

The Missouri State Beekeepers Association Brood



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2018 State Fair – Another Successful Year

By Erin Mullins

Another successful year of the Missouri State Fair is in the books. The MSBA should be extremely thankful for the hard work that Dean Sanders and Wes and Wanda Johnston do promoting our organization at the fair. They put in long hours during the fair and many hours of work of preparation before the fair. Because of their hard work thousands of people each year are exposed to the MSBA and have the opportunity to learn about honey and beekeeping.

Our booth is set up in the Agriculture building with honey and bee products for sale, honey and wax on display for contest, and an observation hive for the public to look at and learn about our favorite insect. We also have volunteers manning the booth answering question after question. With the honeybee being in the media and news spotlight the past few years people have developed a strong interest and I feel that we are able to give them knowledgeable answers and can help clear up any misconceptions they may have. Our most popular item we sell would definitely be the Honey Ice cream made by Nancy and Domenic Giofre of Giofre Apiaries AKA “The Honey Ice Cream People”. I had several people tell us that it’s one of the main reasons they come back to the state fair every year!

While at the fair this year I had the opportunity to fill in at the Consumer Showcase Stage where I did a 30 minute presentation about honeybees and



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From the President

by Clayton Lee

Another wonderful showing at the Missouri State Fair thanks to Dean Sanders, Erin Mullins, Wanda and Wes Johnston!!! This group worked the entire session!! Jim Reeves gave several hours, too. Special thanks them!!

Charlotte Ekker-Wiggins and I spent several hours/days helping at the Heartland Apicultural Society's Conference at Washington University in St. Louis. There were a lot of Missouri Beekeepers there despite the heat. We gathered some good information and touched base with several potential speakers for MSBA. It provided excellent information for all and was a good time. Next year's Conference will be in Nashville, Tennessee – July 10-12th.



I have contacted several past recipients of MSBA's Beekeeper of the Year (BOTY). We have BOTY award records going back to 1976 and trying to contact them has been a challenge. Some have moved, and a few have passed away. As I visit with them on the phone, you can hear a smile as they tell me stories about their beekeeping friends. It is very much a warm family feeling.

The 2018 MSBA Fall Conference will be held in Kirksville, MO. We will be Recognizing Our Past Beekeepers of the Years! If you know one, encourage them to attend.

Feel free to let me (or anyone on the Executive Committee) know what you would like to see the MSBA accomplish. My email is leeland55@gmail.com. I hope your days will be filled with great times with honey bees!

History Tidbit

The Second MSBA Meeting

"The Missouri State Beekeepers Association will meet in Mexico, Mo., Dec. 15, 1903. Mr. J.W. Rouse, of that place, will act as host to direct the attendants to the hall, which is free to all who desire to attend. Board can be had at the leading hotels at \$1.00 to \$2.00 a day. Come everybody who is interested in bees and paid up members. Let us have it 100. Procure certificates from your local railroad ticket agents when you purchase your tickets. It may be you can return for one third fare. W.T. Cary, Sec." This article is from Gleanings in Bee Culture, November 15, 1903. FYI – The first "convention" held in Moberly had 67 names on the members roll.

MSBA Membership

Membership dues remain at \$10 per individual. You may renew your membership by going to the MSBA website and utilizing PayPal or mail your check to me with your first and last names, address, telephone number, and email address. I gladly accept batch memberships if given the information on a typewritten list and either a check from the local club's treasurer or secretary.

With the change of the website some folks have renewed well in advance of their membership expiration. You should now receive notice the month preceding your membership expiration. While the website is going through growth spurts please contact me if you have questions regarding your membership. Some of you have paid until 2019! Thank you for supporting MSBA!

Wanda Johnston
MSBA Membership
401 NW Heady Avenue
Ferrelview, MO 64163
<mailto:bees@kc.rr.com>

September Honey Ambassador Update

The Ambassador schedule has been slow lately. I was able to attend the newest bee club forming in Missouri. Their first meeting was in August. They are in the Warrensburg Area and you can look them up on Facebook (group name Warrensburg Area Beekeepers).

