

WAS Journal



Journal of the Western Apicultural Society of North America

Volume 42 Number 3

August 2019



State of WAS Bees | Regional Happenings | Master Beekeeper Programs
Phytosterols and Nutrition | Mite-Biter Bees | American Foulbrood | WAS 2020

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Contents

5	2019 Executive Committee & Regional Directors
7	State of WAS Bees Summer 2019
13	Beekeepers' Calendar
14	Regional Happenings
16	Blue Ribbon Beekeepers
17	Master Beekeeper Programs <i>Dewey M. Caron</i>
19	Phytosterols—The Understudied Nutrients in Bee Nutrition <i>Priyadarshini Chakrabarti</i>
23	Selecting for the Hierarchical Trait Mite Biting <i>Krispn Given</i>
27	An Unclear Case of American Foulbrood (Revisited) <i>James E. Tew</i>
31	WAS Presidents
33	WAS 2020 and 4th Annual IWEHM July 10–12 in Missoula!
35	WAS Membership Form

Advertisers

16	Acorn Beekeeping Equipment
11	American Bee Journal
18	American Honey Producers Association
22	Apimondia 2019
20	Bee Culture
28	Beekeeping Insurance
10	BrandNew Industries Inc
16	CF Koehnen & Sons Inc
10	Complete Bee
12	Dadant & Sons Inc
22	GloryBee
36	Hive & Garden (Ruhl team)
21	Honey-B-Healthy Inc
10	Mann Lake Ltd
4	Master Beekeeping Certificate Univ Montana
18	Miller Bee Supply
6	Olivarez Honey Bees
4	Oregon State Beekeepers Association 2019
34	Pierco Inc
22	Ross Rounds
16	Sacramento Beekeeping Supplies
2	Shastina Millwork
33	Snohomish Bee Co
33	Strachan Apiaries Inc
11	StickerYou
30	Strong Microbials
24	Tate's Honey Farm
26	Véto-pharma
32	WAS Conference 2020
13	Western Bee Supplies Inc
24	WiFi Hive Scale
8	Wraith, Scarlett & Randolph

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State of WAS Bees | Summer 2019

The WAS region is extensive and amazingly diverse. So, too, are the conditions for the bees and the options for those who care for them. Here we find Director Reports of some of the conditions this season. See upcoming area events in the Beekeepers' Calendar (page 13) and/or posted at: www.westernapiculturalsociety.org.

IDAHO—Steve Sweet

Six organizations represent Idaho's beekeepers across the state. The Idaho Honey Industry Association (www.idahohoney.org), representing commercial and hobbyists across the state, currently reports 41 members across 29 different organizations. The Beekeepers of Southeast Idaho/Upper Snake River Beekeepers (Idaho Falls) continue an active presence with over 1,000 members on their Facebook page. Magic Valley Beekeepers continue to meet every other month in the Twin Falls area. Pocatello hosts a loosely organized group of approximately 50 individuals, continuing to meet one or two times per year. In Northern Idaho, the majority of the hobbyist/sideliners remain associated with the Inland Empire Beekeepers Association. The Idaho Natural Beekeepers count over 500 members on their Facebook page and host monthly meetings.

The Treasure Valley Beekeepers Club, based in Boise, counts over 250 dues-paying members across Southwest Idaho and Eastern Oregon. The Club maintains a high profile presence in the local beekeeping community. Recently, *Bee Culture* magazine, under the pen of the indomitable and loveable Jennifer Berry, featured the TVBC as one of the more progressive Clubs throughout the country (tinyurl.com/y6ch47bw). The TVBC continues to support an active web presence with (1) a site at www.idabees.org, offering local monthly recommendations on best management practices, (2) a monthly newsletter covering local bee events, and (3) regular contributions posted to a club Facebook page with nearly 900 followers.

Monthly meetings and a continued commitment to beekeeping education remain the TVBC's hallmarks. The monthly meetings continue to draw on the order of 100 interested beekeepers with a variety of talent and experience. New club dedication to inspiring young beekeepers, with the addition of the Junior Bee Club at each monthly meeting, rapidly turned into a delightful success. Twenty youngsters aged from three to fifteen

consistently show up to participate in beekeeping-themed programs led by Michele Donnely and her cadre of dedicated teachers.



Club members also have continued leading "Introduction to Beekeeping" classes through the local school districts. In addition to community outreach, TVBC members participate in separate club education sessions, outside of scheduled meetings, focusing on hive component construction, queen cell installation, feeding (pollen *paddies* and candy boards), and Varroa mite management. Seventy-five members of the TVBC actively participated in the Oregon Master Beekeeper Program at the Apprentice and Journey levels. Throughout the remainder of the season, club members also established and maintained six beehives at Boise City's Foothills Learning Center, staffed a very active booth at the Western Idaho State Fair, and participated in the Idaho Botanical Garden's annual "Bug Day," where the emphasis is on introducing local kids to the magic of entomology.



New for 2019, the TVBC has initiated an "AFB & Barley Pop Bonfire" opportunity for members in good standing.



The club invites any member providing a bonafide case of American Foulbrood a free bonfire and associated festivities at the relocated Duesmanville Disease Yard. The club continues to seek out our first legitimate participant, although many practice sessions are ongoing throughout the year.

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Brad Pankratz, 2015 President, California State Beekeepers Association

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NEVADA—Del Barber

Many locals acquired new packages and queens to bolster our apiaries and put a lot of effort into bringing them through the typically unpredictable Spring weather. Summer fortunately has provided us with a plethora of blooming plants, and the bees are bring in loads of nectar, pollen, and propolis; it's a bountiful time for colony building, honey producing, and re-homing of a multitude of swarms. We are all busy helping out our colonies by protecting them from robbing, mitigating ant infestations, trapping the ever-present wasps, beginning to test/treat for mites, and protecting against a growing population of bears in our area. Local beekeepers are happily bustling about keeping up with our lovely ladies this time of year and eagerly waiting to collect our sweet rewards this fall. Many of our beekeepers are planning to harvest early in August this year and will use a variety of techniques, including the honey press and centrifugal extractor.

Local beekeeper organizations have continued to contribute to public awareness and education. Northern Nevada Beekeepers and Bees 4 Vets have been very active providing information about honey bees and pollinators to the community by presenting at various schools, camps, and numerous community events.

June was a busy time for Great Basin Beekeepers of Nevada (GBBN) with two public events, the Bee Hotel and the Carson City Library display, and a special presentation for the beekeepers by Heather Reich, Bear Biologist, Bear Awareness Program, Nevada Department of Wildlife. First, GBBN partnered with Carson City Bee City USA and The Chamber of Commerce Leadership Institute Class to bring together local businesses to construct a pollinator bee habitat dubbed the *Bee Hotel*. The *Nevada Appeal* headline "Bee'-utiful: We all want to be on the bee



team" quotes the mayor and sums up the project that involved \$7,000 in cash contributions from individuals and businesses and \$40,000 donated labor and materials.

Next, four GBBN members pulled together to create pollinator education displays in the entryway of the Carson City Library for the entire month of June. Featured children's books *Egg to Butterfly*, *Flowers to Honey*, and *Egg to Honey Bee* provided the basis for displays that will inform

the public about pollinators with a focus on the activities of GBBN and Bee City USA. An estimated 17,000 people visit



Left to right: Lynne, Jacki, Gillian, and Linda with the Carson City Library display.

the library every month! Finally, three Karelian Bear Dogs were a hit with beekeepers as Heather presented the concept of Bear Logic and How beekeepers and bears can coexist. Bear fencing, make and capture, bears and beehives, bears and fruit trees were all topics of this informative presentation. The Karelian Bear Dogs are the Bear Biologist's help mates providing experience that "help bear managers give bears a negative experience around humans and dogs."

