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# Bee Culture

THE MAGAZINE OF AMERICAN BEEKEEPING

OCTOBER 2009 VOLUME 137 NUMBER 10

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## Residual Chemicals

Clarence Collison's article regarding the impact of residual tau-fluvalinate coumaphos on Queen vitality sperm viability and larval mortality was disturbing. It raised, in my mind several questions that I am sure have been troubling to many others working with honey bees. First, do these pesticides that accumulate in the wax and hive components retain their toxicity even after that wax is reprocessed into new commercial foundation for sale? Second, if the answer to my first question is yes, then what levels of pesticide residue exists in new commercially available wax foundation today? If low level toxicity of these pesticides persist in wax through the manufacturing of commercial foundation, is there any method that can be employed during processing that would inactivate any pesticides that might be present? I guess the answer to my first question may make my other two questions moot. Thanks to *Bee Culture* for providing such though provoking articles.

Michael Munroe  
Newark, DE

**Editor's Note:** *The 500 pound gorilla in the room is hard to ignore, isn't it. Yes, it stays in the wax if it is processed. Fortunately, the wax that was sampled is brood comb and more of that is destroyed than used, as cappings is the most common foundation wax but certainly not all of it, and, early tests show that, like US \$1 bills, almost all commercially available wax has some minute levels of contaminants present both beekeeper inflicted and agriculture inflicted. Cappings wax foundation is certainly the cleanest wax there is, but it's not perfect. You want pure wax go to Ethiopia like Burt's Bees otherwise you are out of luck unless, of course, you use your own. Many beekeepers are manufacturing their own foundation so they have their own clean wax, or because they want specific cell size. But if your bees forage in the US, there will be minute amounts of pesticide residues in the wax you harvest yourself, or buy. If you know your wax is as clean as it can get, and you want to avoid the other, either use plastic foundation and your own wax to coat it with (which is*

*what I do), or make starter strips and wire your frames and let the bees draw out the rest. We have fouled our nest, absolutely.*

## One Tough Colony

I live in Fort Lee, New Jersey, just across the Hudson river from New York City

For the past three years, honey bees were regularly coming to drink at my pool and pollinate my few flowers.

I knew there were no beekeepers in my neighborhood.

This morning, July 2, 2009, in between downpours, my neighbor had his trees trimmed. The tree man was on top of one of the big oaks when he said there was a bee nest in one of the big limbs.

His boss asked him if he wanted the nest destroyed in order to proceed. I told him that he could not destroy the bees because, since CDD, they were protected. So they proceeded without incident.

Here is a nest of Italian bees, still alive after three years without "medications" If I was a beekeeper I would take this colony and start a line of disease resistant bees.

Roland Autran  
Fort Lee, NJ

## We Love Jim Tew

I really really loved James Tew's article in the July issue on lawns. It is so true, the bees have almost nothing to forage on, it is remarkable that they somehow manage to make honey at all. Perhaps we beekeepers should be more vocal about leaving areas wild for the bees, and also in these times where people are looking to save costs, not treating and leaving grasses to grow wild makes sense!

I am not saying we should let it all grow wild, but leaving areas unmowed and more importantly untreated would be very beneficial for all. There are lovely grasses that are not hard on the eyes and also good to eat, dandelions are very healthy and most "weeds" if they are green are just fine. We use no pesticides, no fertilizers, no herbicides and our grass is always greener than anyone else's. I am also going to keep telling folks to stop looking for the perfect lawn. If we just let it be,

## Bee Culture Information



Suggestions

Comments

it is already there.

Maria Glasser  
South Orange, NJ

## More On Lawns

Mr Tew, you are not alone. I used to love a groomed lawn, but five years ago when I started keeping bees my attitude changed. Before, it was mow the lawn every time it needs it, with fertilizer/weed killer in the Spring, just go, go, go. My wife and I are retired Registered Nurses and we own a place with acreage at the foot of the east Tennessee mountains. Not many folks, except occasional visitors, see our "lawn." I leave off the weed killer now and it's only my wife that asks "When are you gonna mow the lawn?" I tell her, "I can't. The dandelions are blooming. Or the clover is blooming, or whatever." Basically, my whole attitude toward "weeds" and so many other things has changed since I started keeping bees. Give us some more ideas about what to grow like the article in the current issue on Cornflowers. Thanks, and keep on not mowing.

Joe Schultz  
Elizabethton, TN

## Ticks & Lyme Disease

I was so relieved to learn in the next to last paragraph in the article in the July issue that the author for several years suspected that Lyme Disease had been invented by Newsweek and that although his father claims to have contracted it, and that although he wouldn't argue with his father's claim, that the major down side with ticks, in his experience, is the itch. That experience is at variance with people who



have suffered from Lyme Disease. They would have an entirely different view than that of the author's of the odds of not getting it.

What a relief! After having just gotten over my third experience with Lyme I am going to rush out and tell all the people on my road and town, the adjacent town, and the people I know in three other counties who have had it, in some cases more than once, that it was an invention of Newsweek and of little concern. I will make sure to call a friend in North Carolina who went through hell with Lyme to tell him that the itch was the thing he really had to worry about. I'm then going to tell my doctor to advise the six patients he had in one week recently that it's not a major problem.

I have read that Lyme has been found in 46 states. If the Missouri Ozarks have been spared, the residents should be extremely grateful.

I ask that your readers take Lyme Disease seriously. If you want to know what sickness is about talk to someone who has had it. Lyme is dangerous. It can cause loss of life.

A myth about Lyme is that there is always a bull's eye or rash. In 30 to 40% of the cases there

is none. Even if there is a bull's eye you may be very sick from full blown symptoms before it manifests itself. Even if there is a bull's eye early on, it may be on a part of the body not easily visible.

Do not look for a bull's eye! Immediately on feeling ill seek medical attention. Get an RX for antibiotics from your doctor and get tested for Lyme Disease.

If your readers have doubts about what I've written they may wish to read *Beating Lyme* by Constance A. Bean, MPH with Lesley Ann Fein, MD, MPH.

To make matters worse there is a new even more potentially fatal bacterial disease called Ehrlichiosis which is caused by the deer tick.

Charles McCarthy  
Highland, NY

## Duster Problems

I pass this along for your information, in the hopes it might be of use to others in the same situation. I purchased a duster from a local bee supply company to apply powdered sugar to my colonies. I put the sugar in the container on the duster and with all evil intent toward mites approached the colony to dust. Squeezing the bellows, however, provided so little sugar that I thought the plastic tube must be plugged. Nope. Not plugged. After several trials, examinations and extreme frustration, I gave up. Dust was not to be for my colonies the duster was simply too weak to

blow powdered sugar of any volume into the colony

Then, a friend showed me a trick. At the bottom of the container that holds the sugar is a small plate that sifts the sugar as it is sucked into the pipe to be propelled out by pressure from the bellows. The plate was an obstacle to moving sugar into the pipe. By removing the plate much more sugar was brought into the system and much more was propelled out of the pipe into the colony. Unfortunately, not enough to be efficient, however, for the number of colonies I have to treat. It still required many puffs to get sugar on all the bees in a two-story colony. Sprinkling and brushing was more efficient, and more effective.

But then, the ToolTime demon took over. I figured out a way to hook up my air compressor to the unit remembering an article I read in *Bee Culture* about compressed air pushing sugar syrup out of a hose to feed bees in the field so there wasn't a pump to break down. The air compressor works fine...but the extra work and faldorall isn't worth the effort. I'll stick to brushing. Please, Duster manufacturers, you have a good idea, but you need a better device. Beekeepers will applaud your efforts

Buzz Riopelle  
Valley City, OH



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# INNER COVER

**S**ix word stories. Have you played this game? Tell me a story in six words. Hemingway may have done it best. For Sale: Baby Shoes, never worn. Think of what that story is about.

Larry Smith, the editor of the book on this, *Not Quite What I Was Planning: Six Word Memoirs by Writers Famous & Obscure*, has taken the game to the AARP magazine (yup, giving away all sorts of memoir information there, aren't I), with different topics...Birthdays, for instance, brought up "Nearing 60, still on rough draft", and "Slow learner, life began at 50", and for Best Advice Given or Gotten, there's "Life is short, eat dessert first", and "Do something, even if it's wrong", or, "Life is tough, get a helmet"

I have a whole different topic. Beeyard Stories. A beeyard story in six words...and only six words. For instance, "Smoker went out, really bad day" or, "There's a hole in my veil" You get the idea. Wanna try one? Send me an email with your six word beeyard story Keep it to two per person, please. We'll publish the best later this winter...maybe the January and February issues. If it works and we get good participation maybe we'll try it again. "Six Words. No More. No Less"

The USDA statistics people send me reports on everything they count. Peas, farmers, honey bales of cotton, farm land, crop prices...and rural populations. They recently came out with a prediction about where people will be living in the next decade. The Baby Boomers, those people between the ages of 55 and 74 (see above, AARP), will be moving from the city to the county ..lots of them, by 2020. My age cohort will increase in rural areas by two-thirds to the tune of about 14.2 million people. We Boomers make up 28 percent of the U S. population right now, and as we retire, and we will eventually retire, we will no longer be tied to urban areas because of our jobs. But even before that we'll be moving to the countryside because the internet has freed many of us from the need for cubicles and copy machines.

This will, of course, increase the demand for better transportation systems, housing and health care. It will create local jobs but stretch the budgets of low population rural areas, until the payroll and property taxes catch up with the influx of new people (who aren't paying as much in taxes anymore). And boomers with time on their hands, and money in the bank. .though less from that 401k and Social Security income they were planning on...and the land to do things on will do what? Why, they'll garden and keep bees, of course. Golf, I imagine, will take some away and travel and other activities will too, but with retirement budgets tightened just a tad, making a little money on the side selling honey and growing a bit of home grown food, now that they have the time, the money and the space.

If you want to find out more about this report go to <http://www.ers.usda.gov/Publications/err79/> or just google USDA, Baby Boomer Migration.

The perfect beginning beekeeper, in my experience, is this person. They now have the money, the time, the place and many have always had the desire to keep bees. They no longer are climbing the business ladder, the kids are grown and gone (some may be back again, but not for too long), the house is paid for (mostly), other volunteer activities that made business contacts are winding down, and there is time to spare and a place to spend it. Is this you? Or is this someone you know?

You can spend all the time and money you want trying to get teenagers interested in keeping bees, and a few will, and a few more will eventually But give me someone who is retired, still active, and has the place and time and desire to keep bees...that's the person I want to get involved as a mem-

ber of my local beekeeping association. They, maybe you, have time to keep a few bees, time to come to the meetings, time to volunteer to be an officer, time to talk to school kids, time to work at the fair, time to help out with just about anything.

Smart beekeeping supply companies should be preparing to cater to these fine folks now, priming the pump as it were...getting ready for the influx of old geezers who always wanted to keep bees. We're out there. We're ready We're cool. Bring on the bees!

The last zuke was picked on Labor Day with only green tomatoes left for now, and look, the weeds of summer have long gone to seed. It's been a bad bee year with honey hard to find almost everywhere. And Georgia beetles came this year so there's another worry now.

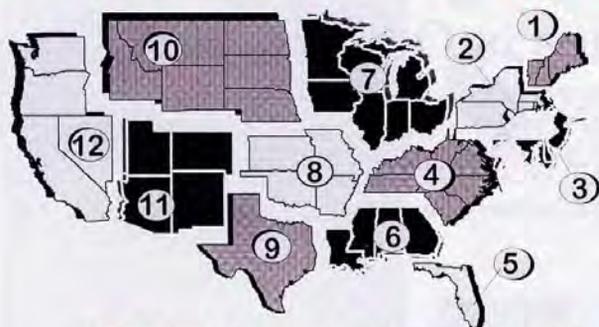
October is the hardest month. No longer summer Not yet winter Closing up, shutting down, another season past.

Bright leaves and radiant skies help the spirit, and looking up, giant Vs of geese link past and future in an echo of fowl cacophony across those skies, day and night and day

The bees need help and it comes now Food and shelter and secret worries for good measure. When you go to help the bees take care - keep your veil tight, your smoker lit, and your hive tool sharp next year just has to be better

## Six Words About Geezers Keeping Bees

# OCTOBER - REGIONAL HONEY PRICE REPORT



## What's Bugging Your Bees? Across All Regions

Each year in October we poll our reporters to measure the difficulty of each of several problems that are common in beekeeping. Obviously some problems are greater in some areas than in others. This has to do with the weather, the climate or other factors. Each problem is given a value, with a 1 being the greatest problem, and on down the line to 13 being essentially no problem at all. The chart above lists the degree of difficulty each of these is causing across all regions for the last 5 years. The chart below looks at the same problems for each region over 3 years. Compare and contrast the whole nation

| Problem           | Year   |      |      |      |      |        |        |
|-------------------|--------|------|------|------|------|--------|--------|
|                   | 2003   | 2004 | 2005 | 2006 | 2007 | 2008   | 2009   |
| Winter Weather    | -      | -    | -    | 7    | 6    | 5(Tie) | 6      |
| Spring Weather    | -      | -    | -    | 2    | 3    | 2      | 3      |
| Summer Weather    | -      | -    | -    | 6    | 4    | 4      | 4      |
| Varroa            | 1      | 1    | 2    | 1    | 1    | 1      | 1      |
| Queens            | 2      | 3    | 3    | 3    | 2    | 3      | 2      |
| Small Hive Beetle | 8      | 7    | 10   | 4    | 7    | 6      | 7(Tie) |
| Tracheal Mites    | 3      | 2    | 4    | 5    | 5    | 5(Tie) | 7(Tie) |
| Low Prices        | 4(Tie) | 5    | 5    | 8    | 8    | 8      | 8      |
| Chalkbrood        | 4(Tie) | 4    | 6    | 9    | 9    | 7      | 10     |
| Skunks            | 5      | 8    | 8    | 10   | 10   | 9      | 11     |
| Bear              | 7      | 9    | 9    | 11   | 11   | 10     | 12     |
| Nosema            | -      | -    | -    | -    | -    | -      | 5      |
| AFB               | -      | -    | -    | -    | -    | -      | 9      |

1 = Worst Problem; 11 = Least Problem

with your region, and each region separately, and the changes in the same problem in your region over the years. You will note interesting differences, and similarities. If you teach a Beginning Beekeeping class this information will be valuable in determining how to allocate the time you have to teach about each of these. T = Tie

| Rank              | Region 1 |      |      | Region 2 |      |      | Region 3 |      |      | Region 4 |      |      | Region 5 |      |      | Region 6 |      |      | Region 7 |      |      | Region 8 |      |      | Region 9 |      |      | Region 10 |      |      | Region 11 |      |      | Region 12 |    |    |
|-------------------|----------|------|------|----------|------|------|----------|------|------|----------|------|------|----------|------|------|----------|------|------|----------|------|------|----------|------|------|----------|------|------|-----------|------|------|-----------|------|------|-----------|----|----|
|                   | 2007     | 2008 | 2009 | 2007     | 2008 | 2009 | 2007     | 2008 | 2009 | 2007     | 2008 | 2009 | 2007     | 2008 | 2009 | 2007     | 2008 | 2009 | 2007     | 2008 | 2009 | 2007     | 2008 | 2009 | 2007     | 2008 | 2009 | 2007      | 2008 | 2009 | 2007      | 2008 | 2009 |           |    |    |
| Tracheal Mite     | 4T       | 6    | 8    | 6        | 6    | 9    | 5T       | 6    | 4    | 1        | 6    | 4    | 3        | 6T   | 7    | 6        | 4    | 5    | 1        | 2    | 5    | 8        | 6    | 6    | 6        | 9    | 12   | 6         | 4    | 7    | 4T        | 8    | 6    | 2         | 6T | 5  |
| Queens            | 1        | 4    | 2T   | 1        | 2T   | 1    | 4T       | 7    | 2    | 4        | 5    | 3    | 6T       | 4T   | 4T   | 3        | 5    | 3    | 3T       | 5    | 3    | 3        | 2    | 1    | 2        | 3    | 5    | 1         | 3    | 8    | 2         | 2    | 5    | 3T        | 5  | 4  |
| Varroa            | 2        | 1    | 2T   | 2        | 2T   | 2    | 2        | 3    | 3    | 3        | 1    | 1    | 2        | 2    | 2    | 5        | 2    | 2    | 4        | 4    | 2T   | 5        | 3    | 2    | 5        | 5    | 1    | 2         | 1    | 2    | 1         | 2    | 1    | 3         | 1  |    |
| Small Hive Beetle | 9        | 8T   | 10   | 7        | 10   | 13   | 4T       | 8    | 1    | 5        | 4    | 7    | 1        | 1    | 1    | 1        | 1    | 1    | 7        | 6    | 9    | 7        | 1    | 5T   | 1        | 2    | 4    | 3T        | 10   | 11   | 8         | 9    | 11   | 10        | 10 | 2  |
| Spring Weather    | 6        | 2    | 4    | 3        | 7    | 3    | 3        | 2    | 6T   | 2        | 2    | 2    | 7        | 5    | 3    | 2        | 6    | 4    | 2T       | 1    | 1    | 2        | 4    | 5T   | 3T       | 1    | 3    | 3T        | 2    | 1    | 3T        | 3    | 4    | 6         | 4  | 6T |
| Winter Weather    | 8        | 3    | 3    | 4T       | 5    | 5    | 5T       | 4    | 5    | 6        | 7    | 6    | 6T       | 8    | 4T   | 7T       | 7    | 8    | 2T       | 7    | 2T   | 4        | 5    | 7    | 4        | 6    | 7    | 5T        | 6    | 6    | 3T        | 4    | 3    | 5         | 8  | 7  |
| Summer Weather    | 4T       | 5    | 1    | 8        | 1    | 4    | 6        | 1    | 8    | 3        | 5    | 4T   | 3        | 8    | 7T   | 3        | 7    | 5T   | 3        | 4    | 6    | 8        | 3T   | 7    | 10       | 2    | 8    | 8         | 3    | 7T   | 7         | 1    | 7    | 1         | 6T |    |
| Low Prices        | 5        | 8T   | 9T   | 5        | 8    | 10   | 7        | 10   | 7    | 7        | 8    | 9T   | 4T       | 4T   | 6T   | 9        | 8    | 9    | 6        | 8    | 7    | 10       | 9    | 8    | 8        | 4    | 8    | 5T        | 7    | 9T   | 6         | 11   | 8    | 8         | 6T | 11 |
| Chalkbrood        | 7        | 7T   | 7    | 9        | 4    | 8    | 9        | 5    | 11   | 9        | 9    | 9T   | 9        | 7    | 9T   | 10       | 9    | 10T  | 9        | 11   | 10   | 11       | 11   | 9    | 10       | 8    | 10   | 11        | 5    | 5    | 7T        | 6    | 10   | 9         | 7  | 10 |
| Bears             | 10       | 7T   | 5    | 10       | 9    | 12   | 8        | 11   | 9    | 10       | 11   | 11   | 8        | 6T   | 5    | 8        | 11   | 12   | 8        | 10   | 12   | 9        | 10   | 10   | 9        | 11   | 13   | 7         | 11   | 12   | 5         | 10   | 13   | 4         | 9  | 12 |
| Skunks            | 3        | 9    | 6    | 4T       | 3    | 7    | 1        | 9    | 12   | 4        | 10   | 9T   | 5        | 9    | 10   | 4        | 10   | 11   | 3        | 9    | 4    | 1        | 7    | 11   | 3T       | 7    | 11   | 4         | 9    | 10   | 4T        | 5    | 12   | 3T        | 2  | 8  |
| Nosema            | -        | -    | 2T   | -        | -    | 6    | -        | -    | 6T   | -        | -    | 8    | -        | -    | 6T   | -        | -    | 6    | -        | -    | 6    | -        | -    | 3T   | -        | -    | 6    | -         | -    | 4    | -         | -    | 7    | -         | -  | 2  |
| AFB               | -        | -    | 9T   | -        | -    | 11   | -        | -    | 10   | -        | -    | 10   | -        | -    | 9T   | -        | -    | 10T  | -        | -    | 8    | -        | -    | 4    | -        | -    | 9    | -         | -    | 9T   | -         | -    | 9    | -         | -  | 9  |

