



BEE NEWS & VIEWS

The Mississippi Beekeepers Association Newsletter

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May-June 2015

A Day in the Hive with Meridian Beekeepers

By Jeff Harris

The Meridian Beekeepers Association, Johnny Thompson and I conducted a day-long workshop called "A Day in the Hive" on May 2. The intent was to provide direction and information to help beginners move beyond the installation of nucs or packages. What do you do 3 weeks after starting a new hive? What about 3 months later?

Johnny kicked off the day by reviewing the laws related to inspection of honey houses or honey processing areas. Some of you may remember that he gave a similar and comprehensive presentation during last year's annual convention. Johnny's no nonsense style was very effective in pointing out the legal requirements for these food processing areas as required by the Mississippi Department of Health.

I followed with a lecture about swarming in honey bees and methods for preventing swarming. That's when things went south – at least for Johnny. He and I had stopped at a quick breakfast joint on the way to the event, and his breakfast biscuit seemed to take hold of his innards. Johnny became nauseous and remained in that condition for the rest of the day.

Johnny was not sure that it was something that he had eaten, and he noted that he began to feel poorly during my first seminar! I have been known to put folks asleep, but this may have been the first time that I caused illness. Anyway, Johnny bravely attempted another lecture on how to requeen hives after lunch, but he spent most of the day vomiting in the cool shade. He seemed hugely relieved when his wife Sharon came to the rescue and took him home.

Undeterred, I managed to fill the void for the remaining of the afternoon. We examined a variety

of colonies and discussed either a problem that had been detected or the good condition of a particular hive as compared to another. We then spent a considerable amount of time in sampling some of the colonies for Varroa mites. In fact, we had a beautiful illustration of just how hidden the mites can be. There were several nucs that had recently been split from a very strong colony. Alcohol washes of some of these nucs showed phoretic mite counts of 15-23% -- which is well beyond an economic threshold for the mites. If left untreated, many or most of the newly established colonies may have suffered illness or death from the high mite load received when splitting an apparently strong colony that had a high mite population.

We also witnessed another common situation in at least two colonies. Alcohol washes of these two colonies indicated either no mites or only 1-3 mites in a sample of 300-400 worker bees. After blindly sampling the hives, we investigated the broodnest. Both of these colonies were apparently queenless after a swarming event. They may have had newly mated young queens that had not started laying eggs, but the lack of organizational unity in the bees suggested lack of a queen. We never saw the young queens if they were there.

The low mite loads probably reflect two things that were occurring in the hives. First, swarms can carry lots of mites away from a colony when 60% of the bees leave with the swarm. Second, there is a broodless period after a swarm has issued that also limits growth of the mite population. Of course, if for some reason the young queen does not return from her mating flights, the broodless period is extended, and the colony will have an even lower mite population. That is the least of the beekeeper's problems – the hive is doomed to die if a new queen is not given to the unit.

We finished the day with an informal Q & A while sitting on the tailgate of a pick-up truck. Sometimes this is the most informative portion of these events. This is my second time conducting a workshop with this group, and I have greatly enjoyed my interaction with the beekeepers from the Meridian area. I am looking forward to doing it again next year. I don't think anyone else became nauseous, and I am now convinced that it was not my speaking that created the problem for Johnny.

Swarm Management and Making Splits at Starkville Workshop

By Jeff Harris

Over the last couple of years, I have interacted on a variety of occasions with beekeepers from Lowndes and Monroe Counties. Usually, I would speak at the county extension office at the invitation of the particular Extension Agent. For those of you who do not know, the agents for these two counties are cousins Reid Nevins (Lowndes) and Randall Nevins (Monroe).



**Reid Nevins,
Lowndes County
Extension Agent**

The cousins got together and asked if I would conduct a short but targeted workshop on how to make splits or nucs from strong colonies. They wanted the discussion to focus on these techniques as part of swarm management as well as being an effective way to grow the number of colonies in an operation.