With the WAS Conference sandwiched in, our upcoming plans have folks looking forward to the first Carson City Fair Honey Judging category (July 26–28). The contest will be a popular vote for which honey tastes best. One-pint entries disguised in stocking covered jars will be available for public tasting and voting during the fair with ribbons for the lucky winners.

NEW MEXICO—Melanie Kirby

The "Land of Enchantment" experienced a wet and cold spring across the state. In the northern tier, the initial fruit bloom flow was slow to start due to the cold. The cooler spring delayed buildup of colonies, much like our neighbors on the West Coast. But then, the spring sun brought on the melt from the mountains, and by June the nectar was flowing in the northern Rio Grande.

And now, the summer heat is on and the bees are buzzing merrily along. As usual, New Mexicans (and especially the beekeepers and farmers) start anticipating the summer monsoon rains, which will reinvigorate the desert to alpine landscapes and hopefully bring another flush of wildflower nectars.

The New Mexico Beekeepers Association is holding their summer meeting July 26–27, 2019, at the South Broadway Cultural Center in Albuquerque. The title

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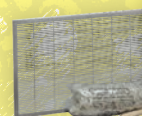
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of this summer's event is "Beekeeping in a Changing World."

Guest speakers include renowned top bar (and New Mexico native) guru Les Crowder, who currently resides in Austin, Texas. Also featured is Fred Terry of Arizona, who entertained WAS audiences back in 2007. Fred will be sharing information on Brazilian beekeeping and comparisons between keeping Africanized and European honey bees. For more information on the summer meeting, visit: nmbeekeepers.org/2019/05/2019-summer-conference-save-the-date.

SASKATCHEWAN—Doreen Bradshaw

The Regina and District Bee Club held its Annual General Meeting in March this year. It was a very successful

event with the membership increasing again for the 2019 year. Additional events to date included candle making seminars, where the interest was so great that two seminars took place, and a beginners' bee keeping seminar that had a full attendance. In addition, in May, the club was represented at the Regina Cathedral Village Arts Festival to sell members' honey and to promote the beekeeping industry to local citizens.

In Saskatchewan, the average loss of hives this spring was 30 percent. A very cold February caused colonies to eat extra and a sudden temperature drop in April killed or weakened many colonies. May was hot, allowing colonies to grow quickly, and then the dry spring caused late and staged germination of crops. However, beekeepers feel they may still get a good crop of honey due good rains in June.



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Beekeepers' Calendar

August 18–28: **21st Installment of The Bee Course.** Southwestern Research Station. Portal, Arizona. Information, including instructions on how to apply: www.thebeecourse.org.

August 31: **Re-Queening with Dave Noble.** Casee Center, Brush Prairie, Washington. *Information:* Brenda Calvert, 360.514.9223 (8 AM–7 PM).

September 8–12: **46th Apimondia.** Montreal. Registration is now open: www.apimondia2019.com.

September 21: **Northwest District Beekeepers Association Conference.** Snohomish PUD Auditorium. Tickets: www.brownpapertickets.com/event/4248173.

September 28: **2019 Apiary and Pollinator Tour.** ABQ Beeks. Information at: www.tourabqbees.org.

October 4, 5 and 6: **2019 BCPA Annual General Meeting, Conference, and Tradeshow.** Prince George. Information: bcpaconference.ca.

October 7–10: Third national conference, **Protecting Pollinators in Urban Landscapes.** Cincinnati Zoo and

Botanic Gardens, Cincinnati, Ohio. Continuing the tradition of connecting current research and educational outreach to participants. Information: protectingpollinators.org

October 25–27: **Oregon State Beekeepers Association Fall Conference.** Florence Events Center. Florence, Oregon. Information as it becomes available: orsba.org.

November 12–14: **2019 CSBA Annual Convention.** Pechanga Resort & Casino.

2020

January 8–11: **American Beekeeping Federation Conference & Expo.** Schaumburg, Illinois. Information: www.abfnet.org.

January 8–11: **American Honey Producers Association Conference.** Information: www.ahpanet.com/.

March 20–21: **HONEY Convention.** Information: honeyconvention.com.



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Regional Happenings

OREGON

Women's Legacy Conference—Sharon Schmidt

The Cascade Girl Organization celebrated World Bee Day and hosted the first Women's Legacy Beekeeping Conference on Sunday, May 19, 2019, in Ashland. The idea for this Conference germinated in 2017 after members of our Advisory Board noticed that many women really wanted to learn about beekeeping and women's historical involvement in beekeeping science—from other women! This writer then discussed the concept of a Womens' Conference with Dr. Dewey Caron during his visit as a speaker at the 2017 Oregon Honey Festival, and he sowed the idea even further than our organization.

Audience members for this conference came mostly from Oregon and California to hear speakers, including Stephanie Taylor, known on social media as *That Girl's A Keeper*, who showed us what her commercial beekeeping education allowed her to do as a nomadic beekeeper in New Zealand and in Canada. As a nomadic beekeeper, Stephanie follows the bees, i.e., works year round. She is one of a few women to have completed a university program in Commercial Beekeeping.

The conference brought awareness to the history of womens' involvement in beekeeping since ancient times. Laura Ferguson, a beekeeper, educator, founder/director of The College of the Melissae, is also host of a weekly radio show called *Honey Culture*. Although she began with traditional beekeeping education, her current interests are in the realm of "Beecentric" beekeeping and the history of women in beekeeping. She explored the connection between the Melissae of Ancient Greece and women's involvement in Beekeeping today.

Marla Bullbear, the director of the Lakota Youth Development Project, traveled from South Dakota to the Oregon Honey Festival and the Women's Conference with members of the Lakota Tribe who presented dancing, drumming, Lakota culture, and hive products at the Oregon Honey Festival on the previous day. Her conference presentation was profoundly moving as she explained the Lakota cultural relationship to the Earth and the way that colonial intrusion has shaped the lives and self-concept of many indigenous people. Involvement in Beekeeping is a source of pride for the

youth in the Honey Lodge program as they become beekeepers and entrepreneurs participating in every aspect of their operation.

Risa Halpin, a commercial beekeeper and the president of Southern Oregon Beekeepers Association, presented her life and philosophy as a commercial beekeeper, her beekeeping fails and successes, and the experience of being a woman "bee farmer."

Fonta Molyneaux is the co-owner of the Wild Everlasting Farm on the River, a 30-acre botanical retreat near Cottage Grove. Her work as a Master Herbalist has allowed her to teach others about herbs for human health as well as how to plant for pollinators. In fact, she has done this so successfully that her swarms don't leave the property! Her farm has been selected as an Oregon Flagship Farm by the Oregon Department of Agriculture and the Oregon Bee Project.

Mandy Shaw, president of Portland Urban Beekeepers, is a podcaster whose shows can be found on various platforms under the title, *Beekeeper Confidential*. She is also an amazing swarm catcher whose work has been caught on film. Her work went viral when she became the subject of a National Geographic short film. She brought a light-hearted and informed look at one of the most challenging and enjoyable aspects of beekeeping.

