

# THE HIVE TOOL

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## **COME LEARN ABOUT HONEYBEE PLANTS!**

Our meeting on Tuesday evening, April 6 at 7:30 p.m., will focus on the plants that honeybees use for pollen and nectar. Arthur and Barbara Gruver will present "Bee Forage of Northern Maryland", a slide presentation developed over the past 10 years.

Hand-outs listing plants that provide pollen and nectar in each month from February-October in our area will help you to know what to look for and what to plant if you want to provide forage for your honeybees. The first 40 families that come will receive hand-outs. If you want a hand-out and cannot come to the

meeting, contact us at [abgruver@verizon.net](mailto:abgruver@verizon.net) to receive this file by e-mail. In addition to



March 25, 2010, Arthur Gruver took a photo of one of his girls bringing in daffodil pollen. Many kinds of daffodils are not attractive to honey bees, but this variety had bees in every flower.

the slide presentation, all gardeners who know which plants are attractive to bees are invited to bring seeds, in packets, carefully labeled, and small labeled plants that are good for bee forage. Because of the work involved, these may be for sale at modest prices; and some will be available for swap. These seed packets and plants will be available before and after the meeting.

## **HONEY BEE NIGHT AT THE MARCH MEETING**

President David Gill-Boucher welcomed many new beekeepers to our annual Honey Bee Night on March 2, 2010. He introduced new beekeepers to the various pieces of equipment that are standard for beekeeping. David Papke followed with explaining how this equipment is used throughout the year, and Jeanne Deignan-Kosmides finished with her enthusiastic remarks about preparing bees for over-wintering and her success in using insulation for extra winter protection and fondant for feeding bees during the winter.

**Announcement:** New and old beekeepers: we welcome your photographs of honeybees and beekeepers and any questions, poems, stories, etc. that you would like published in **The Hive Tool**. Please send these items by email (if possible) to

[abgruver@verizon.net](mailto:abgruver@verizon.net) or to Barbara Gruver, 2822 Hitchcock Road, White Hall, Maryland 21161.

## **NEW YORK CITY LEGALIZES BEEKEEPING IN THE CITY**

Dave Thier, New York City

(March 17) -- New York City just got a little sweeter.

The city's Board of Health voted unanimously Tuesday to end the moratorium on beekeeping, giving locavores and urban agriculture activists a reason to celebrate. With the new ruling, New York joins other metropolises like Chicago, San Francisco and Seattle, all of which previously voted to allow hives of *Apis mellifera*, the common honeybee.

Previous laws defined nonaggressive honeybees as dangerous wild animals, akin to wasps and hornets, and the fine for having a hive in New York City was up to \$2,000.

While the city occasionally did fine the underground honey collectors, the laws did little to deter an army of guerrilla apiarists from operating illegally. With Tuesday's vote, the former outlaws can come out of hiding. City beekeepers were elated.

"We're ecstatic," says Amy Blankstein of Just Food, an organization that worked to lift the ban. "We think this is a huge step in the right direction for the city in terms of its efforts to bring a greener, healthy and more sustainable environment in the city."

When the law changes, a month after it's published in the city record, beekeepers will have to register with the city but won't be licensed. There reportedly are about 600 beekeepers in the city.

Bee support is gaining, and even the Obamas keep a colony in the White House's organic garden. Troy Fore

of the American Beekeeping Federation points out that with the rise in urban agriculture in vacant lots, backyards and rooftops, cities will need bees to pollinate all those additional flowering plants.

Now that the bees have moved above ground, some curious honey consumers may consider getting into production, but beekeepers warn that the enterprise is not always profitable.

"Keeping bees is a labor of love," filmmaker and caretaker of 30,000 bees Dana Cohen told the New York Daily News. "Let's face it, it's not going to make you a millionaire."

The world is not all bright for North American bees, however, as researchers still struggle with finding the cause of colony collapse disorder, a mysterious syndrome that has been eviscerating bee populations since it was first identified in 2006.



Getty Images

## **POLLEN COLOR CHARTS**

(Only useful if you receive this newsletter by e-mail in color)

Here is a fascinating website that helps the beekeeper to look at the color of the pollen on bee's pollen baskets, to try to learn its source. Although this is only part of the charts, it does give some good sources of pollen for bees in the spring. Go to the website:



March 15, 2010, Kitty Hensley took a photo of one of her girls bringing in pale green pollen. Could it be from blooming pussy willows?