I set a ceiling of 40 participants for this workshop because the space dedicated for it at MSU was the limiting factor. Most of the participants came from the two counties, but at least a handful of people came from other areas.

The workshop began with a lecture about the swarming biology of honey bees. At least three different styles of making increases were



**Randall Nevins,
Monroe County
Extension Agent**

discussed. Additionally, the timing of making splits was also addressed. Splits can be made during the spring prior to swarming, during the swarm season and long after into early summer. The management of splits from these different periods is different because of the availability of food resources. Hence, management techniques and wintering strategies vary and depend on WHEN the splits are made.

After the power point lecture, we simply went outside and took a very strong colony and completely broke it down into nucs. We followed the principles as outlined by the lecture, and made strong summer nucs that could be overwintered. This was one of those show-and-tell situations in which the concepts presented were not difficult; however, the participants felt more comfortable in making their own splits because they actually got to see how it can be done. Sometimes reading about how to do something is not enough. Seeing it being done can leave a more lasting impression.

We ended the workshop with a demonstration of how to sample colonies for Varroa mites using an alcohol wash. I took the moment to remind folks that if the source colonies being used to make splits have high mite loads, then the subsequent nucs or splits will also have high mite loads. This is so important to remember. It is best to have low mite loads when the splits are being made.

U.S. Details New Efforts to Support Ailing Bees

By Michael Wines

The White House on Tuesday outlined its strategy to restore the nation's struggling honeybee and monarch butterfly populations to some semblance of health, mostly by expanding the acreage devoted to the wildflowers and milkweed that are crucial to their survival.

The strategy, devised by a group President Obama appointed last June — which he called the Pollinator Health Task Force — envisions adding or improving wildflower habitat on seven million acres of land, an area slightly larger than Maryland, by 2020.

That effort would focus on the central United States, where about two-thirds of the nation's

managed honey bee colonies spend the summer and where monarchs conduct their annual migrations to and from Mexico. It would include encouraging schools to plant pollinator gardens and turning land around Interstate 35, which runs from Duluth, Minn., to the Mexico border at Laredo, Tex., into a continuous wildflower buffet for migrating monarchs and other pollinating creatures.

Both honeybees and monarchs have been in steep decline over the last decade or more, with the monarch population dropping as much as 90 percent. Only last week, an annual survey concluded that beekeepers lost more than 42 percent of their colonies in the 12 months that ended in April.

Rebuilding the populations requires an “all hands on deck” approach, the task force said in a report outlining its plans, enlisting an array of federal agencies, state and local governments, nonprofit groups and ordinary citizens.

“Pollinating animals do not recognize human-drawn boundaries,” the report said. “They make use of food and habitat anywhere it is found, whether on national parkland, a roadside strip, the edge of an agricultural field or a schoolyard garden. No single organization, federal or private, can independently shoulder the burden of helping pollinators.”

The strategy aims to cut annual honeybee losses to 15 percent of colonies — roughly the average in earlier decades — by 2025. For monarchs, the goal is to build by 2020 a migration large enough to cover 15 acres, or about 20 football fields, of the Mexico forest where the butterflies spend the winter. Last winter the monarchs occupied about 2.8 acres of forest.

While the report focused on monarchs and honeybees, it noted that increased habitat would also help other pollinators, such as birds and bats.

Under the strategy, federal agencies like the Bureau of Land Management and the Defense Department would include pollinator habitats in their management of government property, whether in restoring fire-damaged forests or landscaping a new office building. Federal officials would encourage state highway and utility offices to plant wildflowers

and milkweed along rights of way instead of planting and mowing grass.

Among other initiatives, the strategy will modestly increase funding for research into bees and other pollinators, expand public education and study ways to minimize pollinators’ exposure to pesticides.

Seven million acres of new or improved habitat “is a good start,” said Chip Taylor, a University of Kansas insect ecologist and director of Monarch Watch, a nonprofit group that promotes the butterfly’s revival. “But clearly, it will have to be much bigger than that as they go forward.”

