Illinois State Beekeepers Association
Bulletin
September/October 2014 Volume 97 Number 5

Letter from the President

Mike Mason

Hello fellow beekeepers, I find myself already preparing bees for winter. As I sit here, there is a threat of frost tonight! I have treated for Varroa and am feeding sugar water. Most my supers are put in storage with a few still on hives where I am waiting for them to pull down the small amounts of honey remaining in them. I am already pulling out the frames for sugar boards in anticipation cooking sugar and pouring into boards with pollen patties for winter feeding. I am also getting wax organized for candle making. I am also looking at putting together frames and supers for cut comb and basswood boxes for production next year. Beekeeping is a year round affair with lots to do. It always seems like I am trying to catch up. There does not seem to be a whole lot of down time anymore.

We are preparing for the fall meeting and have secured some great speakers. Dr. Jeff Harris from Mississippi State will speak on Queen Breeding for Varroa Resistance. Dr. Harris will also speak on Varroa Mite Control. Two important topics that we can take advantage of. Also speaking will be Dr Robert Jean from St Mary of The Woods College. Dr. Jean will be speaking on Pollinator Habitat and Managing for Native Bees. Both talks will provide beneficial information that we can apply in and around our apiaries helping improve the overall health of our colonies. We will also hear from our own Dr Dale Hill of Archer Daniels Midland. Dale will speak on Honey Bee Nutrition and was instrumental in the development of protein patties for use by beekeepers. We also have Steve Chard from the Illinois Department of Agriculture who will speak on the Apiary Program and any changes or developments in our industry. A great lineup. Mark your calendars for November 8 at the Illinois Department of Agriculture on the State Fairgrounds in Springfield.

The Illinois Queen Initiative has their annual meeting coming up on October 18th in Bloomington. The scheduled speaker is Adam Finkelstein of VP Queens in Frederick Maryland who will talk about honey bee breeding and queen rearing. For detailed information you can go to their website.

The American Beekeeping Federation has opened registration for the annual North American Beekeeping Conference and Tradeshow. Register before October 15 to receive the early registration discount. The 2015 show will be held at the Disneyland Hotel in Anaheim, California January 6-10. This is always an excellent conference that has speakers for everyone.

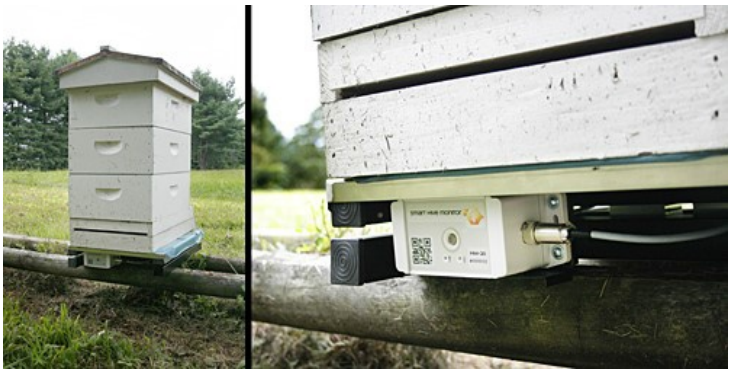
It is not too early to start thinking about the ISBA Summer Meeting. The 2015 summer meeting will be held in Southern Illinois and for those associations, this is your opportunity to host the meeting and generate some revenues for your group. This past summer, due to our two excellent hosts, Illinois Valley Beekeepers Association and Heart of Illinois Beekeepers Association realized $758.64 each. ISBA chose not to take the 50% share of the profit as in past years since there were two hosts. So we let them split the profit so they can put it to good use in their respective communities. This would be a great fundraiser for any interested Association. Let us know if your association is interested and we can start working with you.

Look for registration information in your email or on our ISBA website soon for the fall meeting. I am looking forward to seeing everyone and taking advantage of a great speaker lineup.