[http://en.wikipedia.org/wiki/Pollen\\_source](http://en.wikipedia.org/wiki/Pollen_source) for the complete chart. The light yellow of the first source shown seems to be Silver Maple which was blooming March 17-24 in the White Hall, Maryland area. Red maples are now blooming here, and their pollen is grey brown.

The color of pollen below indicates the color as it appears when the pollen arrives at the beehive. Bees mix dry pollen with nectar and/or honey to compact the pollen in the pollen basket. Dry pollen, is a food source for bees, which contains 16 - 30% protein, 1 - 10% fat, 1 - 7% starch, many vitamins, but little sugar. The protein source needed for rearing one worker bee from larval to adult stage requires approximately 120 to 145 mg of pollen. An average bee colony will collect about 20 to 57 kg (44 to 125 pounds) of pollen a year.

### Spring Trees and shrubs - Spring

Common name	Latin name	Blooming months	Pollen color	Availability	Source for honeybees
<u>Maple</u>	<i>Acer</i> spp.	Feb - Apr	light yellow	feral	fair
<u>Manitoba Maple</u> (Box elder)	<i>Acer negundo</i>	Feb - Apr	light olive	feral	good
<u>Norway maple</u>	<i>Acer platanoides</i>	Apr - May	yellow green, olive	feral	fair
<u>Red Maple</u>	<i>Acer rubrum</i>	Mar - Apr	grey brown	feral	
<u>Grey Alder</u>	<i>Alnus incana</i>	Feb - Apr	brownish yellow	feral	
<u>American Chestnut</u>	<i>Castanea dentata</i>	May - Jun		mostly ornamental	
<u>Sweet Chestnut</u>	<i>Castanea sativa</i>	May		feral	good
<u>Common Hackberry</u>	<i>Celtis occidentalis</i>	Apr - May		feral	
<u>American Hazel</u>	<i>Corylus americana</i>	Mar - Apr	light green	feral and ornamental	fair/good
<u>Hawthorn</u>	<i>Crataegus</i> spp.	Apr - May	yellow brown	feral	fair
<u>White Ash</u>	<i>Fraxinus americana</i>	Apr - May			

<u>Honey Locust</u>	<i>Gleditsia triacanthos</i>	May - Jun		feral	
<u>American holly</u>	<i>Ilex opaca</i>	Apr - Jun		feral	
<u>Walnut</u>	<i>Juglans</i> spp.	Apr - May		cultivated	fair
<u>Tulip-tree</u>	<i>Liriodendron tulipifera</i>	May - Jun		feral and ornamental	good
<u>Crab Apple</u>	<i>Malus</i> spp.	Mar - Jun	light olive	ornamental	
<u>Apple</u>	<i>Malus domestica</i> , <i>Malus sylvestris</i>	Apr - May	yellow white	cultivated and ornamental	very good
<u>American Sycamore</u>	<i>Platanus occidentalis</i>	Apr - May	light olive	feral	
<u>Plum</u>	<i>Prunus</i> spp.	Apr - May	light grey, grey	ornamental and cultivated	

## DOING MORE WITH LESS

BY James Tew

Reprinted from Bee Culture February 2010

### A small operation is not necessarily a bad operation.

In recent years, time and time again, I've written about the virtues of the beekeeper who intensively manages a small number of hives rather than minimally manage a larger number of hives. To the feigned amusements of audiences, I have often said that two hives would be plenty for me and that two hives was probably one too many.

For many years in my bee program we routinely had about 200 hives during the Summer months. My program changed and through the years that number dwindled to about 60. Then in 2006, my colony count dropped to less than 40. I have let my colony numbers stay low due to Winter kills rates, my other work responsibilities and to an ever critical labor shortage.

### A one-man show

In my bee operation I rarely, rarely have any help. I am a one-man operation. This observation is not unique. Many of you who are reading this spend much of your time alone with your bees. This is a routine characteristic of our passion. I am no role model for what anyone should do in their bee operation. While I am still healthy and reasonably mobile, I am feeling some of the pangs of aging. I no longer have interest in simply flaring off perfectly good energy so I try to be careful with myself. I value my stamina and I mete my energy out in judicious increments.

### Only pick up anything I absolutely must pick up.

Beekeepers are notorious for having bad backs. I want hand trucks everywhere and wheels on everything. But in beekeeping, sooner or later, something must be manually moved. Honey is heavy. Processing equipment and hive equipment is cumbersome and heavy. Friends are scarce. Sooner or later, something will have to be picked up.