It is a group of beekeepers with all ranges of experience and it was a great opportunity to not only see a club starting relatively close to where I live, but to catch up with old friends and meet new beekeepers who I most likely wouldn't have met. Beekeeping clubs are a great way to meet local beekeepers and I highly suggest everyone goes to their local clubs (Or try to start a club) it will be a great experience not only for yourself but other beekeepers who may not have a lot of experience.



In August I attended the Missouri State Fair to work the MSBA Booth for 4 days. This is a great opportunity and

I suggest any beekeeper work the state fair booth at least once. My favorite part of educational booths is getting to talk to people from all around Missouri about the importance of Honey Bees and how to get start in beekeeping. Another great opportunity you'll get is the ability to talk to other beekeepers from around the state. I hope to see you all there next Fair!

There is still time to book Ambassador events before the Fall Conference! Contact Amy Giffen at amygiffen@hotmail.com or through the mostatebeekeepers.com. I hope to see you all in Kirksville at the Fall Conference October 19 and 20.

2018 State Fair – Another Successful Year

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how people can get involved with beekeeping. I also did a demonstration and game about pollination with Kids as they visited the Ag Building. Kyle Day the 2018 MSBA Ambassador came and helped several days and was able to join myself and Wanda when we judged the 4H cooking with honey contest. It was great interacting with other organizations to help promote beekeeping, honey, and pollination.

The State fair can't be successful without the help of many people and I want to thank them here. Dean, Wes, and Wanda thanks for the countless hours you put in

making sure everything is in order and runs smoothly. Thank you to Kyle Day our 2018 Ambassador for being a great representative for the MSBA. Thank you to the contestants for entering your honey, wax, and bees so that the public has an opportunity to see and learn about the products of a hive. Thank you to the many bee clubs and individual volunteers who came to help man the booth. If you have never worked at the fair I strongly encourage you to come down and work a shift. It's a lot of fun and such a great opportunity to engage with the public and share our love with them about the honeybee.

Good Times at MSBA State Fair Booth

Photos from Erin Mullins



2018 Fall Conference Agenda

FRIDAY, OCT 19

General Sessions

8:15 Welcome, Clayton Lee MSBA President

8:30 – 9:15 AM Jerry Hayes “Best Practices for Keeping Bees”

9:15 – 9:30 AM Q & A Jerry Hayes

9:30 - 9:40 AM Break

9:40 – 10:20 AM Dr Judy Wu-Smart “Effects of Pesticide Residues in Brood Comb”

10:20 – 10:30 Q & A Dr Judy Wu-Smart

10:30 – 10:50 AM Break / Vendor Hall

10:50 – 11:30 AM Jerry Hayes “What is Monsanto doing for Honey Bee Health?”

12:00 – 1:00 PM Lunch

1:05 – 1:40 PM Dr Julian Rangel, “Factors that affect Reproductive Health in Queens and Drones”

1:50 – 2:30 PM Dr Judy Wu-Smart, “Troubleshooting Queen Failures”

2:30 – 2:50 PM Break / Vendor Hall

2:45 – 3:15 Q & A Panel Jerry Hayes, Dr Rangel, Dr. Judy Wu-Smart

3:20 – 4:15 PM

Breakout Workshops

Option # 1 Cliff Hollenbeck, Commercial Beekeeper, “Marketing & Honey Sales”

Option # 2 Grant Gillard, “Nicot Queen Rearing”

Option # 3 Charlotte Wiggins, Master Gardner, “Native Planting for Honey Bees & Pollinators”

5:00 – 5:45 Vendor Hall Open

SATURDAY, OCT 20

General Sessions

8:15 Opening Remarks, Clayton Lee

8:30 – 9:15 AM Dr Julian Rangel, “Queen Rearing Basics”

9:15 – 9:30 AM Q & A Dr Rangel

9:40 – 10:20 AM Jerry Hayes, “HBHC, Tools for Varroa Management”

10:20 - 10:40 AM Break / Vendor Hall

10:40 – 11:15 MSBA Business & Recognition

11:30 – 12:30 Lunch

12:30 – 12:45 Vendor Hall Open

12:50 – 1:30 Dr Julian Rangel, “Biology of Mating”

1:45 – 2:45 PM

Breakout Workshops

Option # 1 Jane Sueme, Isabees Inc., “Small Scale Extracting, Bottling & Labeling”

Option # 2 Chef Bill Allinder, “Cooking with Honey”

3:00 PM MSBA President Clayton Lee

Business

Drawings

Closing Remarks



2018 Fall Conference

October 19-20

A Salute to Beekeepers of the Year Past and Present



Truman State University - Student Union Building
901 South Franklin St., Kirksville, Mo 63501

Register online at
www.MOStateBeekeepers.org
Receive two free tickets for a
prize drawing.