Bee Informed Partnership Launches "Sentinal Hive Project"
by Karen Rennich

Would you like to gain insight into the nectar flows in your area? Learn what type of pollen your bees are collecting when they flit out from the hive? Our Sentinel Hives can help.

Sentinel Hives monitor honey bee health in real-time using hive scales, monthly disease assessments, and pollen traps to determine available plant forage. The scale data is automatically transmitted to our servers and the patterns of nectar flow mapped. Our Bee Informed Partnership (BIP) team turns around the varroa mite and disease analysis quickly, so that beekeepers can take action. The goal of the Sentinel Hives is that they become early warning systems. We can then alert beekeepers of potential problems due to increases in disease or lack of nutritional resources.



We are ready to launch our Sentinel Hive program, but we need your help in spreading the word. The vanEngelsdorp bee research lab was selected by the U of Maryland's crowdfunding program LAUNCH. Our goal is to raise $10,000 by Oct. 22 to fund a pilot program of 10 Sentinel Hives with pollen and disease monitoring. Money raised above our goal will fund extra Sentinel Hives.

Any $2,000 donation receives a talk by Dr. Dennis vanEngelsdorp to your group. He will travel out-of-state, so long as his travel expenses are covered. Or if your club would like to be included in the Sentinel Hive program, a $2,000 donation will fund a dual hive system and two years of monitoring.

Sentinel Hives allow us to develop data driven best management practices for beekeepers in real time, improving honey bee health. Our program will include an interactive website that tracks colony weight gain and losses, providing insight into nectar flows and colony health. Collecting such data will allow us to develop recommendations for best management practices, encouraging colony health for all beekeepers.

Please help us spread the word!

As you can see our team, pictured above, is very excited about this project.

You can check out the campaign and video at:

https://www.launch.umd.edu/honeybees

Follow our campaign on twitter by tagging all posts with #all4bees

Check out our Facebook page:

https://www.facebook.com/BeeInformedPartnership

Become a ***Sentinel Hive SuperHero*** and help honey bees thrive.

Waxing Philosophical ~ the Beekeeping Puzzle

"How Much Honey Is Wax Worth?"

Back in the May/June issue of the "Bulletin", Marcin Matelski from the Windy City Bees Google Group posed a very technical Waxing Philosophical question. The answers to this question came slowly, and it was worth the wait. In this issue, Waxing Philosophical straps on its bifocals and pocket protector to bring you some serious Bee Math – and thank goodness for anything in beekeeping which can be accurately measured by numbers. But even with some heavy bee math, we are still struggling with exact figures. Follow along and see where YOU weigh in.

Question: We've all heard, or read, that it takes 8 lbs. of nectar/honey to produce 1 lb. of wax. That statement alone is a contradiction of itself. Nectar is not honey. I've read that 1 lb of honey equals to about 3.65 lbs of nectar. I've also read reports from commercial beekeepers in Canada of their observations, where colonies are able to forage for 20 lbs. of nectar (in a single day), which then they estimated to be ~8 lbs. of honey. Bees were foraging on canola. Based on that, if it takes 8 lbs. of honey to produce 1 lb. of wax, it would take ~20 to 30 lbs. of nectar to produce that same pound of wax. But, according to this 1861 ABJ article "Cost of producing wax", one experiment took 20 lbs of honey and another 13 lbs. of honey to produce a pound of wax.

"Cost of Producing Wax", from the American Bee Journal, Volume One, Page 88, printed in 1861

"How many pounds of honey are required to enable bees to produce a pound of wax? This is an interesting and important question. It has been frequently investigated, and the conclusions arrived at differ greatly.

"Gundelach made some minute and careful experiments, the details of which are given in his "Natural History of the Honey Bee," and the results showed that about twenty pounds of honey were used by the bees, in producing a pound of wax. But in his experiments, the bees were confined to the hive; the queen, also, was placed in duress, apart from the workers; and the latter were not supplied with pollen – which was not supposed to be needed for the production of wax. Thus the little colony was clearly in an abnormal condition, and the result showed only how much honey, bees, under such circumstances, require to produce a pound of wax.

