates more susceptible stock. Chalkbrood is most likely to occur in the Spring when colonies are under stress because of rapid growth. Requeening chalkbrood-infected colonies also rids the apiary of drones that might pass on their genetic material to queens with which they might mate later in the year.

good chemical control for either one, and as a result we have lost many of the more susceptible colonies. The losses the industry suffered because of these diseases were great, but the colonies that survived are more resistant. The few colonies of the old German black bees that were found in some parts of the United States have all been lost so far as I am aware; they were especially susceptible to chalkbrood.

Good beekeeping practices will do much to control the remaining and lesser known diseases of honey bees. Colonies should be exposed to full sunlight, kept on slight slopes that face east or south. They should be on hive stands that keep them off the ground and dry. I like hive stands that are at least six inches high. Good air and water drainage are important. A supply of fresh, clean water is helpful.



American Foulbrood disease leaves scales on the 'bottom' of the cell. Look for these if you suspect a problem. Sunken, partially open capped cells, and a disagreeable odor are other cues.

How often? There are no rules or special guidelines to follow to know how many times a year colonies should be inspected. I was raised with the thought that there should be three thorough checks for American foulbrood each year. This may be one inspection too many for this purpose, but it does guarantee that infections will be kept at a low level.

You need not examine individual frames to determine if swarming is about to occur or not. Splitting colonies apart and tipping supers up and forward to examine the bottom bars so as to expose queen cups and the middle or lower part of the brood nest is usually sufficient. Too many cups, or especially eggs in cups are bad signs.

Just watching flight to and from a colony entrance for a few seconds will tell you a great deal about colony strength and condition. If you see a number of bees entering a colony with pollen, you may assume brood is being reared and that there is at least some degree of prosperity. It is important to check for drones in the late Fall. Any colony that has very many drones after the first heavy frost is probably in trouble, as queenright colonies should have ejected most of their males by that time. BC

Skunks Aren't Good News

Mark Headings

One of the things that gets my "dander" stirred up is when I find that a skunk has been causing damage to one of my colonies. I see the results in my apiaries at a frequency of one or two colonies per year. That does not sound like many, unless you have only two colonies. Skunks are a nuisance; and they can be quite destructive to the colonies affected. It seems I never catch them at it; of course, they are primarily nocturnal, and I don't make a practice of inspecting my bees at night either. I have never seen them work on all the colonies in an apiary, but rather only one or two.

The evidence of their visit to a colony is very obvious. The grass in front of the hive is pressed down and the bottomboard entrance appears rubbed and scraped by the claws on the front feet of the skunk. Such evidence may also be present on the lower part of the lower hive box above the bee entrance. The damage to your equipment may be minimal, but the damage to your bees can be substantial. Skunks may cause a productive hive to become unproductive and even lead to the demise of the colony. The other effect is that remaining bees in the colony become rather aggressive toward anything or anybody that comes close to their hive. The skunk scratching on the front of the hive is like a stranger knocking on the door of a house; but in this case, when the inhabitants come charging out, the stranger eats them alive.

One thing I fail to understand is how a skunk will tolerate potential stings in the mouth, on the lips, nose, eyes, ears and feet. The delicious delight of those sweet morsels must outweigh the pain of engagement. There is a saying as you know, "No pain, no gain." From a human standpoint, I can attest to what it feels like getting stung approximately 30 times on the head and neck during the span of two or three minutes. In those circumstances, my inclination is to lose interest in everything except escape.

Skunks nearly always forage at night. A mother skunk will train her offspring to forage at an apiary, and a family can seriously deplete the entire apiary's bee population. Look for scratch marks on and just above the landing board, bare ground in front of the hive, and fecal material. (Fell photo)

Biology and Behavior Of the four skunk species reportedly found in North America, the striped skunk is the most common. It belongs to the weasel family, and its scientific name is *Mephitis mephitis*. That is easy to remember because if you know the genus name you will know the species name and vice versa. The same phenomenon is true of the roof rat. Its scientific name is *Rattus rattus*.

Skunks are probably best known for the distinctive odor they can emit when disturbed. A skunk has scent glands located near its anus. The scent glands reportedly hold about 15 cc of an oily yellow fluid which can be released up to six times in succession at a distance of up to four or five meters. When the scent gland is empty, it may take up to 10 days to fill it again. Obviously, the time to catch a skunk is after it has released its spray six times in succession. The problem is who or what is the target and who is counting? Reportedly a skunk cannot spray if its feet are off the ground and not touching anything. The trick is being able to sneak up on a skunk, grab it by the tail, and lift it off the ground before it knows what happened. I learned long ago in my youth that the defensive equipment of a skunk functions well even at an early age. Reportedly it can release musk at three to four weeks of age. Once when farming a field in Oregon, I noticed a mother skunk and a few baby skunks walking in a wooded area in broad daylight. It occurred to me that if I could catch one of those babies, maybe I could turn it into a pet. I stopped the tractor, grabbed a burlap bag and headed for

one of the small ones trailing some distance behind the mother. I thought to myself, surely such a small skunk would not yet be capable of spraying. However, just in case, I came upon the skunk from the head end, thinking that was the safest angle to grab its tail. To my surprise, that small skunk lowered its head and, tipping its tail end toward me, let me have it at quite close range. Needless to say, I lost interest rather quickly and decided I really didn't need a skunk for a pet after all. As you may expect, with an odor like that, they have few, if any, friends or enemies. They are solitary by nature except at mating time and when they sometimes live together in the same den in Winter.

The average litter size is four to eight, and they reach sexual maturity at about 10 months of age, at which time they may weigh up to 10 pounds. Skunks feed primarily on insects but will also feed on other small animals, eggs, animal parts and plant materials such as apples and corn. If you wake up one morning and find that your lawn was dug up overnight, the damage was most likely caused by skunks looking for grubs and worms. The challenge is finding the best way to encourage a skunk to leave your premises.

Control One technique to banish skunks from your lawn is to treat it with a soil insecticide for grub control. As a result, you will have greatly reduced the food supply for skunks, as well as moles, on your property.

As a beekeeper, the concern is, how do I encourage skunks to leave my bee colonies alone? One technique I have tried and which seems to work reasonably well is to hammer nails through the front lip of the bottomboard (bottom side up). When the skunk begins clawing at the entrance, its feet rub across the sharp nails, which seems to be more of a deterrent than the bee stings themselves. Better yet, use a strip of wood with nails pounded through it from one end to the other and attached to the top front edge of the bottomboard. It may also help to attach such a strip across the front of the lower hive box just above the entrance. Wooden strips, which come with many nails through them and are used around the edges of floors in houses to attach carpets to, may also do the job for you. Frequently checking your beehives is a good way to stay on top of any potential skunk problems.

I am still trying to figure out how to chase off a skunk that has been hanging around my honey house. I hope it will do so before I find four to eight young ones. Maybe a live-capture box trap would serve the purpose; however, I don't know anyone who would like to have a skunk released in their neighborhood. BC

Acorn, Bob, 1996. Biology and Control of Skunks. Adapted from Agdex 684-685, Alberta Agriculture, Food and Rural Development, Canada, 4 pp.

Hoagland, Buzz, 1998. Skunks. Westfield State College, MA, 2 pp.

Skunks. University of California, Calveras County Cooperative Extension Service, San Andreas, CA, 2 pp.

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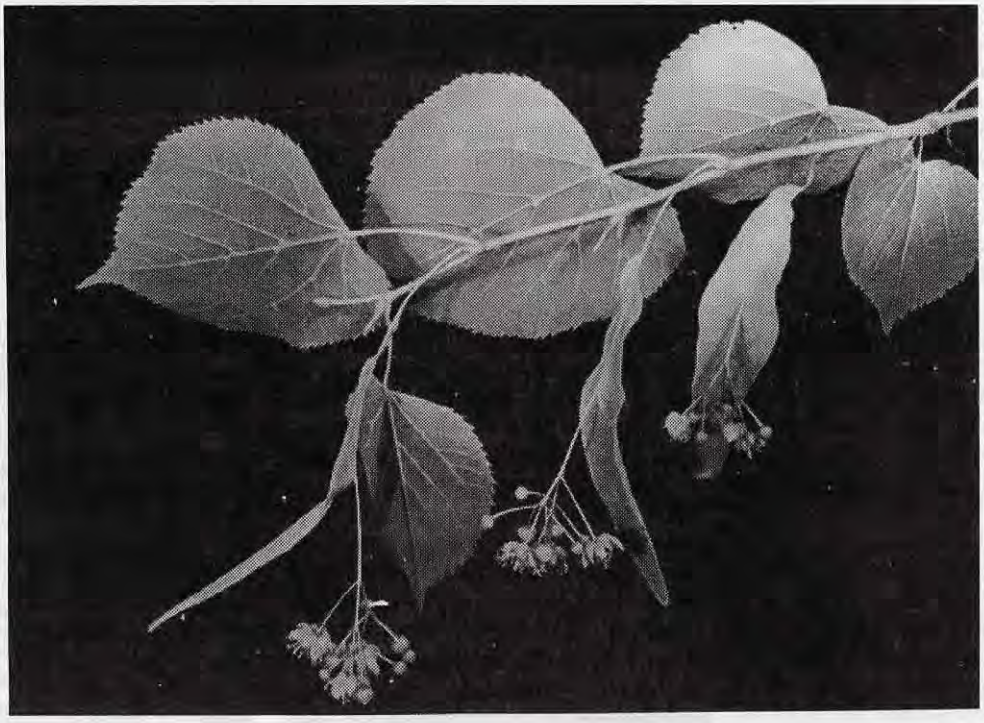
Skunk Solutions

If skunks are bothering your bees there are a variety of defensive measures you can take to protect your bees. Raise your entrances off the ground at least two feet, above a skunk's reach. Place nails or tacks on the entrance to discourage scratching. Provide a wire mesh bubble in front of the entrance reaching out a foot or so. Place urea on the ground to make walking uncomfortable. You can fence your beeyard with a small mesh fence at least two feet high. As a last resort, move your bees. Skunks will visit the same hives in your apiary every night, rarely attacking more than one or two. A mother will repeatedly bring her young to the same hive to teach them the fine art of dining on your bees. Action is required.