Conference Cost \$65.00 Please note this fee does not include membership dues or meals.
MSBA Member Registrations submitted online and before
September 29, 2018 will receive a \$10.00 discount.
(This early registration discount will be refunded back through PayPal™ once membership is verified)
Saturday Only Registration \$45.00 (Early member discount does not apply for Saturday Only)

Featured Speakers:
Jerry Hayes
Judy Wu-Smart
Dr. Juliana Rangel

Optional Meals:
Friday Noon meal/lunch - \$15.00
Friday evening banque - \$16.00
Saturday Noon meal/lunch - \$15.00

Vendors:
Missouri Wildflowers



Breakout Classes:

Chef Bill Allinder, "Cooking with Honey"
Grant Gillard, "Nicot Queen Rearing"
Charlotte Wiggins, **Master Gardner**,
"Native Planting for Honey Bees & Pollinators"
Cliff Hollenbeck, **Commercial Beekeeper**,
"Marketing & Honey Sales"
Jane Summe, **Isabees Inc.**,
"Small Scale Extracting, Bottling, & Labeling"

Lodging

Days Inn Kirksville- \$69.99

1-660-665-8244

University Inn & Suites - \$89.

1-660-627-1100

Hampton Inn - \$95

1-660-956-4686



A number of rooms have been blocked off at each of
these hotels until September 25.

When you call the hotel tell them you're
with the MSBA Conference to
receive the above pricing.



Missouri State Beekeepers Association

2018 Fall Conference

October 19-20, 2018

Student Union Building – Truman State University
901 South Franklin Street, Kirksville, MO 63501

Online Conference registration at www.MOStateBeekeepers.org will earn you two (2) FREE tickets for prize drawing!!! You can pay your dues online, too. Thank you!

Regular mail registration (Please print name as you prefer on name tag):

First Name:

Last Name:

Street: City: State: Zip Code:

Email: Telephone: () -

Your Local Beekeeping Club/Association:

Conference Cost: \$65. Please note this fee does not include membership dues OR meals.

MSBA Member Registrations submitted online & Before September 29, 2018 will receive an \$10 discount (off the regular \$65)! This early registration discount will be refunded back through PayPal™ once membership is verified.

Individual (Friday and Saturday) \$65.00 X =

Optional meals (please let us know if you prefer vegetarian or gluten free meals):

A. Friday noon meal/lunch \$15.00 X =

B. Friday evening banquet \$16.00 X =

C. Saturday noon meal/lunch \$15.00 X =

Individual (Saturday Only) \$45.00 X =

Please Note that Registrations Received On or After September 29, 2018 will be accepted at the same price, but meal purchases are not guaranteed.

Other

Honey Queen/Ambassador Fund Donation (\$10.00 Suggested):.

TOTAL AMOUNT ENCLOSED: \$

If you have any questions, please email Bruce Snavelly Conference Chairman brucesnavely@hotmail.com

If you cannot register online, please make checks payable to the **Missouri State Beekeepers Association** and send it along with your completed registration form to: **Clayton Lee, 90 East Pope Lane, Smithville, Missouri 64089.**

Lodging: There are several hotels in Kirksville. We contacted a few and have rooms blocked off for MSBA members until September 25th. When you call the hotel tell them you're with the MSBA Conference to receive this pricing.

