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**FEBRUARY 2018**



# **W.A.S. Journal**

**Journal of the Western Apicultural Society of North America**



Bernardo Niño's colorful display of hive types at UC Davis



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February 2018



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Journal of the Western Apicultural Society of North America

**Journal**

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# President's Message & 2018 Conference Announcement!

January 14, 2018

Whazzup, Beekeepers!

With the New Year in the review mirror, we are all now setting our sights on the upcoming spring buildup and planning for that bumper year with healthy bees and a wealth of hive products. Now's also the time to mark your calendars for the 2018 Western Apicultural Society Annual Conference. This year we'll meet in Boise, Idaho, at "Jack's Urban Meeting Place," known locally as "JUMP," an eclectic and lively community space, unique to the Western states. Plan on coming to Boise and attending the Conference from Friday, August 3 through Sunday, August 5.

You'll notice that our event has moved to a weekend setting, which differs markedly from recent WAS Conferences. The idea behind the shift is to accommodate a time that our "Next Gen Beekeepers" can better fit into their schedules. Along the lines of the Next Gen Beekeepers, be sure to read Sarah Red-Laird's summary of her most recent Breakout Session in this issue of the Journal. Sarah is making big strides to help reinvigorate beekeeping, and we all owe her our unflagging support in this initiative.

This year we will emphasize 'Beekeeper Education' as our Conference theme. Certainly, we're excited that Jennifer Berry (University of Georgia Honey Bee Program) will be returning for a second visit to Boise as a Conference headliner. Ms. Berry's academic, popular articles and columns can be found here: <http://caes2.caes.uga.edu/bees/personnel/berry.html> and here: <http://caes2.caes.uga.edu/bees/jberryarticles.html>. Jennifer's body of work fits very nicely into our Education-based theme. When last in Boise, she proved herself to be a quite a wag, leading a carousing "Pub Swarm" one evening through downtown, entertaining a packed house the next day with her National Honey Bee Day 2016 presentation and then immediately after the presentation, gleefully tearing into bee boxes at the Boise State University Roof Top Bee Farm. A note of caution: Don't be surprised to experience "The Return of the Whoopee Cushion" on this upcoming visit.

Joining Ms. Berry in leading the agenda, Randy Oliver (ScientificBeekeeping, <http://scientificbeekeeping.com/>) will share his unique insights and expertise with Conference attendees. During the WAS 2017 field activity at the UC Davis Harry Laidlaw Bee Biology Facility, Randy's expertise and practical tips delivered through hands-on sampling for Varroa and Nosema detection was a big hit. Long-time and new beekeepers all benefitted from spending time with Mr. Oliver, and we look to extending this interaction to all our 2018 attendees this next time in Boise. Spending time with Randy, working and reading a hive, is bound to help every beekeeper improve their overall technique and enjoyment. Be sure to follow WAS on Facebook and the WAS website for exciting new details on the Conference as they are finalized.

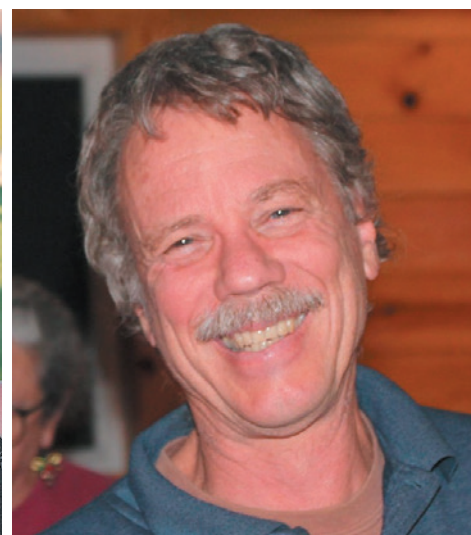
On the business side of WAS, our Hawaiian Director Peggy Beckett has decided to step away in order to focus on her thriving bee business, leaving a vacancy on the WAS Board of Directors. We are presently pursuing a "young, enthusiastic, and incredibly knowledgeable" individual and look forward to announcing a replacement soon. In the meantime, we will be missing Peggy's valuable contribution to WAS and thank her for the time she spent with us.

Springtime is just a few short weeks away. Keep an eye on those mite levels, good luck with swarm season and here's to the bees heading into summer strong and buzzing!

As the "old white guy with the red neck, who owns the comment," I eagerly look forward to joining you all in Boise this August 3 – 5, as WAS moves into our next decade!

WAS Up! Boise – 2018!