BEAUTIFUL • BEAUTIFUL • BEAUTIFUL
BASSWOODS

Richard Dalby



The basswood tree is a legendary honey plant. Nineteenth-century American beekeepers routinely reported obtaining prodigious crops of basswood honey. A.I. Root and others frequently praised the basswood as a nectar source, though they noted that the trees do not yield in abundance every year. They also noted that the great stands of basswood once found in eastern forests had largely vanished, a victim of the lumberman's ax.

Today the basswood is no longer common in many areas, nor is the distinctive honey produced from its blossoms. This is unfortunate, since a single basswood can yield, under ideal conditions, two to three gallons of honey.

Let's take a closer look at this nectar phenomenon known as the basswood. First, though, let's clear up the tree's various names. The basswood is known in Europe as the linden tree, and in Britain as the lime tree. Basswoods belong to the Tiliaceae family of plants. This is basically a tropical family, with some 35 members, of which the basswood (*Tilia*) is the only North American genus. Some 20 basswood species are found in the temperate regions of the Northern Hemisphere. There are many natural hybrids and horticultural varieties. It should be mentioned that the name basswood is derived from the "bast" or fiber obtained from the inner bark, which has long been used for making rope. The tree was once known as the "basstwood."

Basswoods are generally pyramidal in form when young, with dense, attractive foliage. The leaves are alternate, more or less heart-shaped, lopsided at the base, with saw-toothed margins. Basswoods are fast-growing, and have proven to be a superior tree for street planting. They adapt well to city conditions and exhibit a pleasing symmetrical shape. They blossom late (June or July) and profusely, scenting Summer nights with their distinctive perfume.

The American basswood (*Tilia americana*) is a common and widely distributed species. Sometimes called the large-leafed linden, the American basswood can attain a height of 70 to 80 feet with a trunk two to three feet in diameter. The leaves are four to eight inches long, the upper surface a dark, dull green with a lighter underside, exhibiting the characteristic heart shape, with saw-toothed edges. The bark is dark gray and somewhat scaly, with deep and regular fissures. The tree's native habitat is from New Brunswick to Manitoba and south to Georgia and eastern Texas, but it has been widely planted outside its range as a shade and street tree. In common with other species, the American basswood yields a wood that is soft, light in color and weight, with an even grain. The wood is moderately strong, weighs approximately 28 pounds per cubic foot, and when dry has no odor or taste, so it is popular for food containers. The fiber or "bast" of the inner bark yields a cord-

age material once in demand for making rope and twine. Early farmers used the whole bark of the various basswoods to tie logs together. The inner bark was once used extensively in the nursery trade as a tying material. The toughness of this inner bark may seem less surprising if it is pointed out that basswoods are in the same plant family as the Indian jute plant, whose fiber is used to make twines, cordage and burlap sacks.

Other common basswood species are the white basswood (*Tilia heterophylla*), the down basswood (*Tilia pubescene*), and the European linden (*Tilia vulgaris*). The white basswood has a native range from New York to Alabama and westward to Illinois and Tennessee. It is often encountered in the Great Smoky Mountains to an elevation of some 5,000 feet. Its leaves are narrower than those of the American Basswood, and their undersides are whitened and often felted. The downy Basswood is basically a miniature version of the American Basswood, but its leaves are green on both sides, the young shoots covered with rusty hairs. The European linden has smaller leaves and a more compact crown than the American Basswood. During the reign of Louis XIV it became fashionable in France to plant lindens along avenues, and this practice spread to other countries, including England. Because of its smaller leaves, the European linden is sometimes known as the little-leafed linden. It has long been a favored street tree in American cities, sometimes providing urban beekeepers with a fine crop of Basswood honey.

In the primeval forests of the Ohio Valley, Basswoods outnumbered all other trees. Lost woodsmen sometimes survived in Winter by eating the buds and tiny fruits of the basswood. Today, large stands of Basswoods are rare, the trees long since having been cut for their wood, which is made into furniture, millwork, Venetian blinds, apiary supplies (chiefly section boxes for comb honey), boxes, crates, woodenware, pulp for paper and excelsior. It should be noted that the amount of wood used for section boxes is an insignificant amount and had no real effect on the demise of the great Basswood forests.

By late Summer the seeds are mature and, attached to a winged carrier, are moved by the wind to begin yet another Basswood tree.

The Basswoods bloom late enough (usually in late June or early July, depending on weather and location) that the bees are generally at maximum strength and can gather a good crop of Basswood honey if forage is sufficient and conditions are favorable. The yellowish-white flowers are borne in drooping clusters of five to 20 blossoms, the nectar largely protected from rain. Each cluster is connected to an oblong, winglike bract. Basswood flowers are "perfect," each flower having both stamens and pistils. If nectar is scarce, the bees will gather pollen from the flowers, but if nectar is plentiful, the pollen is largely forgotten. In a copious nectar flow, the blossoms sometimes glint in the sunlight, and nectar will drop onto the leaves below. The blooming period is short, usually only 10 to 14 days at best, and a hot afternoon wind can soon begin to desiccate the delicate blossoms. Basswood blossoms have a long history in herbal medicine. A tea made from the blossoms has been used for a variety of complaints. Come Autumn, the blossoms have produced hard, grayish fruits about the size and shape of garden peas, each containing one or two seeds. Come wind and the winglike bracts break free and sail away, carrying the seeds with them.

When the nectar gods smile, Basswoods can yield stupendous amounts of honey. An old copy of the *ABC & XYZ of Bee Culture* states that a hive at Medina, Ohio, once gained 45 pounds in three days working on basswoods. A hive in Iowa once gathered 600 pounds of basswood honey in a span of 30 days, which works out to 20 pounds a day. In New York state, a single hive once stored 302 pounds of honey from basswoods in 10 days. Such yields are the stuff of beekeeping legend. If only the trees were so lavish every year. But in reality they are not, although it is a rare year when they yield nothing at all. Basswoods, like most other honey plants, have their good years, their bad years, and their great years. It seems likely that plant selection could result in a tree with superior nectar production.

What of Basswood honey? Opinions vary, but many who have tried this white to light-yellow honey consider it the standard of excellence. Its piquant taste is memorable. Too bad it is not more widely available. A.I. Root certainly must have favored Basswood honey. In 1872 he planted 4,000 Basswoods near Medina. Five years later, in 1877, many of those trees had begun to blossom. He had an apiary among these trees, and mentioned them many times in his writings. Basswoods remain one of the best honey plants. They are widely available as seedlings or as larger trees. You could hardly do better than to plant some near your bees. BC

Richard Dalby writes on a variety of beekeeping-related subjects and shares his insights from his home in Levan, UT.

SUMMER • SUMMER • SUMMER

NUCS

Roy Hendrickson

Nucleus colonies are one of the most versatile, and I suspect, one of the most under-used pieces of beekeeping equipment. Their use spans the whole of bee management, from queen rearing to colony start-up and replacement, and even honey production. A spare nuc or two in the beeyard also becomes the ace in the hole when problems arise.

With the mite problems that beekeepers contend with today, I feel that nucleus colonies offer a simple, practical alternative to colony replacement. The benefits begin when the nucs are started in mid-Summer. First, there is ample time to rear queens under ideal conditions without the time and weather constraints of early Spring. If purchased queens are to be used, similar benefits should occur. Without the demands of supering there is ample time to monitor and employ whatever mite controls are necessary. Perhaps most important, the nuc can be managed as necessary to insure it's in optimal condition for overwintering. Come Spring they can be used for colony replacement, requeening, to provide brood for equalization, as mating nucs, or for sale. They provide insurance against tough Winters and the ravages of *Varroa* mites.

The strength of the nuc and the makeup date will vary with local conditions. Here in Northeastern Ohio, I start at the end of the main honey flow, usually around mid-July. All nucs are started in five-frame boxes. The earliest units consist of two frames of brood and bees, a full frame of honey, another with some honey and pollen and an empty. Ripe queen cells are given the next day, caged queens are installed at makeup. Later nucs are started stronger, with either more brood or more nurse bees. Once started, the units are left alone for 10 to 12 days (except for cage removal), at which time they are checked for queen acceptance. If all is well, they are checked for stores at weekly intervals and left to build. Queenless units or those with poor queens are moved to another location where the bees are shaken out in front of production colonies and the nuc restarted. It's not worth the effort to revive the nucs that fizzle.

All colonies supplying brood or bees for nuc makeup are first surveyed to determine the amount of *Varroa* present. It's not uncommon to have low infestations at this time (mid-July), as the bees have been off strips for over two months. Since drone rearing is going strong, removing drone brood with a cappings scratcher is the quickest way to survey for *Varroa*. My general rule of thumb is no more than 10 percent of the drone brood should have *Varroa* present. If the rate of infestation is higher I'll look to another yard or colony for start-up bees. If no alternative exists, I install strips at the point of nuc makeup. Otherwise I prefer to wait until the queens are mated or released before treating for *Varroa*. At no point should the nucs become stressed by *Varroa*, so close attention is in order.

Once the nucs have expanded to fill the five-frame box, they are either transferred into a standard 10-frame hive body or a second five-frame box is added on top. Those put into hive bodies are given drawn comb with honey if necessary and allowed to continue expanding. This transfer generally occurs around the end of August or early September, just prior to the start of the Fall honey flow. Most of these nucs are able to gather the majority of their Winter stores by late September. Any shortfall is supplied via heavy sugar syrup containing Fumidil-B. When weather and Fall honey flow conditions appear promising, some nucs will be given a second five-frame box containing foundation. If the honey flow materializes, these nucs will outpace their brethren in standard equipment, including drawing perfect comb. This process of adding a second five-frame box on top works even better in early Spring. Start the nuc as early

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NUCS ... Cont. From Pg. 41

as possible as described above. Add the second box with foundation when necessary; the ideal time would be at the beginning of the dandelion bloom. When both are full of bees, brood and honey, and the foundation is completely drawn, transfer into a standard hive body, add a queen excluder, a super of drawn combs, and you have a honey production unit.

