Do Honey bees Sleep?

Below are a few excerpts from the lengthy original article. Many of have been told for years-’once honey bees emerge as adults, they work continuously until they perish and never sleep’. The full article is quite informative and filled with charts, tables, research data, etc. (Editor)

Apis mellifera workers exhibit age polytheism, or the changing of task sets with age. A worker honey bee begins life as an egg laid within a beeswax cell. After passing through the developmental stages of larva and pupa, the freshly eclosed worker (called a callow) spends the first days of her adult life as a member of the ‘cell cleaner’ caste, spending much of her time oriented headfirst in cells – occasionally cleaning these cells. After 3 days as a cell cleaner, the typical worker spends days 4–12 of adulthood as a ‘nurse bee’, feeding and tending brood and the queen, followed by days 13–20 as a ‘food storer’ (or ‘middle-aged bee’), receiving and storing fresh nectar. A worker bee spends her remaining days in the ‘forager’ caste, exiting the hive in the search for and acquisition of nectar and pollen to feed her colony. The age polytheism schedule of worker honey bees is flexible, and depends on variables ranging from genetic predisposition to colony needs and the caste demographics within a colony. Task sets performed by bees may profoundly influence bee sleep, as demonstrated when Bloch and Robinson induced foragers to perform the tasks of nurse bees, resulting in a reversion from rhythmic back to arrhythmic behavior.

Definition of sleep in honey bees- Although the set of characters considered diagnostic of sleep ranges widely and no set of characters has been universally adopted in the literature, several ‘sleep signs’ are deemed critical by most researchers when defining sleep behaviorally. A sleeping organism exhibits a specific posture during easily reversible bouts of relative immobility, during which its arousal threshold is increased. The definition of sleep, initially behavioral, expanded to include correlating electrophysiological measures and the combination of behavior and electrophysiological recordings has often been used to identify sleep in vertebrates. Individually, behavior and electrophysiology present limitations when used to define sleep. Brain states often differ between sleeping and wakeful organisms, but relying on electrophysiology alone can result in misidentification of sleep in mammals and birds, and is less informative for other animals. Some attempts to electro physiologically distinguish between wakeful and quiescent states in invertebrates have been performed, but these gross measures require coincident behavioral characters to reliably establish sleep. Alternatively, relying exclusively on a subset of behavioral characters can also be misleading. Immobile animals can have low arousal thresholds, and animals with high arousal thresholds can be awake but reluctant to move (e.g. habituated to disturbance). A cautious application of operational definitions relying on correlations of sleep signs is often a necessity when identifying a sleeping animal.

Results- Worker bees from each caste exhibited sleep signs. Results include data for bees that were relatively immobile and were observed either outside or inside cells. We report antennal states associated with sleep in bees as either ‘antennae immobile’ (i.e. antennae motionless) or ‘antennae variable’ (i.e. antennae motionless, slightly twitching, or exhibiting larger, usually swaying motions). Data representing these two categories allow for additional analyses of ‘deep sleep’ [as Kaiser was tempted to call the sleep state during which antennae are immobile] versus total sleep exhibited outside cells, respectively.

Sleep outside cells Older bees slept longer and with greater 24 h periodicity outside cells than did younger bees. The percentage of observations in which relaxed, immobile bees exhibited antennal immobility did not differ between cell cleaners and nurse bees, but was greater in food storers and greatest in foragers. The same relationships held when antennal states were variable, except that nurse bees did not significantly differ from cell cleaners or from food storers.

Immobile inside cells The cell cleaner spent more time immobile inside cells than her older sisters; the forager spent no time in cells. The cell cleaner spent more time immobile, in or out of cells, than older bees, because of her extended immobile periods spent inside cells.