Mr. E.R.S. from Washington State sent me photos of his one-of-a-kind 'hired hand.' With this device, Mr. S. says he does not have to ask for help. It will be useful for you, the reader, to know that Mr. S. is 90 years old. He and a friend constructed his four-wheel, power-lift hand truck in 1979 and, with some modifications,

this unit has been in use ever since. The lifting device is powered by a 12V powered winch. The winch travels up and down the tower as the load is lifted or lowered. By way of cleats on the wooden equipment, supers can be lifted, entire colonies can be lifted or brood nests can be examined.

With the aid of a steel-frame attachment, supers can be weighed. The beeyard will need to be firm and flat and closely mowed. Mr. S built stands to support the hives at the proper height for the loader wheels to roll beneath. Mr. S is also uses a trailer for moving and relocating bees.

In the bee world, there are untold numbers of beeyard hand truck designs. Mr. S. appears to have a design that is functional and efficient. I have several photos of hand-winch driven models along with an actual prototype that is exhibited in our bee museum. In rougher terrain, hand trucks need larger wheels and a wider wheel base to prevent tipping when loaded. Additionally, pneumatic tires must be kept tightly aired. Slack tires are spongy and wobbly. In one way or another, hand trucks and trailers are indispensable in many bee operations – including mine.

#### **Keep more colonies in fewer yards.**

Through the years, I have recommended that beekeepers spread their hives about the community in small groups in order to maximize honey production. I don't do that now. In fact, I currently have three yards, down from 16 – one just outside my lab door. I don't want to cut grass in multiple yards or spend inordinate amounts of time driving from one yard to another. I hope to be able to maximize my time and energy more than maximize my honey crop.

#### **Standardize everything on the hives.**

I want all my hive equipment to be as simple as possible and essentially identical. I want to be able to make splits, combine, and swap frames – whatever it takes – to expeditiously manage these colonies. This includes frames. I don't care if it is a metal bound frame from the early 1900s, if it's weak and wax moth riddled, it's going away. All discarded wood frames will be replaced with plastic frames.

No, I don't think plastic frames are better, but they require no assembly; hence no labor. They twist easily and don't repair well. I suggest that you recycle them rather than toss them in the trash. Never burn them. They really smell when burned.

#### **If it's wood and needs repair, throw it away.**

I cannot believe that I am writing that. I'm the guy who always said, *'Anything can be fixed.'* Unless it's just the smallest repair, I don't have time to fix it. On the other extreme, if I didn't repair damaged equipment and continued to use it, I would be running junky equipment with ancillary problems. I must retrain myself to throw away stuff that could be repaired. I admit that I will have to work on this point.

#### **But if it's not wood and needs repair...**

Aside from wood repair, I have no problem with old stuff so long as it is dependable, heavy-duty and usable. So I drive a terrible looking old truck with a lift gate. I use a 1983 John Deere lawn tractor to keep the grass knocked down in the two primary yards. As I write, I realize that nearly all of my equipment is old – extractors, uncappers, honey pumps, hive equipment, trucks, and me – all showing some age. Nothing wrong with that.

#### ***My labor shortage.***

The main thing I don't have is labor. Through the years I have acquired a lot of diversified beekeeping equipment of all types and all ages. If I am sounding too destitute, I suppose I am crying crocodile tears. I actually have an abundance of equipment, but presently, I am the only person available to employ it. I'm like a kid with too many toys.

Maintenance is always an issue and keeping my storage area clean is a never-ending task. When I am once again a young man, I have the best intentions for cleaning and organizing this area. You just wait.

#### ***An above average honey crop. Is this good news or bad?***

For the first time in several years, I had a pretty good honey crop last year. All colonies were supered up in time, swarming was minimal and, since I have no help, yep, I got a pretty good crop. I feel like someone who has caught a lot fish and now has to clean them. On one hand, I am happy to have the crop, but on the other hand, I'm the one who must deal with it in a labor-efficient way.

#### ***Working smarter by working slower.***

How can *'working smarter by working slower'* make sense? To comprehend this comment, first, you should be over 50 years old. Second, you should be doing all the work yourself. Third, have additional job demands other than honey processing that forces you to work at the extracting process in fits and starts. My way of coping with these characteristics has been to only bring in the number of supers that I can process in about one-half day rather than working for several days to bring the entire crop in. For me, about 20 or so supers, depending on their weight is a pretty good half day's work. I don't want to have unprocessed supers sitting around, leaking honey and encouraging small hive beetles. Then, after extracting, I don't want large numbers of uncapped supers to haul back to be put away. I ask you to remember that I have other responsibilities that should not be long ignored.