"A similar experiment, with like results, was made by the Baron of Berlepsch. In a subsequent experiment, he allowed the bees free access to pollen, and ascertained that, in such case, thirteen pounds of honey (exclusive of the pollen consumed,) sufficed to produce a pound of wax. But as here also the bees were kept confined, the result does not show how much honey is used by the bees for this purpose, in their free and unrestricted operations, at the season when comb is usually built – that is, when pasturage abounds, and the weather is favorable to their labors, in doors and out.

"Again, Count Stosch, taking the second experiment of the Baron of Berlepsch, as the basis of his estimate, thinks due allowance should be made for the time spent in comb-building by the bees, and which, if devoted to honey-gathering, would have enabled them to store up at least twenty pounds. Hence he concludes that, with the actual consumption and the necessary allowance for time and labor, the cost of a pound of wax is fully equivalent to thirty pounds of honey. This, in money value, at eighteen cents per pound, is equal to four dollars and fifty cents; whilst the wax itself, properly prepared for market, would not sell for more than forty cents – thus involving substantially a loss of four dollar and ten cents. From all this he infers, that the beekeeper cannot afford to melt down good clean empty combs; and that the most profitable mode of disposing of them, whilst they remain in a condition acceptable to the bees, is to re-insert them in the hive on the removal of filled combs – thus saving the time, labor, and honey required for the construction of new combs. He further remarks, that his estimate is based on the operations of bees in ordinary periods. Whereas, if comb be built when pasturage is very abundant, time and labor being then more precious, the cost of a pound of was is of course much greater, or fully equivalent to fifty pounds of honey. Hence he regards it as very important, or rather highly essential, that the beekeeper should be so situated as to be able to supply his bees with empty combs ad libitum while pasturage abounds; and induce them to build combs, if any be needed, only at times when the nectar of flowers is less plentifully yielded. It is at such times only, that wax can be produced by bees at the minimum cost. Bees will build freely and rapidly only when pasturage is abundant; but their labor might then also be more profitably employed. Besides, the weather may suddenly change and cut off their supplies, and they may find themselves in the position of having

Waxing Philosophical ~ the Financial Figuring on Wax

continued

having spent honey and time in the construction of combs, which they are subsequently unable to fill. But if their energies had the while been wholly devoted to gathering honey, and their stores garnered in combs supplied by their owner, their store-house would have presented a different and far more gratifying spectacle. If, afterwards, pasturage should continue to be only moderately abundant, a portion of the full combs may be removed, to give the bees an opportunity to build new ones. This would check their disposition to swarm, and prevent them from idling away their time, from want of storage room. If, in the end, from unfavorable weather, they fail to build comb, or are unable to garner additional supplies, their preservation during the winter may easily be secured, by restoring to them some of the full combs previously removed.

"This is, no doubt, a judicious process, deserving of imitation; but still the Count's estimate of the cost of producing a pound of wax, is evidently somewhat exaggerated; for he does not take into consideration that the nectar of the flowers, as gathered by the bees, is not precisely in the condition of what is known as honey. It contains so great a proportion of mere water, that it must lose one fourth of its weight by evaporation, before it attains the proper consistency to be called honey. Again, comb-building is to a great extent carried on at night, when bees do not leave their hives to forage, however abundant the pasturage may be. During the height of the gathering season, moreover, honey is more quickly converted into wax, than at other periods; and consequently the alleged loss of time is, doubtless, less than he assumes. Nevertheless, making due allowance, the cost of producing a pound of wax is manifestly greater than the Baron of Berlepsch rates it; and probably fully as high, if not higher, than the original estimate made by Gundelach."