| REPORTING REGIONS   |        |        |        |        |        |        |        |        |        |        |        |        | SUMMARY       |        | History    |           |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------------|--------|------------|-----------|
|   | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     | 11     | 12     | Range         | Avg.   | Last Month | Last Year |
| <b>EXTRACTED HONEY PRICES SOLD BULK TO PACKERS OR PROCESSORS</b>    |        |        |        |        |        |        |        |        |        |        |        |        |               |        |            |           |
| 55 Gal. Drum, Light   | 1.21   | 1.65   | 1.15   | 1.65   | 1.55   | 1.65   | 1.18   | 1.19   | 1.48   | 1.45   | 1.43   | 1.58   | 1.11-1.65     | 1.41   | 1.52       | 1.43      |
| 55 Gal. Drum, Ambr  | 1.18   | 1.45   | 1.13   | 1.30   | 1.45   | 1.41   | 0.95   | 1.19   | 1.30   | 1.30   | 1.30   | 1.50   | 0.95-1.50     | 1.22   | 1.40       | 1.30      |
| 60# Light (retail)  | 142.24 | 134.67 | 142.24 | 115.80 | 120.00 | 139.00 | 142.60 | 121.25 | 142.24 | 142.24 | 149.50 | 149.00 | 115.80-152.50 | 137.02 | 131.61     | 123.73    |
| 60# Amber (retail)  | 135.80 | 125.00 | 135.80 | 113.60 | 125.00 | 123.33 | 133.80 | 120.00 | 117.50 | 135.80 | 136.67 | 139.00 | 113.60-144.00 | 128.44 | 123.99     | 114.90    |
| <b>WHOLESALE PRICES SOLD TO STORES OR DISTRIBUTORS IN CASE LOTS</b> |        |        |        |        |        |        |        |        |        |        |        |        |               |        |            |           |
| 1/2# 24/case  | 66.38  | 61.98  | 47.75  | 47.27  | 66.38  | 54.00  | 45.50  | 66.38  | 66.38  | 45.36  | 49.50  | 68.50  | 43.20-96.50   | 59.07  | 53.83      | 57.88     |
| 1# 24/case  | 59.75  | 78.28  | 76.80  | 69.93  | 76.00  | 83.20  | 74.23  | 75.94  | 60.00  | 97.44  | 78.70  | 84.55  | 48.00-99.00   | 76.46  | 80.88      | 79.23     |
| 2# 12/case  | 58.72  | 74.72  | 67.20  | 48.35  | 69.00  | 65.70  | 65.46  | 44.60  | 52.00  | 75.00  | 59.33  | 81.75  | 40.00-81.75   | 62.45  | 66.44      | 66.14     |
| 12.oz. Plas. 24/cs  | 79.00  | 71.98  | 57.60  | 72.18  | 60.00  | 65.25  | 61.43  | 57.48  | 59.00  | 55.20  | 71.60  | 69.53  | 54.00-84.00   | 65.02  | 63.47      | 64.13     |
| 5# 6/case   | 71.89  | 83.99  | 76.80  | 66.50  | 65.00  | 90.00  | 74.15  | 64.50  | 72.00  | 67.20  | 73.00  | 92.00  | 54.60-92.00   | 72.83  | 75.53      | 78.84     |
| Quarts 12/case  | 102.07 | 110.88 | 112.20 | 103.12 | 96.00  | 94.03  | 94.25  | 93.00  | 109.00 | 108.00 | 92.85  | 110.00 | 88.25-120.00  | 103.37 | 89.83      | 95.80     |
| Pints 12/case   | 72.46  | 56.95  | 66.00  | 72.75  | 68.00  | 64.00  | 79.93  | 57.00  | 84.00  | 59.50  | 53.50  | 67.00  | 53.50-84.00   | 65.61  | 60.99      | 56.65     |
| <b>RETAIL SHELF PRICES</b>  |        |        |        |        |        |        |        |        |        |        |        |        |               |        |            |           |
| 1/2#  | 3.50   | 3.40   | 2.75   | 3.31   | 3.98   | 2.75   | 2.70   | 2.27   | 2.99   | 2.75   | 3.43   | 4.60   | 2.27-5.62     | 3.29   | 3.11       | 2.98      |
| 12 oz. Plastic  | 3.83   | 3.96   | 3.50   | 4.00   | 3.99   | 3.88   | 3.35   | 3.58   | 3.40   | 3.23   | 3.98   | 4.58   | 3.23-4.58     | 3.77   | 3.96       | 3.50      |
| 1# Glass/Plastic  | 3.95   | 4.51   | 4.88   | 5.06   | 4.75   | 4.96   | 3.92   | 4.32   | 3.95   | 4.29   | 5.19   | 5.95   | 3.88-6.66     | 4.70   | 4.83       | 4.46      |
| 2# Glass/Plastic  | 7.95   | 7.70   | 8.82   | 7.46   | 7.95   | 7.30   | 7.18   | 8.52   | 6.76   | 5.98   | 7.75   | 8.75   | 5.98-10.66    | 7.83   | 8.02       | 7.51      |
| Pint  | 9.25   | 6.13   | 6.50   | 6.89   | 5.83   | 6.04   | 9.08   | 5.66   | 7.50   | 7.08   | 8.03   | 8.50   | 5.66-9.50     | 7.29   | 6.97       | 7.14      |
| Quart   | 11.70  | 9.95   | 11.00  | 10.08  | 12.00  | 9.55   | 12.03  | 10.18  | 11.00  | 13.47  | 11.03  | 13.50  | 9.55-15.00    | 11.42  | 11.15      | 11.18     |
| 5# Glass/Plastic  | 17.00  | 15.79  | 20.50  | 13.36  | 14.07  | 19.50  | 17.70  | 19.00  | 15.75  | 14.59  | 17.13  | 18.75  | 13.36-23.25   | 17.30  | 18.37      | 15.59     |
| 1# Cream  | 5.25   | 5.80   | 5.65   | 5.00   | 5.65   | 5.50   | 5.59   | 5.69   | 3.29   | 5.53   | 6.01   | 5.00   | 3.29-7.00     | 5.49   | 5.54       | 5.29      |
| 1# Cut Comb   | 6.00   | 5.71   | 6.00   | 6.08   | 6.86   | 5.17   | 6.94   | 6.00   | 6.86   | 8.00   | 8.75   | 8.50   | 5.17-10.00    | 6.84   | 6.73       | 6.73      |
| Ross Round  | 5.80   | 4.65   | 5.76   | 4.17   | 5.76   | 6.00   | 6.88   | 6.50   | 5.76   | 8.00   | 6.80   | 8.50   | 0.00-8.50     | 5.73   | 6.42       | 6.08      |
| Wholesale Wax (Lt)  | 3.25   | 3.92   | 2.00   | 2.86   | 2.15   | 3.63   | 3.21   | 3.00   | 3.35   | 3.18   | 3.05   | 3.00   | 2.00-4.63     | 3.47   | 3.46       | 3.33      |
| Wholesale Wax (Dk)  | 3.00   | 3.48   | 1.75   | 2.61   | 2.00   | 3.50   | 2.84   | 2.00   | 2.96   | 2.96   | 2.75   | 2.96   | 1.75-4.96     | 3.67   | 2.85       | 2.37      |
| Pollination Fee/Col.  | 75.00  | 86.67  | 65.00  | 46.00  | 155.00 | 63.67  | 50.80  | 57.50  | 76.61  | 76.61  | 75.00  | 118.33 | 46.00-155.00  | 72.60  | 80.93      | 87.38     |



# A CLOSER LOOK



## GENETIC DIVERSITY

—Carence Collison

*Genetic differences among subfamilies within colonies are believed to increase colony fitness and productivity in several ways.*

As scientists learn more about honey bee reproductive biology, they are discovering that there are biological advantages to colonies when queens mate with multiple drones. When a queen mates with numerous drones (polyandry), the colony population is composed of a genetically diverse worker force. This genetic diversity is believed to increase colony fitness, by generating a more stable and resilient system of division of labor and reducing susceptibility to various pathogens and parasites. Mating with multiple drones also increases the likelihood of a sufficient supply of stored semen and lowers the probability of inbreeding (Oldroyd and Fewell 2007).

The number of colonies represented in a drone congregation area influences the relatedness between a queen and her mates and hence the inbreeding level of colonies; it also determines the relatedness between the mates of a queen, which affects genetic diversity within colonies. Using molecular genetic techniques, Baundry et al. (1998) studied a sample of 142 drones captured in a congregation area close to Oberursel Germany. A parentage test indicated that this sample contained one group of four brothers, six groups of three brothers, 20 groups of two brothers and 80 singletons. They concluded that colonies were apparently equally represented in the drone congregation and calculations showed that the congregation was comprised of males that originated from about 240 different colonies.

A colony population is made up of several patriline or subfamilies of worker bees, each sired by a different drone. Workers within a subfamily are super sisters and have a coefficient of relatedness of 0.75 (share an average of 75% of their genes). However, workers from different subfamilies share no genes from a common father and have a coefficient of relatedness of only 0.25 (have about 25% of their genes in common) (Page and Laidlaw 1988). Thus, there is a very high degree of genetic relatedness among bees within subfamilies but a high degree of genetic diversity between different subfamilies.

Queen and worker honey bees develop from fertilized eggs that contain 32 chromosomes (diploid), a set of 16 chromosomes from each parent. Normal drones develop from unfertilized eggs which contain only one set of 16 chromosomes from their mother (haploid). Since queens and workers have paired chromosomes, they carry two alleles for each gene, one on each member of the pair. If the alleles are of the same type (homozygous) at the sex locus (the physical region of the chromosome that determines sex), the embryo becomes a diploid male and is eaten by nurse bees shortly after hatching (Wyoko 1963). Individuals having different alleles (heterozygous) at the sex

locus become female. Page (1980) suggested that multiple matings (polyandry) may compensate for the reduction in fitness resulting when a queen mates exclusively with a drone carrying one of the same sex alleles as herself. Such a mating results in 50% mortality of the diploid brood, producing a spotty brood pattern. Queens need to mate with unrelated drones to ensure viable offspring.

Virgin and mated queens differ dramatically in their pheromone profiles and these pheromones are important for regulating colony organization and worker behavior (Slessor et al. 1990; Plettner et al. 1997). Queens were instrumentally inseminated with semen from either a single drone (SDI) or multiple ( $n = 10$ ) drones (MDI) and their interactions with workers were monitored in observation hives (Richard et al. 2007). Cage studies were used to monitor the attraction of workers to queen mandibular gland extracts (the main source of queen pheromone) from virgin, SDI and MDI queens. Richard et al. (2007) was able to demonstrate for the first time that insemination quantity significantly affects mandibular gland chemical profiles and queen-worker interactions. MDI queens elicited a stronger retinue than SDI queens in natural colony conditions, and their mandibular gland extracts were more attractive in preference assays with caged worker bees. Analysis of the mandibular gland chemical profiles revealed significant differences between SDI and MDI queens. These results suggest

*“Insemination quantity significantly affects mandibular gland chemical profiles and queen-worker interactions.”*

that insemination quantity can have profound effects on queen physiology and behavior

Genetic differences among subfamilies within colonies are believed to increase colony fitness and productivity in several ways (Tarpy and Seeley 2006). First, genetic diversity may increase the behavioral diversity of the work force, which may enable colonies to extract resources from the environment more efficiently (Oldroyd et al. 1992) or resist fluctuations in the environment more effectively (Page et al. 1995; Jones et al. 2004). Second, genetic diversity may reduce the incidence of diploid male production as a consequence of the single-locus sex determination system. Third, genetic diversity may reduce the prevalence of parasites and pathogens among colony members (Sherman et al. 1988). It is assumed that there is heritable variation in susceptibility to parasites and pathogens, hence, genetically more variable colonies are less likely to suffer sweeping infections by disease-causing parasites. Multiple matings would likely produce genetically distinct subfamilies of workers with different alleles for disease resistance or behaviors associated with parasite removal.

Differences do occur in the behavior of members of different subfamilies (Calderone and Page 1991). Subfamilial differences within colonies of bees have been demonstrated for a broad range of honey bee activities (Kolmes et al. 1989). The high genetic similarity of workers within subfamilies, and correspondingly lower genetic similarity of workers from different subfamilies means that, for any behavior that has a genetic component, workers within a subfamily will behave more similarly than will workers of different subfamilies (Oldroyd and Fewell 2007).

Oldroyd et al. (1992) compared colonies of low genetic diversity with colonies of higher genetic diversity in regards to colony weight gain and size of brood area, which are important parameters associated with colony productivity. Colonies having varied genetic diversity were produced from five inbred lines. One inbred line was used as a queen mother of 62 experimental colonies. These queens were inseminated with various combinations of semen obtained from single

**“Colonies with genetically diverse worker populations built approximately 30% more comb than colonies with genetically uniform populations.”**

colonies of the remaining four lines. In estimating colony performance, the seasonal weight gain and mean brood area of colonies comprising two or three subfamilies were compared with those of colonies comprising a single subfamily. Some specific combinations of subfamilies reduced colony performance, whereas others enhanced it.

Tarpy and Seeley (2006) studied the relationship between genetic diversity and disease susceptibility in honey bee colonies living under natural conditions. Each queen was artificially inseminated with sperm from either one or 10 drones. Of the 20 colonies studied, 80% showed at least one brood disease. They found strong differences between the two types of colonies in the infection intensity of chalkbrood and in the total intensity of all brood diseases (chalkbrood, sacbrood, American foulbrood and European foulbrood); both variables were lower for the colonies with higher genetic diversity. They also found significant differences in colony strength between the two types of colonies. Colonies headed by multiple-drone-inseminated queens had significantly more comb, more frames of brood and higher weight gains.

Additional research with honey bee colonies headed by queens who were instrumentally inseminated with either one or 10 drones further indicated that multiple matings improves a colony's resistance to disease. These colonies were exposed to spores of *Paenibacillus larvae*, the bacterium that causes American foulbrood. On average, the colonies headed by multiple-drone inseminated queens had markedly lower disease intensity and higher colony strength at the end of the summer relative to colonies headed by single-drone inseminated queens (Seeley and Tarpy 2007).

Jones et al. (2004) showed that brood nest temperatures in genetically diverse colonies tend to be more stable than in genetically uniform ones. One explanation for this increased stability is that genetically determined diversity in workers' temperature response thresholds modulates the hive ventilating behavior of individual workers, preventing excessive colony-level responses to temperature fluctuations. They concluded that genetic variance among patrines within a honey bee colony is important in helping them to precisely maintain the optimal brood nest temperature over a broad range of ambient temperatures.

Matilla and Seeley (2007) showed that swarms issuing from genetically diverse colonies (15 patrines per colony) established new colonies faster than swarms from genetically uniform colonies (one patriline per colony). To replicate the experience of feral colonies, swarms were created by forcing a queen and approximately 7700 of her worker offspring to cluster in a screened cage for three days, where they were fed sugar syrup *ad libitum* (in accordance with desire) to simulate preswarming engorgement on honey. Each swarm was subsequently relocated to a combless hive that was similar to what colonies naturally prefer (Seeley and Morse 1978). Accumulated differences in foraging rates, food storage and population growth led to impressive boosts in the fitness (i.e., drone production and Winter survival) of genetically diverse colonies. There were notable differences in the progress of genetically diverse and genetically uniform colonies during the early stages of colony founding. Colonies with genetically diverse worker populations built approximately 30% more comb than colonies with genetically uniform populations before construction leveled off after two weeks. Genetically diverse colonies maintained foraging levels that were 27 to 78% higher than genetically uniform colonies on three of the five mornings that they were observed.