Col. Pamela Mindt has worked as a commander in three theaters of battle. She returned from war having experienced life-threatening situations on the battlefield, and her involvement with animals of the four- and six-legged varieties has been a saving grace. She moved all of us with her explanations of the reactions that war and other life-threatening experiences provoke and the similarities between warriors and hive culture.

Unfortunately, Dr. Elina Niño's presentation was deferred due to flight cancellation because of high winds in her area.

Among the audience remarks related to this conference were a sense of admiration about the speaker quality and diversity, and connection to other women. We are grateful to the good folks at GloryBee, Klamath Basin Beekeepers Association, Southern Oregon Beekeepers Association, and other supporters.

WASHINGTON

Queen Rearing & Bee Breeding Workshop—Steve Sweet

The Washington State University Queen Rearing & Bee Breeding Workshop took place on June 14 and 15, 2019, in Pullman. It included a combination of presentations and hands-on demonstrations that also introduced more advanced techniques of instrumental insemination and cryopreservation.



Dr. Brandon Hopkins (left) introduces the field portion of the Workshop using his new “mobile app,” the empty bed of an F-350 bee truck.



Dr. Steve Sheppard (center) models the latest in protective gear as mere mortal attendees stand nearby in sheer awe.

Dr. Sue Cobey (left) prepares a queen for a projected view of the artificial insemination process.



Left to right: Drs. Brandon Hopkins, Steve Sheppard, and Sue Cobey begin Workshop field instruction.



Dr. Steve Sheppard (center left) provides detailed instruction concerning hive configuration.



WAS Director Melanie Kirby (center) explains the finer details concerning setting up a queen introduction hive to Workshop attendees.

Royally attired and sitting upon his 10-frame, double-deep throne, Dr. Steve Sheppard receives both appropriate recognition as former WAS President and a royal offering from Workshop attendee Kebin Duesman.



Blue Ribbon Beekeepers

The Bayer Bee Care Program has announced Blue Ribbon Beekeepers to recognize the outstanding achievements of young people who have made a positive impact on their communities through beekeeping or pollinator-related research. They include past winners of the annual Bayer Bee Care Program Young Beekeeper Award as well as other outstanding up-and-comers in the beekeeping industry. This year's inductees in the western states include:

Hayden Chrisman, 17, of Commerce, Texas, who manages more than 200 hives, helps facilitate the Collin County Hobby Beekeepers Association scholarship pro-

gram, and writes expert beekeeping articles.

Jonathan "JD" Murphy, 18, of Denison, Texas, who speaks at local schools and established a scholarship program with the Grayson County Bee Club to inspire interest in beekeeping among his peers.

Jake Reisdorf, 16, of Carmel, California, owner of Carmel Honey Company, which operates nearly 100 hives and a retail store in his native Monterey County.

Kate Riding, 15, of Redmond, Oregon, who teaches beginning beekeeping classes and won a national essay competition sponsored by the Foundation for the Preservation of Honey Bees.

Thank you for your commitment and all your hard work, beekeepers! *Congratulations to All!*

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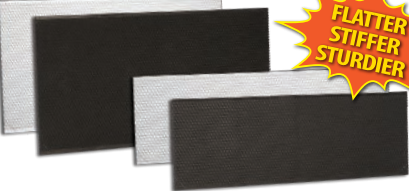
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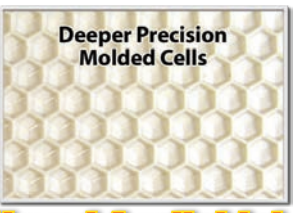
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Master Beekeeper Programs*

Dewey M. Caron, PhD—University of Delaware, Emeritus



*Dewey Caron's article stems from the panel, "Master Beekeeper Programs: Traditional Versus Flipped Classroom Learning Models," at the 2018 WAS Conference in Boise with: (left to right) Jennifer Berry (Georgia), Shannon Mueller (California), Ramesh Sagili (Oregon), Dewey Caron (EAS), and Jerry Bromenshenk (Montana).

The very first US Master Beekeeper program was developed at Cornell by Dr. Roger Morse. He invited selected experienced New York beekeepers to Cornell for a two-day short course followed by a written and lab exam. Those scoring 80 or better earned a Master Certification. In all, 40 individuals were so recognized in 1978 and in a repeat session in 1979. The impetus of the New York Master Beekeeper certification was the program in the United Kingdom of the British Beekeepers Association.

The program was transferred to the Eastern Apicultural Society in 1980 with eight individuals certified of sixteen taking written, field, and lab examinations. More recently, a fourth examination, an oral exam, has been added. Over 300 individuals, mostly from the EAS region but also a handful within the WAS region, have been certified.

The EAS Master Beekeeper is a certification program only with no intermediate levels nor related course work. Individuals must have five years experience and a recommendation from an existing Master Beekeeper or other recognized expert in Beekeeping. Most learn beekeeping from local/state association courses or mentors, but a few learn on their own. Many are bee association leaders, active in bee outreach, and sought after as mentors when they sign up to take the EAS Master Beekeeper certification.

A number of state beekeeping organizations/university apiculture programs have developed master beekeeper programs. Georgia, Florida, Alabama, North Carolina, and South Carolina have four-level programs that include instruction and testing for appropriate beekeeping skills. The Montana program, three levels, is an online course. The Oregon program is unique in assigning mentors to first-level (Apprentice) beginners and for the Guided Studies approach at the intermediate (Journey) level. A Missouri extension program is expanding the Missouri state program to Midwest coverage.

Several new programs are being developed, some with grant funds, others as an educational effort of the state bee association. The newest master beekeeper program is in California, with mid and master levels still under development.

Master Beekeeper Programs

California Master Beekeeper Program

cambp.ucdavis.edu

Eastern Apicultural Society Master Beekeepers Program

www.easternapiculture.org/master-beekeepers.html

University of Georgia Master Beekeeper Program

www.ent.uga.edu/bees/master-beekeeper/GAMasterBeekeepers-OutsideGA.html

Univ Montana Online Beekeeping Certificate Program

www.umt.edu/sell/programs/bee/

Oregon Master Beekeeper Program

oregonmasterbeekeeper.org

Alabama Master Beekeeper Association

alabamamasterbeekeepers.com

Colorado Beekeeper Assn Master Beekeeper Cert Program

coloradobeekeepers.org/education/general-information-and-applications

University of Florida Master Beekeeper Program

entnemdept.ifas.ufl.edu/honeybee/

Great Plains Master Beekeeping Program

gpm.b.unl.edu/about-master-beekeeping-program

University of Hawaii Beekeeping Certificate

hilo.hawaii.edu/catalog/beekeeping-certificate

Cornell Master Beekeeper Program

pollinator.cals.cornell.edu/master-beekeeper-program

North Carolina State Assn Master Beekeeper Program

www.ncbeekeepers.org/programs/mbp

Ohio State Beekeepers Cert Master Beekeeper Program

www.ohiostatebeekeepers.org/resources/master-beekeeper-program

Midwest Master Beekeeper Program

midwestmasterbeekeeper.org

New Mexico Beekeepers Assn Cert Beekeepers Program

nmbeekeepers.org/certified-beekeepers-program

University of Tennessee Master Beekeeper Program

ag.tennessee.edu/EPP/Pages/Bees%20and%20Beekeeping/UT-Beemaster-Program.aspx

Texas Master Beekeeper Program

masterbeekeeper.tamu.edu/ma

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Phytosterols—The Understudied Nutrients in Bee Nutrition

Priyadarshini Chakrabarti, PhD—Oregon State University, Corvallis, Oregon

Optimal nutrition is considered the key to sustaining robust, healthy colonies capable of withstanding pesticide stress, parasitic pressures, and diseases. Nutrition can be considered as a first line of defense for colonies to withstand both biotic and abiotic stressors. Habitat loss, monocultures, and changes in plant flowering phenology are considered the major contributors to poor honey bee nutrition and subsequent honey bee declines. Research to date suggests that adequate nutrition enables a colony to overwinter more successfully, have enhanced immunity and lower pathogen loads, among other improved physiological characteristics.