If you want to experiment, or if you've suffered heavy Winter loss and don't have enough brood to start all your colonies, try producing honey with five-frame nucs. Follow the same procedure as before, but time the nuc to be chock-full of bees at the start of the main flow. Add a 10-frame metal rim excluder (leave the excess out the far side), then a second box with either foundation or drawn comb. When full, add a third box or remove finished combs and replace with empties. When the flow ends, transfer into standard equipment and allow to build. Use combs with honey from the previous year's Winter loss colonies to aid in upcoming Winter preparations.

By the middle of October all nucs should be in hive bodies, lead heavy and ready to be prepared for Winter. Ideally, the nucs should cover six frames at the point of Winter cluster. This will insure good wintering with plenty of food reserves to last until the first flows of Spring. Also, a nuc this size will not outgrow its quarters before being unwrapped. Winter preparations will be covered in a future article.

A few words of caution: Do not attempt to start nucs or mate queens when the bees are robbing. There is no better recipe for disaster.

If you are starting with cells, it would be wise to supply drone source colonies. There won't be enough mature drones in the nucs to fully mate the young queens.

The five-frame boxes are made by cutting down old hive bodies. Cut 8-3/8 inches wide, use ¾-inch plywood or 1 by 12-inch lumber for the second side, and 1 by 10-inch lumber for the tops and bottoms. Add a 3/8-inch thick spacer between the bottomboard and the box to supply the bee space under the frames. Assemble unit with deck screws. BC

Roy Hendrickson is a veteran sideline beekeeper producing cut comb and liquid honey in Northeast, OH.

Summer Games

Richard Bonney

Several levels of bee behavior, and beekeeper learning are going on here.

Summer is here, and with it come outdoor meetings for many of us. Outdoor meetings for a bee club can be a challenge. First, where do we have them, and then, how do we make the meetings interesting for everyone? Where to have one I will leave to you. It could be in a public recreation area with picnic tables and barbecue facilities, or it might be in some beekeeper's backyard with a hive or two available to inspect. Whereever the meeting is held the content is still a challenge. How do you have an interesting program, one that will attract enough people to make the whole thing worthwhile? Many of the attendees may not be beekeepers, but instead spouses or other family members. They see it as a social event. Even many of the beekeepers are interested primarily in the social aspect. Few attendees are interested in a formal meeting or a lengthy presentation. They want to relax and enjoy a pleasant Summer day, perhaps have a contest or two, poke around in the host's bees, and in general, be entertained. Here is a demonstration that will be interesting, entertaining and educational.

This demonstration can be viewed on at least two levels. The first is an observation of basic bee behavior that can be taken at face value while it is happening, the information then set aside as one more bit of interesting knowledge about bees. At the second level, the observations will be processed, perhaps pondered, then stored away, available to be taken out again in the future for deeper thought leading to even more observation and perhaps experimentation. The demonstration is a variation of one that has been offered at many meetings and conferences over the years. It involves bees on crosses, but with an added twist, and its purpose is to explore the who of queen finding in a swarm or colony. That is, who amongst the bee population actively searches for the queen when she somehow becomes separated from the colony, as happens in the initial stages of swarming? To get this demonstration underway first requires that we have a swarm. A small one will do, but the timely availability of a natural swarm of any size cannot be guaranteed. We will have to make one up, and it must be done at least two or three days in advance. First, find a suitable container, a package bee shipping cage for instance, or any other well-ventilated but bee-tight box or bucket you can come up with. Then arrange a syrup feeder for that container. If you are using a package bee cage, the type of feeder that came with it is probably not an option since there is no way to refill the can readily. However, you can probably find a glass or plastic jar that can be made to fit. Then, with the container in hand, think about a queen. Probably a new queen is best, ordered from a regular supplier of queens. Order her so she arrives at least two or three days before the demonstration. This isn't going to work if you are still waiting for a queen and trying to get a swarm made up on the morning of the demonstration. Next, get a piece of poster board, the standard 22- by 30-inch size. Roll it into a cone with the small end just smaller than the opening in your bee container and the other end large enough to accommodate the end of a standard frame as you shake bees. A diameter of 10 to 12 inches should do it. Tape or staple the cone to hold its shape. (In the absence of poster board, several layers of newspaper can be used, but such a cone is a little harder to make and is less sturdy.) Presumably you already have in mind a hive from which to obtain your bees. Go to your selected hive and find the queen. You want to be sure she is not taken during the following operation, so set her aside until you are done, then return her to her colony. With the queen protected, shake about a pound of bees through the funnel and into the container. Have someone with you to hold the funnel; it is difficult to do this shaking operation alone. When you have the requisite amount of bees, add the new queen, in her cage, and close the container. Then, with the feeder in place, put the container in a cool, quiet place until the day of your meeting.

With the swarm prepared, next think about your demonstration site. Let it be a remote corner of your meeting place, one that won't be disturbed by other activities during the day of the meeting. Make up three wooden crosses from 1- by 2-inch stock. For each, the upright should be about six feet long and the crosspiece about 12 to 15 inches long. The cross arm gives the cluster something to hold on to. Fasten it about 10 inches from the top of the upright, and then drive another nail partially into the upright a little above the cross arm. Sharpen the bottom end of each upright, and drive the crosses into the ground so that the three of them form a triangle

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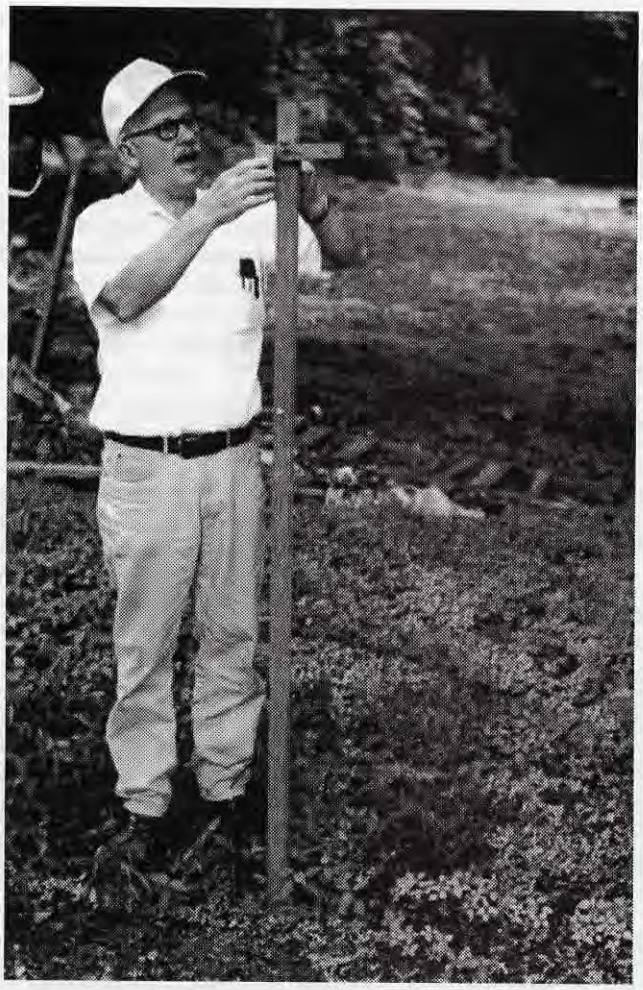


Once the cross is prepared, attach the queen cage, with queen . . .

about 20 feet on a side. You are ready.

On the day of the meeting, bring your swarm in its container to the demonstration site. Place it near one of the crosses, but don't release them yet. Let them settle down for at least an hour or two before you start. When it is time, gather your viewers and explain what is about to happen. Keep them back a little from the area defined by the triangle of crosses. This will make the situation a little less confusing for the bees that will be flying shortly. When you are ready, without yet releasing the swarm, remove the caged queen, and with a thumbtack, attach a short length of string or wire to the queen cage. Form a loop and hang the queen cage on the protruding nail on the cross so that she hangs at about the intersection of the two pieces of wood. Then, release the swarm by opening the container, allowing the bees to fly out, or alternatively, you could dump them on the ground. Either way, it should not take long for them to locate and cluster around the queen.

Once the cluster has formed, carefully, without alerting the cluster, remove the queen cage, step away a few feet, and quickly brush off any adhering bees, then isolate the queen. Do this by placing her inside a nearby building or vehicle, or even in your pocket. Don't allow any bees to find her. Then, after about five minutes, hang the queen on a different cross.

With queen marking paint in hand (nail polish, typing correction fluid, Testor's enamel), watch and wait until about 25 bees have found the queen. Mark those bees. Watch their actions. After the entire cluster is reoriented, isolate the queen and repeat the entire sequence, this time moving to the third cross. Mark with a different color if there are any unmarked bees among the first 25. Again, watch their actions. After this cluster has oriented, once again isolate the queen and repeat the sequence, this time moving back to the first cross. Watch the first arrivals as before, and use a different color on any unmarked bees among the first 25. Observe what happens to all the marked bees as the rest of the cluster forms. That is, do they apparently remain close to the queen or do they seem to disperse through the cluster?

At this point you have done about all you can for this demonstration at this time. However, you have given the observers a great deal, potentially, to talk and speculate about as the day goes on. Who are these marked bees? What, if anything, did they do when they found the queen? What are their approximate ages? What are their current duties in the colony? What impels them to search for the queen before the others?