Oldroyd and Fewell (2007) argued that there is an accumulating body of evidence to support the assertion that genetic diversity from multiple mating has a functional role in division of labor and in improving colony homeostasis. The links between genetic diversity, genetic task 'specialization' (genetically based tendency of workers of some subfamilies to perform some tasks more frequently than do others) and improved colony development are

becoming clearer Genetic diversity within the colony contributes to colony resiliency: the ability to respond appropriately to a dynamic environment. Each individual worker chooses which task she will engage in based on her own perception of the immediate environment and her innate interpretation of the stimuli around her. If each member of the hive had the same task stimulus threshold, colony structure would become extremely unstable. The homeostasis observed within a colony is the achievement of diversity in behavior-mediating genes which is maintained through the queen mating with multiple unrelated drones. **BC**

## References

- Baudry, E., M. Solignac, L. Garnery, M. Gries, J.-M. Cornuet and N. Koeniger 1998. *Relatedness among honeybees (Apis mellifera) of a drone congregation*. Proc. R. Soc. Lond. B. 265: 2009-2014.
- Calderone, N.W. and R.E. Page 1991. *Evolutionary genetics of division of labor in colonies of the honey bee (Apis mellifera)*. Am. Nat. 138: 69-92.
- Jones, J.C., M.R. Meyerscough, S. Graham and B.P. Oldroyd 2004. *Honey bee nest thermoregulation: diversity promotes stability*. Science. 305: 402-404.
- Kolmes, S.A., M.L. Winston and L.A. Furgusson. 1989. *The division of labor among worker honey bees (Hymenoptera: Apidae) the effect of multiple patrines*. J. Kan. Entomol. Soc. 62: 80-95.
- Matilla, H.R. and T.D. Seeley 2007. *Genetic diversity in honey bee colonies enhances productivity and fitness*. Science 317: 362-364.
- Oldroyd, B.P. and J.H. Fewell 2007. *Genetic diversity promotes homeostasis in insect colonies*. Trends Ecol. Evol. 22: 408-413.
- Oldroyd, B.P., T.E. Rinderer, J.R. Harbo and S.M. Buco 1992. *Effects of intracolony genetic diversity on honey bee (Hymenoptera: Apidae) colony performance*. Ann. Entomol. Soc. Am. 85: 335-343.

- Page, R.E. 1980. *The evolution of multiple mating behavior by honey bee queens (Apis mellifera L.)*. Genetics 96: 263-273.
- Page, R.E. and H.H. Laidlaw 1988. *Full sisters and half sisters: a terminological paradigm*. Anim. Behav. 36: 944-945.
- Page, R.E., G.E. Robinson, M.K. Fondrk and M.E. Nasr 1995. *Effects of genotypic diversity on honey bee colony development and behavior (Apis mellifera L.)*. Behav. Ecol. Sociobiol. 36: 387-396.
- Plettner E., G.W. Otis, P.D.C. Wimalaratne, M.L. Winston and K.N. Slessor 1997. *Species- and caste- determined mandibular gland signals in honeybees (Apis)*. J. Chem. Ecol. 23: 363-377
- Richard, F.-J., D. R. Tarpy and C.M. Grozinger 2007. *Effects of insemination quantity on honey bee queen physiology*. PLoS ONE 2(10): e980. doi:10.1371/journal.pone.0000980
- Seeley, T.D. and R.A. Morse 1978. *Nest site selection by the honeybee, Apis mellifera*. Insectes Soc. 25: 323-337
- Seeley, T.D. and D.R. Tarpy 2007. *Queen promiscuity lowers disease within honeybee colonies*. Proc. R. Soc. B. 274: 67-72.
- Sherman, P.W., T.D. Seeley and H.K. Reeve 1988. *Parasites, pathogens and polandry in the social Hymenoptera*. Am. Nat. 131: 602-610.
- Slessor K.N., L.A. Kaminski, G.G.S. King and M.L. Winston 1990. *Semiochemicals the honey bee queen mandibular glands*. J. Chem. Ecol. 16: 851-860.
- Tarpy, D.R. and T.D. Seeley 2006. *Lower disease infections in honeybee (Apis mellifera) colonies headed by polyandrous vs monandrous queens*. Naturwissenschaften 93: 195-199.
- Woyke, J. 1963. *What happens to diploid drone larvae in a honeybee colony*. J. Apic. Res. 2: 73-76.

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Prior to the August Western Apicultural Society meeting in Healdsburg, California, I was invited to speak at the San Francisco Beekeepers Association and conduct a mini-queen rearing course. During the time of the class I was able to learn about beekeeping conditions in this very unique habitat.

Actually, it is a series of habitats. There are bees on the roofs of buildings that seem to benefit from the solar reflection of the dark, tar roof. There are bees in the back yards of tiny lots that are surrounded by fog for many hours each day (or even for days) as the central valley of California heats up and pulls cool, moist Pacific air into the city, creating weather that is dramatically different from surrounding areas. While it may be in the 90s or warmer just a few miles away weather conditions in San Francisco may never get much past the low 70s for days at a time. How do bees deal with this unique climate? This is not a random question, as more and more urban beekeepers deal with sometimes marginal beekeeping conditions in coastal cities around the continent.

Bees were flying in the 50s (F), reflecting either an adaptation to the cooler climate, a nutritional desperation because of a pollen shortage, or an abundance of rich nectar and pollen within a short flight range. Perhaps it was a combination of all these factors. Local red gum trees (an imported eucalyptus) were making a dramatic display just a block away along side of a school. The bees were swarming over the blossoms as the temperature increased on a typical sunny day in August. The flowers have cups filled with thick, syrupy exudate I took as sweet nectar. The bees were fighting to get into the flowers to reach the nectar, and there were some bees covered with pollen as they scabbled over the flower tops to harvest just pollen quickly and efficiently.

In this city there are as many SFBA member beekeepers as belong to many state organizations, and the recent interest in new bee keepers is remarkable, with emphasis on reducing swarming (somewhat unsuccessfully, as reported by some of the SFBA members), and the growth of community gardens throughout the city. It is an interesting paradox that the city supports so many interested



in beekeeping yet the nectar season is designed to challenge.

San Francisco has two peak forage periods, before July and August, and then after the central valley cools and the cold draft from the Pacific is reduced. Tour guides advise visitors that September and October are the best times to visit the city when the temperatures are comfortable and the sky sunny and bright. This tells you a great deal about the conditions facing the bees and the beekeepers.

The May and June buildup period is not that different from the surrounding regions, and after the city's pear, plum and other fruit trees

have completed blooming the colonies have reached a large population and, as in the case of 2009, a number of colonies were programmed to swarm, and did in large numbers.

Swarm management in a city is essential for good neighbor relations, to avoid the bees that are temporarily regrouped on a local tree while the swarm's representative bees take a collective vote and decided on the location of their next home. Then the bees move into the walls of houses and outbuildings. Large numbers of swarms in the city is not a good idea because of the close contact with the large human population.



*The cool and damp Summer weather in San Francisco makes it a challenge for the hundreds of beekeepers that occupy the seven by seven mile city.*

There is another risk of swarming behavior in foggy San Francisco, as there is a potential queen mating failure when beekeepers use the swarm cells to start nucleus colonies. There are parts of the city that will not support good queen mating conditions. Cool, foggy, and very windy conditions are not suitable for good mating. When the changing conditions of the Summer months arrive, colonies may need to be moved to more protected areas to insure queen mating. For urban beekeepers, some who rely entirely on urban transportation, this can produce a unique challenge due to the lack of a means of moving bees. Putting screened colonies on hand trucks and taking them on BART (Bay Area Rapid Transit) is generally not recommended, so wise site selection is key. Some beekeepers respond by limiting their queen source to the purchase of already mated queens obtained from the abundant California queen producer that are located in the central valley. Others focus on developing a queen family adapted to the conditions of this unique climate, and are careful to set out small groups of mating nucs and increase nuclei in various areas of the city so they can identify the best places to mate queens.

Because of the unique flow conditions of the city, it seems logical to develop a localized queen for this city, and to find the best place for mating. Perhaps drones can be produced early enough to provide all the mating that is necessary before the cool Sum-

mer weather arrives. Lacking this, it may be useful to explore the mating of queens in September and October, since there are red gum trees and other plants that bloom from August on and into the Fall months. Then the risk is having abundant right-aged drones for successful and diverse mating. If the drones are present, a small queen rearing operation with just three or four colonies might serve the local needs of SFBA members, and could be easily developed, producing queen cells that can be easily distributed among the beekeepers of the seven mile by seven mile city. A quick discussion with one beekeeper from the city suggests that there may be a density of 20 to 30 or more colonies per square mile in the city, certainly as dense an area as found in many honey producing regions.

A mating plan, run by the SFBA or a few individuals, would allow a diverse supply of unrelated drones to thrive in the city in the hives of member beekeepers, ultimately mated to a smaller group of queen lines that are found to carry on desirable traits for colonies in the city.

What traits does a city like San Francisco need in her bees? Certainly the region needs a very gentle stock or stocks, bees that will not initiate stinging even if provoked by marauding herds of miss-directed teens. It seems inevitable that African bees will continue their way up the state of California and establish themselves in the area. The most successful counter balance will be a strong bee-

keeping community keeping 'friendly' bees with some degree of adaptation for the area.

Unlike other parts of the country, the bees in San Francisco do not deal with Winter, at least not in the traditional fashion. Colonies may not even stop brood rearing in December or January, depending on the race or genetic makeup. They are in a region with at least 10 months of forage weather, and the plants are amazingly diverse and quite abundant, perhaps one of the most varied groups of bee-friendly plants I have found in one concentrated area. Any stock that is able to respond to this set of conditions and opportunities will do well as long as it does not consume too much of the honey it produces.

In the backyard apiary I visited there were many bees on the ground, deformed, spinning, dying or showing some form of distress. Young drones were crawling on the ground during morning hours, something I did not expect to see in any apiary. What is happening here?

The beekeeper was not using any form of *Varroa* mite control, explaining at least some of the symptoms. There were bees with deformed wings, a condition caused by one of the viruses associated with *Varroa* feeding (not necessarily transmitted



*Small lot sizes in San Francisco make it a challenge to keep bees. This apiary is mainly filled with increase nuclei hives made up from full-sized colonies. Queen mating has not been successful here, so the beekeeper uses California queens to head the colonies. This was a rare sunny*

by the mites, but providing opportunistic wounds where feeding has occurred).

The spinning bees are more of a question. Are they bees that have been exposed to near by pesticide treatment, and this spinning is a neurological response to a sub-lethal (or not yet lethal) exposure. As far as the bee is concerned, its useful life is over. Or is this a symptom associated with *Nosema* or *Acarapis*?

The presence of young crawling drones is an especially interesting. These were young drones, abdomens soft to the touch and not yet sexually mature. Are they being rejected by the colonies, or by a few of the colonies? There is no way to accurately predict drone rejection in the post-summer solstice months of the year, as the days get shorter the worker bees seem to justify any excuse to reject drones. But young drones? Bees usually keep the young drones, those coming into their sexual utility, and reject older drones. However, the older drones may be already gone from this location and the colony is working down the line to the usually favored young drones. Perhaps the previous days of cold, foggy weather reduced the colony's pollen reserve to the level where the drones were the next to be rejected.

Two things need to be done with the colonies in this apiary in my opinion. First, the beekeeper needs to determine the mite levels in the colonies and nuclei hives by either the ether roll, or by using one of the powered sugar testing methods. Since the colonies were already equipped with screened bottom boards I would enthusiastically endorse the use of a simple powered sugar treatment once or twice a week for four weeks to measure the colonies entire mite population and, if a sticky board is used, to remove the mites from the population. The powdered sugar quickly removes most of the adult mites feeding on worker and drone bees, perhaps in as quickly as ten minutes. This fast and relatively safe method of mite sampling AND treatment uses one half cup of powdered sugar per deep hive body (one cup for a double deep or three medium deeps). Window screen is placed on the top of the brood nest and the sugar spread with a bee brush. The screen is then removed and the sugar that has fallen onto the tops of the



Close up of red gum tree flowers.

frames is brushed into the spaces between the frames. IF the screened bottom board has been cleaned and coated with a cooking spray before the sugar treatment, the mites will stick to the oil and can be scraped off after they are counted. Remember, between 80 and 90 percent of the mites are in the brood cells, so the mite count only represents just 10 to 20 percent that are in the adult bee feed phase. This is why it is necessary to return to the apiary once or twice a week to retreat and count. Add all the mites that drop in a one month period and record this in your data file so you can compare this with other colonies and from season to season.

My other recommendation is to start a protein-feeding program on

colonies that are being kept in cool conditions in San Francisco and coastal areas like it. This is true for colonies in other areas that are undergoing a cool season (part of the Summer in Michigan has been unseasonably cool). I do not have any data to recommend one protein mix over another, and in my case I am using what I could find at a beekeeping trade show! I suggest using the premixed protein patties at the rate of ¼ pound for small nuclei to 1 pound for full colonies, offered every week as feeding indicates. If a natural pollen flow restarts and the bees are filling frames with bee bread, the feeding rate can be reduced by not stopped if there is any risk of a break in foraging due to weather or plant production. It is absolutely essential that Fall colonies receive good protein nutrition so the bees that carry the colony through the Winter months are extremely well supplied with fat cells in their bodies.

On the roof apiary with another SFBA member, the bees had good sun exposure and wind protection. The back tar of the roof may create some thermal control of *Varroa* mites. It is known that *Varroa* mites are not as reproductive in warm, dry colonies. I hope to follow up on this idea, since the use of a dark material to place bees on for mite control could be used in many regions of the country not just in San Francisco. BC

Check out [www.wicwas.com](http://www.wicwas.com) for Dr. Connor's meetings in Michigan in October and Texas and Connecticut in November.

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# CC POLLEN –

## Committed To Producing High Quality Honey Bee Products

Late last year I had the chance to visit Bruce Brown and the rest of the folks at CC Pollen, in Phoenix, Arizona. This is one of those businesses in the beekeeping industry that doesn't get a lot of attention. They don't make much noise, they aren't actively political in the industry, and you don't see them at a lot of the meetings that occur at the state or national level. They aren't invisible though, and if you look, you'll see them here and there.

They are, however, definitely active in the health food industry, because that is where their focus is. CC Pollen produces pollen, propolis and other hive products that are sold, not to the beekeeping industry, but to the rest of the world – and much of that world isn't in the U.S.

CC Pollen Co got its start with Royden Brown. He first read about bee pollen when he was in England as a pilot in World War II. He did not pay much attention to it at the time. After the war, in the 40s and 50s, Royden was in the banking business. He bought and sold banks, dabbled in real estate, buying and selling mobile home estates in the southwest, was in the stock broker business with his own newsletter and kept busy in a variety of other ventures. During this time he would see an article, here and there, about bee pollen and its nutritional value and every time he saw something about pollen it made him think a little more about it.

Royden was on the leading edge of the healthy living curve and robust exercise and nutritious food was part of his lifestyle. He eventually became convinced he should include bee pollen as a supplement in his diet. Pollen?

Where to get BEE pollen, back in the 60s? Some was available, mostly imported and in sugar pill form, but honey bee collected pollen wasn't all that common and Royden saw that to get a steady supply of good, fresh, local pollen for his own and his family's usage he was

going to have to find his own resources.

He contacted a few local beekeepers, but didn't have much success initially. Pollen traps were nearly an unknown piece of beekeeping equipment then. He was surprised to find that beekeepers and beekeeping in general had no knowledge of bee pollen other than bees need it. The pollen traps that existed weren't efficient nor commonly available, and for the few beekeepers that were aware of pollen trapping, the argument that trapping pollen reduced honey collection always seemed to stymie the process.

To overcome beekeepers' objections to losing honey when collecting pollen, Royden offered to pay beekeepers for the lost honey production, plus pay for the pollen they would collect. He started with only three or four beekeepers, but still ended up with more than he bargained for. He ended up with bee pollen that had a lot of debris in it and had much more of it than he could possibly use for him and his family. Handling that much pollen was a problem initially but that was soon overcome.

That very volume led Royden to energize his business in the health food arena. He saw there was no supply in the U.S. Royden found a local craftsman who could make solid, efficient pollen traps. And here begins a bit of the mythology of the company – one story has it that to reward the craftsman, Royden named the trap the CC Pollen trap, using the craftsman's initials. Another story goes that in numerology, the initials CC represent the Master Number 33, a good omen. Yet a third story goes that Royden read of a study that the double lettered CC were the easiest letters to remember – so CC worked well in that respect. It was probably a combination of all three reasons and the name CC pollen stuck.

Initially, there was no knowledge of bee pollen or the other beehive products in the general public or the bee-



*Pollen is always kept under refrigeration or frozen from the time it arrives to when it leaves.*



*Inside a walk-in, or forklift drive in freezer.*



*Fresh pollen has dust and small particles removed safely to protect workers, then is placed in this sifter.*



*so it can be gently spread out on a conveyer belt*

*where essentially every granule is checked. Foreign material, dust, and anything that doesn't belong is removed by workers using vacuum hoses at this step.*



*From the individual inspection, the pollen is moved to one of the packaging areas. Here it is going into cans.*

keeping circles but little by little, the word started getting out. He pretty much single-handedly brought bee pollen into the consciousness of the American public. He wrote pamphlets and books on the value of having pollen in the diet and about other healthful activities and foods. The market expanded and the business grew His efforts helped bring to the public a wider recognition of what the beehive brings to us and helped raise the status of the bees and the beehive. Muhammad Ali used bee pollen in training and President Reagan was a regular customer while in office. Sunday Silence won the Kentucky Derby while being fed bee pollen. Senator Tom Harkin of Iowa, who led the passing of the Dietary Supplement Health And Education Act (DSHEA), has used bee pollen for his allergies since 1993. The list goes on and on from Neighbors down the street to public figures.

Production in the Southwest was gearing up, as was the diversity of the product being produced. It became quickly evident that Southern Arizona was ideal for pollen production because of the plant diversity and the dry climate. Beyond that, he also came to the realization that with bee pollen, he could combine the pollens of vast geographical areas and this mixture of pollens from north and south and mountains and valleys would result in one of, if not the most, biodiverse foods possible. Thus the pollen collection spread from Arizona to other states and then on to other countries. Both commercial production and hobbyist interest grew worldwide.