Bee nutrition encompasses both macronutrients and micronutrients. Macronutrients are vital nutrients required in larger quantities, such as carbohydrates (from nectar), lipids and proteins (from pollen). Micronutrients, on the other hand, are just as important, even though they are required in smaller quantities in comparison to macronutrients. Important micronutrients include vitamins, minerals (salts), and phytosterols.

Although poor nutrition is cited as one of the crucial factors in global pollinator decline, the requirements and role of several important nutrients (especially micronutrients) in honey bees are not well understood. Phytosterols are one such group of essential micronutrients which are currently under-investigated. Phytosterols are crucial because they are the precursors to important insect hormones (viz. molting hormones) as well as they form the backbone of cellular membranes. Sterol auxotrophy—the inability of all insects (including honey bees) to synthesize sterols in their bodies—makes it imperative for bees to source sterols through their diets. Pollen is the primary natural source of phytosterols for all bees. Hence, understanding the sterol composition of plant pollens and the effects of critical micronutrients (phytosterols) on nurse bee physiology is important in understanding its long-term implications for colony health.

The sterol 24-methylenecholesterol has been reported to be the principal sterol for honey bees, thus playing a critical role in colony growth and worker longevi-

ty. A seminal study by Herbert et al. (1980) reported not only that honey bees preferentially consumed artificial diets laced with 0.1 percent 24-methylenecholesterol but also that worker longevity improved by addition of this sterol.

Phytosterols are acquired through food and

stored in nurse bee tissues as endogenous sterols, which can then be transferred to the growing brood in the hives. Subsequent studies by Svoboda et al. (1980 and 1986) shed more light on the preferential transfer of this particular sterol to larvae through brood food and accumulation of this sterol in nurse bee hypopharyngeal glands. However, there has been a significant gap in understanding the requirements and physiological impacts of this important sterol for almost three decades. Even though bee nutrition has been studied for a significant amount of time, a substantial gap in knowledge exists regarding the physiological impacts of sterols in honey bees.

Current studies at the Oregon State University (OSU) Honey Bee Lab aim to fill these gaps in research questions, addressing the phagostimulant effects of phytosterols (specifically 24-methylenecholesterol) in honey bees, investigating the optimal concentrations of this sterol for bees, and understanding its impacts on bee physiology. In addition to these questions, the impacts of this particular sterol on honey bee colony performance is being meticulously investigated. We are also currently exploring the sterol composition of various bee dietary sources to have a better understanding of available bee forage.

Preliminary investigations have been conducted with a specially formulated artificial diet (based on Herbert et al. 1980 study) with equal concentrations of proteins,



Priyadarshini Chakrabarti Basu is currently a post-doctoral researcher in Ramesh Sagili's Honey Bee Lab at Oregon State University.

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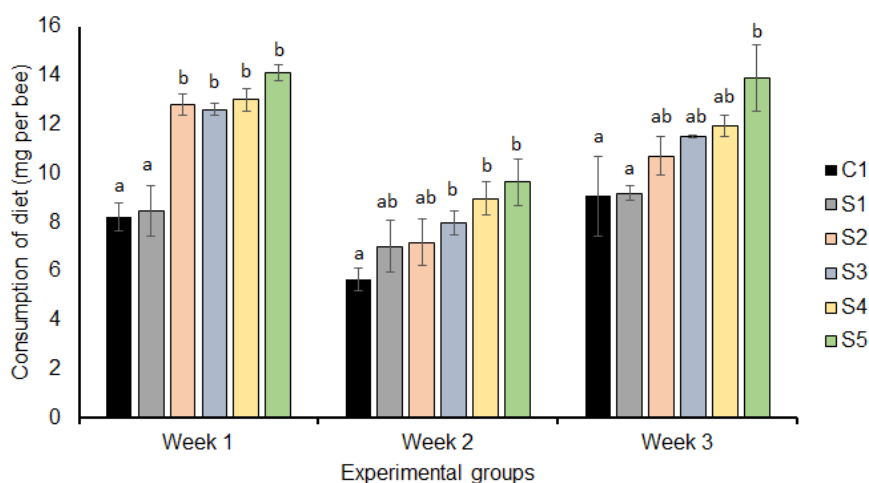


Figure 1. Mean consumption of artificial diets (mg per honey bee) in the different experimental groups for three weeks. Error bars indicate standard errors for means. For every week, different letters indicate statistically significant differences between experimental groups. C1 (solid black bar in each group): control; S1, S2, S3, S4 and S5: 0.1%, 0.25%, 0.5%, 0.75%, and 1.0% dry diet weights, respectively, of 24-methylenecholesterol in artificial diets.

vitamins, lipids, and salts. The concentration of 24-methylenecholesterol was varied across the treatment groups, with concentrations ranging from 0.1 percent to 1.0 percent. A control group, supplemented with a similarly formulated artificial diet but no sterol, was also included. Newly emerged nurses from sister queen hives were thoroughly mixed and randomly released into the laboratory treatment cages. The study was conducted for three weeks. The diet consumptions were measured weekly and survival was checked for treatment groups at the end of the study. Various physiological parameters were also studied, for example: total head proteins and abdominal lipids.

It was observed that weekly consumptions varied among diets and

significantly higher consumptions were noted for high 24-methylenecholesterol supplemented cages (Figure 1). Survival also significantly improved, with more bees surviving in the sterol diet groups (the highest being observed at 0.5%) at the end of the study. The total head proteins and abdominal lipid contents were also significantly higher at the end of three weeks in groups provisioned with high 24-methylenecholesterol in their diets. These findings are important in further investigating the role of this particular sterol across all bee species that are dependent on pollen forage, including honey bees. With multifactorial stressors contributing to pollinator decline, a fundamental knowledge of all nutritional needs of bees is crucial to improve and sustain pollinator health. Insights gleaned from this study have the potential to help formulate a more complete diet for honey bees in the future. A manuscript is currently being prepared discussing the results of this study. For further detailed information, please contact the OSU Honey Bee Lab.

Citations

Herbert EW Jr, Svoboda JA, Thompson MJ, Shimanuki H (1980) Sterol utilization in honey bees fed a synthetic diet: Effects on brood rearing. *J Insect Physiol* 26:287–289.

Svoboda JA, Thompson MJ, Herbert EW Jr, Shimanuki H (1980) Sterol utilization in honey bees fed a synthetic diet: Analysis of prepupal sterols. *J Insect Physiol* 26:291–294.

Svoboda J, Herbert EW Jr, Thompson MJ, Feldlaufer MF (1986) Selective sterol transfer in the honey bee: Its significance and relationship to other hymenoptera. *Lipids* 21:97–101.