Below please find some with their contact information:

- Days Inn Kirksville, 3805 S. Baltimore, Kirksville, MO 63501, (660) 665-8244, \$69.99. Twenty (20) rooms available.
- University Inn & Suites, 2702 South Franklin St., Kirksville, MO 63501, (660) 627-1100 \$89. Forty-five (45) rooms available
- Hampton Inn, 2604 N Baltimore St, Kirksville, MO 63501, [\(660\) 956-4686](tel:6609564686) \$95. Thirty rooms (30) available.

The Calendar of a Production Beekeeper

By Maxwell Helm, SW MO Regional Director

Most of the time, when I ask hobby and beginner beekeepers about when their beekeeping season starts, the most common answer is in the spring when their nucleus colonies or packages arrive. However, the beekeeping season starts in September.

I know some of you are thinking, September, but that is at the end of the summer! Yes, it is the end of summer, but that is when the beekeeping season truly begins. As we go through the calendar months, you will start to see the true beekeeping season. Some of you depending on what area of the state you live in, may have to tweak these dates a little to fit your area and yes, there are very different temperatures and weather patterns throughout our state. Beekeepers in SE MO will have a month head start on beekeepers in the rest of Missouri. It generally warms up that much faster there. As we go through the beekeeping calendar, I want you to remember that I have put this calendar together to fit our operation, our treatment protocols, and our honey harvesting dates to fit the nectar flows that we have in SW MO. Our set of procedures allows us to maximize the most production we can from the least amount of inputs as possible.

September – September 1st is the time that I finish pulling all the honey and finish up all extraction work. This is also the time I do alcohol washes to test the mite loads in every yard. I try to check 30-40% of the colonies in each yard. That gives me a pretty good rough average for the yard. Now that the weather is starting to cool off a little in September, I start the mite treatments. Sometimes September can still be a pretty warm month so depending on the temperature and the mite load in a yard, we will use either formic acid (MAQS) or Thymol. I urge caution at this point because these mite treatments are very temperature sensitive and can do harm to the brood and kill queens. The first 3 days are the strongest for these fumigants, so watch your weather temperatures closely.

Everything gets treated on our operation going into winter no matter what the mite loads are. This allows the bees to be as clean as possible going into winter. We are also feeding, feeding, feeding at this point in time. We are feeding for a couple reasons. First, mite treatments are stressful on the bees and second, we just harvested all their honey, so now we have to replace their food stores. Now that all the mite treatments are done, we are ready to take our losses in the fall. What I mean by this is, now we are ready to go through and evaluate each hive. Any poor producing colonies, queenless colonies, failing queens, etc. are combined onto a strong productive colony for the winter. We do not try to re-queen anything at this point. Now we have strong colonies with good queens ready to raise clean, healthy bees for the winter.

October – We are still feeding and raising brood. We are trying to get our hives as heavy with food stores and new bees as possible going into winter. On our double deep (DD) hives, I want to see 10 frames of stores over the cluster of bees. Roughly 80-90 lbs. of stores should be available by the end of October. In the single-story hives, I want to see the bees backfilling the brood area with stores and shrinking the brood area down by the end of October. This is also the time to get the wax rendered and everything cleaned up for winter.

November – We are still feeding the light colonies and monitoring the weights of all the colonies. November is getting cold, so now is the time to do your homework. Wooden ware needs to be ordered so you can begin assembling. Also, this is a good time to start making contacts with queen producers and getting those queen orders lined up. Yes, I said queens. If you want early queens in large quantities, now is the time to order them.

December – The weather is now cold. The bees should be tightly clustered. For those that like oxalic acid

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The Calendar of a Production Beekeeper

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(OA), now would be a good time on a day that is above 40 degrees to do a mite treatment. We are still working on assembling wooden ware. Also, you should be going around every few weeks and checking on your bee yards, monitoring weights and so forth. Also, in the spirit of Christmas, stop by your landowners and give them a few jars of honey.

January – It's cold, I know nobody is thinking about beekeeping but guess what, those 'ol cold days are getting just a few minutes longer and those queens know it. Some strains of queens will start laying in January, so you need to be monitoring those hive weights closely. We are still working on assembling and painting wooden ware and we are getting those queen orders finalized.

February – Most years it is bone chilling cold now and I know we all want to be sitting by the fire, but now is the crucial time to be checking those hive weights. Some of those queens may have a couple frames of brood or more in the hive and the bees will start consuming more stores to feed larvae and to generate heat to keep the brood warm. We are still building equipment and all the early queen orders are in.