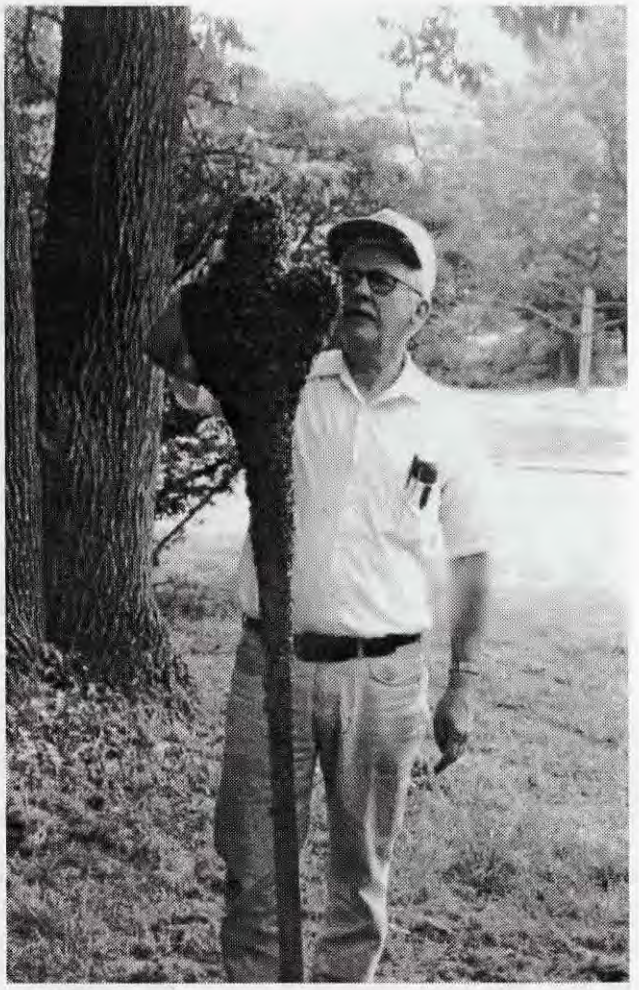
Although your demonstration of bee behavior is over for the day, it can continue in a different venue. First, reinstall the cluster in its original traveling container. Shake them in, or alternatively, place the queen in the container and wait for the bees of the cluster to join her. Then close the container and take it home. There, install it in an observation hive. For the next few days watch it carefully and observe the actions of the marked bees. Now you can better answer some of those earlier questions as to who those bees are and what their duties may be. I won't tell you here what some of those answers will probably be, but let me remind you of some of the behavioral activities of bees. Although we think of age as bringing maturity and responsibility in humans and most other animals, bees are different. Bees are adults when they emerge from their natal cells, and in many ways they are mature and responsible immediately. However, they do have limitations, defined by their physical development. It is the house bees who are still coming of age physically. Their various muscular and glandular systems are still developing, and they are responding to these developments by performing the many and varied tasks within the hive. It is these bees we can look to when we are trying to understand some of the many mysteries of the hive and when we want answers to some of the questions that arose as we watched the demonstration of bees seeking the queen.

Young bees, soon after they

emerge, take up a number of tasks that we tend to think of as a series – cell cleaning, fanning, tending the queen, feeding brood, and many more. In fact, they do many of these tasks not in series but in parallel, going back and forth among a group of tasks all within their physical capability of the moment. So, a bee that is feeding brood may, after a few minutes, move on to some other task as the contents of her brood food glands are exhausted. She may assist in capping cells, packing pollen, grooming the queen, or whatever work she encounters that needs to be done and that is within her capabilities of the moment. Once the brood food glands have replenished, she will go back to feeding, either more brood, or this time, perhaps the queen. Through these contacts with the queen she will become attuned to queen substance, and will be aware of the presence or absence of this substance in the colony or in a cluster. During the period of her direct contacts with the queen and for a short period immediately after, she is perhaps the most cognizant of any of the bees in the colony as to the queen's presence or absence.

Do your observations bear out the probable conclusion that house bees are the ones most likely to be searching for the queen as you move her about on the crosses? Have you been able to observe them as they perform specific tasks in the observation hive? Can you give a probable age range for these bees? Keep in mind that as you made up the swarm, there may have been an imbalance in the number of house bees or in the number of field bees. This can confuse your observations as the bees make adjustments in their new home. Further, bees are aging as your daily observations continue. House bees are becoming field bees, and field bees are dying. Don't delay your observations.

. . . after the bees begin to arrive, mark those that arrive first.



Now, with your observations complete and your conclusions drawn, prepare a report for your club. Those who attended the demonstration will appreciate it, and those who didn't attend will wish they had. BC

Richard Bonney is the author of several beekeeping books and a regular contributor to these pages.

James E. Tew

Bee Culture's Beeyard

Early Spring

An Update It's early May and the three nucs are still alive. Though I logically realize that winter is past and reasons that colonies would die at this time are going to be warm weather reasons, I am still suspicious about their success. For those of you who have not read previous articles along this topic, I took over a neglected yard early last winter with intentions of "bringing it back to life". The yard contained three established colonies and several four-frame nuclei. From January through March, I was frustrated as, one by one, the established colonies died for various reasons. But surprisingly, four of the nucs lived well past February. In February, I was down to three 4-frame nucs. Ironically, these colonies should not even have been allowed to go into winter but should have been combined to form larger colonies last fall. I have ordered packages and some splits, but I was beginning to wonder if I would have to tell you that all the colonies died. Since I had indicated to you early on that I was going to keep you informed of successes and failures, I was prepared to tell you everything - reluctantly.

One of the nucs was found to be queenless at the end of winter. I took a serious risk during some cold, rainy weather and combined the nuc with a neighboring nuc. The queen was confined during five days of cold and snow, but was alive when I could finally get back to release her. An update on that effort is that the nuc accepted the combination procedure and is now packed out. It is the strongest unit. I will be transferring the nucs to full-sized equipment within the week, but more on that a few paragraphs from now.

The First Swarm No matter how many times I chase a swarm, the surprise - the quick calculations - interest (or dread) - always rushes through my mind. What time of the day is it? How long is the drive to the swarm? Do I have enough equipment? All these questions must be factored with the traditional swarms questions asked of the caller: How high from the ground is the swarm? How long has it been there? Are they your bees to give away? And are they honey bees? Well, I got the first call on April 29 that there was a "big" swarm in the very heart of the Research Center's campus. I decided that I had better chase that one.

The first swarm of the season.

The PVC Pipe Queen Cage.

You've Got Questions?

I get a good deal of mail from you folks, frequently asking questions I can't answer, but I always guess. For the edification of all I present a couple of those questions here

From Texas.
Dear Jim,

I was saddened by the sight of dozens of young bees crawling across my back yard while I was adding another super with waxed frames this past weekend in my yard near Dallas. Their wings were all deformed or partly missing, making me wonder if some insecticide or other chemical substance might have been brought in with the pollen. The rest of the colony was strong, docile and very industrious. This is a 5 deep super hive that has given me lots of pleasure and good honey for many years, with no problem of this sort in the past.

I would greatly appreciate your comments on this malady. I would also like to know if you think I should treat for tracheal mites and Varroa ,e.g. Apistan here in central Texas.

I enjoyed your February *Bee Culture*'s Beeyard very much.

Thanks
Texas

Dear Texas,

I doubt it is chemical contamination. Though several problems can cause stunted wings, if you are not treating for Varroa, I suggest you do so either in early spring or autumn. Follow label instructions. Varroa mites would be my first guess as being your hive culprit.

Jim

From Iowa,
Dear Jim,

I enjoy reading your column in "*Bee Culture*". I hope your colony and nuc salvage operation works out.

I built a 3 foot square frame out of 2 inch lumber and lined it with black plastic sheeting to make a watering tank. I filled it with gray lava rock and kept it filled with water for the bees. The rock absorbed the sun light to warm the water and it also gave the bees plenty of landing spots. It is amazing how much water the bees use, especially early in the spring when they are raising lots of brood. Some people think this is a bit nuts, but in the summer with the hive entrances fully opened, I put Boardman feeders in the entrances with quarts of water for the bees. I keep these filled. The bees use them well. On extremely hot days, the bees will cluster around the water feeders. Probably not practical for other than backyard work, but it is interesting to see the bees use the water. It sure doesn't hurt the honey production. Even when the conditions are bad for foraging, the bees will go to water. The wind can be blowing so hard that the bees have to tack into the wind to get back to the hives and they still go for water. And they will fly for water when the temperature is not much above freezing as long as the sun is shining.

Dear Iowa,

Thanks for taking time to write such an informational piece. I especially appreciated your comments on a simple hive waterer. I look forward to hearing from you in the future.

Jim

Retrieving a swarm with a 20 foot vacuum tube.

Remember the nucs that died in my demonstration yard? I quickly looked at 4 frames of drawn comb to be certain that there was no disease and used the empty nuc as a box for hiving the swarm. You may recall that I have previously discussed using nuc boxes to hive swarms. It is light and easier to manipulate under battle conditions.

The swarm was too perfect to be true - it was about one foot from the ground and was just settling down. I had the perfunctory audience asking, "Why aren't they stinging you?" "I'm allergic - I could never do that!" But all went along smoothly, I had taken a queen cage along and was successful in finding the queen. The swarm was about four pounds and was gentle to handle. Later that night I picked them up and moved them to the demonstration yard. There! After weeks of reporting colony deaths and problems, I have been able to add a swarm to the yard numbers - there are four colonies in the yard with packages and splits on the way.

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BEEYARD ... Cont. From Pg. 47

What Next? The nucs will have to be moved to larger accommodations. They have quickly become crowded and will swarm themselves if not up-sized - especially the strong nuc I referred to earlier. In past articles, I went through the procedure for constructing and assembling equipment. I have it ready to go and will be mixing some new equipment with some old equipment. The transferring procedure is simple only requiring physically moving the four frames to the center of a single deep hive body with the remaining frames placed on either side of the nuc nest. I hope that this is not just a problem unique to me, but I am having a dickens of a time finding time. There are so many things to be done in spring - including bee work.

An Easy Queen Cage that You Can Make When I went to retrieve the swarm, I took along a cage that I made and have used for years. On one hand, it is very convenient, but on the other hand, it has a serious flaw.

Some of the good characteristics are that it is: simple, cheap, and importantly, can be operated with one hand. You can tell from the photo that the queen could be dropped into the cage and the cap slipped on with the other hand. Though the cage is easy to use, the problem is that its size precludes it from being placed anywhere within the hive where is won't affect hive closings. In other words, if you use this cage, there will be a bulge in the hive somewhere.

The design is a two-inch piece of ¾" PVC with a PVC cap to serve as a closing device. The opposite end is closed with a piece of fiberglass window screening. All I did was put the open end of the tube in a shallow pool of glue and then stick the tube to the screen. Later, after the glue had dried, I used a sharp knife to trim off the excess screen resulting in a neat fit. I cut a 1/8" saw kerf in the tube for worker bee access, but I suspect the screen end is enough. The saw kerf can also be seen in the photo.