Seven million acres is but a down payment on habitat that has been lost to urban development and expanding agriculture. Since 2007, farmers have planted crops on more than 11 million acres they once kept idle under a federal program that turned marginal or erosion-prone farmland into conservation reserves. More will vanish by 2018 because of federal budget cuts.

Conservation organizations broadly welcomed the initiative. But some environmental advocacy groups called it weak, noting that it offers little in the way of new efforts to address pesticides that many experts regard as a major factor in the population declines.

New York Times, May 19

Arizona: Bees Pose Menace

By The Associated Press

A particularly aggressive strain of honey bee has been menacing parts of Arizona in recent weeks, with some people getting stung so many times that they have been hospitalized. This week, an 84-year-old Tucson-area man was stung more than 2,000 times in his backyard. Three dogs have been killed, and beekeepers report an increase in calls to remove hives and swarms. Experts point to the Africanized honeybee, also known as the killer bee, which is a cross-breed between the European honeybee and the African honeybee, as the attacker, according to Reed Booth, who runs a bee-removal business in Bisbee. The killer bee is the result of experiments in Brazil decades ago, and the insects migrated to the United States. The bees are more prevalent in warm

Southwestern states such as Arizona, New Mexico and Texas. If their hives are disrupted, they become especially aggressive.

New York Times, June 12

Horizontal Hives from Russia

By Jeff Harris

Last autumn I had the pleasure of meeting Dr. Leo Sharashkin at a bee meeting in Illinois. Dr. Leo does not have his doctorate in biology; instead, it was in corporate finance or international economics or something similar. He and his family live in Missouri, but he has been speaking around the country about the virtues of an older style of beekeeping from Russia and other European countries that is currently experiencing a revival.

Dr. Leo is responsible to some degree for the revival of “chest hive” beekeeping in America because he translated Fedor Lazutin’s “Keeping Bees with a Smile” into English, making the lessons of the Russian beekeepers available to us. If you do not have a copy of this book, I strongly recommend it if for nothing else, it challenges the basic tenants and approaches to beekeeping that we exercise in the U.S.

Fedor Lazutin illustrates what is called natural beekeeping with this book. The basic idea is to keep the bees in a manner by which input from the beekeeper is all but eliminated, and the bees are forced to survive on their accord. Those colonies unable to do so will be eliminated from the breeding pool. People using these techniques probably keep only a few colonies (< 50). They also do not medicate or use chemicals to treat for any disease or parasitic mites. They allow the bees to swarm naturally, which provides some control over the growth of varroa mite populations (as well as other disease pathogens).

When Dr. Leo presented the basics of this style of beekeeping, he provided evidence in which the Reverend L. L. Langstroth was unhappy with the thickness of the hive bodies that were sold (as today) under his name. He determined that they were not thick enough to insulate the hives very well from either very cold or very warm temperatures, even in the more temperate climates

of the U.S. The chest hives in Russia either use very thick wood (more than double the thickness of our hive equipment), or they are built to have an insulating air space between two shells of wooden ware that serve as the walls and floor and lid of the chest hive.

Additionally, the Russians prefer combs that are at least double the depth of our standard deep comb. They believe these large combs more accurately reflect the types of combs that bees make in natural hives within trees or other cavities. That said, Dr. Leo actually sells two styles of chest hives. One has only the standard Langstroth deep sized comb, while the one he prefers has combs twice as deep (see photos).



A beautifully painted Russian chest hive fitted with combs twice as deep as Langstroth's deep

The standard chest hive has at least 20 combs in a single cavity. There is no supering in this style of beekeeping. Instead, it is a lot like top-bar beekeeping in that combs are added horizontally as the colony grows. The queen and broodnest will stay on one end of the hive, while the surplus honey is stored in combs at the other end. Some beekeepers using this style, will add all empty combs as the colonies begin to grow in the spring, and they do not even look in the hive until late summer or early autumn to harvest some honey. They literally will have very little idea about what has happened to the colony during the growing season.