Complete article- http://jeb.biologists.org/content/211/18/3028.full#ref-19
President’s Corner

By: Greg Swob

Until this year, I had never attended one of the ‘big’ bee meetings. October 1-3, 2015 found me along with a very small Kansas contingent at the Western Apicultural Society annual meeting in Boulder, Colorado. Over 300 bee keepers attended this conference. Among the attendees were large scale commercial producers and many who were just getting started with their first colony or two. The camaraderie experienced felt a lot like a KHPA meeting, but on steroids. The theme and general message of this W.A.S. conference was – Healthy Bee—Bee Healthy. While Kansas is not officially located in the W.A.S. region, all beekeepers are welcome to their meetings. States west of Kansas, including Alaska and Hawaii and four Canadian provinces make up W.A.S. membership. With their conference at Boulder being so close and my affection for Colorado, I just couldn’t resist attending! All speaker presentations are available at W.A.S. website www.westernapiculturalsociety.org

Beth Conrey is the current president of the Colorado State Bee Keeper’s Association. She was also the 2015 W.A.S. President. Beth and I have developed a good friendship over the last couple of years and we visit often. When Beth took over as president of the Colorado state association, it was ‘circling the drain’. CSBKA only had around 50 members with a couple hundred dollars in the treasury account then. Membership has swollen to over 1,500 beekeepers and an admirable treasury today. If you’ve never met Beth, imagine her as a human dynamo of energy, exuberance and overall dedication to this industry. Managing over 50 colonies of her own along with a full time (non-honey) retail business, Beth keeps quite busy. Yet. she invariably makes time to chat with anyone, anytime, almost anywhere about bees. I am impressed with her work ethic and her philosophies toward administration of CSBKA.

With bee health as the general topic, the sessions focused around a variety of things facing our industry. Neonicotinoids, CCD, wildflower conditions, agricultural pesticide tank mixes, queen viability, bee keeping health tips, to name a few. Dr. Marla Spivak was a speaker at lunch one day. She and several other professors gave very impressive and common sense presentations on those topics.

One of the more fun sessions was making “Seed Bombs”. In short, we took a 5 gallon bucket half full of clay/soil mix, blended in a variety of pollinator friendly seeds, damped the mixture slightly then rolled it into hundreds if walnut-sized balls. Once the seed bombs dry, you can bike, drive or walk along and toss a seed bomb here and there to help distribute pollinator friendly flora. I have bombed my neighbors’ pastures, pond perimeters, road ditches and other nearby areas with dozens of seed bombs. Now, it’s up to Mother Nature to help the bombs work with snow and rain.

Our own Tim Tucker, President of American Beekeeping Federation was mentioned. He was part of the U.S. contingency who visited Korea in order to compete for the US to host Apimondia in 2019. The Canadian group was successful in becoming the 2019 host. Hopefully my budget will allow a road trip to our neighbor up north in ‘19. Now that I’ve attend a larger conference such as W.A.S., I have the urge to attend an even larger one.

A plethora of vendors filled two rooms. The usual: bee equipment companies and some lesser known groups such as Drift-Watch Specialty Crop Site Registry, Pheasants Forever and too many others to mention here. If you’ve ever been to Boulder, to call the locals ‘a little bit out there’ is an understatement. One local vendor was a psychologist selling CD’s using sounds to ‘bring your colonies into harmony with the world’. Other vendors offered unique products of the hive such as propolis toothpaste, shampoo or unique hive bodies, tools, etc. We all have our methods.

Now, back in Kansas I am focused on doing all I can to keep my bees healthier. For one, we have incorporated Oxalic Acid for treating Public Enemy #1—Varroa Mites. A number of other tips will become part of my on-going experiment to manage bees here in Central & Western Kansas. Happy New Year ’16 to you all and I hope to see you at the spring 2016 KHPA meeting in Pittsburg, Ks.

Finally, be sure to check out our soon-to-be new & improved website. Your Executive Committee met recently to select changes with the site’s provider. I can’t wait to take a test drive on the information highway to see how it handles. A huge Thank You to William Graham, Webmaster.
Youth Grant Enters Year Two

by Becky Tipton

Congratulations to the Stringtown Bombers 4-H group for being selected as the 2016 Youth Grant Recipients! This group is lead by Monique Hart of Burlington, KS along with Brenda Kulbek, Horticulture Leader for the Bombers. These ladies are excited about this opportunity and have great plans to promote beekeeping with the youth of Burlington. Thank you Bombers for the application and your interest in honey bees! Danny Decker, long time KHPA member from Lyndon, KS, has agreed to mentor this group. Danny has been active in his own 4-H group for years and is looking forward to helping them be successful with their bees. Thank you Danny! This program will not work without good mentors.

Our two 2015 Grant recipients are hard at work preparing their bees for winter. The Olathe Boy Scout group also represented themselves very well at the Kansas State Fair, winning the Best of Show in the Youth Division—EXCELLENT WORK GUYS!! They did a fine presentation at the fall meeting and it looked like they both learned a lot and had a good time doing it.