March – We are starting to feed a little now. The queens have high amounts of brood now and the bees are consuming a lot of stores to keep the brood warm. Also, be sure to continue monitoring the hive weights. March is a bee killing month in SW MO, because between the

ramped up production of brood, temperature swings and lack of food stores, many bees/colonies will die. We are finishing up the wooden ware, getting nucleus boxes and brood boxes filled with new frames and foundation. Also, we are getting the bee truck pre-loaded as we await the arrival of April. March is also a good time if you wanted to do an OA mite treatment to clean the bees up coming out of winter.

April – This is the month we have prepared all winter for with cool nights and warmer days it's time to get to work. Queen orders are arriving and we are splitting colonies and making nucleus colonies (nucs). Some queens might be thinking about swarming. Be sure to check the trees while driving, you would be surprised how many swarms you will find. Always be prepared.

May/June – We are still making some nucs and grafting queens now that we have a mature drone population. We are also adding honey supers and catching swarms.

July/August – The heat is cranking up, the nectar flow is slowing down and we are pulling all the capped honey off for extraction. In August, we are starting to do some mite load testing as well.

September – Wow! Where did the year go! Time to start all over again!



Congratulations!

Top Honors go to two young ladies from the MSBA Northeast region at the Missouri State Fair's 4H Cooking With Honey contest. Left of judge Erin Mullins are Elizabeth Seiler from Macon 1st place and Karlie McGee from Madison 2nd place. MSBA Honey ambassador and judge Kyle Day is far right.

Managing Space in the Honeybee Hive

By Roger Wood

Space, the final frontier... Wait, What? No. I don't want to talk about the limitless reaches of the universe. I do want to talk about space as it relates to managing beehives.

Space in the beehive may not have been emphasized in any of your new beekeeping classes but it is a factor that the successful beekeeper learns to consider when manipulating his/her hives even if it's on a subconscious level. This discussion will present my present thoughts how I manage space considerations centered around a single brood box nest size (1 deep or, in my case: 2 mediums). But the general process of expanding and contracting these volumes and the timing of these manipulations are universal to any configuration the beekeeper chooses. They are tied to bee behavior and my ability to interpret that behavior into actionable management on my part. The general 2 deep or even 3 deep brood nest configurations many keepers use have value for any beekeeper for many reasons (i.e. less manipulation, less monitoring, less need to read the bees, more winter food storage capacity, and less labor to name a few). This makes it very useful and attractive to the new beekeeper just learning to keep bees. These are all relevant and important elements of your management decisions and we all must weigh our goals and understanding when we determine our overall management plan.

Let's first talk about the total space in our hives and what some research shows. I will be referring to the standard Langstroth hive dimensions since most of us are keeping bees in these boxes. You folks with other configurations will need to do the math to figure where your hives stand. The 9 5/8 inch (240 mm) 10 frame Deep body box is about 42.7 liters (11.3 gal) The same 9 5/8 inch 8 frame box is 35.5 liters (9.4 gal) and the 5 frame deep body nucleus box is 22.5 liters (5.9 gal). For 6 5/8 inch (170mm) deep medium boxes; 10 frame is 29.4 liters (7.8 gal), 8 frame is 24.4 liter (6.4 gal), 5 frame is 15.5 liter (4.1 gal). These volumes are all based on 18 3/8 inch interior length and 14 3/4 inch width (for 10 frame), 12 1/4 inch width (for 8 frame) and 7 3/4 inch width (for 5 frame) boxes.

From Information Bulletin # 187, "Bait Hives for Honeybees", A Cornell Cooperative Extension Publication, Authored by Thomas D. Seeley, Roger A. Morse, and Richard Nowogrodzki, we are told that the average bee swarm preferred swarm boxes of 40 liters to boxes sized at 10 liters or 100 liters. 40 liters is just about the same size as our 10 frame deep (at 42.7 liters). And the 100 liter size is about the same as 2 deeps and a medium box, if anyone is counting.