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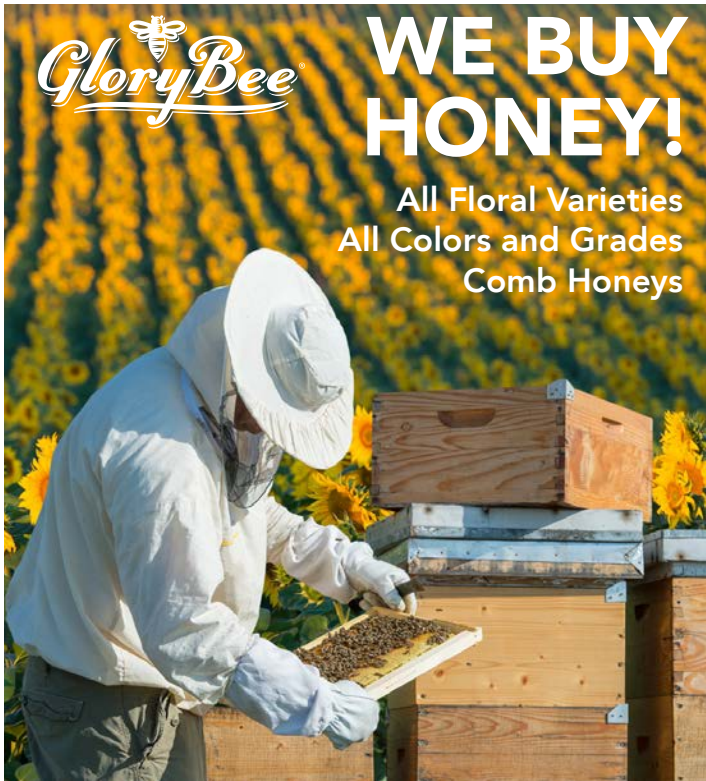
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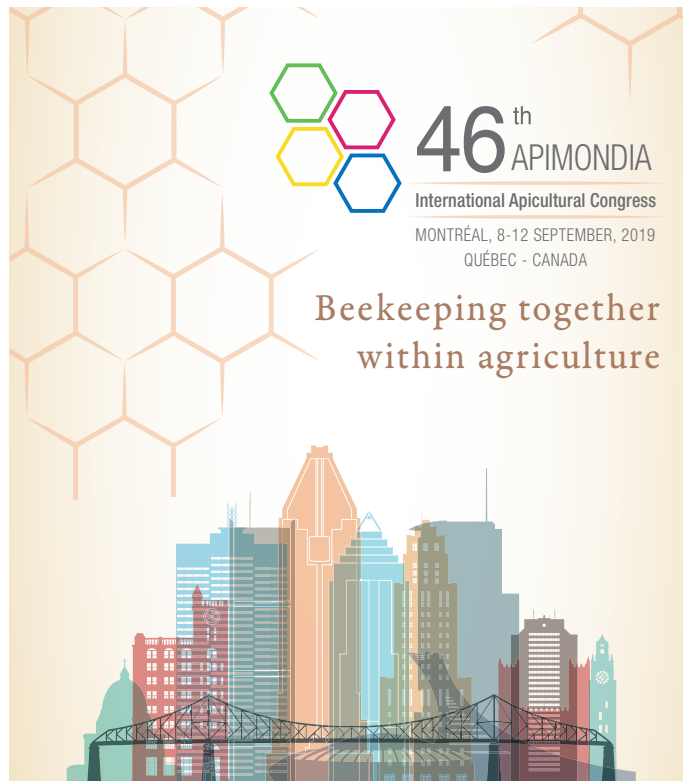
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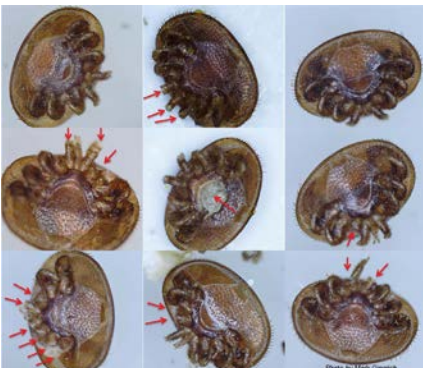
Krispn Given—Department of Entomology, Purdue University, West Lafayette, Indiana

The breeding population was established in 1997 from diverse sources, including queens from commercial queen breeders: some Carniolans from California breeders and one each of VSH and Russian colonies from Glen Apiaries. But many of the colonies in the population were those that had survived for years without miticide treatments. Each year the population consisted of about 100 colonies. It was not a closed breeding population. Occasionally, queens from other Midwest queen producers or feral colonies were introduced. Queens were all marked with paint and records kept of supercedure events. Initially, breeder queens were either instrumentally inseminated or open-mated. Daughter queens were open-mated in two mating yards one mile apart and isolated from all but a few other beehives by two miles. They contained selected drone-producing colonies with one or two frames of drone comb. From 1997 to 2006, breeder colonies were selected based only on low mite-population growth as measured by two to three counts of mite fall on sticky-board sampling sheets during the Spring and Summer.

Beginning in 2007, we began selecting for mite-grooming behavior. For the early years, we treated colonies with miticide if Varroa levels were too high (usually >100 mites



A typical mite-biter queen.



Mites that have been chewed by the mite-biters.

falling in a day late in the season). For the past six years, no mite controls have been used, and we do not split the colonies very often so there are minimal breaks in the brood cycle, which would reduce mite levels. Breeder queens were selected based on the proportion of mites that had damaged legs or an apparent bite in the body (the idiosoma) of the mite. To measure the proportion of

tic sampling sheets were sprayed with vegetable oil and slid underneath colonies that had screened bottom boards (Country Rubes, Grass Valley, California) and left for two or three days. Using enough vegetable oil makes it fatal for the mites and also for any ants that might try to feed on them. Mites were carefully removed from the sample board using a small



Krispn Given is Apiculture Specialist at Purdue. He shared his research in "Selecting for Behavioral Resistance to Varroa Destructor" during last year's Oregon State Beekeepers Association Fall Conference.

paintbrush and placed belly up (ventral side) in rows on microscope slides. If fewer than 10 mites were present, the data were recorded but not used for selection decisions. The number of mites on sticky boards was recorded, slides were examined with a microscope (15X), and the number of mites missing legs or leg parts or showing mutilation of the idiosoma was counted. Pale immature mites were not examined because these could have fallen as bees emerge from brood cells and may be more susceptible to damage unrelated to grooming behavior.

Sometimes empty shells—the idiosoma with virtually no contents—were observed. These were not counted because we do not know their cause. The relative severity of mutilations was also scored as low, moderate, or high, meaning most mites had multiple legs chewed and bites to the idiosoma were seen. Selection was hierarchical, which means that we first selected colonies with the highest proportion of chewed mites that were highly mutilated. We secondarily selected for low mite population growth and colony strength over the season. Colonies were requeened if they had high mites or had chalkbrood or other brood diseases. A hygienic-behavior test was usually performed on potential breeder queen colonies, which were required to show at least 95 percent hygienic removal of freeze-killed brood within 24 hours (Spivak and Downey 1998).

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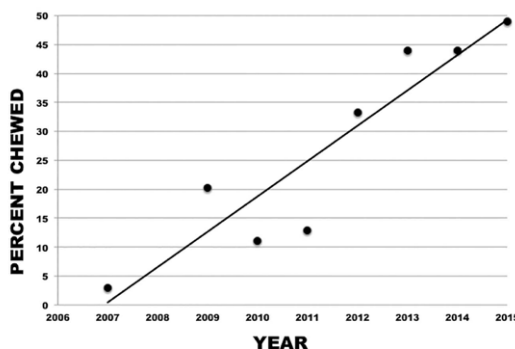
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Response to selection for chewed mites. The average proportion of chewed mites increased steadily in the breeding population.