The Abilene Brown’s Busy Bees have indeed been busy providing weekly reports throughout the season, keeping both their members and the KHPA informed of their progress. Their hives are in great shape and, hopefully, will make it through the winter. The Brown’s group has big plans for next spring and I’m looking forward to their continued success and hearing about it at the spring meeting in Pittsburg.

Ft. Hays State University forms a Bee Club!

Elyssa Jensen (daughter of KHPA members Amy & Mike Jensen of rural Ellis County) and Ryan Engle are shown with a poster they displayed at the Student Union while promoting the new campus bee club. At the time of Cappings release, this new club has submitted their By Laws to University officials, secured a faculty advisor and have at least nine potential members. Now they are awaiting the university’s final approval for the club. Dr. Mirta M. Martin, President of FHSU is very supportive of this group’s mission. She has suggested they place at least one hive behind her on-campus President’s Residence next year. Other hives will be located at the FHSU Community Gardens near the Northwest edge of campus. Several local bee keepers have offered assistance to the new club as mentors and advisors. We look forward to seeing this new club getting off the ground.

The group would like to see FHSU conduct experiments with bee keeping and perhaps even develop a set of programs to serve bee keepers in the Midwest.

Inset photo at upper right shows FHSU Community Garden where FHSU-hives will be located next year.

Did you know?

KHPA memberships can now be renewed online!!!

www.kansashoneyproducers.org
Spring 2016 Kansas Honey Producers Meeting  
Friday and Saturday March 4th and 5th 2016  
Lamplighter Inn—Pittsburg KS  
4020 Parkview Dr., Pittsburg, KS 66762 Phone: (620) 231-8700

The spring meeting of the Kansas Honey Producers Association will be held in Pittsburg KS at the Lamplighter Inn. Call to reserve your room at 620-231-8700. Our room rates are $75 plus tax. Reservations should be made by February 2nd. We have some great guest speakers lined up—Dr. Diana Sammataro, who is currently retired from USDA Honey Bee Lab, Dr. Diana Sammataro, co-author of the Beekeeper’s Handbook (4th ed. 2011), is now giving talks and lectures on beekeeping and does independent bee research under her new business name, Diana Brand Honey Bee Research LLC. Dr. Chip Taylor from KU has tentatively agreed to be a speaker—hopefully this isn’t wishful thinking on my part! Several of our own association members will fill in as some of the speakers—we are so thankful to have such knowledgeable members who are willing to share their knowledge! The costs of this meeting are being kept to a bare minimum so that as many as possible can attend. To keep costs down members are asked to bring desserts to accompany the Friday night dinner. If you have questions please call me, Joli Winer, at 913-856-8356.

Thursday, March 3rd, 2016 Executive Committee meeting - Lamplighter Inn 8:00 pm
Friday, March 4th 2016

Meeting in the Ballroom
8:00-845 Registration & Silent Auction Set-Up
8:45-9:00 Welcome and Announcements
9:00-9:45 Honey Bee Biology- Dr. Diana Sammataro
9:45-10:00 Break

A-Advanced Ballroom- ABC    B - Beginners- DE
10:00-10:45 B. Equipment Possibilities and Terminology, Steve Tipton
10:00-10:45 A. Beeswax

10:50-11:35 B. Getting Started How, When and Where to put them. Includes installing a package
10:50-11:35 A. Marketing Your Honey on a Commercial Level-Tim Tucker Presents

11:35-12:20 Pollination Biology- Dr. Chip Taylor

12:20-1:20 Lunch on your own
1:20-2:05 TBA
2:05-2:50 Swarm Biology—managing your bees-Dr. Chip Taylor
2:55-3:40 A. Evaluating your Over Wintered Hives and Making Nucs and Re-queening, Kristi Sanderson (Ballroom)

3:40-4:25 Microbes in Bees-Why some are good, Dr. Diana Sammataro
4:25- Meeting of Regional Directors with attendees from their areas

6:00 Dinner & Program
Spring 2016 Kansas Honey Producers Meeting
Friday and Saturday March 4th and 5th 2016
Lamplighter Inn—Pittsburg KS
4020 Parkview Dr., Pittsburg, KS 66762 Phone: (620) 231-8700