#### ***In the yard***

Protective gear. I wear good protective equipment in the yard. I presently have no one else in the yard to turn to for help should the bees get real testy. For about five years, I have been using cedar wood shavings (animal bedding) that I buy at a local farm supply store. I know you can use pine needles, sumac pods, and corrugated board, that you can get for free, but I want something that burns for a long time and burns dependably. I also use a good smoker.

Honey super removal equipment. To remove bees from the supers, I use a Dadant Tri-pod gasoline-powered bee blower. This thing is heavy and noisy, but attaching it to a hand truck made my life just a bit easier. (Plus, you can use air from the blower to cool yourself on particularly hot days.) I take my time blowing the bees out in order to get as many of them out as possible. Though we have fume boards and have used them extensively in the past, I don't want the smell on the equipment, in the truck and in the extracting room.

In the extracting room. To continue my *'working slower'* concept, I also use smaller processing equipment. Since I am only bringing in a small number of supers at the time, I don't want to fire off my larger processing equipment. It takes about 20 gallons of honey to prime my larger cappings tank and to fill the pump and the honey lines. I don't want this machinery filled with honey sitting around unused for days at a time. If I processed all of these supers during one work session, it would be logical to use the larger equipment, but since I am processing about 20 supers at a time, I am

actually processing honey at the hobby beekeeper level. By using smaller processing equipment, I make my extracting line simpler and easier to clean after each extracting session.

### ***Messy or efficient?***

Last Fall, I put the extracted supers back on the colonies to entice the bees to clean up the loose honey. I'm leaving some of the supers on all Winter. Sounds messy and looks weird to passing beekeepers. Empty supers on top of a colony are reasonably easy to blow off during Winter storms. I know they should be put away, but it's more work and it they don't blow off, they are in place for next Spring. I need to look at everything I'm doing to be sure that it really needs to be done. I don't need to busy-work myself. I'm clearly making this process up as I go along.

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## **WHAT KIND OF BEE?**

by Larry Connor  
reprinted from Bee Culture Feb 2010

It is a good time to cover a subject that some beekeepers ask me about and many more WANT to ask – *What kind of bees do I have inside my hive?* Here is a letter I received in December. It sets up the rest of this article –

*Dear Dr. Connor,*

*I had the pleasure meeting you at the WAS conference in Healdsburg CA in August 2009 at which time I purchased several Wicwas Press publications. I have been enjoying reading them and learning a lot. I have to admit that I am not an academic but I am fascinated by science and nature. Gardening and beekeeping keep me quite busy, not to mention my four-year old son.*

*Anyway, I started beekeeping by jumping in and collecting my first colony out of somebody's wall. That colony is my strongest. I have attached some photos and I am wondering if you are able to identify WHAT KIND of bees I have. Can anybody (any expert) identify a bee type just by looking at it? Or does the DNA have to be looked at?*

*All I know about my bees is that they lived in the wall of these people's house in El Sobrante for probably six years before the neighbor contacted me through a post on Craigslist for free bee removal. I learned a lot from doing this and other removals, but I learned more from reading your book *Increase Essentials*. I think I will focus on collecting swarms this spring and try some queen rearing for requeening. I live in the city of Berkeley so I am a little limited on space, but I'd like to have a whole bunch of hives.*

*I tend to write too much so I'll just leave it at that and remind you that I just really want to know what kind of bees I have. Oh and my guess is Italian, because they don't produce a lot of propolis around the entrance (as seen on page 12 of *Rearing Queen Honey Bees*).*

*My fellow beginner beekeeper friends are wondering why some bees are so pale (yellow almost grey) and others have a lot of black? Is this a developmental/age characteristic that changes as bees grow older? Or is it just genetic like having kids with different color hair?*

*Thanks for your help.*

*Sincerely,*

*Alice Rosenthal*

*Berkeley, CA*

Here was my reply to Alice –

Hi Alice

With a few noteworthy exceptions (Russian, certainly Carniolians) most stocks in the U.S. are a mixture of several races or subspecies of *Apis mellifera* L. The subspecies is shown by the third part of the Latin name. For example, *Apis mellifera carnica* Pollmann is the Carniolian subspecies or race of honey bees. (The name following the Latin is the person who first described this species or subspecies) Beekeepers often market certain races, but in North America they may have poor parentage records and/or no control over the drone population. I like to think that we have North American bees, for what it is worth.