In 2009, selection was based on the results of laboratory grooming assays for mite removal as well as the proportion of chewed mites in a colony (Andino and Hunt 2011). Beginning in 2010, we tested all of the colonies at least two or three times per season for the proportion of chewed mites, and each breeder queen was instrumentally inseminated with semen from multiple drones from one or two selected hives. During 2013 and 2014, we tested for correlations between mite drop and the proportion of chewed mites. Because of a mistake that was made in 2014, the total number of mites was not counted in colonies that had more than 70 mites falling on the sampling sheets, but the proportion of chewed mites was recorded for a sample of 70 mites. There were seven of 56 and 19 of 63 colonies in this category for May and August measurements, respectively.

Evidence that Grooming Reduces Mite Populations

On the two sampling dates in 2014, we observed a significant inverse relationship between the proportion of chewed mites and mite drop, suggesting that grooming behavior is effective in reducing mite levels. We were not sure whether to include colonies that dropped fewer than 10 mites or the colonies that had 70 or more (reported as just 70), so we analyzed the data with and without these colonies. In general, colonies with fewer mites on sticky boards had higher proportions of chewed mites. Although we always saw

a trend in this direction, the correlation was not statistically significant in 2013. During 2013, there was high variation in mite levels. There were 13 out of 42 colonies in June that had less than 10 mites falling on the sampling sheet, but five had 122–277 mites falling during the same three days. By August, the

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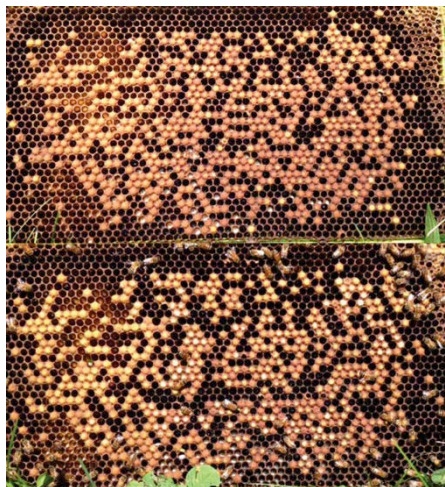
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variation in mite drop among hives was even higher. It is possible that when mite populations get too high that grooming behavior is insufficient to control population growth and the proportion of chewed mites is lower as a result. One difficulty in finding a relationship between



Evidence of Varroa-sensitive hygiene (VSH). A drone comb infested with Varroa mites was inserted into one of our recent breeder colonies for 48 hours. This figure shows the *before* (top) and *after* (bottom).

mite-biting and mite levels in our colonies may be that they are not uniform in size and in colony history. For example, mite populations decline when a colony is requeened because there is a break in the brood cycle, and mite levels are higher in colonies that have a lot of brood. We also do not know how much VSH behavior

varies in the colonies. One of our grafting sources in 2014 exhibited this trait by removing mite-infested brood within 48 hours. It maintained low-mite populations and had a high proportion of chewed mites dropping on the sticky board. But, in general, the 2014 results suggest that grooming is effective at reducing mite levels, at least when the mite population is not too high.

Honey yields were estimated based on reports from fourteen beekeepers over both years. Making the assumption that a medium depth super yields 30 pounds of honey and a shallow yields 20 pounds, commercial-source colonies produced an average of 11.7 pounds compared to 52.1 pounds for hives with Indiana queens, a 40.4 pound difference. Most colonies did not produce surplus honey the first year, so most of the yield difference was caused by differences in survival. But there were also some differences in colony strength. Relative colony strength was reported in twelve cases; hives with Indiana queens were rated stronger for eight, weaker for two, and equal strength for the other two.

Eight beekeepers reported on Varroa mite levels for both types of queens during 2014 or 2015 using powdered sugar shakes, alcohol washes, or sticky board sampling. One of these beekeepers reported a lower mite count in the commercial-source hive (two-thirds of the Indiana mite-biter level on a sticky board a month after introducing queens). Two beekeepers reported no mites in the Indiana colonies but found either six mites (powdered sugar

shake) or 147 (sticky board) in the commercial colonies. The other seven beekeepers reported that the commercial-source colonies averaged three-fold higher mite levels compared to those with mite-biter queens (2.7-fold higher for the eight comparisons).

Of the eleven beekeepers who stated a preference, ten chose Indiana mite-biter queens over commercial-source queens in this blind comparison. One of those who preferred the mite-biters was comparing four pairs of queens. Two beekeepers mentioned that the colonies with Indiana queens were more defensive. One of these two said that the Indiana hive was slightly more aggressive than the other hives, but that he preferred it because it was more productive. The other said that the commercial-source hive had very high mite counts (tested with alcohol wash) and was dead by Christmas. On the other hand, the Indiana hive had lower mite levels in the Fall, which were further reduced after Winter, but was “extremely defensive” and had 20 frames of bees by July of 2015.

This experiment was limited in scope because it only compared daughter queens from five mother queens. We also did not compare the “mite-biter” queens to other Midwestern stocks, which may have similar or better survival. We have seen other stocks that have relatively high proportions of chewed mites and believe this trait can be selected for in any genetically diverse population of bees. We do not know if this trait shows genetic dominance. One test of this would be to take virgin queens of low-biting stock and let them fly in our mating yard to see how their progeny do. There may also be environmental effects that influenced survival that had nothing to do with genotype or that interacted with genotype, such as exposure of queens to Nosema or virus, or the mating conditions. So, we can’t make any strong conclusions, but the large difference in winter survival and the beekeepers’ preference suggest that breeding for mite-grooming behavior in local stocks of bees will make beekeeping more sustainable in the North Central US. Stocks from this breeding program are being made available through the Heartland Honey Bee Breeders Cooperative. We think that it is important that queen breeders select for both VSH and grooming behavior in bees that have survived Northern Winters.

We are currently conducting another comparison study with three widely used commercial sources against the mite-biters thanks to some recent USDA funding. The preliminary results are in favor of the Indiana mite-biters. We will be publishing our results in *Bee Culture* and *American Bee Journal* soon, stay tuned.

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1 - Efficacy tests: Anti-varroa treatments - FNOSAD (National Federation of Departmental Apian Health Organizations) 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015 and 2016 - France // 2 - Amitraz residue transfer into honey from Apis mellifera hives treated with Apivar® - Jeff Pettis, USDA-ARS, Beltsville, MD USA - 2013 // 3 - Apivar registration dossier (2015). Study 2026-2015 - Testapi

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An Unclear Case of American Foulbrood (Revisited)

James E. Tew, PhD—Auburn University, Auburn, Alabama

A Troublesome Subject

I make no claim to being a trained microbiologist, but I have seen and dealt with American foulbrood many times. The first fundamental problem is that beekeepers generally cannot predict which colony will be resistant and to what degree. I crudely put bee colonies into three broad groups: (1) AFB Resistant, (2) Some resistance, but express symptoms of AFB, (3) Susceptible with clear symptoms. Category #2 is the section that causes me the most problems. No one wants AFB, but if I do have it, I want it to be a clear case. Fact is, sometimes it is not a clear case.