Saturday, March 5th, 2016

8:00-8:30 Registration & Silent Auction Set-Up (Ballroom)
8:30-8:40 Welcome and announcements
8:40-9:30 Bee Nutrition-Diana Sammataro presents
9:30-10:15 B. Growing Fruit Trees Chad Gilliland is an orchardist with over 15 years experience and will talk about the best varieties of fruit trees for our area as well as other tips for successful fruit growing.  
9:30-10:15 A. Growing your package of bees or nucleus from a small colony to a producing colony—Kristi Sanderson Presents
10:15-10:30 Break

Concurrent Sessions in the morning  A— Ballroom ABC  B— DE

10:30-11:15  B. Fall and Winter Management of your hives
10:30-11:15  A. Making Creamed Honey
11:15-12:00  B. Supering your hives and Removing Supers-
11:15-12:00  A. Giving a talk to the public. What should be in your talk and how to present it. Brian Patrick presents-Brian teaches Public Speaking at Johnson County Community College
12:00 -12:15 Grant Recipient Presentation
12:15-1:15 Lunch on your own & End of Silent Auction at 1:15
1:15-1:45 General Business Meeting
1:45-2:30 Varroa Diagnosis and Management, Dr. Diana Sammataro

Concurrent Sessions in the afternoon:
2:30-3:15  B. Small Scale Extracting,
2:30-4:00  A. Making soaps and balms-Becky Tipton presents-2 sessions
3:15-4:00 Collecting Pollen & Producing Comb Honey

Program subject to change

Fall KHPA 2016 meeting- October 29 & 30 2016 Dodge City
The Kansas Honey Producers’ Association Spring Meeting
Friday & Saturday, March 4 & 5 2016  Registration Form

NAME_______________________________________________________
ADDRESS____________________________________________________
CITY___________________STATE_________ZIP+4_________________
COUNTY__________________PHONE____________________
E-MAIL_________________________write email address clearly
□ Check here if you would like to receive your newsletter by email

Registration & payment now accepted with PayPal at www.kansashoneyproducers.org

Pre-registration (must be received by February 22nd- after Feb 22nd price $50pp)

Meeting Registration
Per person if paid before February 22nd ($40.00 X _____) =_______
Per Person if paid after February 22nd ($50.00 X _____) =_______
List names of those registered for name tags
___________________________________________
___________________________________________
Children-please list for name tags (under 18 free)
___________________________________________
___________________________________________

Friday Dinner - Chicken Mary’s ($12.00 X _____) =_______
Children under 12 ($ 6.00 X _____)= _______
Ham and Chicken-(meatless spaghetti for those observing Lent)
German Potato Salad, German Slaw, Green Beans

Our wish is that all attendees who are non-members will join, however we welcome everyone to the meeting!

Membership for Kansas Honey Producers Association: ___ Renewal ___ New $15.00_______
Youth Membership 2016 (18 years of age or under) ___Renewal ___ New $ 7.50_______
Membership 2016 Northeastern Kansas Beekeepers Assn: ___Renewal ___ New $15.00_______

Donation for Grant Project

$ __________

Note: No receipts will be sent Total $__________

Please make checks payable to: Kansas Honey Producers Assn or KHPA and mail to Robert Burns, 7601 W. 54th Terr., Shawnee Mission KS 66202913-or email rburns@kc.rr.com
Registration & payment now accepted with PayPal at kansashoneyproducers.org
If you have questions please call me, Joli Winer, at 913-856-8356.
Meet the new Region Directors

At the Fall 2015 KHPA meeting in McPherson, three new Region Directors were elected by the members. Let’s take a moment to meet them here. Be sure to say hello to them at the spring 2016 KHPA conference in Pittsburg, Ks.

North Central Region—Dr. Jim Morford

Dr. Jim Morford is the new North Central Region Director of KHPA. He is a retired educator and health care administrator, and a long time pastor. He's been a long time beekeeper, having kept bees as a hobby for some thirty years. In addition to his work with honey bees, He and his wife, Wanda, own and operate Morford Lavender Farm near Kanopolis, in Ellsworth County. He is a member of the Board of Directors of the US Lavender Growers Association, and actively involved in, and former Chair of, the Education and Research Committee of that organization. Jim is a life member of KHPA, and is excited to help get North Central Kansas Beekeepers to come together for fellowship, support, and learning. Jim and Wanda hosted a gathering of North Central Kansas beekeepers last March and looks forward to now officially in this position hosting a group to support and encourage one another. Jim can be contacted at jrm0614@gmail.com, or on Facebook at Jim Morford or Morford Lavender Farm. His website is "www.morfordlavenderfarm.com". Need directions? Go to Google Maps, type in "Morford Lavender Farm" and follow directions.