The FDA and the FTC frowned on some of the claims he made about the nutritional value of the products he was selling. Without costly scientific evidence the FDA insisted he needed for the claims he was making, they pretty much forced him to rein in his claims. Unwillingly, he did so. He Believed in what he was doing. He believed

in the value of the beehive products. His motto was "While health isn't everything, without health, nothing else matters!" Royden felt beehive products contributed to good health. CC Pollen had been doing business overseas and found they were more in tune to what he was selling so he focused his attention on the export market.

His vision was that he wanted bee pollen and the other beehive products to be as common in the kitchen as salt, sugar and white bread.

CC Pollen produces a wide variety of products in the health supplement field for both humans and animals, including horses and birds. The main primary beehive products of CC Pollen are the following:

#### **Pollen**

This fragile and ephemeral product is a mainstay beehive product. Twenty to 25 beekeepers supply about 85% of the bulk pollen bought domestically, with the rest brought in by a handful of beekeepers on an irregular basis. It arrives mostly in drums and is frozen until needed, then cleaned for dust and foreign particles through various screening machines and then examined on a conveyor belt for anything that may have been missed by the machinery Next it is put back in the freezer until needed to be processed into the final product. Pollen is kept in a freezer until it is processed and shipped to keep it fresh and viable.

Retail sales consists of various sized bags of High Desert Pollen Granules, nitrogen sealed cans, flavored capsules and tablets, pollen mixed with honey, pollen mixed with herbs and a skin cream with pollen, royal jelly and propolis.



*Pollen is also sold bulk in plastic bags in cardboard containers for lightweight shipping.*

*Harvested propolis arrives, usually, in 55 gallon drums from beekeeper's scrapings or trapping.*





This material, usually mixed with some amount of wax and other foreign material, is placed in a large tank. Alcohol is added and the propolis is dissolved. The liquid propolis mix is pumped out of the tank



into a pressure filter to remove even the tiniest of foreign objects. When filtered, it is again pumped to a distilling tank



where the alcohol is removed, leaving only the very hot propolis which is still a liquid.

### Propolis

The popularity of propolis in the export market has grown tremendously. Due to this demand, CC Pollen has built a 2400 square foot processing plant, the only one of its kind in the U.S. Beekeepers send in their collected hive scrapings and propolis from traps. CC Pollen takes this collected material, removes the beeswax, dissolves the remainder in alcohol and sends the resulting liquid through a series of filters that remove other foreign material and then distills out the alcohol, leaving only the resin. Generally speaking, resin amounts to about 35% of the total weight with wax and debris, in nearly equal amounts, making up the rest. Suppliers are paid on the amount of finished, usable resin that is ultimately collected.

This finished resin is dried, ground to a powder and used in a variety of products, or as is in capsules, tablets or loose powder. Other propolis products include a skin cream and a herbal salve.



This liquid is quickly removed from the tank into pails, and from there it is made into a variety of products.



Tablets, powder or blended with royal jelly propolis has many forms.

### Royal Jelly

Royal Jelly is another of the products sold by CC Pollen, but the raw material is imported, tested for purity and the active ingredient-10HDA-is measured. Royal Jelly is sold freeze dried, or as liquid royal jelly mixed with honey, as a powder or in capsules or chewable tablets.

Most of the bee pollen, propolis and royal jelly is shipped overseas where the markets for these are strong but a significant amount stays in this country.

Testing is done on all the products for purity and contamination. The requirements of overseas governments and the high standards that customers demand make testing mandatory.

Today CC Pollen stresses the importance of good nutrition through whole foods, not isolated substances, and points to the beehive as a revered place acknowledged by cultures worldwide throughout history. CC Pollen regards the current mode of Mega-Agriculture, Mega-Industry and Mega-Pharmaceutical and chemical applications as imbalanced and unsustainable over the long run and thinks it will become increasingly more difficult to keep healthy individually and environmentally in the future. The vulnerability we are experiencing with the bees just reflects our own vulnerability as humans.

After Royden Brown passed away in 1994, the company is now co-owned by Bruce and his sister Carol. Among 44 co-workers, Bruce's wife, Jeanette, works in purchasing, inventory control and bookkeeping, Bryce Burgoyne is V.P. of manufacturing and Computer Systems Manager, and Ira Pettit is General Manager.

Remember "While health isn't everything, without health, nothing else matters." **BC**

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# Is The Cruellest Month

Joe Traynor

It's October and you're a European honey bee colony in North Dakota (or South Dakota, Minnesota, Montana). Decreasing day length in the previous months has triggered an eons-old message: *get ready for Winter*. In case you missed the early signals, a couple of recent frosts reinforces them. Your body fat reserves are hoarded, your metabolism drops and you go into defense mode against the oncoming cold.

Clouds form, precursor of a coming storm, and out of nowhere you hear a familiar clattering of equipment. Some of your housemates peer out the entrance of your domicile, report some giant forks approaching and spread the word: *we're moving again*. You don't know it, because no one has survived the return trip to tell about it, but *you're going to California!*

After a couple of days on the road, you stop at the California border and, sleepy-eyed, suffer the indignity of uniformed humans with flashlights peering into your living room (who are these people?!). You're soon on the road and several hours later you find yourself in the great Central Valley of California. The next day breaks warm and sunny – it will hit 90 degrees that afternoon! – and you awake from your torpor. The word soon spreads – *worker bees unite: it's Summer again -- get out there and hunt & gather!*

You and your fat-enriched housemates do your duty searching for pollen and nectar in an ever expanding circle – up to a four-mile radius!

Upon returning to the hive, all reports from foragers are the same: *"What the # %#\*&?! there's nothing out there! Is our keeper out of his ##&\*\* mind?! He's never done this to us before!"* The fruitless foraging trips continue for a few weeks until cooler weather again gives the signal you originally got back home: *prepare for Winter*. Some of the fellow-colonies in your apiary, out of desperation, start practicing some distinctly anti-so-



cial behavior for a social insect: they rob their mates of their hard-earned stores with the fittest colonies robbing the weaker ones to the point where the weak ones can no longer survive. Because weak colonies are more likely to harbor pests and diseases, such robbing behavior serves to exacerbate conditions by spreading these nasties throughout the apiary. The weak colonies exact their revenge from the grave.

As you again prepare for Winter you look at the depleted population of your housemates with concern – instead of fat healthy bees, they and

you, have turned into tired, skinny, sickly bees. The food reserves in your pantry are dangerously low, your immune system is weakened making you more susceptible to nosema and every kind of virus out there. You watch helplessly as your housemates succumb to various maladies. From fat happy bees back home, your colony has turned into a demoralized population ready for the nursing home. Winter die-off continues and

when almond bloom starts, your colony is a long ways from the eight-frames of bees that your keeper has promised his almond grower. October in California is no place for old bees.

Beekeepers that haul bees from the northern tier of states to California for almond pollination are familiar with the above scenario. They learn early on that the last loads of bees they haul (in early December) fare much better than those hauled in October. Out-of-state beekeepers

are faced with a classic Catch 22 dilemma. bring the bees out in October and they will gradually go downhill; wait until December and you risk getting snowed in or having to transport bees on dangerously icy roads.

Beekeepers in North Dakota must get their bees out before they get snowed in. Beekeepers in western Montana and northern Washington have more time and many delay the California trip until December, keeping a close eye on the weather for an open window in which to haul. Some of these beekeepers have their own trucks and can easily coordinate

# U B E R

trucking schedules with road and weather conditions. Beekeepers that must hire commercial truckers don't have this scheduling luxury so most opt to get their bees to California early enough to neutralize later weather challenges.

Some beekeepers have solved the problem by putting their bees in storage - many use old potato sheds in Idaho. These storage sheds are temperature controlled and are provided with air-circulation fans; the sheds serve to maintain bees in a hibernation-like state until they are hauled to California in January or February (many Canadian beekeepers successfully over-winter their bees in storage sheds). Wintering bees in sheds has its own set of problems: without cleansing flights, dysentery and other diseases can more easily spread through a colony; a breakdown in temperature control or air circulation can cause problems. Through years of experience (including some trial and error) a number of beekeepers have been able to successfully winter their bees in sheds. Don't try it yourself without first getting a lot of input from a veteran of shed storage.

Other beekeepers have minimized the "October problem" by slapping supplemental protein-pollen feed on the colonies as soon as they hit California. This feed can reduce or eliminate the energy-wearing fruitless flights that would normally occur and can also reduce robbing. Some beekeepers have access to coastal or southern California locations where fall and winter flowers serve to maintain the health of colonies. The San Joaquin Valley though, where most out-of-state bees wind up, is a desert for honey bees from September to February

In contrast to out-of-state bees that are hauled to California, bees that are maintained in the San Joaquin Valley throughout the Summer and Fall fare much better. They "know the territory" through months

of experience and, come October, they know enough not to make fruitless foraging flights. They hunker down in October, protecting the colony from robbing and when cooler temperatures arrive in late November, followed by cold foggy weather in December-January, they are able to emerge in February in reasonably good condition, especially if they have been given a supplemental protein-pollen feed in September

For out-of-state bees that arrive in California in October, October is indeed the cruelest month (and November isn't far behind). There are ways around this "October surprise" but they require time, effort and ingenuity on the part of beekeepers. **BC**

*Joe Traynor is a pollination broker in Bakersfield, CA.*

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# All The BUZZZ in...

*Hello Friends,*

*I hope you are having fun  
being back in school.*

Your friends,  
**Bee B. Queen**



Dress up a honey  
bear and send me  
a photo.



Jenna, 8, WV

A hundred years ago  
the United States had  
five million hives of  
bees. Now there are  
only two million,  
though the total  
honey production is  
nearly the same.



Riley Mann, 7, AL

## Working With Bees

### Hobby Beekeepers

These beekeepers keep bees for the fun of it. Maybe they have a garden or fruit trees they want to pollinate. Maybe they love nature. Maybe they just love bees.



It's fun to work with bees. Some people like to work with bees as a way to make money. Here are a few honey bee related jobs that may be interesting to you.

### Commercial Beekeepers

These people keep bees as their main job. They may produce honey, move colonies of bees to pollinate different crops or do many other jobs related to their bees. There are not many commercial beekeepers

around the world (5% of beekeepers) but they produce over half of the honey used.

### Sideliners

These folks have a bunch of colonies, anywhere from 50 – 300 hives, that will hopefully make some extra money. They may sell their honey at places like farmers markets. Often these people have another source of income as well.



### Packers

These folks bottle honey to be sold in stores or to food producers like cereal companies. They work on a large scale and may import honey from other countries.

### Entomologists/Researchers

These scientists want to learn more about bee diseases, genetics, or biology to help us understand more about honey bees. They can teach at universities or work in research labs.



### Inspectors

These people are experienced beekeepers who know a lot about bee diseases. They inspect hives and may help teach beekeepers better ways to manage their hives.

### Queen Breeders

These beekeepers raise queens for other beekeepers. Some may also raise packages of bees to sell to beginning beekeepers or other beekeepers wanting more hives.

### Suppliers

Beekeepers need tools and equipment. These people have catalogs, stores and websites to sell beekeeping supplies.



### Writers

Some people write about bees and beekeeping. They may write for magazines, blogs, or write entire books.



# ... BEE kid's CORNER

Produced by Kim Lehman - [www.beeladyprograms.com](http://www.beeladyprograms.com)

[www.beeeculture.com](http://www.beeeculture.com)

October 2009



This is one of my older drawings, I was 10 when I did it. I'm 13 now. My papa and I have been doing bees together ever since I was 8 or 9.

Naomi  
Bowron, MI



Mackinzie Daniels, 6, TX

Bees, bees, honey bees,  
Just right for me.  
Bees, bees in the trees.  
Bees, bees come and pollinate our trees.  
Thank you bees.  
Mackenzie Daniels, 6, TX

How do bees get to school?  
*They take the Buzz.*  
Jena Locklin 6, TX



California has the most bee colonies in the U.S.

Mackenzie Ritsert, 4 months old from Ohio, dresses for the occasion.

## Tortilla Roll up

You will need:  
Cinnamon, Sugar, Tortillas, and Honey



- 1 Mix a little sugar and cinnamon together Set aside.
2. Spread honey onto a tortilla.
3. Sprinkle the cinnamon sugar on the honey.
4. Roll up and eat.

Thank you to Emily Harper, age 6 from Texas, who shared this recipe with us.

## Become a Bee Buddy



Send two self addressed stamped envelopes and the following information to: Bee Buddies, PO Box 2743, Austin, TX 78768. We will send you a membership card, a prize and a birthday surprise!

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City, state, Zip code \_\_\_\_\_

Age: \_\_\_\_\_ Birthday: \_\_\_\_\_

E-mail (optional) \_\_\_\_\_

Send all questions, photos and artwork to:  
[beebuddies@hotmail.com](mailto:beebuddies@hotmail.com) or mail to the above address.



Bee Buddy Brody Wolfe, age 5, from CA made this bee out of a rock, sticks and paper He painted it too!



# Wintering Beehives

## Part 3. Management

James E. Tew

### Remembering last month

I ended my piece last month with a comment on wintering biology by saying, "For successful beehive wintering, a lot of guessing will be required." Nothing has changed since last month. So right from the start, preparing a colony - any colony - for Winter will contain a lot of "educated best guessing." Sometimes you'll win, but you will also frequently lose.

### Bee genetics - inside the dark bee

No beekeeper can look at a colony of bees and actually see wintering genetics. We can look at a colony of bees and see the **effects** of wintering genetics, but the genetic mechanism is tucked away in the dark insides of the individual bee and the queen mother. A colony may look and perform great during warm months but be disappointingly bad at surviving the Winter. There is no way to look at a new, caged queen and predict her genetic wintering characteristics.

*A few years ago, during Winter months, I posed by my "best" colony for a photo to be used in a farm publication. I had no idea that my best colony was already just a breath away from being dead. By Spring, my previous year's best colony was a winter-kill - from my best to dead in just a few months. I never knew why.*

Other than to expect some colonies to Winter well while others survive poorly or even die, there is nothing you can do about this frustration. Wintering bee genetics is part of the "best guess" management procedure.

### It's time

For the past two months in *Bee Culture*, I have reviewed the history and biology of wintering bee colonies. It's time to implement something; but what? For the past 150 years, we have tried nearly everything. Yet, no single wintering procedure has risen to the top of the Winter

*Insulated colonies in Maine protected from the wind!*



*A Winter yard in South Alabama.*



management list. Warm climates, cold climates, mild Winters, severe Winters, Nosema, good queens, packed colonies, bad honey, wind breaks, frost pockets, ventilated hives, entrance reducers, food stores - the number of variables is staggering. Even so, some fundamental points shine through. Good luck and good genetics are starting places, but these points are vague and foggy. But thankfully, there are many good beehive manipulations that you can implement to help a colony survive the Winter season.

### Some management components of a successful wintering program

#### When to start wintering preparations?

Most of us should start preparing our colonies for Winter in the late Summer and throughout the Fall season. Those of you in warm climates may be able to make changes throughout Winter, but your bees will be using more stores and energy flying on nectarless days. Other than simply putting on supers or deeps of honey, there is little most of us can do to help our wintering colony once the season is truly cold, so **plan and implement early**.

#### The apiary location

Many attributes of a good beeyard location are known. I will only discuss one attribute here - availability. Most of us keep our bees wherever we can; not necessarily where we should. We use what is available to us. Clearly, some yard sites are better than others and little can be done to change that, but a good, wind-protected yard is certainly a benefit to successful wintering. **Establish Winter-friendly beeyards.**

Some beekeepers go to extra measures to modify a yard location to make it better suited for beekeeping. If no natural wind breaks are present, protection from the wind can be improvised with snow fencing or even open-sheds.

There is a group of specialized commercial beekeepers who completely take over the wintering process by wintering indoors in climate-controlled conditions. These pioneers are laying the technical foundation for what may become a more typical wintering procedure for all of us in future years. Presently, it is prohibitively

From Todd F., West Virginia

Here's what I've done for years. I use 1/3 barrels with the ends cut out for hive stands. On this is a screened bottom board, followed by a deep brood box and a shallow super for food. Sometimes I use only a single deep headed by a Russian queen. On top goes a screened inner cover with a 2" rim. I cover this with an empty deep hive body which allows me to use a gallon jar for Fumadil-B feeding. Around the jar I put old cloths to fill the empty space in the deep shell. These rags insulate, absorb moisture and pass it out the ventilated outer cover. Outer cover ventilation is partially accomplished with four short pieces of lath glued in the underside corners of the outer cover. Lastly the tar paper is wrapped LOOSELY around the barrel stand all the way to the ground and a second piece lapped over the insulated deep before installing the ventilated telescoping outer cover. Both tar paper pieces are held in place by baling twine that I reuse year after year just like I reuse the tar paper.

This differs from most hive packing procedures I've seen because the paper is loose which gives the bees somewhere to go outside the hive without being exposed to the wind and cold. A point that is never mentioned about hive wrapping is that the equipment is protected from the elements. I wrap by December 1st and unwrap around May 1st. This gives me five months without equipment deterioration from weather (except for the outer cover). The bees get warmth retention without condensation and quiet air around them without confinement.

When I unwrap in the spring, the cloths get stuffed in a barrel and sealed, the tar papers are stacked and rolled up. The jars are washed and the baling twine placed inside. The empty deeps are stacked up and wrapped with paper to protect them through the Summer. Everything stays in the yard. I have no extra trips due to the wrapping, just some more time. The R-value of this packed hive seems closer to a tree hollow than an unwrapped hive. Does packing help? I think so.



expensive for most of us. If any of you are routinely indoor wintering small numbers of colonies, I would enjoy communicating with you.