I will get back to you (I hope) with a more detailed answer, but DNA is the only defining technique, although certain Europeans use wing dimensions and vein angles for separation. It is a science loaded with lots of variables.

What might be more useful is a summary of the behaviors of these bees, since certain races have unique behavioral traits.

Enjoy your bees and your son. Does he have his own bee suit?

Larry

Here is my 'more detailed' reply to Alice's questions. It is a good letter to base an article upon, and gives me a chance to express my thoughts on a number of issues. Alice provided photos of the queen and her bees, and after tweaking them in Photoshop I am absolutely sure they are honey bees, *Apis mellifera* L. (No surprise there). But I will not guess which race or races make up their genetic heritage but feel sure there are undoubtedly several present. There is some variation in the appearance of the worker bees (Alice's friend noted that some of the bees were 'pale' which I take to mean they are a light yellow-grey in color. Several races have grey in their color pattern, including *carnica* and *caucasica*. In the photo I see more yellow with the whitish-grey bands, so this just adds to the confusion.

Color variations in workers reflect the multiple mating of drones to the queen. In turn, if you produce daughter queens from such a queen, you would expect to find considerable variation in the color and banding of the resulting daughter queens. Even if the queen came from a pure race of bees like Italian (*ligustica*) or Carniolian (*carnica*), that had been carefully maintained by instrumental insemination, in most of North America their naturally mated daughters would not produce pure Italian or Carniolian workers. Instead they would be crosses between the mother line and whatever hodge-podge of drones found in the area where they were mated. Unless using an island or remote mountain valley, it is unlikely that a single beekeeper would be able to control the drones in the roughly six mile radius (a land area over 72,300 acres) that queens and drones will fly for sex.

*Bee Sex Essentials* reviews the number of drones that mate with queens and more about reproductive biology. But for the local beekeeper, just imagine all the colonies in your six-mile radius. When I think about the full range of colonies around the Farm (72,300 acreage is a Lot of real estate!), I recognize that any queens mated there are likely to encounter drones from a wide range of colonies – packages from Georgia and Texas, nucs from Georgia and Florida, and full-sized colonies kept in areas of the South where African colonies have been found. That does not make the colonies

African, but it does mean that some of the drones may carry genes from the African bloodline.

For commercial queen producers, there has been a color game going on for decades. I have observed queen breeders sort through their colonies (commingled and never kept apart from each other) to find a queen that is either yellow enough or dark enough to serve as the breeder queen for their customers that want Italian (yellow) or Carniolian/Caucasian (dark) queens. Well maybe they will look for some grey queen for their Carniolian customers. My point better be pretty clear by now – queen color and genetic heritage have little to do with each other.

Back in my Starline Program days, Dr. Bud Cale explained to me how one of the inbred lines was developed from a single Carniolian colony found in California (in the 1940s). Cale had the daughters of this queen out-crossed to yellow drones, and then selected for the yellow-est daughters grafted from these daughter queens. In just a few generations Cale had a bee that was essentially a yellow Carniolian, and he used it as one quarter of the Starline hybrid bee and one half of the instrumentally inseminated hybrid Cale 876 (the drone side). Color is pretty easy to select for, and a lot of beekeepers do it.

Back to Alice's queen. Many beekeepers report that the queens and bees found in unmanaged colonies are often dark in color. The general wisdom is that bees and queens in cooler parts of the country are often darker than those in the warmer part of the Continent. This reflects the physiological advantage of being light-colored in a hot sunny climate and the cost of being dark in that same region. But in the North this is reversed – the darker foragers and mating queens and drones are kept warmer by their dark pigment on cooler days. It is an example of localized selection for advantageous characteristics that impact immediate behavior.

Minor temperature differences within the brood area of the hive may influence queen color, with yellow queens being produced when the temperatures are very warm and dark queens being produced when the temperatures are cooler. The heat or cold outside the hive may impact the subtle developmental time of queens and drones in development.

Finally, there is a genetic mutation called the Cordovan gene, that is recessive, but when selected for in a bee breeding program produces a large, nearly all yellow queen and yellow drones. The mutation changes the black bands of the bees to cordovan yellow, and it appears best in a light colored subspecies.