So, my first question is, does anyone know if it's nectar or honey?
And, my 2nd question is, does anyone know of any studies done to determine how much nectar, or honey, it takes to produce 1 lb. of wax?
~ Marcin Matelski, Chicago, IL

Answers:

#1: This is a really hard question and one that most researchers have abandoned to some degree because it is so hard and has so many moving parts. Most calculations in the past were based on feeding bees in a lab setting and seeing how much wax was produced from X amount of honey or sugar fed. This is a bit shaky because you have to select young bees who physiologically can produce wax, then you need those cues so that there is a perceived need and then you need a high carbohydrate (sugar) source of food to fuel the wax production, plus temp. and humidity etc. Lots of room to mess up. And as a result, the general consensus/opinion is that it takes about 8 lbs of honey to make 1 lb of wax. I think it is mentioned in one of Mark Winston's books. But, I have also seen a 6 lb figure. And, truthfully, either one could be correct based on the wiggle room in collecting data on this subject.
~ Jerry Hayes, St. Louis, MO ~ 2 votes

#2: As a rule of thumb, you sacrifice ten pounds of honey for every pound of wax the colony has to produce. **~ Rich Ramsey, Rochester, IL ~ 1 vote**

#3: From what I have been told and read - It takes 8 pounds of honey to make 1 pound of wax.
~ Doug Leedle, Mulkeytown, IL ~ 2 votes

#4: I have always used 8 pounds of honey to make one pound of wax. I read this in my early days of beekeeping and never researched it further. I heard other beekeepers use 10 pounds. Your question led me to some google searching which yielded answers from 2 to over 20 lbs. The variables to determine for certain are many and not necessarily all controllable (temperature in the hive for one). I am sticking with my 8 pound figure.

According to Whitcomb's 1946 experiment, 6.66 to 8.80 pounds of honey yields 1 pound of wax.
Les Crowder's study of five Langstroth hives, which re-use comb after honey extraction, and five top bar hives, which extract honey by crushing the comb, concluded 75%-80% as much honey production and 600% as much beeswax production in the top bar hives, which suggest 24-30 pounds of wax per 1 pound of honey. These studies only measured honey production versus comb production; they did not account fully for bees' feeding in a closed environment.
Michael Bush: There are two studies that I have been able to find that are specific about the proportion of conversion. The first was by Huber in Volume II, Chapter II of his "New Observations Upon Bees". "Amounts of wax produced from various sugars "A pound (453 grams) of white sugar, reduced to syrup, and clarified with the white of an egg, produced 10 gros 52 grains (1.5 ounces or 42 grams) of beeswax darker than that which bees extract from honey. An equal weight of dark brown sugar yielded 22 gros (3 ounces or 84 grams) of very white wax; a similar amount was

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The Brood Chamber: Fall's Harvest

By Astrid Sabo

I love Fall. Especially during Halloween, I love carving pumpkins. I usually stay with the "classic" spooky face or maybe even a cat. However, in honor of the Brood Chamber, I wanted to make something different this year. So I decided, why not carve a bee in my pumpkin? (You can see it in the photo below.)

Looks awesome, right? There was just one little problem.....I had some pumpkin flesh left over! So I decided to make puree, It really is so easy and has only 4 steps! Waste not, want not after all.

Pumpkin Puree.

Perfect for pumpkin pie or any other recipe that calls for canned pumpkin.

1.) Preheat oven to 350 degrees. Cut your pumpkin into hand length pieces and arrange on a cookie sheet (do not put any oil on top). You can save the seeds to roast later.

2.) Place pumpkin in the oven and cook untill the pumpkin is fork tender (this is when a fork can be pushed into the pumpkin without much resistance) about 40 minutes.

3.) Take out of the oven and let cool for 5 minutes. Place a piece of pumpkin on a cutting board, you should be able to easily peel off the skin. Cut the pumpkin into 1 inch chunks.

4.) Place a handful of pumpkin in a blender (you can also use a food processor, food chopper, or a food mill) and pulse until smooth and no lumps remain. You can either freeze the puree or cook later, like in these Pumpkin Waffles or Pumpkin Honey Butter!

Pumpkin Waffles.

Soft with a delicate pumpkin flavor, perfect for a quick snack. Makes 8 servings.