While on the Subject of Swarming and Queen-Handling... I was recently in Alabama working bees with my brother and Dad. The swarming season was not bad and quite a number of calls had already come in. While working bees in one of their yards, it seemed that every possible swarm scenario happened that could happen.

The High Swarm. This yard is surrounded by Water Oaks and Pecan trees. The swarms all tend to hang high. Dad has improvised a swarm vacuum device that normally works well at "low altitudes", but we pushed the limit that day.

My beekeeping family improvised a vacuum tube nearly 20 feet long attached to a vacuum trap. The black tube was nothing more than drain pipe from a local building supply store. The vacuum air supply was provided by a converted gasoline-powered leaf blower. Two immediate improvements to the procedure would be to have another person provide center support to the long tube. It was difficult to get it airborne. Secondly, monitor the vacuum pressure. We had ours too high and killed too many bees.

The Higher Swarm. Normally, I am realistic about swarms. Many of them are just destined to get away, but this one "laid down a gauntlet". We had to take the challenge. The swarm was estimated to be at ten pounds and was hanging on a drooping limb about 35-40 feet straight up. No ladders, no tree climbing, no throwing a rope over the limb - this big swarm was high and clear. All my bee life, I have heard the occasional story about the swarm that had to be "shot down". We felt that we had come to that point. The day was windy. We alerted the neighbors - who weren't very close anyway - and took a 22 single shot rifle and about two boxes of cartridges later, the limb and swarm came crashing down. Confusion followed. Some of the bees went into the bait hive, others went back to the limb stub, while still others seemed hopelessly confused and flew about aimlessly. The queen was not to be found. Ultimately, we did get part of the swarm, but lost about half of it. This method of swarm-hiving should probably stay in the "extreme procedure" category.

Next Month. The next time we talk, I will describe the on-going procedure for colony number increase. I hope the packages and splits will be arriving shortly. Thanks for reading. BC

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http://www2.oardc.ohio-state.edu/agnic/bee/
http://www2.oardc.ohio-state.edu/beelab/

CLUB CORNER

by Peter Davenport

Good Groups Get Good Promotion

A series of articles designed to provide ideas, guidance and a road map for regional beekeeping clubs. Prepared by members of The Back Yard Beekeepers Association (BYBA). Founded in 1993, the BYBA's membership consists of 150 hobbyist beekeepers from Fairfield and Litchfield Counties (Connecticut) and Westchester County (New York). www.fairfieldweb.com/byba

Since the inception of the Back Yard Beekeepers Association, our leaders have made sure that news about the club was reaching the wider public by making phone calls to the local media about projects, or by sending out press releases about upcoming events. Public relations has been a vital component of our club's growth and success.

As the chair of our public relations efforts, I focus primarily on establishing a good working relationship with the region's media. We work under the assumption that getting good press means getting more people interested in beekeeping, and raising public interest is good for both our club and the bees. I got involved in beekeeping in just that way. A few years ago, someone from the Back Yard Beekeepers sent a press release to the newspaper where I worked as a reporter. The release was brief, explaining that the group had donated an observation hive to a nature center, and that members would be pouring the bees into the hive at a certain date and time. So I went. Within a few months, I had bought a hive, and the club had roped me in as its public relations person.

The main goal of a club's public relations person should be to reach as wide an audience as possible, both to raise public awareness about the benefits of beekeeping and to draw in new members. In our club, public relations is technically divided into two categories: outreach, which arranges programs for schools, community groups and fairs; and press relations, which I will talk about in this article.

As a club, we try to get publicity for virtually everything we do. I publish press releases (which I'll describe farther down) on our monthly lectures, which include talks on Africanized bees, mite control, beginning beekeeping and a wide range of other topics. Even if your club doesn't have a well-organized lecture series, there are a number of ways you can get exposure. Other events we publicize through local media outlets include:

* The donation of observation hives to other nature centers and museums
* Talks being given by members to area groups, such as schools, historical societies and continuing education classes
* Open house days, when members invite the public to see their apiaries and learn about beekeeping
* Hiving demonstrations
* Swarm capture demonstrations
* The annual honey harvest

How do get your foot in the door? To start, sit down with your group and compile a list of all the newspapers, radio stations, magazines and television stations in your area. We try to reach every media outlet within a 50-mile radius of our central meeting place in Weston, Connecticut. While you can reach people in a variety of ways (such as tacking up posters at nature centers, libraries and health food stores), our best response

seems to come from press releases published in local newspapers. Once you've got a list, start calling. If you're dealing with daily newspapers, ask for the calendar or features desk; in the case of weeklies, you can probably talk to the editor. Introduce yourself and explain a bit about your club. If you are interested in getting press releases published, find out where the information should be sent and what the deadlines are for getting information into the paper. Generally speaking, it's best to get your press releases to newspapers a week and a half before the event. Also, ask whether they prefer to receive the information by overland mail, fax or e-mail. In most cases, the news groups I deal with prefer to receive information by fax. Because I send out roughly 50 press releases per month on club lectures alone, the club is getting "Broadcast Fax" software, which will allow us to send releases to everyone in our database with a few computer keystrokes. Regardless of how you send the information out, however, it is likely to get into the paper. Local newspapers in particular are almost always desperate to fill space, and will publish virtually anything that is credible and has a smidgen of value to the community. The trick, then, is to make sure that people read or see it. To do that, you'll need to make sure you write a well-crafted press release.

What makes a good press release? If you've never written a press release before, take a look at your local paper. Almost everything you see that isn't an actual article written by a reporter or a syndicated news service like the Associated Press probably came from an organization like yours that is seeking to get attention for an upcoming event — a Girl Scout fund-raiser, church supper, an art exhibit, an investors forum. A good press release should contain the "Five W's" — who, what, where, when and why.

If I'm writing a release on an afternoon workshop on honey harvesting, or any event, I usually organize it in the following manner:

1) A short paragraph or two explaining the name of the person giving the demonstration, his or her credentials and the purpose of the event;
2) The date, time and location;
3) My home and work telephone numbers in case someone in the media has a question about what I've written;
4) The telephone number of a spokesperson for your bee club whom the public can call if they want to find out more about the event or the club.

Give your text a short, punchy headline that will catch the eye of both newspaper editors and your readers. Be creative, be punny if you wish. Just make sure that your headline describes what's going on succinctly and accurately. Bear in mind that small newspapers receive dozens of press releases per day, while daily papers receive hundreds. To compete with the masses, try to make yours stand out. I've tried to distinguish our club's press releases by creating a letterhead featuring our club logo — a giant queen bee surrounded by the words "Back Yard Beekeepers Association" — in one corner, and "News Release" in block letters on the other. It's primitive but effective.

While you should have fun generating your press releases, you might want to avoid getting too creative. As a newspaper editor, I've seen many PR people obscure the meaning of their releases in flowery prose, which forces me to chop and rewrite what they've written. While verbosity heightens the chance of errors or omission from your club's news, a fickle editor may simple discard the notice and your information will never get printed.

For better or worse, here's an example of how I might start a press release: "Enter the honey bee's world." On Tuesday, August 4, at noon, the Back Yard Beekeepers Association invites the public to explore the world of the honey bee. Noted local beekeeper and author Jane Doe will crack open one of her hives, giving visitors a glimpse into the inner working of the colony.

From there, you can talk about what people might expect to see: bees bringing in nectar and pollen; "dancing" to communicate the location of food sources; the queen laying eggs — anything that might spark the interest and imagination of your reader.

Other suggestions and techniques: As you grow more comfortable with the media, you may want to pitch an occasional story idea. Newspapers, cable television stations and radio networks are always looking for story ideas. One story that makes for great reading and photos is honey gathering in late Summer. Another might be on the impact of mites on local honey bee colonies and what it has meant to honey growers, farmers and even consumers.

When you've established good relations with some of the local media, consider approaching them to see if they would accept full-blown articles or op-ed pieces on various beekeeping topics. Again, these don't have to be long or preachy. Describe the differences between bees and other stinging insects; discuss the fun and (occasional) dangers of beekeeping; write about what got you into beekeeping.

Keep it visual. Finally, try including art with whatever you submit. If you have a guest speaker coming to town, try to get a negative from him or her, get a few pictures made up, and send them along (by overland mail) to the newspaper. If someone in your club is a decent photographer, shoot a few good pictures of bees "at work."

In sum, the key to good public relations is reaching the public. Once you begin getting information out to the public, you'll find your phone ringing constantly with questions about upcoming events, groups looking to get a speaker on beekeeping, and folks who are just hankering to get involved. Be sure you're ready to answer their questions, or at least able to direct them to someone who can. Above all, keep everything you write or say simple. Attracting people is easier than you think. Once you've roped them in, the bees will speak for themselves. BC

When not beekeeping in his back yard, Peter Davenport is business editor for The Hour *newspapers based in Norwalk, Conn. Peter is a director of The Back Yard Beekeepers Association, and chair of the club's public relations committee. To reach him, call 203-849-5984 or write via e-mail to TheHour@ct2.nai.net.*

Ann Harman

Home Harmony

Summer Honey Snacks

June is a very busy month. The weeds are doing very well and are threatening to obscure the tomatoes. Grass is growing. The hives may need more supers; one is in dire need of a new queen; the extractor should be cleaned up and made ready for the honey crop; and the hammock needs to be hung – and occupied. When is there time to eat? In addition, beeyards tend to be well-removed from any source of food, so if you get hungry at 10 in the morning or 3 in the afternoon, the trek back to a refrigerator full of food makes no sense.

Instead of starving, how about taking along some snacks? True, you might have a box of cookies or a bag of chips in the truck, but after a few days in the beeyard you might wish for some variety. Besides, someone probably put a super down on the bag of chips. Not all snacks need to be sweet. If some need to be kept cool, I am sure you have a small ice chest for those.

How about your helpers? They get hungry while working, too. Providing some snacks for break time cheers everyone up and makes that frustrating requeening much more pleasant.

Snacks can be made on a rainy day and stored until needed in tins or in the freezer. Then you need only make up a snack pack with a selection of several different kinds. If you have some honey bee visitors to your snacks, don't worry. They are just checking to make sure you used honey when you made the snacks.