### Queen management

"The queen" as a Winter management category, reads so simply to be so challenging. I suppose it would be fair and honest to say that you should have a good queen in the colony all year long – not just Winter. But in recent years, that has become a challenge. Some commercial beekeepers now have to requeen every six months, some even more often. I don't know what's up with this queen problem. The traditional advice has always been to go into

Winter with a young queen. Presently that may be easier said than done. Even so, you must try **Go into Winter with a good queen.**

### Cluster position

During mid to late Fall, rearrange the brood boxes so the cluster is on the bottom board. The instinctual tendency of the bees is to move upward as the season progresses. In a natural setting, a wintering colony of bees would move up on its honey stores as Winter passed and be high in the nest at the arrival of Spring. As they developed a brood nest and brought in new Spring nectar, they would fill the high brood nest with new nectar and push subsequent brood nests downward to a lower position. In this seasonal way, as the colony needs to, it moves up and down the combs. You, the beekeeper, short-circuit that process by moving the brood nest down in the Fall rather than waiting for the bees to do it next Spring/Summer! **Go into winter with the cluster in the bottom deep.**

### Food stores

No wintering colony has ever been harmed by having too much honey for Winter. If you have any doubts about how much honey to take, leave more on the colony. Successful feeding is tricky to accomplish; therefore, it is far easier to leave extra honey on the colony than to feed the colony supplemental feed. If you have light colonies, give supplemental feeding a try, but be realistic about the hungry colony's prognosis. Abundant food stores are not the only factor of good Winter management. In recent years, I have taken significant honey crops from dead colonies. How weird is that? Abundant stores are important, but abundant stores alone won't guarantee successful wintering. Even so, **provide the wintering colony with abundant food stores.**

### Runt Colonies

Having some number of weak colonies simply cannot be avoided. **Combine weak colonies** together in an attempt to make a winterable colony. Alternatively, combine weak colonies with any other colony. You should kill the queen from the weak colony. She's not worth reusing. Even in warm climates, trying to Winter a weak colony is usually beehive busy-work. Spend your time on the ones that have a chance at surviving.

### Hive Equipment

Housing the colony in two deeps with a reduced lower entrance but supplemented with an upper entrance is the traditional way to shelter a bee colony in Winter months. As I discussed in Part I, we have historically tried many different Winter options. None work perfectly every time. Insulating and wrapping, as management recommendations, have come and gone many times. I feel that the concept of beehive insulation needs a serious revisit. Old data from old studies using old types of insulation materials in old ways is just that – old. Yet, from this old

\*If storage space is abundant, a colony of bees will rarely use the bottommost deep voluntarily. In fact, if given entrance position choices, they will not choose the bottommost entrance but will opt for one a bit higher up. Should the winter management recommendation be to put the colony on the bottom board or just a bit higher up? I don't know. Beekeepers have historically used the bottom board position. For now, stick with that, but don't be fearful of experimenting.



Two colonies, roofing paper, straw and twine. Been used for years.

information, we continue to make modern-day recommendations that pooh-pooh Winter wrapping. Under proper conditions, I propose that a colony could benefit from year-round insulation procedures. And not just colony sides, but the top and bottom surfaces, too. But due to poorly adapted wintering genetics, even insulated hives will still sometimes house colonies that inexplicably die during Winter months. But overall, I posit that more insulated colonies are better suited for winter survival. But until I have new recommendations for you, **Winter in two deeps with a reduced entrance.**

#### Wintering hive ventilation

In both cool and cold climates, provide for upper ventilation. Condensation accumulates at the top and upper insides of the hive. Providing a small  $\frac{1}{4}$ " crack beneath the inner cover and even the outer cover will be enough to let the wet air out.

So what about screened bottom boards? Though I don't particularly dislike them, I don't routinely use



A variety of pre-made wraps are available – water proofed cardboard, corrugated ridged plastic, flexible corrugated plastic. They slip over or wrap around a colony with little work involved, and have been around for years.



Severe Winters – colonies were placed in boxes and insulation poured around – saw dust was common.

ventilated bottom boards. I have found them to be too lightly built to be used on colonies that are moved to pollination sites. I can't tell that serious harm is done if the bottom stays open during the Winter, but if I can remember to do it, I insert the metal closure sometime in the late Fall.

There is possibly a conflict at this point. Maybe it is because our artificial beehives are not natural honey bee cavities. Oddly, the bees go to extremes to propolize the hive insides during Spring/Summer months which mean that the tight hive then holds excessive Winter moisture. We must break the propolis seal as Winter approaches. That doesn't feel right to me. Should not the bees know what they are doing? Like Winter colony packing, Winter colony ventilation bears more review. For now, break the upper propolis seal and **ventilate the top of the wintering colony.** I wonder if a wintering hive is better served by a screened bottom board for ventilation more than *Varroa* mite control? Below, I have presented the comments from a beekeeper who packs and who uses screen bottom boards (and screened inner covers) with good results.

#### This is not the last wintering word

Wintering beehives is not and has never been a sure thing. Not surprisingly, this short article series will not be the last word on wintering. Sooner or later, all beekeepers acquire amazing stories of Winter successes and failures – such as tiny clusters wintering well while large clusters fail. The same pressure is on feral honey bees living in tree trunks. Some make it while others don't. The continual biological miracle is that any colony survives any Winter. As beekeepers, we **nurture wintering colonies and clean up dead ones next Spring.** Good luck with your guessing. **BC**

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# SMALL HIVE BEETLE ROUND-UP

*Beetles come on strong in the south right now Be Ready!*

Jennifer Berry

For the past few months I've been absent from these pages. There's no excuse other than the fact that I've been in the beeyard more than the office this year. Actually, if you could see the state of my office you would understand why I'd rather not be in here; piles of folders, books, various pieces of beekeeping equipment, data sheets, queen cages, clip boards, envelopes, stacks of un-opened mail (paper and e-mail), grafting tools, stuff I have no idea what it is and of course a wide collection of hive tools and veils.

Even though our research season is still in full swing, I've forced my way into the office. I had to plow through all the clutter and sweep piles into the corners, until finally my desk was revealed. Why? Well, it may have to do a little something with this fine new computer I just took out of the box (which is now blocking the only path to the door). And what is this new computer you ask? It's an iMac. Yeap, I'm back with Mac!

I was never very interested in computers, so most of the late 80s and early 90s technological innovations zoomed right by me. It wasn't until I came back to pursue a graduate degree that I was reintroduced to computers. A friend gave me an

older model apple computer. Wow, what a machine!!! I couldn't believe how many different things you could now do on a computer, plus the internet and the world it opened up. Because of school I did everything on the Mac.

Then along came this job and boom, I was forced into the world of Bill Gates. Now I'm not saying that's a bad thing, I just wasn't used to it. I had to be re-trained, re-programmed, re-formed.

Ok, enough jabber – let's move outside. Its Fall in Georgia and what a fine time to be here. October, in the south, is the crème de la crème of months. The heat and humidity, which is long past, has been replaced with crystal blue skies, cool breezes and marvelous days in the beeyard. No more head rushes as the temperature and humidity hits over 100°. The Fall colors are just beginning to make their appearance and the nights are almost chilly. You snowbirds have probably already tucked your bees in for the Winter while down south our bees are still desperately searching for that last droplet of nectar or granule of pollen. Not much remains, but if it's there the bees will surely find it. Goldenrod, which bloomed a month ago, with its brilliant orangey

heads and stinky nectar, is our clue to start preparing for Winter.

Even with the wonders of the Fall season there are still issues brewing. One which becomes really apparent this time of year is the small hive beetle (SHB). Earlier in the Spring/Summer we may have seen a few beetles on the inside of the inner cover, or end frames where the bees are absent but throughout the Summer the beetle populations have been on the rise. Actually, by July/August beetles are starting to rapidly multiply in our colonies, much like that other unwanted pest, *Varroa*. By September you can start seeing beetles by the hundreds on the underside of inner covers and bunched up in corners. But October can be even worse. Yet, it all depends on the colony and location. Some colonies will have a few while others a few hundred to even thousands.

In some cases, beetles probably bother us more than they bother the bees, especially during the warmer months when the majority are hanging out in the upper honey supers. However, when I start seeing hundreds of those slimy b!#!^!! crawling around the brood area, darting in and out of the brood cells, it's very un-nerving. This is when I begin to question how they're impacting the

*The Hood trap sits on the bottom bar of an empty frame. The advantage is that the bees will fill up the empty space with drone comb, so you can get rid of trapped varroa and small hive beetles at the same time with the same frame.*



*The Freeman trap serves as a screened bottom board when not in use. Fill the tray with oil and beetles fall through the mesh and drown.*



colony Plus, as temperatures begin to cool down the beetles will start making their way to the center of the colony to the cluster for warmth. These sub-tropical species don't react well to cold temperatures. It's not part of their agenda.

Location may determine the seriousness of your beetle problem as well. Here in Georgia you don't just have to live in the southern regions or below the "fall" line to experience beetles. This fall line I refer to is a geological boundary that runs across Georgia northeastward from Columbus to Augusta. It used to be the Mesozoic shoreline of the Atlantic Ocean. Hence, sandy soils predominate south of the fall line, whereas harder clay soils are found to the north. Athens is north of this line. The sandy soils provide an easier home for the larva to excavate their pupae site. Beetles are often a problem in southern Georgia much earlier in the year and persist further into the fall. As far as Florida is concerned, it's a yearlong battle. But again, also depends on where your apiary is located.

Several years ago we moved beehives down to Perry for SHB IPM test. We started the colonies here in Athens, late in the Summer (bad idea) and then transported them south (another bad idea) to take advantage of irrigated crops still providing nectar. The first month the colonies were thriving beautifully. They were drawing out comb, the queens looked healthy, bee populations were strong and they were making honey. We patted ourselves on our collective back, said job well done and drove away with not a care in the world. Four weeks later we returned to a disaster. Over half of the colonies were dead and those remaining were in sad shape. Several colonies had absconded and were still clinging to shrubbery a few yards from their hives. All that remained from those that had perished or absconded was the dripping, disgusting slime and stench of tens of thousands of beetle larvae. The other colonies that still had bees were hanging on, but barely. Adult SHBs were everywhere. The poor bees were spending more time chasing the beetles out of the cells than attending to the brood or other duties necessary for their survival.

We rectified the situation by hauling the colonies back home to Athens.

Now here's the irony. The study was to investigate which IPM method or methods best controlled SHBs. So, in essence, we needed beetles, not as many as we encountered down south, but we still needed beetles. Within a few weeks the remaining colonies recovered but unfortunately there were no beetles. For whatever reason this particular location didn't support them.

There are numerous "non chemical" options available to reduce SHB populations. But probably the best defense is maintaining a healthy, strong, queenright colony. However, in some cases beetles can overwhelm even those. Again location, location, location.

Here are some basic cultural practices to consider. Avoid providing extra space that the bees cannot properly protect. For instance, don't stack a bunch of supers (empty or full) onto a colony. Swarming is no longer an issue in late Summer early Fall, so consolidate frames of honey into one or two supers, depending on the strength of the colony. Leaving empty supers with no bees, or worse, empty frames with pollen and no bees is asking for trouble. Also, if a colony is weak for whatever reason, take it from a 10 frame and put it into a four or five frame nuc. I like to keep the bees compact so to say, especially this time of year.

If your apiary is prone to having high beetle numbers, move the hives. Find another location for a season or two in order to break the lifecycle of the beetle. Also, beekeepers have found keeping colonies in the sun as opposed to the shade helps in reducing beetle numbers. Frame spacers are a magnet for beetles. They love to hide under the metal flashing and laugh at you as you try to wedge your hive tool down in there to mash em! The bees are also frustrated because they can't get to them either. Get rid of them if you have a problem. Seal all cracks and crevices inside the hive. Don't leave them any place to hide.

If you find a colony heavily infested with beetles don't combine it with one that's not. Suddenly increasing the SHB population may cause a strong colony to collapse. In our experience here at the lab, when we come across a colony loaded with beetles, we add traps (which I'll get to here in a minute) reduce the amount of space available, take any frames



*The Beetle Jail replaces a whole frame in a super or hive body. Beetles hide in the slot on top, fall into the container of oil below and drown. The clear plastic container simply slides out of the surrounding frame to be emptied and refilled. No spilling, and a huge capacity.*

infested with larvae and freeze them, manually remove as many adult beetles as we can and then move the colony. In the long run, however, I prefer to re-queen colonies with a more hygienic stock since it's been shown that bees with hygienic behavior will remove cells infested with beetle larvae. But sometimes the option just isn't available.

Making weak splits or mating nucs in mid to late Summer can be disastrous if you're not careful. They are beacons to those homeless beetles flying about in search of prey. And finally for honey that you plan to extract, get it done sooner than later. Most beekeepers in the south have probably learned this lesson the hard way.

Before the days of the beetle, we could remove honey supers, stack them in our honey house and get to them when we had time. Not true these days. Stacking honey and walking away could mean the loss of your entire crop. Humidity and temperature levels in your honey house helps but it is still recommended to not pull honey supers off until you are ready to extract. I spoke to Bob Binnie who has had a lot more experience extracting honey and he told me some interesting information. If comb has had brood reared in it, you better get the honey extracted within four to five days or beetle larvae will appear. However, virgin comb (never had brood reared in it) won't succumb to beetles that quickly. But beware, if there's any lingering pollen on it even faster. Another thing, the experts claim that honey houses with humidity levels below 49% won't allow beetle eggs to hatch. Be careful



*The 2 piece BeetleEater trap. Beetles try to hide from the bees by running into the holes on the sides of the top. The Cutts trap has the holes in the center. The value of this trap is that it is reusable.*

about relying on this completely. Once in the past Bob had the opposite occur. Nothing worse than all your hard work ending up in the bellies of those beasts.

During the Summer months I insert beetle traps in colonies that seem to have populations higher than I'm comfortable with. Like most beekeepers here in Georgia and the south, I've been experimenting with all sorts of traps and "non chemical" baits. So far nothing eliminates the beetles completely but I do see a reduction in the numbers.

For top bar traps you put inside the colony there's the reusable AJ's beetle eater and the Laurence Cutts' Better Beetle Blaster. The AJ beetle eater is a two-piece plastic trap you snap together and place in between two frames. The reservoir is filled with oil before placing and the beetles when chased by the bees, look for a place to hide, head into the holes and drown while trying to escape from the bees. It works well because you can place the trap wherever you see the most beetles. However, be careful not to spill any oil when placing and especially when removing the trap. If you don't already know, bees and oil don't mix.

The Beetle Blaster works the same way but is a one piece, disposable (and therefore cheaper) plastic trap that has a clear reservoir. It is just now available and is sold by major bee supply companies. According to the inventor Laurence Cutts, it will hold around five to six hundred beetles and is very easy to install.

*Beetleblaster by Laurence Cutts.*



Just put it between the frames and then use a squirt bottle to fill the trap with oil. Any vegetable oil will do. Once the trap is full of beetles, you just remove it and throw it away. The bees will propolize the top of the trap to the top bars so use care not to spill oil when prying up.

Both of these traps can be used in the brood nest for a continual trapping method even over Winter.

There are other in-hive traps available on the market; the Hood trap and a new comer the Beetle Jail produced by Millerbees. Both of these traps take the place of a single frame. The Hood trap is a three-chambered plastic trap that sits in a frame. The outer two chambers are filled with oil and the inner chamber with apple cider vinegar. The beetles are attracted to the vinegar and enter the oil chamber and suffocate. The beetle jail uses a slightly different concept; it actually "traps" the beetles. The trap fits snug up against the wall (hence no space to hide) forcing the beetles inside the trap to escape the pursuing bees. The trap comes in three different sizes, deep, medium or shallow and has a small slit along the top of the trap where the beetles enter. Now here's the trick, the opening has a lip protruding outward on the underside. According to the information on the website, the beetles stay in the jail because they won't cross over that lip. There is a plastic reservoir that you place oil into so the beetles eventually drown.

There are also bottom tray traps. The West small hive beetle trap and

the Freeman beetle trap. The West trap consists of a plastic tray with a slotted cover that sits on the bottom board. The tray is filled with oil which suffocates the beetles that crawl or fall into the tray.

The Freeman trap takes the place of a screened bottom board. It is a separate unit with a wooden frame to support the colony, a wired mesh screen and a removable plastic tray. The tray is filled with oil and again the beetles either fall or are chased into the tray. The tray can be removed from the back of the hive with little to no disturbance to the colony. Both of these traps will reduce large numbers of beetles from your colony but need to be perfectly level to operate efficiently.

For you northerners, I am assuming by October the ability to enter colonies is limited due to the weather. If beetles are present they have made their way to the cluster and don't plan to leave until the temperatures outside are much warmer. So trapping beetles now may not work. Unfortunately, in your area it was something that needed to be done in August. However, for our southerners it's not too late. Get out there, enjoy this magnificent weather, check in on your hives and make sure they're ready for whatever the season may bring. See ya! **BC**

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# NATURAL REMEDIES

## Acacia, Allspice and Blue Mink

Abbas Edun

### ACACIA

Babul, Black Piquant, Indian Gum and Thorn Tree are common names for *Acacia arabica*. This is a genus of moderately-sized trees and shrubs of Gondwanian origin belonging to the subfamily Mimosoideae of the family Fabaceae. It is widely distributed, both in tropical and warm-temperate regions of the two hemispheres. There are about 1300 species worldwide, about 950 of them being native to Australia, where they are known as Wattles. The remainder is spread around tropical Africa, southern Asia, and the Americas.

Many species of Acacia have umbrella-shaped crowns which enable them to secure a lot of sunlight with a minimum amount of leaves. Some of the trees have a deep tap root system which allows them to exploit the water table and to survive in semi-arid terrain along wadis. Others have shallow, extensive root systems which are spread out to capture a limited amount of rainfall in dryer areas. The well-known Fever Tree which grows along the fringes of lakes and on poorly-drained clay soils is one that has a shallow root system in order to avoid being waterlogged.

The dark-brown bark of the stem is smooth, but becomes rough and longitudinally fissured at the base. Its small branches are sparsely to moderately pubescent especially when young and sometimes slightly pruinose.<sup>1</sup> Some of the trees bear spines, especially those species which grow in arid regions. These sometimes represent branches which have become short, hard and pungent, or sometimes leaf-stipules.