Northeast Region—Chad Gilliland

I am Chad Gilliland, a graduate of Kansas State University (1993) with a Bachelor of Science Degree in Natural Resource Management and a minor in Forestry. I have been employed as a branch manager with Arbor Masters Tree and Landscape out of the Kansas City metro area for 15 plus years. I have been involved with beekeeping now for 3 years and started with 2 hives in 2014, increased to 8 hives in 2015, and is working on a jump to 20-25 hives in 2016. By definition, I am a “hobbyist beekeeper”, but my heart and desire is working towards the concept of a “sideline beekeeper”. My part-time small business, Next to Nature Farm located northwest of Tonganoxie was formed 8 years ago with the introduction of a 75 tree fruit orchard and a poultry breeding program. As the orchard has matured we have added honey bees for improved pollination and from there we have been absolutely hooked on the honeybee fix. I am excited to represent the Kansas Honey Producers Association as the new Northeast Kansas Regional Director and will work hard to represent such a great group of people in the Northeast Kansas region.

Northwest Region—Mark Wood

Hi, I am Mark Wood from Colby, Kansas. I was recently elected to represent the Northwest as Region Director on the Kansas Honey Producers Board of Directors. Like any good beekeeper, I like a beautiful field of clover. This picture was taken in Wyoming, near Guernsey. My wife and I drove to Alaska and back this summer (9,267 miles). There were thousands of acres of clover like this field of CRP in Wyoming.

Beekeeping in Colby can be a real challenge. Northwest Kansas hasn’t been a productive place, in fact I have lost more hives in the last 12 months than in the previous 15 years combined! I enjoy the hobby, but my wife would like there to be enough Honey to pay for the hobby.....wish full thinking!

My day job is as an Agricultural Economist with K-State Research and Extension working in the Farm Management Association in Northwest, Kansas. I am in my 30th year of working with farm producers in NW Kansas. My wife, Lucy, is an interpreter for Spanish speaking patients in our local hospital and clinic. My son is studying to be an Architect at K-State. My daughter is studying to be a midwife.
Dr. Norman Schmidt, Chemistry professor and South Central bee keeper discusses 'Chemistry & the Bee Hive' with a group of Western KS bee keepers. The group met at the Hays Public Library on Dec. 6, 2015

An alarming slide seen at W.A.S. in Boulder. Note that Kansas is ‘red tagged’ as one of the states seeing 50% to 87% reductions in honey production when comparing 1986 vs 2012. What was not mentioned was that Kansas had experienced the most brutally hot summer in 2012 since 1980. Weather history in central Ks. shows 1986 was also warmer than average over winter with Heating Degree Days of 4687 vs. an average of 5294. The summer of 1986 showed Cooling Degree Days of 1392 vs. 1809 for 2012. What these statistics mean—2012 was a much hotter summer than 1986 and both years had milder winter temperatures than the 30 year average for the region.

Rich Abel shows off several handy devices he uses in his operation. Above is a foundation stiffener. He incorporated bamboo rods centered from the upper frame bar. This helps keep foundation from breaking/falling when inspecting a TBH or Langstroth hive when using natural foundation. This was one of several items presented at the Show & Tell portion of South Central BK meeting in Norwich at Sharon & Jim Rowan’s shop in Norwich, Dec. 12, 2015.

Do you have- Stories? Advertisements? Questions?
News? Send them to the Cappings Editor
Greg Swob—1569 Toulon Ave.
Hays, Ks. 67601  785-639-7766
gswob@mwenergy.com
For Sale:

150-175 hive operation for sale after Jan 1, 2016, located at Hoisington, Ks. All queens new in 2015 Italian, Carniolan, and Russian. Complete honey house operation including- older 12/21 frame extractor, new heated mixing-bottling tank, 300 lb. storage tank, heat bath for 60 lb. jugs, several stainless benches and sinks. Extraction, storage and bottling equipment meets FDA requirements. Several empty containers- 2 oz. to 60 lb.