BANANA FRUIT LEATHER

Fruit Leather is a good, healthy snack food. Ideal for lunch boxes as well as backpackers' knapsacks.

6 very ripe bananas
1/4 cup honey
1/4-inch slice of lemon

Peel the ripe bananas and place them all in your blender. Process until they are pureed. Add the honey and slice of lemon and process again until thoroughly blended. Pour the mixture out onto 2 large cookie sheets that you have lined with plastic wrap. Carefully spread the banana mixture out evenly with the back side of a large spoon. Place in a warm oven or any warm place that is approximately 100°. Of course if you have a good dehydrator, this is most ideal. At 100°, it will take from 12 to 14 hours until the leather is ready. It should not feel the least bit sticky to the touch. When it is done, roll into small rolls, then cut into desired size pieces with your kitchen shears. VARIATIONS: You can make banana-berry leather using half as many berries as banana. Try blackberries, raspberries or strawberries. Sweeten with honey to taste. It is best if you remove the seeds from the berry puree before blending with the bananas.

Joy With Honey
Doris Mech

Everyone expects a cookie for snacks so fix this next recipe so nobody is disappointed.

APPLESAUCE COOKIES

This is a nice change from the usual sort of cookie.

1 cup honey
1/2 cup softened shortening
2 eggs, beaten
1 cup applesauce
2-1/2 cups flour
1/2 teaspoon salt
1/2 teaspoon baking powder
1 teaspoon baking soda
1 teaspoon cinnamon
1/2 teaspoon vanilla
1 cup raisins
1 cup nuts

Mix honey and shortening until creamy. Add eggs and applesauce. Sift dry ingredients together and add to honey mixture, blending well. Stir in vanilla, raisins and nuts. Drop by teaspoonfuls onto a greased cookie sheet and bake in a 375° oven about 10 minutes.

Mississippi Homegrown
Mississippi Beekeeper's Association

WHOLE WHEAT HARDTACK

This next recipe is a cracker. It is good all by itself, but you might wish to serve it with the blueberry spread.

1/4 teaspoon baking soda
1/2 cup buttermilk
2 cups whole wheat flour
1/2 teaspoon salt
3 tablespoons butter
1 tablespoon honey
coarse salt or seasoned salt for light dusting

Dissolve soda in buttermilk. Mix dry ingredients together, then cut in butter. Add honey and buttermilk-soda mixture. Form into ball. Roll dough very thin, about 1/8 inch. Cut into 2-inch squares and sprinkle lightly with salt. Press gently with your fingers to make salt adhere. Place on cookie sheet and bake at 425° for 10 minutes or until crisp. Store in airtight container. Makes 4 dozen squares.

Naturally Delicious Desserts And Snacks
Faye Martin

HONEY BLUEBERRY SPREAD

1/2 cup fresh or thawed frozen blueberries
1/4 cup honey, divided
1/2 cup butter or margarine, softened

Heat blueberries and 2 tablespoons honey in small saucepan to a boil over medium high heat, stirring constantly. Cook 3 to 4 minutes or until mixture thickens and is reduced by half. Cool. Blend in remaining honey. Beat in butter. Serve spread at room temperature; store in refrigerator tightly covered. Makes about 2/3 cup.

Sweetened With Honey
National Honey Board

Continued on Page 54

Richard Taylor

Bee Talk

"The first time I met Roger Morse, he and some of his students were sitting around drinking mead."

Probably no one is better known to beekeepers throughout the world than Roger Morse, and indeed, I have long thought that no one in the world knows as much about bees and beekeeping as this man. There are, of course, specialists in bee science who have pushed their particular area of research to its limits, but no one possesses the overall understanding of bees that Dr. Morse has. He has been writing for this magazine for over 50 years, has written books on every aspect of beekeeping, from queen rearing to honey bee pathology, and edited at least two encyclopedias on the subject. He is, himself, a walking encyclopedia, who can tell you off the top of his head how much honey goes into mead production, or how much honey is exported from New Zealand.

Dr. Morse retired from his post at Cornell a few years ago, although he still teaches a beginner's course there each year, and his retirement occasioned tributes from several sources, with special honors from the American Entomological Society. Some of these have been duly noted and need not be repeated here. What is not so widely known is his biography, how he got interested in bees, and what sort of man he is, so I thought I'd say something about that.

I first got to know Roger in the Summer of 1961, when I had a visiting appointment to teach philosophy at Cornell. That, if my arithmetic is correct, was 38 years ago. It certainly doesn't seem that long. Anyway, apiculture was then housed in the small entomology building, and the research was conducted in the crowded basement. Bees from the observation hives flew in and out through the basement windows. Norman Gary was a young, crew-cut graduate student then, and would eventually have a distinguished career at the University of California. I'm told that he, too, is now retired.

The first time I wandered over there I found Roger and some of his students sitting around sipping mead. New York is a wine-producing state, and the aim of this group was to create a large market for New York honey by promoting mead production. Maybe it was that day, but more likely it was on one of my subsequent visits, when Roger and a couple of his students took me out to the country, to a sparsely wooded area, where we observed virgin queen bees being lofted into the air, tethered to little helium balloons. Within moments of when a queen got to a height of maybe 30 feet, the balloon being held from below by a string, drones would appear out of nowhere and dart around her like bullets. It was believed – though of course there could be no certainty about this – that there were no colonies of bees in that area. I was stunned. This, I believe, was some of the earliest research on queen mating, and it was still, I think, widely believed that a virgin queen mates but once, with one drone. Here it appeared that perhaps a dozen drones would mate with her in turn. But the more astonishing thing was how those drones knew that she was up there, and from what distance. Of course the answer to that is "pheromone," but that makes it no less amazing.

There was an amusing sequel to those experiments. Since the spot for conducting them had been more or less arbitrarily chosen, it was assumed that you could loft queens into the air almost anywhere and get the same result. So when a big beekeepers' meeting was held soon after, Dr. Gary undertook to impress them all with a demonstration. Not a single drone appeared, to his immense embarrassment. It was soon after learned, of course, that drones congregate only in certain areas, and the first experiments, which I witnessed, just happened to be in one of them.

Well, getting back to Dr. Morse. I have seen quite a lot of him since then, mostly at bee meetings. Unlike most of the other bee researchers I've met, Roger loves to be with beekeepers, going to their meetings, taking tours of honey houses, that sort of thing. I started a bee club up here many years ago, and it never got very big – backyard beekeepers and hobbyists – and we often asked Roger to come give us a talk. He never let us down.

Roger's father, Grant D. Morse, was an avid sideline beekeeper with about 200 colonies. When Roger was 10 years old, his father gave him a hive of bees, thus bribing him to be his helper. By the time he was 13, he had a dozen hives and then, four years later, a couple hundred. The beekeeping was interrupted by the armed service for a couple of years, but then, in 1947, Roger headed up to Cornell, a freshman filled with the overwhelming desire to learn all about bees there and become a commercial beekeeper. He had been introduced to commercial beekeepers

Continued on Next Page

BEE TALK ... Cont. From Pg. 53

by his father, who enjoyed their company, and there were lots of successful ones in New York back then. One of them ran 4,000 colonies, a very large number for that time. (Strangers to this state are sometimes surprised to learn that it is a leader in commercial beekeeping. They are likely to be more surprised to learn that agriculture is New York's leading industry.)

Meanwhile, Roger had, even as a young boy, come under the influence of Jay Smith, a Florida beekeeper who gained some fame as a queen breeder, and whose enthusiasm was infectious, much of it becoming absorbed by Roger, fueling his desire to become a commercial beekeeper, migrating with his bees between New York and Florida. It was Alton Dyce who redirected this ambition. Dr. Dyce was the professor of apiculture at Cornell then, and recognized abilities in his student which he thought would be better put to use in teaching and research. Roger studied with Dr. Dyce for four and a half years, for both his master's and doctoral degrees, then eventually took over that post, which he held until his retirement.

Dr. Morse now spends Winters at the Archbold Biological Station in Florida, pursuing his interest in bee behavior. It is significant, and characteristic, that he finds time each year to introduce students at Cornell to the world of the honey bee, in his elementary course, infecting these young people with the kind of enthusiasm he got from his father and from Jay Smith. BC

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

HOME ... Cont. From Pg. 52

SAVORY GRANOLA CRACKERS

These unusual crackers will keep several weeks at room temperature – several months in the refrigerator or freezer.

2 cups rolled oats
3/4 cup whole wheat flour
1/2 cup slivered almonds
1/4 cup wheat germ
1/4 cup sesame seeds
1 tablespoon honey
1/2 teaspoon salt
1/2 teaspoon oregano
1 teaspoon thyme
1/2 teaspoon onion powder
3 eggs
3/4 cup oil

In a large bowl stir together oats, flour, almonds, wheat germ, sesame seeds, honey, salt, oregano, thyme and onion powder. With a fork, beat together eggs and oil. Stir into oat mixture. Preheat oven to 400° and grease a 10 x 15-inch jelly roll pan. With a spatula, press dough evenly into prepared pan and bake in oven for 20 minutes or until golden. Cut into 1-1/2-inch squares, then into triangles. Remove to rack to cool. Store in airtight container. Makes about 70 crackers.

Naturally Delicious Desserts And Snacks
Faye Martin

Everyone brought lunch sandwiches to the beeyard. However, for a between-meal snack, you could prepare some small sandwiches. Try a piece of whole wheat bread for the bottom slice and a piece of white bread for the top. That way everyone should be happy. Since this spread contains mayonnaise, keep the sandwiches in the cooler until snack time. Cut the sandwiches in quarters, which will be a couple of bites.

TASTY TREAT SANDWICH SPREAD

You can use this spread for breakfast on toast or English muffins.

1 8-ounce package cream cheese, softened
1/2 cup mayonnaise
1/4 cup carrot, shredded
1/4 cup crushed pineapple, well drained
1/4 cup pecans, chopped
2 tablespoons lemon juice
2 tablespoons honey

In a medium bowl, cream the cheese and mayonnaise. Add carrots, pineapple and pecans. Blend well. Stir in lemon juice and honey. Spread on buttered slices of bread.

Honey Recipes
NC State Beekeepers Assn.