The leaves are generally bipinnate, but they are often modified, especially among those species that have become adapted to the heat and drought in Australia. There, the leaflets are reduced, and the petioles become vertically flattened, and function as leaves. They are known as phyllodes. Their vertical orientation

protects them from the intense rays of the sun, as their edges are pointed towards the sky and they do not intercept light as fully as horizontally-placed leaves.

Acacias are showy and lushly blossoming with small flowers. They are yellow or cream-colored in most species, whitish in some, purple or red in others. Their four or five very small petals are almost hidden by the 10 or more long stamens which form fluffy, globular, sweetly scented balls, racemes or panicles in Winter or Spring.

Flowers are followed by the production of pods which may be long or short, and curled or straight. Their eight to 12 seeds may lie in the pods sideways or lengthwise; the latter are tardily dehiscent.

Some of the swollen-thorn Acacias in Central America lack the chemical defences of most other species to deal with predation. Without bitter alkaloids, beetles, grasshoppers and the caterpillars of butterflies and moths, as well as browsing mammals eat the leaves and branches, slowing the growth of the trees and allowing fast-growing, competing vegetation to shade them out. In a surprising show of symbiotic mutualism, some species of the tree provide food and

shelter to cocktail ants in return for keeping those predators at a distance and pruning away competing plants.<sup>2</sup> The ants live inside inflated thorns at the base of leaves. Acacias rely upon honey bees and other insects, attracted by the color and sweet scent of the flowers for cross-pollination. It is amazing that the patrolling ants are quite inactive in the hottest part of the day, when the browsers are seeking shade but insects are out looking for nectar; therefore, they do not hinder the pollen-gatherers in the performance of their essential service.

Because it has a mild flavor and a pure, fragrant taste, Acacia honey is considered a delicacy. It is one of the few which does not granulate, but remains naturally liquid with the passing of time.

The bark of the tree has several polyphenols, for example, beta-amyrin, catechin and quercetin. The root bark contains beta-sitosterol, betulin and octacosanol, and gallic acid is found in the pods. The seed contains ascorbic acid, niacin, thiamine and several essential amino acids.

As a medicinal herb, Acacia has shown promising results in fighting bacterial and fungal infections. It



*Acacia arabica*.  
(exogarden photo)



*Pimenta dioica*.  
(wikimedia photo)

provides an anti-inflammatory therapeutic benefit and is commonly used as a sedative for those who are experiencing slight episodes of nervousness or anxiety. Acacia can be used as an antiseptic or antibacterial wash for wounds. As a general rule, the wash is made with five to six leaves or pods boiled in a pint of water. As a tea, it is commonly used by patients who suffer from inflammation and gastrointestinal complications. The leaves are effective in the treatment of conjunctivitis (pink eye). They are ground to a paste and applied at night to the affected eyes with a bandage which is removed the next morning.

#### ALLSPICE

This tropical evergreen, known to botanists as *Pimenta dioica*, is part of the family Myrtaceae (Myrtle). It is also called Jamaican Pepper, Pimento, Kurundu and Newspice, and is the only spice-producing tree that is grown exclusively in the Western Hemisphere, being indigenous to the West Indies and Central America. These small shrubby trees were first identified in Jamaica around 1509 and still grow there in profusion, many of them being semi-wild plants from self-sown seedlings. The trees are preserved when the land is cleared for pasture as it can also function as an effective windbreak.

It was introduced to Barbados and Puerto Rico, and is widely cultivated in other warm regions of the world including Costa Rica, Cuba, Haiti and southern Mexico. A naturalized record of the species in the Hawaiian islands is found in the records of their Biological Survey for 1994. It is spread by fruit-eating birds and has escaped from cultiva-

tion in Tonga.

In a dioecious species, the trees are either male, producing only staminate flowers and no fruit, or female (pistillate). Allspice, however, is not a truly dioecious plant; it is polygamodioecious because male trees may bear a small number of hermaphroditic flowers which develop into fruits. In an economically important species such as this, male and/or female trees have large, and presumably, resource-costly opposite-sex structures which are sterile; this is termed cryptic.

Pimento grows best below 1,000 feet (300 m.), but can be found up to an altitude of 3,500 feet (1,100 m.). It flourishes in semitropical lowland forests with a mean temperature of 18-24°C, a low of 15°C and a maximum of 32°C. It is described as drought-tolerant with wide soil requirements, and requires good drainage and exposure to sunlight.<sup>3</sup> In Jamaica, the natural habitat of the tree is mainly wet limestone forests, but it also grows on wooded hillsides, in upland pastures and disturbed scrub; in humid tropical forests, it forms a sub-canopy tree.

Allspice is an aromatic tree that grows to about 20-40 feet (six to 12 m.) in height. It has a root system that is extensive and generally more penetrating than nutmeg, and thus suffers less damage from high winds. It does not produce root shoots, or prolific adventitious shoots after pruning, therefore, it is unlikely that a cut tree stump will put out shoots.

The slender trunk is not always straight and has a twisting lumpy surface. The bark is smooth and shiny silvery pale brown, with a mottled appearance, and is often

shed in long thin strips. The wood is pinkish, close-grained, strong and durable.

The leaves are simple, entire, opposite, slightly coriaceous, punctate, with pellucid glands, borne in clusters at the end of the branches and highly aromatic when crushed; the petiole is about half an inch (1.5 cm.) long. The blade is elliptical, 2½ six inches (6-15 cm.) long, and one 2½ inches (3-6 cm.) wide. The base of the leaf is tapered, the apex rounded and the venation pinnate; it is dark green above, and paler below.

Its numerous nectar-producing flowers are white, small and fragrant, and are borne on many-stalked pyramidal cymes which originate from the leaf axils. Male flowers produce abundant pollen, honey bees and wind being the main pollinating agents. Male trees generally begin flowering before, and continue after, the sterile female flowers. In Jamaica, the main flowering period is between March and June, according to the area in which the tree is growing.

The fruit is a small sub-globose berry containing two seeds with a spirally coiled embryo.

When ripe it is a deep purple to glossy black, the mesocarp is mucilaginous and sweet, and can easily stick to surfaces and be transported great distances. On drying, it is dark brown, rough and more aromatic. The name Allspice indicates that it offers a combination of flavors. It has a complex, peppery fragrance which is reminiscent of a combination of cinnamon, cloves, juniper and nutmeg.

The fruits contain small amounts (two to five %) of essential oil; the exact percentage depending on the time of harvest. The leaves contain a smaller amount of the oil, but the content is good enough to make distillation profitable. The main constituent of the Jamaican fruits is eugenol (65% to 90%), while methyl eugenol (50 to 60%) is dominant in those from México.<sup>4</sup>

*P. dioica* provides relief from flatulence and indigestion, eugenol being a weak antimicrobial agent. It is also carminative in nature because it contains an oil rubefacient, that is, it irritates the skin and expands the blood vessels, increasing the flow of blood and making the skin feel warmer. The tannins in allspice provide a mild anesthetic that make it a popular home remedy for arthritis



*Ageratum houstonianum*. (gradinar photo)

and sore muscles when used either as a poultice or in a hot bath. Pimento is also said to be useful in the treatment of colds, diarrhea, fever, influenza, menorrhagia<sup>5</sup> and vomiting.

### BLUE MINK

*Ageratum houstonianum* is a member of the family Asteraceae/Compositae (Aster/Daisy); it is also known to botanists as *A. mexicanum* Hort.<sup>6</sup> Another common name is Floss Flower

This plant is an annual, aromatic and exotic weed. It is native to an area that extends from southeastern Mexico to Guatemala on the Pacific coast and eastward to Belize on the Caribbean Sea. Blue Mink is likely to become an aggressive environmental nuisance when grown outside of its natural range as it covers a huge area and overpowers other vegetation wherever it invades. It is among the most invasive weeds in parts of southern Africa, China, Europe, Japan, New Zealand, the eastern United States, the Sydney district of New South Wales, and Queensland in Australia; it has a severe impact on the biodiversity of those regions, as well as that of the northern states of India especially Himachal Pradesh, Jammu and Kashmir

Blue Mink can be found growing up to an altitude of about 6,000 feet (1,800 metres) in uncultivated places such as forests, field bunds, pastures, railway tracks and along the banks of streams. It grows easily in a medium rich, well-drained soil in full sun, but tends to wilt quickly if the soil is allowed to dry out. It prefers light afternoon shade in Florida and other places where the weather is hot and dry in Summer

This tender plant has a fibrous

root system and reaches a height of about two to three feet. Its stems are erect to decumbent and sparsely to densely hairy. The oval to heart shaped leaves are opposite with long, slender petioles, very thin, broadly deltoid-ovate and have toothed margins.

*A. houstonianum* grows in neat mounds, blooming June through October, and is one of the more dependable blossoming annuals. It is typically seen in shades of blue, but some flowers are purple, lavender or pink. A white-flowering variety is also occasionally encountered. The dainty flowers are feathery, and usually cover the plants completely. Each flower cluster consists of five to 15 tubular florets and is often very fragrant and attractive to birds, bees and butterflies. Old flowers should be removed to promote continuous blooming. The plant produces liberal amount of seeds which are not very heavy and are easily disseminated by wind or water

Blue Mink contains many bioactive compounds including alkaloids, benzofurans, chromenes, coumarins, essential oils, flavonoids, tannins and terpenoids. It is widely used as an herbal remedy wherever it grows, and laboratory research has validated several of its uses in traditional medicine. In vitro test tube studies have reported that extracts of the entire plant have an antibacterial action against *Bacillus subtilis*, *Escherichia coli*, *Pseudomonas aeruginosa* and *Staphylococcus aureus*.

In Brazil an infusion prepared from the leaves or the whole plant is employed as a tonic as well as to treat colds and fevers, colic, diarrhea, rheumatism and spasms. It is also highly advocated for burns

and wounds. In some Latin and South American countries the plant is widely used for its antibacterial properties for numerous contagious conditions and bacterial infections. In Africa, it is used as a remedy for headache and pneumonia.

Some health problems are associated with this weed. Farmers working in fields infested with it suffer from fever, giddiness, headache, nausea, vomiting and irritation of the eyes and skin. It is toxic to grazing animals and causes injury to their liver

The plant has an ingenious way of protecting itself from insects. Two compounds, called precocenes, have been isolated and identified from the plant. When eaten, they affect the insect's juvenile hormone by rendering their larvae sterile.<sup>7</sup> **BC**

### References:

- <sup>1</sup>Pubescent: covered with short, fine hairs.  
Pruinose: having a white, powdery covering.
- <sup>2</sup>Black cocktail ants (*Anonychomyrma* sp. Subfamily Dolichoderinae) are to be found in the Brisbane area of Queensland, Australia.
- <sup>3</sup>Broschat, T.K. and A.W. Meerow. 1991. *Betrock's Reference Guide to Florida Landscape Plants*. Betrock Information Systems, Inc. Cooper City, Florida.
- <sup>4</sup>Eugenol (C<sub>10</sub>H<sub>12</sub>O<sub>2</sub>), is an allyl chain-substituted guaiacol. Eugenol is a member of the phenylpropanoid class of chemical compounds. It is a clear to pale yellow oily liquid extracted from certain essential oils especially from clove oil, nutmeg, cinnamon, and bay leaf.  
Methyl eugenol is a naturally occurring colorless or pale yellow liquid which becomes darker and thicker with age or when exposed to air. It is found in a variety of food sources, including oils, spices and nutritionally important foods such as bananas and oranges. A broad cross-section of the population is likely exposed to it because of its natural occurrence.
- <sup>5</sup>Abnormally heavy or extended uterine bleeding which occurs during the menstrual period. It can lead to anemia if prolonged.
- <sup>6</sup>*Ageratum* is derived from the Greek "ageratos" which means 'never getting old'. The name is a reference to the longevity of the flowers.
- <sup>7</sup>In most insect species, juvenile hormones regulate critical physiological processes such as metamorphosis and reproduction.

# DO IT NOW!

Ann Harman

## Fall is the perfect time to get organized for next season

Our own calendar year will be coming to a close in a few months. The bees have looked at their calendar, too, and are preparing for a bit of rest. I wonder if the queen is looking through Winter vacation brochures. She'll be taking her bit of rest from egg-laying. Just as the bees have prepared their nest for Winter, you, the beekeeper, need to finish up your beekeeping work for the year.

October days are usually quite pleasant but the nights can be chilly and even frosty in some areas. Did you put those mouse guards on? Do you know where your mouse guards are? If not, then here is an end-of-season project for you.

Beekeeping supplies come in two sizes: large and hard to lose, like extractors; small and easy to bury under something, like mouse guards. You do not need to carry around these small items in your bee bucket since they are used for a short time or at some particular time. Now is a good time to fix a storage place for the small things. You can get plastic bins in various sizes and shapes to store a collection of small beekeeping items. Just get one large enough so you can't lose it under something.

Since October is known for nice weather, go out to your beeyard and clean it up. Most weeds have quit living and can be pulled up or cut down. As you are doing this, look up and around. Is your apiary near tall trees, perhaps one with a big dead limb that plans to come crashing down on top of a hive after a bout of Winter weather? Well, think ahead. Murphy's Law says it will crash down on a particularly nasty Winter day and knock the top off a hive. Today is a much better time to take care of the future problem.

Now look down. Yes, there're two queen cages, a hive tool lost last year and the hive rock you could not find a month ago in the tall grass. You might want to get out a rake to remove dead weeds and a few lumps of wax left from the day you forgot to bring your wax bucket. Who knows what else you will find. Perhaps the hive tool you lost this year.

If you live in bear country you probably have a bear fence. Although bear may sleep through some of the Winter months they have not gone to bed yet! You still have time to build a bear fence if you need one. Spring is sometimes the most troublesome time as bears emerge from their dens hungry. Build a fence or clean up your fence line or the bears will give you an unpleasant surprise.

Now you want to return to the house for a pad of paper and pencil or pen. You have the start of a "Do It, Buy It" list. Here you can note down what needs repair and what needs to be purchased before the Spring bee season arrives. If you want to keep the list on your hand-held that's fine but you need to remember it's there so you can do something about the contents of the list.

Next, select a nice place on your patio or garage floor and dump out the contents of your bee bucket. What a treasure trove! A torn left-hand glove, a dozen or so dirty matches, some dried-up leaves, a cappings scratcher missing some tines, a collection of queen cages, and – look! – a dime! The economy must be recovering because last year you found only a penny.

Sort things out, put back what you need and make a note of what needs to be purchased or replaced.



A cappings scratcher is useful in your bee bucket to examine drone brood for *Varroa*. But a cappings scratcher needs to be with your uncapping and extracting equipment. Go ahead and get two new cappings scratchers. Remember this is the Bee Year that you are going to be organized. A few empty queen cages are always useful. You may wish to take corks from the worthless ones to plug both holes in the good ones. Or is your bee bucket sprinkled with extra corks? How is your supply of duct tape? Think back over your bee season and try to remember what items you wish you had in that bee bucket. When you are finished refurbishing your bee bucket you will be all ready for next Spring!

This is a good time to collect all the hive tools you can find. Most beekeepers clean them after every use with a metal scrubber and a bit of soap always at the ready on the truck or back at the garage. This goes a long way in reducing disease transmission between colonies, but it also keeps the tool from getting built-up wax and propolis, and worse, it's not sticky the next time you grab it. Put this on your list now, for next Spring, and get them all cleaned up now. Keeping a hive tool with extracting equip-

ment can save time and bother when removing frames for uncapping and scraping off pieces of wax before putting frames into the extractor

Your smoker is perhaps your most valuable beekeeping tool. Now is a great time to give it a thorough examination. Inspect the bellows for cracks, holes and signs of deterioration. If you decide a replacement bellows is needed, put that on your list. Creosote that forms inside the top can be cleaned off if necessary

Now for a good review of your bee clothes. Examine your veil for holes and rips. Repair or replace veil. If you really dislike your style of veil, perhaps another beekeeper would like to have it. Or you can keep it for a helper to use. All the beekeeping equipment catalogs have a big selection of veils and suits. New styles keep appearing so there will be one that suits you. Put your choice of veil on Santa's list for Christmas. Why go through another bee season muttering about a veil you don't like.

If you wear coveralls they must be washed. Actually they should be washed frequently during the beekeeping season. Dried venom has been targeted as the cause of honey bee venom allergy in beekeeping families. When the venom dries it becomes a powder that can be inhaled and absorbed through the mucus membranes. If members of your family are not beekeepers, *you* put the coveralls in the washing machine and wash them so others are not handling them. If you have only received one or two stings a year, wash those coveralls after each wearing.

After the coveralls are washed it is time to inspect them for holes, rips, faulty zippers and other problems. Bees can find the smallest hole in the most inappropriate place to enter, get trapped and sting.

Gloves may be part of your bee clothes. If you are using the canvas or leather gloves with sleeves, they fit into the same venom category as your coveralls. Gloves can pick up stings and be a source of dried venom. You need to find out if your gloves can be put in the washing machine. If so, then that is where they will get cleaned of dried venom. If not, then wash by hand and rinse well. I would not advise putting gloves in the dryer. Check to see if the gloves need any repairs. Actually you can save all the bother with the thick heavy gloves if you just use the yellow rubber dishwashing gloves. They are wonderful.

I assume you cleaned up your extracting equipment after use. In areas infested by small hive beetles that is an immediate task after extracting. In other areas you can encounter ants, roaches, mice and other nuisance critters. Is there anything you need to add to your extracting equipment for next year? Put it on your list.

If you have just a few hives and plan to extract in your

garage, you need to create a safe and clean place. The gardening and outdoor activity season is ending. This is a good time to do a thorough garage cleanup. Partially-used containers of gasoline and oil for your mower need to be emptied. Garden supplies need to be reviewed. Consider building in your shelves to form cupboards so you don't have to nail up plastic sheeting before extracting. Planning next year's extracting now will save you an enormous amount of time and effort next year

Beehives and all their parts! Tops, bottoms, bodies, supers, frames, queen excluders, feeders, just to name a few. Is there anything you need to take out to the beeyard to make your hives sound and secure for the coming Winter? Now is an excellent time to review your stored equipment. If you find some piece of woodenware suitable for kindling, chop it up now

Take a look at ancient equipment. Have you been saving tops, bottoms, hive bodies "to repair one day?" Have they been in a back corner for five years? You have a choice: you can leave them there for the next five years or you can fix or discard now. You'll end up with useful equipment or more storage space.