Still others, like Dr. Leo himself, prefer to add the combs as they are needed. This gives him the opportunity to monitor growth and progress in his colonies. Honey can be harvested in an extractor if

the frames are Langstroth depth; otherwise, the combs are mashed as in top-bar beekeeping. I know that these techniques seem crude, and they certainly will not be adopted by commercial beekeepers, but Dr. Leo reports good success in allowing the bees to handle Varroa mites and other diseases without much input from him.



Chest hive with standard Langstroth deep combs

I also learned that most swarm traps used in the U.S. are really too small to be terribly attractive to honey bees. Dr. Leo has experimented with swarm trapping for many years, and the best wooden trap has a volume of 15-20 gallons, AND it is located at least 20 feet off of the ground. He often uses lemon grass or pheromones to help bait these cavities, and he claims an amazingly high success rate in catching swarms with his traps. For more information, visit Dr. Leo's website at HorizontalHive.com.



Inside of chest hive. Notice thickness of walls and the insulated lid.

Beeswax Overview

(from *Bees and Their Role in Forest Livelihoods*)

Beeswax is a valuable product that can provide a worthwhile income in addition to honey. One kilogram of beeswax is worth more than one kilogram of honey. Unlike honey, beeswax is not a food product and is simpler to deal with - it does not require careful packaging which simplifies storage and transport. Beeswax as an income generating resource is neglected in some areas of the tropics. Some countries of Africa where fixed comb beekeeping is still the norm, for example, Ethiopia and Angola, have significant export of beeswax, while in others the trade is neglected and beeswax is thrown away. Worldwide, many honey hunters and beekeepers do not know that beeswax can be sold or used for locally made, high-value products. Knowledge about the value of beeswax and how to process it is often lacking. It is impossible to give statistics, but maybe only half of the world's production of beeswax comes on to the market, with the rest being thrown away and lost.

What Beeswax Is

Beeswax is the creamy colored substance used by bees to build the comb that forms the structure of their nest. Very pure beeswax is white, but the presence of pollen and other substances cause it to become yellow. Beeswax is produced by all species of honeybees. Wax produced by the Asian species of honeybees is known as *Ghedda wax*. It differs in chemical and physical properties from the wax of *Apis mellifera*, and is less acidic. The waxes produced by bumblebees are very different from wax produced by honeybees. Pure waxes from different species of stingless bees are also very different from the other types of beeswax. It is much darker in color - dark brown, and when it is warmed, it stretches without breaking. It is also sticky and much more difficult to break than beeswax from *Apis mellifera*.

Beeswax Rendering

Cappings (the white covering on sealed honey comb) are the best source of beeswax, but odd scraps of brace or burr comb (odd bits of comb built by the bees as part of the nest structure), old honey combs and old brood combs all yield valuable

beeswax harvest. The beekeeper with a just few hives can produce blocks of wax of excellent quality from these sources.

Whatever beeswax is to be used for, it has to be melted and cleaned. As soon as it has been melted and turned to a solid wax block, it can be stored or transported without any problems. The wax block is not eaten by wax moths. There is plenty of expensive equipment available to achieve beeswax rendering. This includes stainless steel solar-wax-melters, steam-wax-melters, wax presses, wax and honey separators and electric melters. However, most beekeepers do not own such equipment and achieve excellent results without spending any money on equipment, and with no risk of it being stolen.

General Rules When Working with Beeswax

- Beeswax must never be heated with a direct flame: always heat it in a container of water. This water bath might be an oil drum or other large container. It is not necessary for the wax to be in a separate container in the water bath. Heat the wax enough to melt it: beeswax melts at 62-64 °C. Heating above 85 °C causes discoloration of the wax, and boiling will ruin it. If beeswax is heated to such a temperature that it burns it is wasted completely.
- The best water to use when working with beeswax is soft, clean rainwater. Hard water contains lime that reacts with the wax and saponifies it.
- Beeswax is slightly acidic and containers made of aluminum, brass, copper, zinc, pewter, tinplate or iron must never be used with beeswax, as they will react with the beeswax and the wax will be stained. Suitable materials to use when working with beeswax are containers made from enamel, stainless steel, nickel, or plastic.
- Combs of the same type should be prepared together. Do not mix dark combs with light combs as this will lower the grade of the best wax.