From a Regulatory Standpoint

Yesterday, at the university bookstore, I saw a book entitled (something like), *Things Your Doctor Will Not Tell You*. I quickly wondered exactly how much I wanted to know from my physician. Do I want to always know everything, or do I want to know what I need to know? Recently, I strained an abdominal muscle. After several weeks of low-level gut pain, I went to a specialist, who ironically was also a beekeeper. A thorough check indicated that I was simply 57 years old with concurrent aches and pains. The muscle would ultimately heal. It did. But during the course of the evaluation, my physician commented that I had some noticeable spinal curvature that would significantly limit my backward motion. What?! What are you talking about? I'm here for my achy gut—not my back. Now, my abdominal muscle is fine, but I now wander around wondering exactly what this (painless) back thing is all about. What will the ultimate effects be? I don't know.

As I again try to address this troublesome AFB topic, I am reminded of my experience with my physician. How much information is proper? From a regulatory stance, it is logical to treat AFB infections as a black & white situation. Common thinking is that either your hive passes the test or it doesn't. Yes and no. Right and wrong. Up and down. Black and white. Apparently there is nothing in the middle. Fact is, there is a middle every time. In the beekeeping world, I agree with the regulatory tenet to burn when detected. The best general rule for AFB suppression is to destroy it—at any level of infection—simply because you can't predict the outcome.

Some of You Are Going to Want Some of This

I have no doubt that some of you are going to want to argue about this direct recommendation. At this point, what kind of specialist do I need? A state regulatory authority? A psychologist? A sociologist? A lawyer? Maybe a biologist? Or some combination of all. Why this mix? Because beekeepers are of diverse personalities who are managing bee colonies having a range of resistance or susceptibility to AFB. That's a lot of variation.

True, some of you would do whatever it takes to help an AFB-diseased colony recover. You would monitor every aspect of the pathological problem. Others of you would have the best intentions to monitor, but, for many of life's reasons, get off schedule and increasingly the AFB infected colony would be left to fend for itself. Still others of you are totally intolerant of the disease and immediately destroy everything anywhere close to the disease source.

The second fundamental problem is that it is difficult to tell which beekeepers will always control existing cases of AFB and which beekeepers have good intentions of controlling the problem, but will fall short; therefore, the safest and simplest recommendation is to destroy the afflicted colony or colonies. Before you decide to attempt to bring a colony back from the American foulbrood brink, consider some important factors.

Before You Attempt to Help American Foulbrood-Infected Colonies

Your commitment. At first, every one of us who starts an AFB medication program fully intends to treat the afflicted colony as if it were a family member. Then it rains or the weather gets cold. Maybe my curved back starts to give me problems. My house needs painting. For whatever reason, my commitment wanes and the disease source sits there—exposing my remaining colonies and those of my beekeeping neighbors. Treating a colony for American foulbrood is a lot like becoming physically fit. You have to always work at it.

Your Beekeeping Neighbors. Some beekeepers are tolerant while others are highly intolerant—even superstitious. If the word gets out that some of your colonies have the AFB scourge and that you are “treating” it, there is a good



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James Tew presented “American Foulbrood—Not Gone and Not Forgotten” during the 2018 Oregon State Beekeepers Association Fall Conference in Salem. He is Beekeeping Specialist, Auburn University, and Emeritus Professor, The Ohio State University.

chance your name will be considerably worse than Mudd. There is a chance that your operation becomes the suspected source for subsequent outbreaks in the colonies of other beekeepers. True, you

can try to keep the situation secret, but, if it should become public, your (apparent) sin will appear to be even worse. Be sure your colony is worth the societal price you will probably have to pay.

Your State Beekeeping Regulations. You may not have the option of treating. The regulations of individual states vary. Obviously, you will need to adhere to state regulations or go about having them changed in proper ways. As I wrote earlier, the easiest path and the simplest recommendation is to destroy the colony as most state regulations require.

So, if you are truly committed to long-term treatment and if you sense that your beekeeping neighbors would support your treatment program and if your state regulations allow you to do something other than destroy the colony, you have other options. These are serious commitments. Don't take them lightly.

So, Where Do American Foulbrood Outbreaks Come From?

My slightly sarcastic answer to this common question is that my outbreaks come from the colonies of someone else; hence, my concerns expressed above about irate beekeeping neighbors. Even outbreaks that occur years later are sometimes attributed to disease sources long gone. It's common human nature. So, if I just found AFB in one of my colonies, my bees must have been visiting somewhere dirty. Short of having access to technology seen only on innumerable TV crime scene shows, the source of the current outbreak will normally remain unknown. But, it's always easier to blame someone else.

Importantly, we don't know how often AFB symptoms are

expressed within a colony and whether or not the colony deals with it before we ever see it. Due to the need for general, simplistic recommendations, we assume: (1) if a colony shows symptoms, it's going to die, (2) the infection came from somewhere specific, (3) destroying the colonies in question prevents subsequent infections. Maybe and maybe not. I don't know what percentage of colonies die upon getting an AFB infection. It is suspected that AFB infections are lessened during a nectar flow—probably due to the incoming nectar diluting the bacteria causing AFB. If we rarely know—for sure—where the infection is from, how can we be sure that the surviving colonies won't get in trouble, too? Would not the surviving colonies also send foragers to the same forbidden source that is unknown to us? Historically, we blame such spontaneous infections on dirty neighbors, on bees foraging in dumpsters, or on wild cases of AFB. Once in my beekeeping life, I clearly got a serious outbreak of AFB from the bees of a friend as our colonies shared a yard. Otherwise, I have no specific instances of bees foraging on discarded diseased honey, and I have never seen a case of AFB in a wild colony. The question is begged, “To what extent is AFB always in my colonies and nurse bees are suppressing it?” Another question of the same genre is, “Within the same colony, when is it a new outbreak and when is it an old outbreak that is simply re-expressing itself?” Researchers have reported that the activities of house cleaning bees may frequently limit the infection; however, spores can remain active for 35–65 years and may resurface at later times.

Individual AFB scales can produce millions of spores. Larvae up to twenty-four hours old can be infected by as few as 10–35 spores. Yet, millions of spores are required to infect larvae that are two days old. Nurse bees are able to detect infected larvae and, in some tests, removed 10–40 percent of the infected larvae before they were sealed over. In other studies, about 50 percent were removed before spores began to form in the infected larvae. In general, when the disease kills a “few hundred larvae,” the disease overruns the colony and it dies. In my observational experience, I have seen colonies with more than a few hundred cells recover, but clearly there is a point at which the colony is overrun.

So, It Would Appear . . .

- (1) There may be instances when the foulbrood outbreak within a specific colony is from previous AFB inoculums within the same colony—possibly even years earlier.
- (2) American foulbrood can occur at low levels and bees restrict or even eradicate it (or possibly mask it).



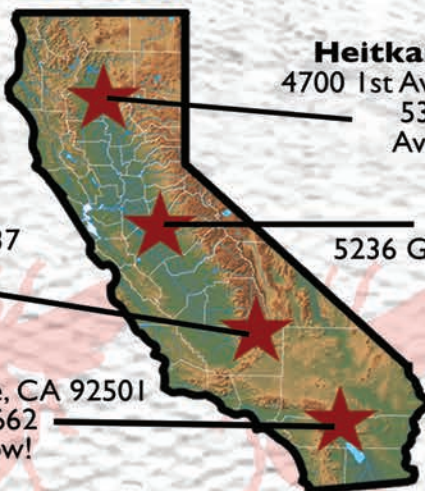
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(3) Robbing and beekeeper equipment exchange are still primary methods of disseminating the disease.