Propolis and wax get brittle in nice cold weather so you can save the task of scraping and chipping for a nice cold day later on. Don't forget! Of course, if you use metal queen excluders and have not put them through a solar wax melter, you can use a hand-held torch to burn wax off now. Plastic queen excluders, as well as plastic propolis traps, can be bagged, chilled in a freezer and snapped clean, ready for use again next year

With all the problems of contaminated comb and the recommendation to recycle every three years, you can remove that old comb right now and make some decisions on foundation needed for next Spring. If you plan to scrape comb off plastic foundation, set the frames aside until cold weather

During all this equipment inspection, repair and renewal you will now have an excellent idea of what you have and can plan an order for what you need for the next bee season. Just think - you can place your order any time now. I'll bet you get entered into an equipment supplier's book as a good, forward-thinking customer

Let me reassure you - you will not lose your membership in the Procrastinators Society just because you did all this work getting ready for Winter. You still have lots of time to postpone ordering supplies until the nectar flow starts and you are short of honey supers. **BC**

*Ann Harman is getting ready for next year at her home in Flint Hill, Virginia.*

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# Storing Equipment In The Off-Season

Ross Conrad

## Now, what to do with all those empty honey supers?

Here you are, counting your blessings after another successful year with the honey bees. Your honey is all harvested and extracted, the extracting equipment has been cleaned up. Now, what to do with all those empty honey supers?

The combs are wet with honey left over from the extracting process. Some beekeepers will leave them outside so that their bees can clean up the left-overs. This works pretty well although it can stimulate the bees robbing instincts. This is not typically a major problem unless one or more nearby colonies are too weak to defend themselves from the inevitable robbers that will try to enter their hive looking for an easy source of honey. Leaving extracted combs out is not very efficient in terms of feeding since many other local bees, wasps, hornets, etc, will also help themselves to the left-over honey on the combs. In addition, the combs may become the targets of critters such as wax moths, small hive beetles, and mice among others.

One approach that helps eliminate the problem of pests feeding on extracted combs is to store the combs so that the bees can maintain and protect them. A strong colony will do a fine job of preventing wax moths, small hive beetles, etcetera, from becoming firmly established in your equipment. It is the weak hive that is most susceptible to these scavengers. A common mistake among novice beekeepers when they find a dead colony filled with moth larvae is to think that wax moths killed their hive. The wax moth is an opportunist, a scavenger to whom nature has delegated the task of cleaning up dead hives, thereby acting as a natural form of disease prevention to help keep other colonies in the neighborhood healthy. The only way wax moths can be found thriving in a hive occupied by bees is if the honey

bee colony lacks sufficient numbers to adequately defend and patrol the entire cavity composing the hive's interior. For this reason, it is a good practice to manipulate the size of the hive to match its occupants by adding empty supers to give a hive more space **only** when the colony has almost filled up all the space it already has, the area that the bees must keep free of invaders is minimized and the use of equipment is maximized.

An exception to this practice comes after I have harvested the excess honey that is over and above what the bees will require to make it through the Winter. I like to place the freshly extracted supers, still wet with honey, between the inner cover and the outer cover of the hives. The hives are typically very strong and populous at this time of year, and they are often overcrowded since they now have to occupy a smaller space than that which existed prior to the removal of the excess honey supers. Such hives have more than enough bees to crawl up through the inner cover into the empty supers above, cleaning up leftover honey and prohibiting scavengers from gaining a foothold in the stack of otherwise empty combs. Once the first hard

frost of the season arrives and kills off the wax moth and small hive beetle eggs, the empty supers can then be stored in an unheated building for the Winter. The only real drawback to storing empty honey supers on the bees until the weather turns cold is that in years when a late season honey flow takes place, strong hives that have totally filled up all the space below their inner cover will start to store honey above the inner cover in the formerly empty supers. We all should have such problems.

In southern regions where the Winter season tends not to be as cold, keeping scavengers out of empty honey supers is more challenging. In order to ensure that unused combs are stored at temperatures around 50°F, some beekeepers will use an air conditioned room, or some other type of temperature controlled area for storage. Storing full combs of honey in a freezer will not only protect the combs from beetles and moths, but can be used to prevent the honey from crystallizing. Honey can be stored this way in liquid form for long periods of time. Unfortunately, once removed from the freezer, the honey will tend to crystallize a bit sooner than it normally would.

*The wax moth is an opportunish, a scavenger to whom nature has delegated the task of destroying the combs found in dead and weak hives. By doing so, they may act as a natural form of disease prevention. When wax moth larvae consume foulbrood infested combs, the wax moth helps to keep other colonies in the neighborhood healthy.*





*This open structure found on the grounds of the Pfeiffer Center for Bio-dynamic agriculture in New York state makes use of sunlight and ventilation to allow empty unused frames of comb to be stored year-round without damage from wax moths or mice.*

The conventional chemical approach has been to use moth balls to deter pests. Older mothballs consisted primarily of naphthalene, but due to naphthalene's flammability, modern mothballs use 1,4-dichlorobenzene, known as para-dichlorobenzene (PDB) instead. Both of these ingredients have a strong, pungent odor. These fumes are toxic to moths and moth larvae. Both naphthalene and para-dichlorobenzene sublimate, meaning they transition from a solid straight to a gas.

Unfortunately, the gas is toxic to other life forms as well as moths, and both naphthalene and PDB appear in the list of potential cancer causing chemicals published by the National Institute for Occupational Safety and Health ([www.cdc.gov/niosh/topics/cancer/npotocca.html](http://www.cdc.gov/niosh/topics/cancer/npotocca.html)). With the ever growing concern over the build-up of toxic compounds being found in beeswax, exposing empty combs to moth balls in order to keep out wax moths, may add to the toxic load in the combs and further exas-

perate efforts to keep bees healthy

One way to reduce the damaging effects of scavenging pests without relying on chemicals is to make use of two things that keep most everything healthy: sunlight and fresh air. Adult wax moths and small hive beetles seem to prefer to lay their eggs in dark crevices deep within the hive, and they are reluctant to lay in combs that are exposed to light and fresh air. Because of this, protection from such scavengers may be obtained by simply storing empty hive bodies and supers of combs in a way that allows the frames to receive sunlight and adequate ventilation.

Some beekeepers will stand their supers of comb up on end so light and air can move through them. In order to keep mice from damaging the now exposed combs, keeping the up-ended supers in a mouse-proof building with the supers in front of a window works well.

Keeping wax moths, small hive beetles, and mice out of empty honey supers tends to be easier than with

full honey supers or empty brood combs. The left over honey, bee bread, unhatched dead brood, and combs dark from molted larval skins resulting from honey bee pupation are extremely attractive to scavengers. Removing such attractants and keeping your beeyard and storage areas clean of broken frames and scraps of comb will go far in helping to curb scavenging activity.

There have been reports of beekeepers that have used ants to keep wax moths and beetles out of their equipment. Such instances typically consist of stacking the empty honey supers over an ant hill, often inadvertently, and finding that the ants while crawling up through the supers looking for food also keep other scavengers at bay. Once the equipment is ready to be stored, a quick shake of the supers typically causes the ants to scatter and abandon the frames. Such reports are strictly anecdotal (and typically third party) however and I am not aware of any research, nor have I had any personal experiences that substantiate these claims.

Once your equipment has made it through winter be sure to get those supers back into production as soon as possible to help avoid problems with scavengers during the new season. In the end, the bees are your best defense. **BC**

*Ross Conrad, author of Natural Beekeeping, regularly conducts organic beekeeping workshops, classes and consultations in between taking care of his own bees. Dancing Bee Gardens, P.O. Box 443, Middlebury, VT 05753; [www.dancingbeegardens.com](http://www.dancingbeegardens.com); [dancingbeegardens@hotmail.com](mailto:dancingbeegardens@hotmail.com).*



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# THE ANCIENT APIARY AT TEL REHOV, ISRAEL

The first clear evidence of beekeeping during Biblical times

Michael Brown



addition, one to 1.5 pounds of beeswax would have been produced from each hive.

## Honey and Beekeeping In Ancient Times

Beekeeping is not mentioned in the Bible and so very little is known about it from this time period. Much of what we do know comes from ancient Egypt, where pictorial depictions of apiaries show extraction of honey from stacked cylinders which are very similar to those found at Tel Rehov. Though beekeeping or honey production is not mentioned in the Bible, the word honey appears frequently in a wide range of contexts. Many scholars have assumed that the term “honey” may actually refer to a paste or syrup made from figs or dates. Such a product is available in modern-day Israel and is commonly used as a sweetener in food preparation.

Honey had a multitude of uses in ancient times. In ancient Egypt it was used as a sweetener—a salve for sores, to treat wounds to prevent infections, to prepare medicines and for rituals. Beeswax also had a number of practical applications. It was used in boat building, in the preparation of writing tablets, and to style wigs, among other things.

## Ligusta vs. Syriaca

The location of the apiary—in the heart of a populous town, might seem to be somewhat inconvenient to local residents. This takes on even more significance when we consider the type of bee used in biblical times. The bee of choice today in Israel is the Italian honey bee *Apis mellifera ligusta*. Dr. Deborah Smith, a researcher at the University of Kansas, feels that *A.m.syriaca* may have been the native subspecies in biblical times. “This lineage is still found in the Palestinian territories and in some wild Israeli colonies” she says. It is characterized by a bright yellow color and relatively small size. Behavior wise it is known as a nervous bee and it notorious for its high defensiveness.

The excavators suggest that because the facility produced a precious commodity that its safeguarding was an important consideration. The location of the apiary inside the town, despite the inconvenience to residents, would offer better control over both the production and management of the final product. **BC**

In the heart of the Jordan Valley surrounded by green fields and plentiful sources of water, a large flattened hill rises above the lush farmland. The Jordan River lies about four miles to the east and the ancient town of Beth-Shean is just three miles to the north. This 10-hectare mound is called Tel Rehov and it is one of the largest and most impressive archaeological sites in the country, spanning over 3,000 years of habitation.

## Commercial Apiary

One of the most exciting recent discoveries at Tel Rehov is the first clear evidence of beekeeping during Biblical times—from the 10<sup>th</sup> to early 9<sup>th</sup> centuries SCE. Professor Amihai Mazar of the Hebrew University of Jerusalem (and director of the dig), emphasized the uniqueness of this find by pointing out that actual beehives have never before been discovered in the ancient Near East. An added value of the discovery is the size of the operation which is clearly commercial in scope because of the large number of hives.

To date, a total of 25 hives have been uncovered at Tel Rehov. Their identification as beehives was confirmed by chemical analysis which revealed evidence of beeswax. The hives are cylinders of coarse unfired clay walls about 1.5 inches thick, with large amounts of straw and animal dung. They were all close to 32 inches in length and about 15 inches in outside diameter. The capacity of each hive was almost 15 gallons. One end was closed with packed clay with a 1.5 inch diameter hole in the center. This allowed the bees to enter and exit the hive. The other end was shut with a removable lid with a leather strip that allowed easy removal.

The hives were preserved because of a large fire that destroyed the apiary and effectively fired the clay. It was determined that the beehives were arranged in three parallel rows, each containing at least three tiers. A total of 25 hives were discovered in the lowest tiers, which would suggest at least 75 hives in total. However, the number could be much larger—even reaching close to 200 hives.

The amount of honey and beeswax produced at this apiary would have been impressive, and it suggests an operation of an industrial nature that was both large scale and well organized. It has been estimated that each of these hives could have produced between 6.5–11 pounds of honey per year depending on quantity of nectar sources, upkeep of the hives and methods to cull the honey. In



# Notes From California

Leonard Riepenhoff

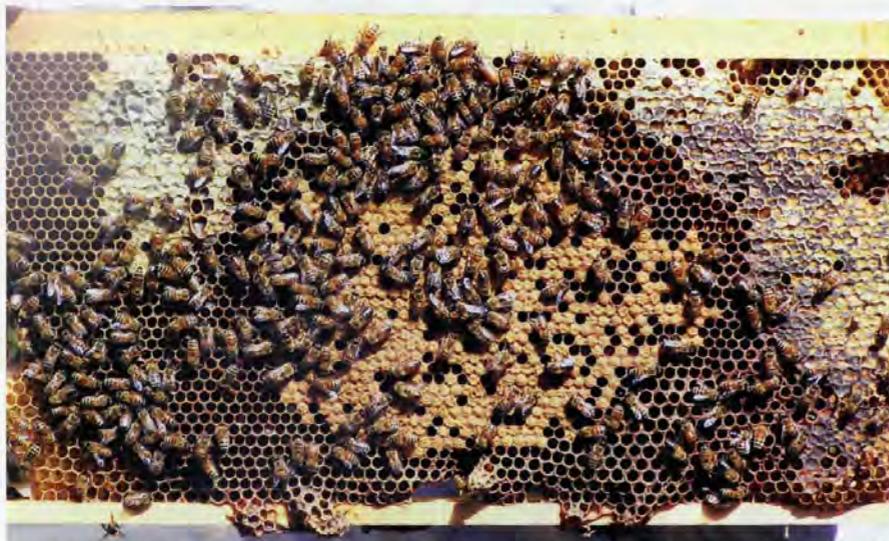
I'm a hobby beekeeper in Santa Rosa, California. I have kept bees for the past 40 years and feel lucky to have had some very good mentors.

When I started my friend Clyde and I decided we would like to have bees. All we knew about bees was that they made honey. Clyde made all the parts, even the frames. I don't remember where we obtained the measurements. I nailed and glued

on the stove, I tried squeezing it with my hands making a ball out of the wax, nothing seemed to work and no person to ask.

What I'm trying to tell you is that I've made many mistakes over the years, and I suggest you join a bee club if you are just starting and get a mentor.

Here are a few things that you may find useful.



*I consider the brood in the picture a fare to good cluster. It would be poor to bad if there were twice as many empty cells in the brood pattern. Did you notice the two queen cells (about two inches apart) on the bottom of the frame?*

and did most of the gofer jobs and cleanup. We sent off for a queen and a few pounds of bees. I still remember how happy the mailman was when he finally was able to deliver the screened cage full of bees.

We must have followed the directions good enough, for the bees did well. Their population grew and we added supers as we thought was needed. When we decided to rob the bees Clyde decided that was my job since he did all the carpentry work.

I removed some frames which had capped honey, pollen, and brood. I removed it all from the frames – comb and all it's contents. I tried heating it

Starting from the bottom: I feel a screened bottom board with a removable tray is necessary. I check my colonies at least once a month. I don't remove the top inner cover unless I feel like I have a reason to since the bees have to reseal the cracks with propolis and that takes time and energy where they could be doing something else more productive.

I can learn a lot from inspecting a tray. If I see pollen bits I know they are collecting pollen (I can of course watch the bees landing to see if they have pollen on their legs, usually its a nice yellow or orange color). I can look for *Varroa* mites (they are

smaller than a pin head and a dark brown color). I smear a thin coat of vasoline around the outer edge of the tray (using a wide putty knife for this so the mites will not be able to navigate off the tray).

I always use two brooder supers, two deep are common, however I use one deep and one medium super for the brooders since it's a little lighter to lift and I'm getting older. I remove all honey supers in July and just have a top inner cover on the brooder supers. The hole is for the bee escape (one way door I don't use one) instead I lay a thin piece of card board over the hole (about four inches by six inches) this lets a little air circulate reducing moisture in the supers.

If the bees don't want air circulation, they will seal the edges with propolis. In hot weather they often chew a big hole in that cardboard to get more ventilation. Too much moisture helps chalkbrood. Chalkbrood will show up on the bottom tray, it is cell size brood that is black and white color. The reason why I use an inner cover is because of the quarter inch clearance over the brooder frames. This together with the one eighth gap that exists between the top of the frames and the top of the brood super leaves about a three-eighths gap for the bees to travel over the frames. If less than one quarter inch they will fill the gap with propolis so wax moths don't have a place to lay eggs. If gaps are larger than three-eighths they build comb.

On top of the inner cover I place some insulation (styrofoam, cardboard, or a piece of old carpet) and a telescoping cover. Sometimes ants or some other critter will make this their home but that doesn't bother the bees. When something makes a nest there, this tells you heat is escaping up and you need to add more insulation on top of the inner cover.

In September I check my brooders and reverse them if the capped brood isn't in the lower brood box. A warm day in October is my last chance to see that the brood is in the lower super. I want the top brooder super to have lots of capped honey and some pollen for the bees to move up into after they use up the lower supplies (bees like to move up, not down). I often exchange empty frames with some capped honey I have saved for this purpose. That way I don't have to feed them or open the

inner cover and let the cold in later. A healthy colony needs at least 30 pounds of honey going into the Winter where I am in California. A full frame of capped honey may weigh three pounds for a medium and five pounds for a deep.

I'm not a real believer in feeding sugar water but it's better to feed them than let them go hungry (two parts cane sugar to one part water). I like to fasten a little roof eave above the landing board to help keep it dry in the Winter. Cut a piece of plastic gutter about 18 inches long then cut it into two pieces right down the middle, thus making two eaves. Any eave is better than none. I install it with one end lower than the other so the rain will run off.

A weak colony (small population) will not survive through the Winter even if they have lots of food. Bees give off heat just like people so when there are a lot of them they can huddle around the brood and keep it the 94° it needs to be.

I estimate the population without opening the super. One method is to count the number of bees landing in 15 seconds then multiply by four. Compare bees per minute with other colonies – should one colony be significantly less, it's weak (small population). On a warm day in September I am happy when 80 or more bees are landing per minute, less than 40 is cause for concern. Compare bees per minute with other colonies. As the weather gets cooler fewer bees will be foraging. 40-60 bpm in October is okay. Another easy way to check is when the temperature is between 50-55°F check and see if some hives have foragers leaving the hive. If another hive has no or much fewer bees foraging then you know that the population is small and they can't afford to let foragers go. They need them to keep the brood warm until the air gets warm enough.