1 ½ Cups Flour
2 teaspoon Baking Powder
½ teaspoon Baking Soda
½ teaspoon Cinnamon
½ teaspoon Nutmeg
½ teaspoon Ground Ginger
¼ teaspoon Salt

2 Eggs
1 Cup Puree Pumpkin
1 ¼ Cup Milk
¼ Cup Oil or Melted Butter

1. Mix the Flour, Baking powder, Baking soda, Cinnamon, Nutmeg, Ground ginger (you can also use 2 teaspoons of pumpkin spice instead of using cinnamon, nutmeg and ground ginger!) and Salt together.

2. In a separate bowl, beat eggs and milk until well combined. Add pumpkin and oil. Mix well.

3. Mix the liquid ingredients into the flour mixture, stir until well combined.

4.) Cook in your waffle maker according to manufacturer direction. (I cook my waffles for 3 ½ -4 minutes and they turn out nice and brown). Serve hot with butter and fresh Honey.

Pumpkin Honey Butter.

Makes 6 jars.

4 ½ Cups Pumpkin Puree
1 ¼ Cups Honey
2 Tablespoons Fresh Squeezed Lemon Juice
2 teaspoons Grated Lemon Zest
3 teaspoons Cinnamon
1 teaspoon Nutmeg
½ teaspoon Ground Cloves
½ teaspoon Pumpkin Pie Spice

1. Mix all of the ingredients together in a pan. Let them simmer for 45 minutes, stirring often so it doesn't burn.

2. Take the pan off of the burner and ladle the hot pumpkin honey butter into clean, sterilized 8 oz. canning jars.
3. As soon as you have filled all of the jars, move them into the refrigerator to seal them. Keep them in the refrigerator to give as gifts! Once opened, the jars will last one month.

ISBA Fall Meeting Vendors

We will be having three beekeeping supply vendors at our Fall Meeting. They are Dadant & Sons in Hamilton, IL; Isabees, out of St. Louis (an authorized Walter T. Kelley dealer); and Leedle Houme Bees, located in Mulkeytown, IL (an authorized distributer for Mann Lake).

And as a special offer to our attending members, all three have agreed to let you **place orders with them to be picked up at the meeting, saving you the shipping costs**. Just contact them and tell them you will be attending the ISBA Fall Meeting, and they will bring your items with them. The amount of things they can bring is limited, so **place your order early** to ensure they can accommodate you.

Looking forward to seeing you at the meeting,
Corky Schnadt
Secretary, ISBA

How Much Honey Is Wax Worth? ...Continued

obtained from maple sugar.
We repeated these experiments seven times in succession, with the same bees and we always obtained wax in nearly the same proportions as above. It therefore appears demonstrated that sugar and the saccharine part of honey enable the bees that feed upon it to produce wax, a property entirely denied to the fecundating dust."--Francis Huber
The next was by ***Whitcomb***, referenced in ***"Beeswax Production, Harvesting, Processing and Products" by Coggshall and Morse (pg 35)***

"Their degree of efficiency in wax production, that is how many pounds of honey or sugar syrup are required to produce one pound of wax, is not clear. It is difficult to demonstrate this experimentally because so many variables exist. The experiment most frequently cited is that by Whitcomb (1946). He fed four colonies a thin, dark, strong honey that he called unmarketable. The only fault that might be found with the test was that the bees had free flight, which was probably necessary so they could void fecal matter; it was stated that no honey flow was in progress. The production of a pound of beeswax required a mean of 8.4 pounds of honey (range 6.66 to 8.80). Whitcomb found a tendency for wax production to become more efficient as time progressed. This also emphasizes that a project intended to determine the ratio of sugar to wax, or one designed to produce wax from a cheap source of sugar, requires time for wax glands to develop and perhaps for bees to fall into the routine of both wax secretion and comb production."