So, let's just keep this in the back of our minds as we continue this discussion. The "elephant" in this hive box at the moment is that bees do not naturally seek out large cavities that equal the volumes we beekeepers tend to keep our bees in (2 deeps+). Even when presented with a choice, bees prefer 40 liters. That suggest to me that the bees at least do not recognize an advantage to larger cavities and indeed, their survival finds larger spaces less important to natural reproduction. I'm not sure how important this point is but I am of the opinion that keeping your space at a minimum between this 40 liter size and enough space to allow the bees to expand either to increase the brood nest for spring buildup or to store surplus during a flow to be an important condition to strive for. Keeping the bees' mindset on buildup and filling the space while never letting them reach conditions that trigger their instincts to switch efforts from that "growing and filling the cavity" to raising queen cells and preparing to swarm is what it is all about. As my hive cluster grows in numbers, if my timing is right, the additional space added will be accepted with gusto and the bees will continue to expand their storage with no apparent limit and no thought of swarming. The key here is: "if the timing is right". Speaking of timing, I will be referring to time in sections based on brood cycles of 21 days or 3 weeks. I start counting from the first week you detect broodrearing in the spring or the week you start a package or swarm. For Nucs you will need to look at the nest to set your starting point based on the size of the brood nest.

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You may be thinking that I am suggesting that two deep brood boxes for winter or even for buildup is too much space. I'm not. I am perhaps suggesting that this extra space may be less than ideal to the honeybee's instincts and that may complicate our job as beekeepers. I do think it requires a beekeeper's attention and it may be an underlying point of contention between the beekeepers wants and sensibility and the bee's instincts. Single deep brood box management works on these principles of expanding and retracting the cavity as necessary and many commercial keepers use this management style to success.

Space management can be divided into two main goals, expansion and contraction. Expansion can be divided into two subgroups: buildup and supering. Contraction can be subdivided into nest contraction and super removal. I won't be talking too much about contraction in this article. I will concentrate on expansion. I will also touch on winter space which is usually static in managed beehives but space is still an important consideration.

Let's first talk about brood nest expansion. Buildup refers to anytime you or the bees want to/can expand their colony size as it relates to individual bee numbers. The typical scenarios for buildup would include an established overwintered colony's (feral or managed) natural buildup in spring or new starts like nucs, packages, swarms, or splits. They all follow the same route and needs but their timing and rate of buildup can be different. Additional categories of buildup not often recognized in this type of discussion is fall buildup/winter prep and any beekeeper trying to manipulate an increase in bee numbers using artificial energy input (feeding) for any reason. These periods of buildup are tied to the honeybee's natural instinct to reproduce. This natural behavior culminates in the act of swarming. Beekeepers try to capture the bees natural impulse to expand their colony numbers to reproduce (swarm) without allowing them to culminate that instinct.

Management success during a bee hive's buildup depends on the beekeeper's ability to recognize the combination of changing environmental conditions and in-hive activities before the colony collectively decides that conditions are right to swarm. For a deeper dive into all buildup variables check out Randy Oliver's ScientificBeekeeping.

com. Maintaining a portion of open comb within the brood nest can keep the bees' mindset on continuing buildup. Three frames of sealed brood, when emerged, will cover the surface of 9 frames of comb. That requires you to recognize those needs for space before they occur. You want to try to always maintain some open comb in the nest area that allows the queen to expand to her full egg laying capacity.

During early expansion of the nest, the number of bees available to cover the eggs and larva is the limiting factor. Later, as the colony numbers grow, open space and the queen's ability to lay eggs begin to be the limiting factors. In single box winter management, you will add a second deep brood box (or third medium) to support the queen's expanding egg laying. If you wintered in 2 deeps you do not need to add a box when sealed brood frames reach 3. But if you are in 1 deep or 2 mediums, you will be ready to add another box for the nest before the queen has 3 frames of sealed brood at one time. For good healthy hives this will occur about early to mid-March in the spring for me but can vary across the state southeast to northwest as much as 2 weeks or just a few days or can also vary by two weeks either way based on weather, year to year, in the same location. Other buildup periods should be laid out on a calendar marked off in three week periods.