Weaker colonies should be combined with other weak colonies or they will die. Do this now if you

haven't done it already. If you determine one of these hives has a nice round full pattern of capped brood kill or remove the OTHER queen if you can find her. She is most often on the frames that have the most bees on it. You can see this before removing the first frame. If you can't find her just combine the colonies and let them decide. The stronger younger queen will probably win the fight.

Also make sure the entrance to your hives is too small for a mouse to enter. It's easy to make an entrance reducer out of a piece of wood. I like to keep an entrance on the left and right sides so air can circulate better. Morning sun on the landing board is important. Remember – if you move a hive more than a couple of feet the bees won't be able to find it so you should relocate it at least a half mile. It is okay to turn a hive for more sun on the entrance. **BC**

*Leonard Riepenhoff is a hobby beekeeper from Santa Rosa, California.*

## EZ FEEDER

J & B Stackpole

### Required tools/equipment:

Hot glue gun & glue Scissors  
clear packing tape drywall tape or window screening  
plastic angel food cake pan with lid  
2 liter pop bottle

### Step by step instructions:

**Step 1:** Buy an angel food cake and eat it. (Make sure it comes in a plastic tube pan with a lid.)

**Step 2:** Wash the container, and cut out the bump in the clear plastic lid.

**Step 3:** Cover the cut-out in the lid with clear tape on both sides – no sticky area.

**Step 4:** Cut the "rounded over" lip on the center tube of the pan so that there is no lip, just straight sides. (The bees can't seem to figure out how to get to the syrup if you leave the lip in place.)

**Step 5:** Cover the inside and out side of the center tube with drywall tape and secure the tape with hot glue. (This gives the bees a way to crawl up the tube – you could also use window screening, if you prefer. The drywall tape is sticky so it is easier to glue in place.)

**Step 6:** Cut the bottom off a two liter pop bottle (make it about 4" tall) and place this, upside down, over the center tube in the cake pan.

**Step 7:** Fill the pan with syrup and snap the clear plastic cover in place (over the pop bottle which covers the center tube).

**Step 8:** Place the feeder inside an empty super on top of the hole in the inside cover. Place the outside cover over the whole thing.



*Jill & Bill Stackpole keep 100 hives and sell bee supplies from their home in Bloomfield, New York.*

**Goal:** The bees should crawl up the center tube and down the other side to reach the syrup. The pop bottle keeps them from drifting out into the syrup, so that they do not drown. The clear plastic cover keeps bees from entering the syrup from the outside, instead of through the center tube.

Our bees have done Great, eating all the syrup with no drowned bees. **BC**

# WINTER COVER

Dave Hemendinger

I have been a hobby beekeeper for five years; I started with one hive and have grown to three. For most of us this may not sound too far from the ordinary, but for the some, the thought of three hives might seem daunting. What's different about my bee experience has been my research focus, attention to their details, and my applied techniques. Now I claim to be no expert and God knows every trip to the hives is a new learning experience for me; but what I have found through my research is for bees to be productive they need certain things. The techniques I currently employ have provided me with exceptional hive populations every year, bountiful harvests of 100+ lbs per hive most seasons, and healthy, thriving, no disease/low mite hives. I have spent many hours in my hives and from that I've gained some productive insight, I've lost one hive to overwintering since I've started and that was due to an unsuccessful queen replacement. Many have asked me about the techniques and some have actually seen them in action, I have decided to pass this knowledge on to anyone interested; they've all worked well for me.

*Inner Cover: I modify a normal inner cover by adding a 1/2" x 1/2" strip of wood around the edge. I leave an opening in front.*



*Pollen patty and sugar in place on inner cover, beneath the insulated cover.*



*This shows the insulation with a groove in the particle board. Bees can use as a top entrance and for ventilation.*



*Open the pivot for additional ventilation, a larger upper entrance, or to feed.*



## Winter Cover

With Winter approaching here's my solution to inner/outer cover Winter ventilation and feeding. I have found that ventilation and "air buffering" is the key to helping to maintain consistent temperatures in the hive during Winter months. This cover technique provides enough ventilation and warmth containment to allow the bees to constantly move the cluster throughout the Winter within the upper deep of the hive. With this method they have to work less to maintain internal hive temperatures and subsequently easily make it to Spring with minimal honey stores. The cover design also provides an "air chamber" which acts like the twin-door system in most commercial buildings. Within this buffer I've modified the inner cover to provide a pivoting panel to provide access for positioning of candy or pollen without opening up the hive. I then add an intermediate inner cover made of particle board and foam. This second inner cover allows condensation to dissipate in the air chamber as well as some moisture is absorbed by the particle board. This air chamber keeps the candy and pollen moist, one look inside the ventilation holes of these hives in late December and it's a bustle of activity; by March I have bees pouring out the holes.

I have some pictures showing the modifications to the inner cover and the addition of my insulated intermediate 2nd inner cover, and how the cover system operates; these are all materials easily found and the construction is simple. If anyone is dimensions or tips on how to make your own, let me know **BC**

*Dave Hemendinger is a hobby beekeeper from E. Greenwich, Rhode Island.*

*Pivot Opening: I attach one strip in the front so it can pivot.*



# GLEANNINGS

OCTOBER, 2009 • ALL THE NEWS THAT FITS

## HONEY BEES WITH CCD SHOW THEIR GENES

The first hard evidence of what is happening physiologically inside bees during Colony Collapse Disorder (CCD) has been published in a new study by Agricultural Research Service (ARS) and University of Illinois scientists in the Proceedings of the National Academy of Sciences. The study also looked at differences in activity levels of critical genes in CCD and healthy bee colonies.

Using a tool called a genome-wide microarray, the scientists found a large amount of abnormal ribosomal RNA (rRNA) fragments in the guts of honey bees in CCD colonies. Ribosomes are the cellular factories in which proteins are made, guided by rRNA, and a large amount of abnormal rRNA fragments means the protein construction system is compromised. This indicates that honey bees in colonies diagnosed with CCD had reduced ability to synthesize new proteins.

The gut is the primary entry point for pathogens and pesticides in honey bees. Honey bees' stress response systems also can be measured in the bee's gut. The honey bee has two separate response systems: one to environmental stresses such as pesticides, and a different one reacting to pathogens such as viruses.

This was the first time RNA levels have been measured in honey bees as a way of tracking whether it is honey bees' pesticide response system or their pathogen immune response system that is reacting in CCD, according to ARS geneticist Jay Evans, who works in the Bee Research Laboratory at the ARS Henry A. Wallace Beltsville (Md.) Agricultural Research Center. Evans was part of a team that included entomologists May R. Berenbaum, Reed M. Johnson and Gene E. Robinson from the University of Illinois.

In CCD colonies, the genes involved in the pathogen/immune response systems showed no single clear pattern of activity, although there was commonly more activa-

tion of these genes and the bees had a higher overall level of viruses and other pathogens than non-CCD colonies.

Almost all CCD colonies had a higher level of picorna-like viruses, which attack the ribosome. Picorna-like viruses that attack honey bees include deformed wing virus and Israeli acute paralysis virus. The varroa mite, a major honey bee parasite, is known to transmit picorna-like viruses.

Bees in CCD colonies did not show significantly active pesticide response genes.

The loss of ribosomal function would explain many of the phenomena associated with CCD, according to Berenbaum. If the bees' ribosomes are compromised, then they can't overcome exposure to pesticides, fungal infections or bacteria or inadequate nutrition because the ribosome is central to the survival of any organism.

The study did not establish a direct cause-and-effect link between the abnormal rRNA and CCD. But colony surveillance by assays of rRNA and other markers expressed by bees could provide the earliest indication of CCD found so far, perhaps in time for beekeepers to take actions that might reduce losses, Evans suggested.

ARS is the principal intramural scientific research agency of the U.S. Department of Agriculture.

## BEE HEALTH IS FOCUS OF NEW NATIONAL WEB RESOURCE

Researchers and educators from America's land-grant universities, government agencies and industry have banded together to provide a comprehensive resource for science-based information on bee health management strategies. It's on eXtension, (pronounced E-extension), <http://www.extension.org>.

Pollinating bees are essential members of American agro-ecosystems. The high death rates of bee colonies and the emergence of Colony Collapse Disorder (CCD) concern many fruit and vegetable producers from home gardeners to commercial growers.

"In these challenging times for the beekeeping industry, with several factors contributing to reductions in pollination, a large cooperative effort is needed among researchers, extension personnel, beekeepers, crop producers and associated industry people to provide answers and solutions that benefit everyone," said John Skinner, professor at the Univ. of TN and leader of the new eXtension resource that amassed the latest research information about health of all species of bees.

Keith Delaplane, professor at the Univ. of GA, explained, "The eXtension concept is a direct response to concerns about information qual-

ity on the Internet. Users can access eXtension with the same confidence they access their own state university extension networks. Information published on the bee health website represents the best summary opinions of scientific authorities across the U.S. One exciting thing about working with eXtension is that it represents a practical forum for bee scientists as well as beekeepers."

The bee health site provides help for new and inexperienced producers, as well as those with experience but who need an answer to a specific question. The site includes answers to frequently asked questions (FAQs). If a question cannot be found in the FAQs, eXtension's "Ask an Expert" feature can be used for a quick response. The site also includes in-depth, peer-reviewed articles covering bee biology and production.

In "A Survey of Honey Bee Colonies Losses in the U.S. Between September 2008 and April 2009," the Apiary Inspectors of America and researchers at the USDA-Agricultural Research Service Beltsville Honey Bee Lab found that colony losses are still high in the majority of operations surveyed. Overall the colony losses were 28.6 percent. This is

*Continued on Page 59*



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down from the previous winters of 2007/2008 and 2006/2007 when colony losses were recorded at 35.8 and 31.8 percent respectively. Only 15 percent of colonies died with CCD symptoms this year compared to 60 percent the previous year.

In the 2006 release of the National Research Council report, "Status of Pollinators in North America," many bees other than the honey bee (non-apix bees) are recognized as important pollinators of crop and non-crop plants. The report identified the need for improved management and disease control of non-apix bees, such as bumble bees and alfalfa leaf cutting bees, as well as conservation strategies in the field.

These losses underline the need to get the most up to date and accurate information to beekeepers as quickly as possible to improve bee health and continue to improve survival. Bee declines are likely a product of negatively interacting factors in pathology, immunology, nutrition, toxicology, genetics, ecosystems management and bee husbandry.

"Declining honey bee health is complex and the answers that are needed to improve colony survival will only come from a concerted effort by a diverse group of scientists, beekeepers, extension specialists and other interested parties working closely together to improve honey bee health," said Jeff Pettis, research leader at the USDA-ARS Bee Research Laboratory.

Experienced researchers and extension personnel in the United States contributed to the new site. The bee health group decided to begin with a concentration in bee biology

as a prerequisite for other topics. Their next focus will be on best management practices, disease and pest information and bee breeding. The experts are based in 1862 and 1890 land-grant universities, other universities, education centers and the USDA-ARS.

Bee health is one of many Web communities within eXtension, www.extension.org, a national project of the U.S. Cooperative Extension System. Other topic resources include information on the financial crisis; animal manure management; beef cattle; corn and soybean production; cotton production; dairy cattle; disasters; diversity across higher education; entrepreneurs and their communities; families food and fitness; family caregiving; geospatial technology; goats; horses; horticulture; imported fire ants; niche meat processing; organic agriculture; parenting; personal finance; pest management; science, engineering and technology for youth; and wildlife damage management.

eXtension is an educational partnership of more than 70 land-grant universities helping Americans improve their lives with access to timely, objective, research-based information and educational opportunities. eXtension's interactive Web site is customized with links to local Cooperative Extension sites. Land-grant universities were founded on the ideals that higher education should be accessible to all, that universities should teach liberal and practical subjects and share knowledge with people throughout their states.

# OBITUARY

**Brady Mullinax**, 88 the bee king of North Carolina died August 19.

Mullinax became a legend in his own time by getting the NC General Assembly in 1973 to designate the honey bee as the state's official insect.

Mullinax was a retired superintendent of the Kernersville, NC water plant and lived there since 1946 and was Kernersville 2006 "Citizen Of The Year."

He once said, "I started messing with bees when I was about eight. I was the only boy in school that they would let out of class to go see if the bees were swarming." He got his first beehives at age nine – home-made ones. His first store-bought hive was a Montgomery Ward model he bought for \$3 when he was 16. The hive was delivered on a horse-drawn buggy. Nearly 20 years later, he joined the NC Beekeepers Association. That was after he had served nearly four years with the Navy on 18 islands in the South Pacific during World War II. His military unit was the Seabees, naturally.

While Mullinax "was seeing the world" his mother was caring for his beehives. When the war was over and he took a job as water plant supervisor, Mullinax brought his hives to Kernersville in the back of his 1937 Plymouth. He set them up behind the water treatment plant.

"There were less than 500 people in Kernersville back then," he said. "The town had one stop light, and it didn't work," he said. He also served as a part-time deputy sheriff.

After moving to Kernersville, Mullinax ended up with more than

300 hives and had become the champion for the hard-working little creatures. School classes flocked there to see the bees and hear Mullinax enthusiastically proclaim the honey bees' value to mankind. Mullinax could be depended upon to have a beehive and history display at farmers markets and fairs in Greensboro, High Point, King, Hickory, Reidsville and Raleigh.

Mullinax's love for his adopted community didn't stop when he retired in 1983 – 37 years after bringing his bees to town. Mullinax won many awards including King Beekeeper in 1981. He was honored in 2006 for 25 years served to Toastmaster, an organization where he was Toastmaster of the Year in 1987. He was involved in Masonic projects for 60 years.

He is survived by his wife of almost 62 years, Mary Vance Mullinax, daughters Barbara (Paul) Hodge and Laura (Mike) Rathbone, son Brady (Karen) Mullinax Jr.



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**W**herever I go, there's a bear waiting. First, I got off work in Aspen in the wee hours only to discover that a bear had opened my Toyota Tercel wagon – like a can of sardines. The top of the driver's door – the part that encloses the window – jutted out 90°

At first I thought it was vandals. Then I saw the bag of chicken feed on the pavement, and I immediately wondered how I could have been so thoughtless. Part of the bag was still in the car, and of course there were layer mash crumbs everywhere. My intruder apparently exited through a back door window. There was a paw print on the side of the car and of course glass everywhere.

Inside, other than scattering feed, my visitor was a perfect gentleman. He pushed some belongings neatly to the side and out of his way. The seat covers had nary a scratch.

Cousin Hal found this little gem of a car for me a couple of years ago. It was over 20 years old but had only 75K on the odometer, and the paint was immaculate. It had been garaged its whole life by the man who'd bought it new. It has 4WD and gets over 30 mpg. He was asking \$1,600, firm. Are you kidding me?

Gentle reader, allow me to explain how my old man's brain functions. (Or doesn't!) I knew that bears are fond of chicken feed. I've known that for some time. I also knew that bears break into cars in Aspen all the time. It just never occurred to me that the feed in *my* car might attract a bear.

Earlier in the day I had a quart of honey in my car. I'd propped it upright with the bag of chicken feed. I left it for a woman who knows where I keep my spare key. It did strike me that leaving honey in a car in a bear town isn't wise, but I thought, "Dinah is reliable. She said she'd make the drop this morning." And she did.

I just never thought about the chicken feed.

The door still opened and closed. This is a flimsy car, so I straightened the door the best I could. It still leaned out and forward of where it should have been. It looked pretty weird.

On my way out of town in the middle of the night, a flashing red light came on behind me. What else could go wrong? At least I wasn't drunk.

I said to the cop, "I suppose you're wondering what happened to my door!" He said, "Yeah, what happened to your door?" I told him the whole story – including the part about Cousin Hal and how proud I'd been of my sweet little rig. He shook his head and said, "I had one of these in high school."

Finally I said, "I suppose I was speeding."

"A little," he said.

Then he reached inside my car and shook my hand. "Better luck in the future," he said. He never even checked my driver's license.

I have electric fences around all of my yards. Two weeks later I was pulling into the Dodo yard on the Flat Tops, when I noticed that one of my hives was leaning against another. I thought, "There must have been some wind. I should have shimmed those hives a little better."

Then I noticed the fence was squashed down. Four hives were knocked on their sides, and 22 of 24 pollen drawers had gotten pulled out and emptied. The bear ate a super of honey and did a little incidental damage, but that was it. He never found the brood nest on any of the hives he knocked over.

In Colorado, the Division of Wildlife is responsible for compensating agricultural producers for damage from big game animals, so they cheerfully provide fence, batteries, solar panels, and chargers for beeyards. Their charger that failed, so I made a claim for

damages.

It could have been worse. I counted myself lucky.

I always figured that when you put up a fence, ordinarily the bear puts his big black nose against it once, gets a pop, and thinks, "Wow! I'm never coming back here again!" I understand that there are "problem bears" that choose to go through an electric fence for honey, but they're thankfully in the minority.

Now I'm not so sure about all this. Maybe wilderness bears check a fence when they make their rounds, much like my urban bear sniffed out my chicken feed. I can smell fresh honey in a hive. You know a bear can. So they have to be interested, electric fence or no.

My local wildlife officer doesn't give them much credit for being smart, but he insists they're opportunistic.

There's also a bear around the house. My trash got scattered, and all the neighbors have seen him. Paul's bees got hit down the road, along with two hobbyist apiaries. So far he hasn't messed with my home bees. But this bear knows about beehives, and he likes what he knows.

When I brought home a truckload of bees the other night, I parked next to my bedroom window, so I could fire off a warning with the 12-gauge if I had to. Legally, I can shoot that bear if I catch him with my bees, but something tells me that my life would get really complicated if I did.

Meanwhile, my electric fence is popping. So far

Ed Colby

## Colorado Bear Stories

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