- It is easy to make a filter for hot wax by completely removing each end of a clean can and stretching a piece of cotton cloth over one end. The string used to hold the cotton in place also serves as a handle.
- Whatever system is used to render and extract the beeswax, it will solidify once it cools down. Regardless of the system used, the recuperated wax will contain numerous impurities. Due to the difference in density between wax and water, the wax will rise to the surface of the water and any impurities will be trapped below it. If the beeswax cools too quickly, a large quantity of these impurities and water will be trapped inside the wax as the block sets and it will have to be rendered again. Once the wax hardens, impurities can be scraped off the underside of the block. To obtain the purest beeswax, the water-wax mixture should cool down as slowly as possible. An easy way to slow down the cooling process is to place the bucket with wax and water mixture in a heat-retaining box (filled with polystyrene pieces, or sawdust) covered with a thick lid. Once the wax has settled and completely cooled, the block is ready to take out of the mold.
- Many containers make convenient molds for beeswax. Foil-lined drink cartons make convenient, disposable molds of a useful size. When the wax has solidified completely, the carton can be simply torn away, leaving a lump of beeswax.

Traditional Method of Extracting Wax from Combs

Materials needed: pieces of honeycomb, water, a pan for melting the wax, a rush bag, or any type of loosely woven bag, cloth material with a fine mesh, soap, a bowl for molding the wax.

1. Remove as much honey as possible from the honeycombs and soften them by soaking in warm water: pollen and any honey remaining in the combs will dissolve in the water. Repeat this washing process three times.

2. Use clean rainwater if possible. If the water is very alkaline, add a little vinegar (one part vinegar to 1,000 parts water).
3. After washing the combs, break them up into small pieces.
4. Place the pieces of comb in a pan and add clean water to the level of the combs or a little above.
5. Heat the mixture gently and keep stirring all the time, especially when the mixture starts to reach high temperatures. Wax is highly flammable.
6. After the combs have melted fully, pour the mixture into a long bag made of sacking, woven rush, nylon, jute or other heavy cloth, and tie it tightly. Holding the whole thing over a basin or bucket, squeeze the bag with two pieces of wood, to make sure that all the wax is squeezed out of the bag into the bucket underneath. Brood, pieces of wood, grass and other large particles will be removed by this process.
7. Leave the bucket with the mixture of hot water and molten wax to cool, placing it in an area sheltered from high winds and dust: preferably a corner in a clean and cool room. The wax solidifies as it cools, forming a disc of wax on the surface of the water. Any particles that have escaped through the bag will settle below the wax layer.
8. When the mixture is completely cool, remove the wax layer. Scrape off any material stuck to the underside of the wax disc, and re-melt the wax in an equal volume of clean water. This time use a finer cotton cloth to strain small impurities out of the wax. After filtering through the cloth, collect the hot mixture of wax and water in a bowl, preferably enamel, which has been smeared with a film of soapy water – only a very small amount to cover the surface. The bowl should not hold more than about two kilograms of wax. Even bowls made from wood or calabashes can also be used as molds for beeswax. Do not use fat or oil instead of soap, as these would contaminate the wax. Do not use heavily scented soap.
9. Place the mixture in a cool place free from dust and wind. When the water and wax have completely cooled down i.e. about 12 hours after pouring the mixture into the enamel bowl, a mold of beeswax can be easily shaken out. Any impurities adhering to the bottom of the cake can be scraped off with a sharp knife.
10. Do not disturb the wax until it has cooled for 12 hours. Do not try to hurry the process or you may spoil the wax.
11. Beeswax purified carefully by this method should be in a suitable state for sale and export and does not require any other processing.
12. Store refined beeswax in a clean place, away from any strong-smelling substances. Another traditional method is to simply put the broken combs into a hessian sack and drop it into a large cooking pot full of water, with the sack weighted so that it sinks. Heat the water. Wax is lighter than water, so that as it melts, the wax will filter through the sack and rise to the surface. Once the combs have all melted, turn off the heat and leave the pot to cool down.