With plenty of food, a healthy average hive and healthy queen, and three full brood cycles of 63 days (or about 2 months), an average hive can and should double in size (numbers of individuals). The take away is to adjust your expectations from my generalizations based on your queen and colony performance for that year and the time of year you are monitoring buildup. Brood area is the easiest indicator to track week to week to base your space needs for an individual hive during buildup. You are monitoring the proportion of eggs, larva and sealed brood in the total nest areas well as the expansion of this activity to determine your future space needs.

Folks that are managing new starts (swarms, nucs, packages), the difference is that your hive is drawing new comb from empty frames or foundation. Experienced beekeepers know that when the first box is drawn between 75% and 80% , you will add another box. You

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will monitor just like we have discussed but you will see slower expansion due to the energy cost spent with drawing comb. This additional burden of energy demand can expose problems in a hive such as a weak queen (poor mating), health issues and/or parasites (mites).

Although I have chosen to talk about buildup and supering separately, they are just a continuation of space increase to maintain the keeper's goals and prevent the culmination of the bee's swarm instinct. By the fourth brood cycle after the beginning of brood laying, your hive should be approaching a crossover threshold. Space concerns at this time shifts from just keeping the brood nest working to responding to the nectar flow strength and your total bee numbers.

A minimum crossover threshold would be around 25,000 bees. At this strength, the hive begins to collect more surplus nectar. Your hive has to be this strong before they can work your supers effectively so if they are not this strong you do not add supers. Timing your buildup to local nectar sources is a key goal. The field bees are plentiful and capable of gathering pollen and nectar in surplus. Nectar contains 50% water or more, so it takes 2 to 3 times the comb space to hold and spread out new nectar to dry in the combs. You will need to become experienced with your locale to know how many boxes of comb you need to start supering. I add 3 mediums on or about April 1. For my area, this is the ending of dandelion and the start of fruit tree blossom.

If you are building a startup, the bees will be drawing new comb so you will have to stay with adding one box at a time, after 80% of current space is drawn. Comb building can still happen very fast and for some, very easily, so monitor closely. If you have already witnessed your bees drawing comb quickly in the brood area before this point, they usually continue that pace in the supers as long as nectar sources are continuous. This is why new beekeepers are told to feed new starts continually. But without context, the lesson and reason why can be lost for the new beekeeper. If build out is not fast, your population age may not be optimum or strong enough or another issue is causing the bees to stall. Knowing your local plant blooms and what you have the most of will help you determine when you should add supers. It is always better to be early than late when supering so error on "too soon" rather

than crying "too late". Once you have numbers and nectar coming in, you need to stay ahead of the bees and make sure they have space above the nest to store all incoming nectar. If they decide they are full above the nest, they will turn to backfilling the nest which naturally moves the brood nest down and increases the hive's swarm impulse. At this point, I just ride out the flow, monitoring how full my supers are and at what rate they are bringing in nectar. I monitor as often as the flow may dictate and I always leave at least one empty box available to the hive after I inspect during a flow.

Space management in the fall (end of August to November) is a little different than spring buildup for me. I do not expect any surplus from fall sources. My hives either enter fall with my empty supers still on top of the inner covers (bees protect and clean the supers) or they still have the spring honey stored in them. These will be taken off, any honey extracted, and the comb stored. At this time, I try to set my winter configuration (2-3 medium boxes 1 or 2 deeps) by end of September and prepare my hives for winter. I try to make the hive as close to the 40 liter size as I can. Sometimes my clusters are just too large to force them into the size of a single deep and I have to go to 2 deeps (3 mediums). The take away is that I try to fit the box to the cluster.

If I have done my fall management correctly, I have sized my winter setup based on the size of the cluster. Having a winter cluster that can cover a portion of all frames is ideal but probably not what happens. Clusters do not move to adjacent frames as easily as they can just move along a frame from front to back. Not having access to all stores in the box is common and many times, smaller clusters just move straight up in the boxes (called "stovepiping"). Stored honey is left below on frames left or right of the cluster and never accessed during winter. Sizing your box to the size of your cluster can be important. With smaller clusters, consider wintering in 5 frame double nucs. They have the same volume as a 10 frame deep but more of the honey is directly above the cluster in early winter.