#### **Methods of identification**

In my short email reply, I said that it is possible to determine the genetic background of these bees by using DNA samples, or by using features of the wing and other parts of the bee in a process called Morphometrics. This can be quite complicated, making measurements of characteristics like the length of the fore-wing, the width of the fore-wing, the number of hamuli on the wing (these are the tiny hooks that keep the wings together during flights) and the length of the tongue. Except for the number of wing hooks, these characteristics are highly heritable – they are measurable traits that are passed on from one generation to the next. Some European queen breeders base their entire stock on a specific morphometric profile (think of it as a morphological fingerprint), and determine that a colony is or is not a certain stock based on these measurements.

When studied as part of the geographical spread of honey bees around the Earth, these patterns are quite useful to see which subspecies are put into one of four groups: Northwest group (which

includes *mellifera*, *sahariensis*, *major*, *iberica* and *intermissa*), the Southwest European group (includes *cecropia*, *carnica*, *ligustica*, *sicula*, *adami* and *caucasica*), the Middle Eastern group (*caucasica*, *cyprica*, *anatoliaca*, *persia*, *armenica* and *syriaca*) and the African group (*scutellata*, *adonsonii*, *lamarckii*, *yemenetica*, *littorea*, *monticola*, *unicolor* and *capensis*). This is of interest to all North American beekeepers since we have at least one of each of these four groups represented in the bees that have been or are kept on the continent. *Mellifera* is the called the common black European bee, the English, French or German bee. These bees show behavioral characteristics associated with North African bees – nervous behavior, irritability and considerable use of propolis. These bees are all but gone from North America, but were the first bees brought to the Americas.

*Carnica* is the bee of the Balkan Peninsula, extending from the Alps and Black Sea into the Ukraine. This subspecies is widely used in agriculture as a honey producer and pollinator. The New World Carniolian is from this bloodline. When saying the name of this race, keep in mind the Latin name: car-ne-ca. Thus Carniolian is said can-ne-o-lan.

*Ligustica* is the Italian bee, and is closely related to *carnica*. It has a good temper and is able to adapt to a wide range of conditions, making them good for the diverse habits and migratory tendencies of North American beekeepers. It is often credited as the bee that made modern beekeeping possible due to its mild temper, high brood rearing tendency and overall productivity. The other subspecies from the Southwest European group is *caucasica*. These bees have very long tongues and are good at high altitudes. It is gentle and a good honey producer. It uses propolis freely, often blocking the hive entrance, and may be very sensitive to *Nosema*.

Finally, *scutalatta* is the African subspecies in the Americas. It's highly defensive and swarms frequently making it less suitable for commercial beekeepers and unacceptable for urban small-scale colony holders.

In North America we use a simplified morphometric screening to determine if a colony is African or Africanized. Certain of the USDA Bee Labs are set up to screen samples of bees. Only the wings are used, and they are mounted onto microscope slides and the wing's image is projected onto a screen. The different wing vein measurements are then measured, put into a database where they are scored for characteristics typical of African or African-European hybrids.

#### **Developmental differences**

Alice asked if bees change colors as they age. If they do not lose their body hairs, the color of a two or three day post emergence bee will be the same when she dies. If the bee becomes a robber bee, and loses her body hairs in the process, she will look quite different – much darker without the reflective body hairs. There are no robber bees evident in the photograph, reflecting the variation in the drones that mated with the queen.

#### **You want them to be Italian, call them Italian!**

As I look at the photo, I will let you call these bees Italian. They are a dominant type of bee in California, and there is a wide range of color patterns from yellow golden leather to rather dark.

*Queen Rearing Essentials* by Dr. Connor is arriving at your local bee supply companies or can be ordered directly from the Wicwas Press website: [www.wicwas.com](http://www.wicwas.com). Join Drs. Connor and Dewey Caron for a four-evening Advanced Beekeeping course being offered in Comstock Michigan. Check the website for details.

## **IMPORTANT PHONE NUMBERS**

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## **DATES TO REMEMBER**

General Meeting – April 6, 2010 – at Oregon Ridge Nature Center. 7:30PM. Our meeting on Tuesday evening, April 6 at 7:30 p.m., will focus on the plants that honeybees use for pollen and nectar. Arthur and Barbara Gruver will present “Bee Forage of Northern Maryland”.

Board Meeting – April 19, 2010 – 7 PM at Oregon Ridge Nature Center.