(4) There is only a small window for infection of very young larvae; otherwise, older larvae are resistant.

(5) American foulbrood has a remarkably low spread rate—probably due to bee hygienic behavior and the fact that only very young larvae are affected. Things like gloves, hive tools, smokers, and the tires on the inspector's vehicle are not significant sources of infection.

(6) Hygienic behavior, either physiological or behavioral, is important in the colony's resistance to AFB.

(7) Periodic comb replacement would seem to be a helpful management procedure. Not only would acquired AFB spores be removed but also accumulation of various mite control chemicals contained within the wax would be eliminated. However, this will be a lot of extra work for both the bees and the beekeeper.

Are our colonies up to their ears in American foulbrood?

Several of you corresponded with me wondering if we should all be paranoid about AFB being everywhere all the time. I don't think so, but I have many, many more questions than I have answers. I only suggest, based on the observations of bee researchers, that AFB is present, at varying levels, more often than we realize.

Is that Good or Bad News?

I'm not sure it's even news of any kind. From the view of a beekeeper and not that of a scientist, let's look at a hypothetical example. A beekeeper opens a hive for the first time in months and sees all the symptoms of AFB. The time-honored recommendation is to burn it. Nothing new there. Second scenario: A beekeeper opens a hive and overlooks a few cells of AFB which the bees remove within a few hours of the opening. A full year passes before the disease shows itself again.

Why now? I don't know—a change in queen stock, increasing robbing behavior, or colony stress—whatever. The point is that the colony now shows symptoms of AFB. Now enter the beekeeper asking all the old questions—where did it come from? A neighboring beekeeper has contaminated me. Whatever. My point is that you—the beekeeper—do the same thing as in scenario #1—destroy the colony.

AFB Is Still AFB

I keep hammering on this subject because it troubles me as much as it troubles you. American foulbrood can seem to come out of thin air, while at other times we blame our beekeeping neighbors or some unknown mystical source. AFB is still AFB, but it is not particularly mysterious and, interestingly, not particularly infectious. Yet, once this disease gets beyond the control of the bees, you had better be able to recognize it or else you become the problem as you unintentionally spread it throughout your operation. American foulbrood is not a mystery, but it still merits your close attention.

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Want more? WAS Directors from each state and province are contacting their local high schools, colleges, and universities to identify students working on new and exciting bee-related projects. WAS Directors are also touching base with their beekeeping associations in search of similar innovations. The goal is for every state

and province to send at least one student representative to the Missoula WAS event, where poster sessions highlight students' interests and work. Like-minded students throughout the West have a unique opportunity to meet one another in an informal setting, and we'll all have a chance to welcome the next generation of beekeeping solution finders.

The conference location is downtown Missoula, on the Clark Fork River. Bring your fly rods, rent a bike for a ride about town or a kayak for a river float, or plan to hike the M trail. As for meals during your conference stay, Missoula's vibrant farmers' markets and great chefs are sure to provide excellent locale fare.

WAS members have spoken loud and clear: We all enjoy and value unique opportunities at each conference to meet other beekeepers and catch up with old friends. Our 2020 Conference agenda provides the opportunity to spend time exploring the latest beekeeping innovations, meeting up with others, and getting to know state-of-the-art apiculturists on an individual basis!

Keep watch for details on the WAS website as conference planning continues to come together over the next few months.

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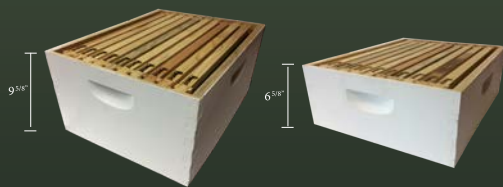
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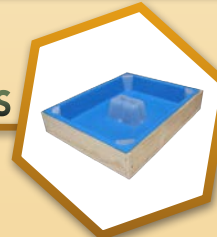


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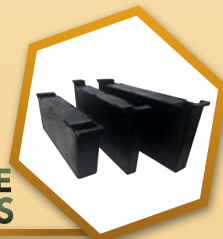


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Master Beekeeper Programs

Dewey M. Caron, PhD—xxx, Emeritus

The very first US Master Beekeeper program was developed at Cornell by Dr Roger Morse. He invited selected experienced New York beekeepers to Cornell for a two-day Short course followed by a written and lab exam. Those scoring 80 or better earned a Master Certification. In all, 40 individuals were so recognized in 1978 and in a repeat session in 1979. The impetus of the New York Master Beekeeper certification was the program in the United Kingdom of the British Beekeepers Association.

Following is a list of MB programs with website portals:
Eastern Apicultural Society:
www.easternapiculture.org/master-beekeepers.html
University of Montana Online Certification Program:
www.umt.edu/sell/programs/bee/
Texas Master Beekeeping Course:
masterbeekeeper.tamu.edu/master/

The program was transferred to the Eastern Apicultural Society in 1980 with eight individual certified of significance taking written, field, and lab examinations. More recently, a fourth examination, an oral exam, has been added. Over 300 individuals, mostly from the EAS region but also a handful within the WAS region, have been certified.
University of Georgia Master Beekeeping Course:
www.ent.uga.edu/bees/master-beekeeper/
GA Master Beekeepers-Outside GA.html
Oregon Master Beekeeper Program:
oregonmasterbeekeeper.org
Washington State Master Beekeeping:
masterbeekeeper.brownpapertickets.com

The EAS Master Beekeeper is a certification program only with no intermediate levels nor related club works. Individuals must have five years experience and have a recommendation from an existing Master Beekeeper or other recognized expert in Beekeeping. Most learn beekeeping from local/state association courses or mentors, but a few learn on their own. Many are bee association leaders, active in bee outreach, and sought after as mentors when they sign up to take the EAS Master Beekeeper certification.
California: cambp.ucdavis.edu
Alabama Master Beekeeping Program:
alabamamasterbeekeepers.com
University of Florida Master Beekeeping Program:
entnemdept.ifas.ufl.edu/honeybee/
North Carolina Master Beekeeping Program:
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Tennessee Beemaster Program:
ag.tennessee.edu/EPP/Extension%20Publications/Beekeeping%20in%20Tennessee.pdf

A number of state beekeeping organizations/ university apiculture programs have developed Master Beekeeper programs. The Southeast states of Georgia, Florida, Alabama, North Carolina, and South Carolina have four-level programs (Master Craftsman the highest level) that include instruction and testing for appropriate beekeeping skills. The Montana program of three levels is an online course. The Oregon program is unique in assigning mentors to first-level (Apprentice) beginners and for the Guided Studies approach at the intermediate (Journey) level. A Missouri extension program is expanding the Missouri state program to Midwest coverage, courtesy of a grant. Several new programs are being developed, some with grant funds, others as an educational effort of the state bee association. The newest master beekeeper program is in California, with mid and master levels still under development.
New York:
www.cornell.com/certificates/beekeeping/master-beekeeping/
Ohio: www.ohiostatebeekeepers.org
Midwest: midwestmasterbeekeeper.org
West Virginia: www.wvbeekeepers.org/certification-levels
Colorado: under development
University of Nebraska: under development ?
Hawaii: under development
New Mexico: certification program started

Georgia Prison Beekeeping Program

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