Lots of production equipment: 2 newly built 16 hive trailers- all steel with new wheels and torsion axles. 350- 400 supers waxed. A number of new supers to be assembled. Boxes on unopened wax, including food grade for comb. Stacks of deeps with good wax- majority are less than 5 yrs. old. Extra division board feeders, a few extra boxes and extra frames, drawn and undrawn, hundreds of frames that need cleaned and re-waxed.

Retail customer base established with several stores throughout Kansas. Professionally printed label for all sizes of containers. Limited Liability Corp.

NO PARTIAL SALES. Please don't ask for individual item prices or just to buy the bees.

Call for more information. Steve Weber – 620-786-8753

Register your bee hive locations at no charge. Commercial agricultural chemical applicators should visit this site to verify if sensitive crops, including honey bee colonies, are near where they intend to spray. They will know who to contact with hives near their intended spraying locations.

American Beekeeping Federation

The American Beekeeping Federation (ABF) will act on behalf of the beekeeping industry on issues affecting the interests and the economic viability of various sectors of the industry.

Heartland Apicultural Society

Heartland Apicultural Society was founded in 2001 by Tom Webster (Researcher, Kentucky State University) Greg Hunt (Entomology, Purdue University), and Zachary Huang (Entomology, Michigan State University).

If a man does his best, what else is there? Gen. George S. Patton
Baklava Cookie Cups

**Ingredients:**

**For the Cookie**
- 2 cups - unbleached all-purpose flour
- 1 teaspoon - orange zest
- 1/2 teaspoon - ground cardamom
- 1/4 teaspoon - salt
- 1 cup - unsalted butter, room temperature
- 3/4 cup - honey

**For the filling and syrup**
- 1/2 cup - pistachios, chopped
- 1/2 cup - honey
- 3 tablespoons - water
- 2 teaspoon - orange juice
- 4 - green cardamom pods, crushed
- 1 - cinnamon stick

**Directions:**
Heat your oven to 350 degrees and grease a 24 cup mini muffin tin.
In a medium mixing bowl combine the flour, orange zest, cardamom and salt.
In the bowl of your stand mixer with the paddle attachment, cream the butter and honey for about 1-2 minutes. The mix will look a little curdled at this point and that’s fine, scrape down the sides. Beat in the eggs, then the vanilla. Mix in the flour in two parts.

**Baklava Cookie Cups:**
Using a cookie scoop, scoop the dough into the prepared muffin tin and bake for 10 minutes.
Remove from the oven, let sit for about 3-4 minutes before using a dowel to carefully press down in the center of each cookie to make a well.
Let the cookies cool for about 15 minutes in the tin before removing to a cooling rack to cool completely.
Once the cookies are cool prepare the syrup.
In a small saucepan over medium heat combine the honey, water, orange juice, cardamom pods and cinnamon stick. Bring to a simmer and remove from the heat. Drizzle a small amount in the bottom of each cookie cup and then fill with the chopped pistachios. Drizzle more syrup on top of the filled cookie cups.

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10 K Cereal Bars

**Ingredients:**

- 1/2 cup - butter or margarine, melted
- 2 Tablespoons - honey
- 1/2 teaspoon - salt
- 2/3 cup - sliced or diced walnuts
- 2 - eggs, beaten
- 2 cups - granola cereal
- 1 teaspoon - vanilla

**Directions:**
Place all ingredients in large mixing bowl. Blend well. Pat into greased 8-inch square baking dish. Bake at 350°F 18 to 20 minutes or until lightly browned. Cool and cut into 16 bars.

Recipes from our friends at www.honey.com
Precipitation forecasts for the coming winter’s El Nino. Our region is expected to see 33% - 40% or more increase in normal precipitation.

**Backyard Beekeeping Question**

With so many choices! Are there advantages to using plastic vs. wooden frames and what about wax vs. plastic foundation? *Kansas Newbee*

**BBQ**—Newbee, some consider the frame as the heart of the hive—it is both the nursery and the pantry of your colony. There are indeed choices of frames and foundation. Wood frames with wax, or plastic foundation; all plastic frame/foundation, and empty wood frames with naturally made foundation to name a few. Let’s talk about a few benefits & drawbacks of each.