Solar Wax Extractor

The solar wax extractor provides a simple and effective way of melting and purifying beeswax. It uses the sun's heat to melt the wax, and an effective solar wax extractor can be easily 'home-made'. The temperature inside the extractor needs to rise only to 68-70 °C to melt the beeswax sufficiently: if clean wax is used, just one melting in a solar wax extractor can produce a satisfactory block of top quality wax.

The solar wax extractor consists of a glass or clear plastic-lidded box containing a sloped sheet of metal. Pieces of honeycomb are placed on the metal sheet and as they melt, wax runs down the metal slope to a container. The sheet of metal can be bent at the edges to funnel wax towards the container. A screen of wire mesh prevents pieces of comb and debris from slipping down into the container. Impurities in the wax tend to remain on the metal, and others can be scraped off the final solidified block of wax.

President – Austin Smith (601.408.5465); **Vice President** – Johnny Thompson (601.656.5701); **Treasurer** – Stan Yeagley (601.924.2582); **Secretary** – Cheryl Yeagley (601.924.2582); **At-Large Director** – Harvey Powell, Jr. (203.565.7547); **At-Large Director** – Milton Henderson (601.763.6687); and **At-Large Director** – John R. Tullos (601.782.9362)

The dimensions of the extractor can vary according to the container size used to make it. The bigger the overall container, the higher the temperature that can be attained inside the extractor.

To retain heat inside the box, the cover of the solar wax extractor is best made either of thick plastic or of two sheets of strong glass with a small gap between them. The rest of the inside of the box should be painted black for maximum heat absorption. Insulating material underneath the metal sheet will also help to retain heat. There must be no draft-creating cracks or gaps in the box, as they will encourage heat loss, and if large enough would allow robber bees into the box. Do not fix the collecting tray in the bottom of the extractor: it needs to be removable for cleaning.

Ideally, the solar wax extractor is positioned regularly during the day so that it is always facing the sun, and tilted so that the glass is at right angles to the sun's rays. If this is not possible, fix supporting legs under the extractor to achieve a slope of about 40° to the horizontal, and face the extractor towards the sun. Shadows from trees and buildings or passing clouds soon lower the temperature inside the extractor.

Refining Beeswax

The refining process is achieved by:

1. The wax is washed in hot water to remove honey and to allow dirt to settle out and fall to the bottom.
2. The wax is mixed with fuller's earth (clay) and activated carbon: this starts a bleaching process.
3. The resulting mixture is filtered through a filter-press.
4. The wax is cooled before being formed into slabs or pellets.

The washing and refining process can take up to 30 hours at a temperature of 90°C.

Slum Gum

Slum gum is the black residue remaining after the wax rendering process. It is composed of cocoons from the bees' brood cells, wax moth cocoons, excrements from larvae and some leftover wax. If the slum gum still contains a lot of wax, it will form a solid cake when cool. If it is low in wax, it crumbles when dry. Most often slum gum is discarded. It burns well and can be used for firewood in cooking, and to make firelighters. In daytime, it can attract many bees if too much wax is left in it, so if it is used for fires in the open, it is better to use it after dark.

MBA Convention is November 6-7, 2015

It will be held at the Advanced Technology Center of the Jones County Junior College in Ellisville, MS. More details will be given in the next newsletter.

Hotel accommodations will be at the Best Western Laurel Inn 309 South 16th Avenue (601) 425-4455. Thirty rooms have been reserved: 15 with single king beds and 15 with double beds. The Hampton Inn will be used for overflow if needed.



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