Managing open and occupied space in the beehive is an important part of today's management scheme. The keeper that learns to recognize the bees' behavior beforehand and how it relates to open space in the hive will increase his/her success.

Be a MO Pollinator Steward!

*By Charlotte Ekker Wiggins,
East Central Regional Director*

For every 10 people who take Missouri beginning beekeeping classes, only one successfully moves on to keep bees. The rest, for a variety of reasons, don't engage, leaving a large pool of potential helpers informed but not involved. That is, until now.

For the past year, the University of Missouri has sponsored a working group to develop a Master Pollinator Steward program for the state. The purpose of this 6-class program is to capture those 9 out of 10 people who want to help pollinators but don't want to keep honeybees, the largest of the pollinator groups.

The first class was launched May 2018 and a series of classes will be starting this fall around the state.

There are several unique aspects to Missouri's Pollinator Steward program.

The classes are designed to be held in conjunction with local bee clubs so participants have access to local beekeeping experts.

Proceeds from the classes are recommended to be evenly divided between University of Missouri Extension offices, which do the administration of the program, and the local bee clubs.

Participants not only have classroom instruction but each chapter includes hands on exercises appropriate for the time of year.

Finally, those who take the course will be armed with information to identify the various native pollinators and plant pollinator-foraging plants. Lack of plant diversity and poor nutrition sources is one of the three major challenges to keeping bees worldwide.

As a member of the working group, I was taken back to my days pursuing a master's degree. Hours of research, some going back to original historic references, were



fascinating although not necessarily incorporated into the final class materials. Knowing that some people may pursue beekeeping after taking this course, the beekeeping chapter focused on the basics including an updated section on honeybee pests and diseases.

Cost for the classes is \$90 per person and the class is designed for adults.

Missouri State Beekeepers Association endorsed the general concept for this program October 2015.

For more information on Missouri's master pollinator steward program, visit

<https://extension2.missouri.edu/programs/programs-master-pollinator-steward>

Guidelines on how to set up a Master Pollinator Steward program class are here:

<http://extension.missouri.edu/pollinator/startup.aspx>

For more information, contact James Quinn at quinnja@missouri.edu.

--bzzz--



The Bee MD

*By Gregg Hitchings
MSBA-Southeast Regional Representative*

The Heartland Apicultural Society (HAS) Conference July 11-13, 2018 in St. Louis in July was outstanding. By far, it was the best bee-oriented gathering I've had the opportunity to attend. Kudos to all of the volunteers and presenters who made it that way.

However, for those of us who were attending to soak up whatever information we could glean to help us become more successful beekeepers, it wasn't all peaches and cream. The challenges came when it was necessary to choose which break-out sessions to attend out of the dozens offered over the three-day event. Those choices were difficult!

One of the sessions I chose to attend was presented by Dr. Dewey Caron, a noted bee researcher/lecturer/author. Dr. Caron introduced The Bee MD, a web based interactive "decision-tree" approach to diagnosing common issues found in our hives such as not having queens, diseases,

and signs of swarming. It also assists the beekeeper in determining the difference between normal and abnormal conditions through observations, much as your MD might do to diagnose a health condition. This diagnostic application is designed to be used on computers as well as hand held devices such as tablets and smart phones for ease of use in the field.

Dr. Caron was quick to point out The Bee MD program has sections which are still under development and not fully functional but some are up and running at this time. Actually, the plan is for the application to never actually be "finished" as the information will be continually evolving and updated as science and technology add new information to the ability to diagnose and understand hive health.

Check it out here: <http://www.thebeemd.com>

The link is also accessible on MSBA's website through the resources tab.

All MSBA Information You Need Is Available By Visiting Our Website

Missouri Beekeepers Association Executive Directors

Find The Current List of Directors and Contact Information By Visiting Our Website

mostatebeekeepers.org/executive-committee

Looking for a Local Club?

If you're a new beekeeper a local club will be invaluable to you.

If you're a seasoned veteran you'll be invaluable to a local club.



Find Your Local Club By Visiting
mostatebeekeepers.org/local-clubs