**Benefits:** Wood is natural and renewable; bees readily accept wood; wood is easy to work with and assembling frames gives you a sense of accomplishment. If you get cursed with American Foulbrood, these frames can be burned to prevent future outbreaks.

**Drawbacks:** Wood can split or warp; wax moths can damage wooden frames; assembling them is time intensive, motorized extractors can tear up wood frames if they get bound up during extracting process.

**Plastic Foundation benefits:** No assembly required (unless you use plastic foundation in wooden frames); wax moths can only damage the wax portions, not the plastic; they hold up well in an extractor.

**Drawbacks:** Plastic is not renewable; bees often may not accept it as readily as wood & wax; if you are unfortunate and get Foulbrood, burning is not an option with plastic.

**BBQ Guy** prefers wooden frames with plastic foundation inserts. A new bee keeper gets the benefits of being involved with hands-on frame construction. This combination is also often available at a slightly lower cost than all-plastic frames. Ask your mentor for his/her opinion, after all that is the person you are working with who knows you, your region, budget and abilities.

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**Upcoming Events**

**American Honey Producers Assn**

Annual Conference and Trade Show
Albuquerque, N.M.—Jan. 5-9, 2016
[www.ahpanet.com](http://www.ahpanet.com)

**American Bee Federation**

American Bee Federation Conference and Trade Show-
Ponte Vedra Beach (Jacksonville), Fla.
Jan. 5-9, 2016 [www.abfnet.org](http://www.abfnet.org)

**Great Plains Growers Conference**

January 7-9, 2016 at Fulkerson Conference Center Missouri Western State University—St. Joseph, Mo.
[www.greatplainsgrowersconference.org](http://www.greatplainsgrowersconference.org)

**2016 Spring KHPA Meeting**

March 4 & 5, 2016 at Pittsburg, Ks.
Details in this newsletter and more to come at: [www.kansashoneyproducers.org](http://www.kansashoneyproducers.org)

**Northcentral KHPA gathering**

Morford Lavendar Farm—Jan 17, 2016 - Kanopolis

**Northeast Ks Bee Funday**

June 4, 2016—Douglas County Fairgrounds
Guest speakers: Dr. Jamie Ellis - Dr. Marion Ellis.
Dr. Chip Taylor - Jam-Bee-Ree
[http://www.nekba.org/beefunday.html](http://www.nekba.org/beefunday.html)

**Mother Earth News Fair** October 22 & 23, 2016
Kansas Expocentre | Topeka, KS 66612
[http://www.motherearthnews.com/fair/kansas.aspx#ixzz35Wc1nWwX](http://www.motherearthnews.com/fair/kansas.aspx#ixzz35Wc1nWwX)

**2016 Fall KHPA Meeting**

Dodge City, Ks. October 28-29
Kansas Honey Producer’s Association
Cappings
R Burns
7601 W. 54th Terrace
Shawnee Mission KS 66202

Address Service Requested

2015 Kansas Honey Producer’s Association Membership Application

Name__________________________________________________________
Address____________________________________________________________________________
City______________________________________ State __________________________ Zip Code_________
Phone# ________________________________ E-mail Address ______________________________________________________________________

Membership Kansas Honey Producer’s Association per year (Jan.-Dec.) $15.00___________

Additional family members wanting voting rights $1.00 per person $1.00 ____________

Additional family member’s names:
____________________________________________________________________________________
____________________________________________________________________________________

Youth Membership (18 years of age or under) $7.50___________ American Bee Journal 1 year subscription $21.50___________

Bee Culture Magazine (formerly “Gleanings”) 1 year subscription $25.00_______________

Donation Amount______________________ Total Due _________________

Make checks payable to: KHPA or Kansas Honey Producer’s Association or pay on line at www.kansashoneyproducers.org

Mail to: Robert Burns, 7601 W 54th Terrace, Shawnee Mission, Kansas 66202 Phone# 913-831-6096 or email- rburns@kc.rr.com

The Kansas Honey Producer’s Association is a non-profit IRC 501(c)5 agricultural-educational organization, run by dedicated volunteers, and supported primarily by membership dues (subscriptions). The IRC status means that the association is a tax-exempt organization. While donations are always welcome, they are not tax deductible as a charitable contribution. However, membership dues and subscriptions may be deductible as ordinary and necessary business expenses.