Of the two, Huber's was confined which insures there was no outside source of nectar. But the conclusions of Whitcomb were that efficiency changes over time and other studies I've seen show that a young bee who becomes a wax worker at the appropriate age and who has done it a while is more efficient than an older bee who has reverted to wax making or a younger one who hasn't gotten into the "swing of things". So the actual number would be hard to come by. I agree with ***Taylor*** who says:

"The opinion of experts once was that the production of beeswax in a colony required great quantities of nectar which, since it was turned into wax, would never be turned into honey. Until quite recently it was thought that bees could store seven pounds of honey for every pound of beeswax that they needed to manufacture for the construction of their combs—a figure which seems never to have been given any scientific basis, and which is in any case quite certainly wrong."--Richard Taylor, The Comb Honey Book
~ David Bergman, Grayslake, IL ~ 3 votes

Next Issue's Question: Why do hives swarm in the fall? How can this be avoided?
~ Merle Gerson, Grosbik, IL

The Buzz About Town

ISBA Bulletin is eager to accept **your article submissions** from now through March 1st! In the desire to bring you your Bulletins on time, and the hope to publish articles written by our own Association Members, your ISBA Bulletin Editor asks for your creative contributions over these winter months.

Do you have an idea for an article? Is there a topic you would like to read about? Please contact Eleanor Schumacher and submit your contributions or ideas! THANK YOU!

November 19, 2014, 7:00 pm - 9:00 pm

The **Will County Beekeepers Association** will host **Part Two of the Wax Workshop.** In Part One of our workshop, members brought between 8 and 16 ounces of clean, white or bright yellow capping wax (no brown or burr comb) that had been washed in warm water to remove residual honey. The collected wax went into a common pool to demonstrate how it is melted, separated, filtered, and used in molds and in candle making.

At this meeting, part 2 of the workshop will involve working with the wax to make blocks, figurines, and candles. Those that contributed wax will get at least a portion of it back in a finished form. Join us at the

Will County Farm Bureau
100 Manhattan Rd, Joliet, IL 60433

Beekeeping Classes at Kaskaskia College in Vandalia, IL

Queen Rearing and Bee Propagation

Saturday, Nov. 1, 2014 from 8 am to 12 noon.
Kaskaskia College Vandalia Campus,
2310 West Fillmore, Vandalia,IL 62471,
Ph: 618-283-1780

This is a lecture course covering all aspects of Queen Rearing and Bee Propagation. The class fulfills the IQI Producer requirement for an approved class.

Keeping Healthy Bees

Sat., Nov. 15 from 8 am to 12 noon. Kaskaskia College Vandalia Campus, 2310 West Fillmore, Vandalia, IL 62471 Ph: 618-283-1780

This is a lecture course on keeping bees healthy without chemical treatments, IPM management, and identification of bee pests and diseases.

BIG RIVERS BEEKEEPERS ASSOCIATION
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Affiliate Associations:
Publicize your bee events here!
Contact
Eleanor Schumacher
with your club news at
bubblebubb@gmail.com.
List new and events on the ISBA website as well by sending the information to the ISBA webmaster,
Steve Petrilli,
s.petrilli@comcast.net.

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Membership in the Illinois State Beekeepers Association is open to all persons interested in bees and beekeeping. Beekeepers are urged to join through their local Associations or individually if no local Associations are available. Dues are $10 for the calendar year January 1 through December 31 only. Dues include a subscription to this newsletter, the ISBA Bulletin. Beekeeping journals are available to ISBA members at about 25% discount. Mention membership in ISBA when sending your subscription payment to the publishers. Rates are subject to change without prior notice.

Make checks for membership payable to: Illinois State Beekeepers Association and mail to: Illinois State Beekeepers Association, Membership, P.O. Box 21094, Springfield, IL 62708.

Address Changes: Send old and new address six weeks prior to date of change when practical to the Association Secretary. At large members can send the changes to the ISBA Membership Director via email.

Reduced Journal Rates for 2014 (members only)

	1 yr	2 yr	3 yr
American Bee Journal	21.00	39.75	56.25