APRICOT HONEY LOAF

Quick breads make excellent snacks. Many are moist enough to serve plain, without a spread. Slice the loaf before taking out to the beeyard and wrap a few slices at a time so the bread does not dry out.

3 cups whole wheat flour
3 teaspoons baking powder
1 teaspoon cinnamon
1/4 teaspoon nutmeg
1/2 teaspoon salt
1-1/4 cups milk
1 cup honey
1 egg, slightly beaten
2 tablespoons salad oil
1 cup chopped dried apricots
1/2 cup raisins
1/2 cup sunflower seeds or chopped walnuts or chopped almonds

In mixing bowl, stir together dry ingredients. Combine milk, honey, egg and oil. Pour over dry ingredients and stir just enough to moisten. Gently fold in apricots, raisins and sunflower seeds or nuts. Pour into greased 9 x 5 x 3-inch loaf pan. Bake at 350° 55 to 60 minutes or until loaf tests done in center. Cool completely before slicing.

Honey ... Any Time
California Honey Advisory Board

Of course, these snacks will help any sort of project, not only beekeeping. Perhaps you are working in your garden. That really produces an appetite, too. Or maybe you need something to liven up nailing frames or repairing equipment. The secret to successful projects is satisfying snacks. BC

Questions?

Fermenting, why?

Why would comb honey, thoroughly capped over, start to ferment?

Name Withheld

In the twenty-some years that I have specialized in comb honey I have never had any ferment, but I have known others who did. This can be an especially insidious problem, since fermentation would be likely to begin *after* the honey has gone to the customer, so that the beekeeper might not even be aware of the problem. If comb honey is stored in an outbuilding during a prolonged wet spell, it is very likely to ferment. The cappings provide no protection against this. In those cases of such fermentation that I am aware of, however, the honey was produced by an intensive management system, aimed at getting the bees to fill the supers fast. I therefore believe that the bees stored and capped unripe honey, there being not enough comb space for them to evaporate and ripen it properly.

Getting Rid of Specks

I have tried both cheesecloth and nylon stockings as honey strainers, using double thickness, but still find tiny dark specks in the bottled honey. How do I get rid of these?

Maureen Schweiker
New Gretna, NJ

Honey should be warm (not hot) when strained. The best and simplest strainer is two nylon stockings, one inside the other. Wet them, then squeeze the water out, leaving them damp, so that the honey can flow through. After straining, let the warm honey stand for an hour or so. Depending on the moisture content, you may be better off letting the honey sit a day or more (covered, of course) to let these particles rise to the top. Most bits of wax, etc., will rise to the top and go into jars last, assuming you bottle from the bottom of the tank.

Unleaded?

I want to convert two 55-gallon drums to honey tanks. What kinds of paint can I use to coat the inside of these tanks? Can unleaded aluminum paint be used? Could I coat the insides of the drums with beeswax?

Fr. Bien-Aime du Sauveur, O.D.M.
St. Jovite, Quebec, Canada

Any good paint dealer can recommend a nontoxic paint suitable for surfaces that will come in contact with food. I doubt that aluminum paint would be suitable. An epoxy coating is also offered by the Walter T. Kelley Bee Supply Company, specifically for use with honey equipment. Beeswax coating would tend to chip off. It is absolutely essential that a non-toxic coating be used where any soldering has been used, because honey reacts with lead, creating a serious danger of lead poisoning.

Slatted Racks?

What are slatted racks, and what are the advantages and disadvantages of using them?

Charles F. Byram
Oak Ridge, TN

Some beekeepers use deep bottomboards, usually about two inches deep, and then put slatted racks in them to prevent the bees from building comb on the bottoms of the frames. I believe it was C.C. Miller who started this practice, and some beekeepers still use them. They think that they improve ventilation, having the larger entrance and space underneath the combs, and thus discourage swarming. In my opinion this practice has little if any effect with respect to swarming, involves having an additional piece of hive equipment, and non-standard bottomboards, so I do not recommend these slatted racks.

Brand Melter Wanted!

Where can I buy a Brand wax melter?

Gerald Slote
30 Champion Street
Carthage, NY 13619

I have tried to find a source for this extremely useful piece of equipment, and am surprised to find that it is hard to come by. Anyone having an answer to Mr. Slote's question is asked to get in touch with him.

How Much Heat?

I get various views on how much to heat honey. What is your view? My concern is that honey I sell to stores might start to granulate, so I have been heating it to 158-160°F.

Don Isabelle
Pittsford, VT

There are several things you must take into account when heating honey. First, most darker honeys are more susceptible to degradation by heat than light ones. Something like Buckwheat honey should never be heated at all. And second, if honey is heated to any significant extent (say, above 130°), it must be cooled down quickly. My own belief is that you should never heat honey above about 130°. That is warm enough for bottling, and will to some extent retard granulation. Then you can add a little label to each jar instructing the consumer to warm the honey in a water bath or microwave if it granulates. That is my system.

Yugoslavian Queens!

I see ads for ARS-Y-C-1 Yugoslavian queens which are supposed to be resistant to mites. What are they, and are they mite resistant?

Glen
Astatula, FL

The symbols stand for Agricultural Research Service Yugoslavian Carniolan One. There is reason to believe that these bees have resistance to tracheal mites, but not to *Varroa*.

Questions welcomed. Dr. Richard Taylor, Box 352, Interlaken, New York 14847 enclosing a stamped envelope for response.

Answers!

Richard Taylor

?Do You Know? Answers

1. **True** The cotton plant offers a long continuous nectar flow as it has both floral and extra-floral nectaries. The extra-floral nectaries are located under the flower and begin to secrete nectar before the blossoms open. Other extra-floral nectaries are located on the undersides of the leaves, and vary from one to three on each leaf.
2. **False** There are many species of oaks in the United States all of which are wind pollinated and lack nectaries. Abundant supplies of pollen are produced by the trees and the bees often collect large quantities of it. In addition, honeydew produced by aphids, soft scales and various species of galls may be gathered by honey bees as well.
3. **True** The chief factors controlling brood rearing in the honey bee colony are the availability of pollen and honey, temperature, number of bees available to care for the brood and possibly day length. Fresh nectar and pollen early in the spring serves as a strong stimulus for brood rearing. Some beekeepers do stimulatory feeding in the spring to increase this natural response.
4. **False** California poppy is a low herb with large yellow, pink or orange flowers with great masses of stamens. In the southwest this poppy blooms in early spring. Bees collect large amounts of pollen and little if any nectar. The flowers are generally considered nectarless.
5. **True** Yellow jessamine is a climbing vine common in the southern states that blooms in the early spring. The large yellow, trumpet-shaped flowers yield pollen and probably some nectar and is reported to be poisonous to the bees. Both adult bees and brood are impacted.
6. **False** Almonds bloom in February and bees gather both pollen and nectar from the flowers. The flowers must be cross-pollinated in order to set fruit. As a floral source it is of great value for early brood-rearing. The honey from almonds, however, is bitter in flavor and should not be added to any marketable honey but used only for brood rearing.
7. **True** Wind-pollinated flowers in general produce a greater abundance of pollen than those pollinated by insects. This greater abundance is inversely related to the probability of pollen reaching the stigmatic surface and achieving pollination.
8. D) Tulip-tree, Tulip-poplar, Yellow poplar
9. B) Yellow Rocket
10. H) Willow
11. A) Spring Beauty
12. F) Privet
13. L) Skunk Cabbage
14. C) Basswood, Linden, Lime Tree
15. E) Mesquite
16. K) Red Clover
17. G) Corn, Maize
18. I) Milkweed
19. J) Chicory
20. Yellow Sweet Clover, White Sweet Clover, Red Clover, White Clover, White Dutch Clover, Alsike Clover, Crimson Clover, Pellet Clover, Hubam Clover, Yellow Hop Clover, and Ladino Clover.
21. Density in which the plant is growing in the area of the apiary. Quantity of nectar produced by each individual flower. Length of the blooming period and number of flowers per plant. Relative attractiveness of the flower to the bee which is dependent upon the quality of nectar produced by the plant. Ease in which the forager can remove the nectar supply from the flower.

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

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

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

Glenings

JUNE, 1999 • ALL THE NEWS THAT FITS

Illegal Imports Into NZ
JAIL TIME FOR EFB

Two men were jailed in New Zealand after they threatened the country's status as free of European foulbrood disease by importing 500 kilograms of Chinese bee pollen.

Warren James Stewart, former managing director of Megavitamin Laboratories (N.Z.) Ltd, and his son, Evan Kerry Stewart, a director and operations manager of the company, claimed the Chinese bee pollen was corn flour.

District Court Judge Christopher Somerville said by putting their own interests first, the pair could have destroyed New Zealand's position as one of the few countries in the world not afflicted with European foulbrood disease.

There was no sign this had happened, but the court was told if the disease had taken hold all bees would have had to be treated with antibiotics, ending the chemical-free advantage New Zealand has over its trading partners.

"These defendants have placed their own personal gain, or the gain of the company they controlled, above the national interests," Somerville said. "The country cannot afford one lapse. Second chances cannot be afforded. A deterrent sentence is required."

Warren Stewart was jailed for 20 months and Evan Stewart for 15 months.

Alan Harman

PEANUT PRODUCERS VOTE

The Department of Agriculture announced (April 22) that a referendum has been scheduled to be conducted among peanut producers from May 24 through June 11. The proposed program was developed by producers to assist the peanut industry. Dr. Enrique E. Figueroa, administrator of USDA's Agricultural Marketing Service (AMS), said, "The peanut producers will vote on whether the proposed national promotion, research and consumer information program for peanuts should be implemented." The program will be implemented if it is favored by a simple majority of the producers voting in the referendum who are certified as having been producers during the 1997-1998 crop year. The referendum will be conducted by mail ballot by AMS in Washington, DC. During the week of May 17, AMS will mail the ballots to peanut producers.

From Blue Diamond
ALMOND BLOOM ONLINE

From the overwhelming response regarding the new Webcam *'99 Bloom Report* addition to Blue Diamond's website, it appears that the *'99 Bloom Report* has been well received. Many of our customers claimed that they checked the report daily – sometimes twice a day.

The process was very interesting – daily, the Field Supervisors (Northern, Central & Southern) took a picture of the same tree with a digital camera. The image was emailed to Sacramento where it was processed for input into a template of the actual website page. Then the bloom report information was entered and the magic button clicked – and voila, instant bloom information.

Keep watching for this type of technology to be carried over into other sections of the website in the future. With the digital imaging, the possibilities will be endless!

Did they include bees?
AG LIBRARY MOVES ANIMALS

A current guide to the "do's and don'ts" of transporting and handling farm animals is now available from USDA's National Agricultural Library.

The new publication, "Information Resources for Livestock and Poultry Handling and Transport," 1990-1998, provides access to scientific, training and organizational resources for farmers, livestock and poultry producers, researchers, animal caretakers and other animal handlers. The publication is available from NAL's Animal Welfare Information Center.

The publication contains bibliographic citations, audiovisuals, governmental and institutional guidelines, Internet resources, and expertise from individuals and organizations. A special section lists organizations concerned with livestock transport and handling issues. Information is provided on how to contact each organization either via electronic means or postal address and a brief summary of the resources and services each organization offers.

Preceding the bibliography is the article, "Assessment of Stress During Handling and Transport," by Temple Grandin, Ph.D., from CO State University. Dr. Grandin is a recognized authority in the field of livestock handling.

Copies of the publication are available free of charge while supplies last by contacting the Animal Welfare Information Center, National Agricultural Library, 10301 Baltimore Ave., Beltsville, MD 20705-2351, 301.504.6212, fax 301.504.7125, e-mail awic@nal.usda.gov.

NAL is part of the Agricultural Research Service, USDA's chief research agency. NAL is the largest agricultural library in the world and one of four national libraries in the United States, along with the Library of Congress, the National Library of Medicine and the National Library of Education.

USDA NEWS

HELP TO IMPROVE MARKETS FOR U.S. AGRICULTURAL PRODUCTS Agriculture Secretary Dan Glickman awarded (May 11) $500,000 to nine states to improve markets for American agricultural products. Glickman said, "These grants will help small agricultural enterprises develop the innovative marketing techniques they need to compete effectively in the 21st century by building strong, mutually beneficial partnerships between farmers and consumers." The USDA grants will be matched by funds from the states receiving them. A second round of Federal-State Marketing Improvement Program grants will be announced in August.

Advisory Committee on Biotechnoogy On March 19, 1999, Agriculture Secretary Dan Glickman announced that he is creating a new USDA panel to review agricultural biotechnology issues. The Advisory Committee on Agricultural Biotechnology will also advise the Secretary on policy related to the creation, application, trade and use of agricultural biotechnology.

"Agricultural biotechnology presents complex questions and issues that need to be discussed in an active, public dialogue," said Glickman in remarks to the first in a series of USDA-sponsored panel discussions on challenges facing American agriculture in the 21st century. (See the full address on the website: http://www.usda.gov/news/releases/1999/03/0117.)

Glickman continued, "This advisory committee will examine the effect of biotechnology from every conceivable angle: its creation, application, marketability, related trade and inspection implications, and more. The new panel will also explore the impact of biotech on the small and medium-sized farmer. In an increasingly top-heavy and concentrated farm economy, some worry that biotech might further tilt the playing field against the small operator."

In his remarks, Glickman indicated that he wanted to see "everyone who has a stake in the future of biotech - research scientists, social scientists, farmers, and consumers - represented on the panel." The panel will be appointed by the Secretary at a later date.

MORE THAN $25 MILLION AVAILABLE FOR HOUSING FARM WORKERS Agriculture Secretary Dan Glickman announced (May 10) that more than $25 million in loans and grants is available to finance construction of more than 500 new units of rental housing for domestic farm laborers. This funding is $10.3 million more than last year's. Glickman said, "The increased funding and improvements in the program's operation demonstrate USDA's continued emphasis on improving living conditions for farm workers and their families." Applicants must submit loan applications to their USDA Rural Development state office by July 15, 1999. For more information on this program, contact your local Rural Development office, or call (202) 720-4323 to be connected to your state office.

Needs Bigger Business Card USDA's Farm Service Agency (FSA) Administrator Keith Kelly announced (May 10) appointments to two top administrative posts. Kelly named Lawrence W. Mitchell as Deputy Administrator for Farm Programs and Patricia W. Garamendi as Assistant Deputy Administrator for Farm Programs. As Deputy Administrator, Mitchell will be responsible for converting farm program legislation into working policies and procedures regulating the delivery of FSA's conservation and commodity programs. Programs under his responsibility include the Conservation Reserve Program, production flexibility contracts, commodity and livestock disaster programs, marketing assistance loan programs, and the tobacco and peanut programs. Garamendi will serve as his assistant in this capacity.

NEW TN GROUP

Tennessee Beekeepers have created a new state association know as The TN Beekeepers Association (TBA). This association is a combination of two former associations: TN State Beekeepers Association and Beekeepers of TN. TBA held its first convention on March 4, 1999 at Maryville, TN.

The new officers for the TBA are: Dwight Tew, President, dtew@prodigy.net; Robert Elwood, Vice Pres., elwood@netramp.net; Bill Lane, Treasurer, wdlanemphtn@juno.com; Frank Fox, Secretary, ffox@genesco.com; Marlene Thomas, Newsletter, glenmar@mindspring.com

Several objective have been created by the new TBA officers and Board of Directors including – Gaining awareness to beekeeping problems, attracting new beekeepers to our organization and increasing the need for honey bee products and services

Display Advertisers

My revolutionary smoker lighting method was a serendipitous discovery. I was trying to build a bomb with directions downloaded from the Internet. That was for an article on bear and skunk control using a mine field. In retrospect, it's probably good the fertilizer was damp. By the time the smoke cleared out of our basement I realized how well I could make smoke. On camping trips, my fires wouldn't cook a marshmallow, but the billows of smoke always brought grumpy visitors dropping in on us by parachutes with all kinds of firefighting gear.

Smoker lighting always came naturally to me. The average guy muddles through this simple process, and after a couple packs of matches and two or three hours he's puffing cool white smoke, ready to open the first hive. That's fine if all you want to do is spend your life lighting smokers. But the rest of us need a system that works. That is what I developed.

Smoker fundamentals

If you are a beginner, read the following carefully. Look at your smoker. Most have three parts – the puffer, the can or firebox and the spout. The puffer is sometimes called the bellows. I don't like that term because it causes confusion. No one is sure if you are referring to the smoker bellows or the bellows coming from the man who dropped a loaded frame on his foot and forgot to ducttape his trouser cuffs. Some smokers don't have much of a puffer. Most of it has been replaced with duct tape.

The spout is the part that looks like the top of Tin Man's head. On rare occasions, smoke comes out of the hole at the top, but you never know when flames or ashes will suddenly erupt like a volcano. The spout rarely fits snugly on the can. The hinge is bent and twisted. Both can and lid are bent out of round after dropping the smoker a few times and beating out grass fires with it. Experts prefer leaky smokers. Note that only beginners use shiny new smokers. On old battered smokers, some smoke puffs out the spout. The rest leaks out the sides and through the rust holes to catch the bees who try to sneak up behind.

Now you are ready to light the smoker. Keep a copy of these instructions with you. You may find it fits nicely in the firebox just over a freshly lit match.

The Amazing Eight-Step Smoker Ignition Method

1. Light match and drop it in the firebox.
2. You forgot to gather fuel. Don't worry; only obsessive-compulsive people gather fuel before they drop in the match. There's always flammable debris lying around. However, you'll notice that where you are, there will be nothing flammable within 200 yards.
3. Sprint to the nearest tree. The lowest dead, dry branch will be 10-20 feet high. Halfway up is where I usually lose my grip and fall. Limp another 100 feet to the nearest bush. It will be a dead thorn bush. Break off what you can and stagger back to the smoker. Don't worry about dropping the thorny branches. They stick to your hands. You'll notice that the match is still spluttering dimly in the bottom of the smoker. Carefully ease a tiny thorn branch down into the fuel chamber. The match will extinguish just before the branch touches the flame.
4. At this point many beekeepers will mutter carefully into the smoker. Light another match and drop it on top of the tinder. It will ignite the tinder. Now drop more tinder on the flame. This will smother it, but you'll get one little whiff of smoke. Now there are only five steps left to a hot smoker, and tinder and kindling are nearby.
5. Light a small wad of the tinder and drop carefully into the smoker. It will go out. Light another match and drop it on top of the tinder. It will ignite the tinder. Now drop more tinder on the flame. This will smother it, but you'll get another little whiff of smoke. You'll feel you've made progress. Affirm yourself by thinking about self-esteem.
6. Dump the contents of the smoker out onto the ground. Flammable debris has mysteriously covered the ground while you were gathering fuel. It ignites spontaneously. Beat out the flames with the smoker. Now make a little hill of tinder inside the fuel chamber up against the side of the can. Drop a match to the bottom and stick your scorched fingers in your mouth. The flame will travel up the little slope. Squeeze the puffer. See the flame flare. Drop in some larger kindling. Puff some more. As the kindling ignites, add more until the chamber is almost full. Close the lid. The fire immediately goes out.
7. Open the lid and bellow furiously (pump the puffer). The fire seems to be slowly dying. Pump the bellows and blow into the can alternately. It will always burst into flame as you are blowing into the can. Beginners will notice a smell reminiscent of singed hair. This is normal. After lighting smokers a few times, the smell disappears with the eyebrows. Keep a bucket of water handy to dip your head.
8. Snap the spout in place and give a couple puffs. It's burning nicely. Now gather a wad of green grass, baling twine, leaves, punky wood or whatever your favorite fuel is. Stuff it on top of the fire. You'll have a cool, thick, white smoke. The top layer will not smother the fire until you've dropped the second frame of the day on your shoe. You should have remembered to bring duct tape.

Now here is what makes my Smoker Ignition Method absolutely foolproof. If the smoker fails to ignite by Step #8, simply repeat Steps #1 through #8 until it does start. At worst, in two or three hours, you'll be opening your first hive of the day.

Dr. L.L. Sieling's Amazing Smoker Lighting Method

Peter Sieling

BOTTOM BOARD