Steve Sweet, WAS President





## WAS Presidents to date

1978 Norman Gary (California)  
1979 Lucien Alexander (Oregon)  
1980 Randy Barker (Br. Columbia)  
1981 Charles Duncan (California)  
1982 William P. Nye (Utah)  
1983 John Edwards (Washington)  
1984 Eric Mussen (California)  
1985 Mike Burgett (Oregon)  
1986 Doug McCutcheon (British Columbia)  
1987 Tom Muncey (Nevada)  
1988 Dan Mayer (Washington)  
1989 Stan Williams (California)  
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2001 Mike Burgett (Oregon)  
2002 Eric Mussen (California)  
2003 Jaquie Bunse (British Columbia)  
2004 Jerry Bromenshenk (Montana)  
2005 Steve Sheppard (Washington)  
2006 Adrian Wenner (California)  
2007 Diana Samatarro (Arizona)  
2008 Mark Pitcher (British Columbia)  
2009 Eric Mussen (California)  
2010 Dewey Caron (Oregon)  
2011 Jenny Bach (Hawaii)  
2012 James K. Smith (Washington)  
2013 Melanie Kirby (New Mexico)  
2014 Jerry Bromenshenk (Montana)  
2015 Beth Conrey (Colorado)  
2016 Ethel Villalobos (Hawaii)  
2017 Eric Mussen (California)  
2018 Steve Sweet (Idaho)

CONFERENCE 2017 ....

## Kids 'n' Bees at WAS in Davis

*Sarah Red-Laird, Bee Girl*

Do you have a memory of the very beginning of the current “save the bee” phenomenon? Do you remember how you heard about Colony Collapse Disorder (CCD), the phrase that has been dominating the headlines far past the traditional “15 minutes”? I do!

It was the side of a pint of Haagen-Dazs honey ice cream. I wasn't the only one drawn in by this moving and award winning campaign, so it was a delight to come full circle and teach local students all about honey bees (and their important native bee cousins) this summer at the UC Davis Haagen-Dazs Honey Bee Haven, which that ice cream helped to fund!

Students from Peregrine School, whose motto is “SOAR: Science, Outdoor education, Arts, and Responsibility,” joined me for the ABF Kids and Bees program on the first day of the Western Apicultural Society conference in early September. They were special students, met by a very special group of Kids and Bees volunteers: Robbin Thorp, UC Davis distinguished emeritus professor of entomology, who ran the “Bees and Beekeeping” station; staff research associates Bernardo Niño and Charley Nye of the Harry H. Laidlaw Jr., Honey Bee Research Facility who ran the “Beeswax” and “Bee Habitat” stations; and Zoe Anderson, a UC Davis undergraduate majoring in animal biology who ran the “Honey” station.

The UC Davis “Bug Squad” blogger, Kathy Keatley Garvey did a fantastic write-up of the morning here: <http://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=25094>

**8 February 2018**





## “Next Gen” Beekeeper Breakout Session

*Sarah Red-Laird, WAS 2nd Vice President & Oregon rep to the Board*

Since the 2014 Western Apicultural Society (WAS) conference in Missoula, Montana, I have hosted nine “Next Generation Beekeeper Breakout Sessions” in every corner of the US. These meetings have been part of an initiative to dialog with the next generation of leaders in the beekeeping industry, identify problems that plague us, and create action-oriented solutions for beekeepers and their communities to take part in. I usually recruit a co-host, or two (past names include Zac Browning, Noah Wilson-Rich, Liz Frost, and Katie Lee), and we listen to young beekeepers who have a lot to say, but don’t usually take to the podium to express their ideas. Think of it as a town hall meeting for beekeepers and researchers in their 20’s and 30’s. This initiative has also been aiming to bringing more young beekeepers to national and regional conferences. The networking, learning, and leadership opportunities are endless, and we want the “next generation” to feel welcome and to take the floor to brainstorm positive solutions for real issues.

Our sessions usually tackle issues such as the public’s fear of bees, lack of communication between commercial and backyard beekeepers (in California), loss of bee habitat, Varroa control, and pesticides. At WAS 2017 in Davis, CA, however, the theme took on a different tone. This diverse group turned the looking glass inward, and we inspected WAS itself. Our three main issues were:

1. Lack of Next Gen Beekeepers at WAS,
2. Lack of Next Gen Beekeepers in positions of leadership in WAS and other similar organizations, and
3. Can WAS remain relevant?

After voting on top topics to discuss (I gave the option of getting into habitat, Varroa, or any of the other usual suspects), I asked the group to define the problem. With issue number one, lack of Next Gen Beekeepers at WAS, the definition was simple. Looking around the room in the main session, there were less than a handful of beeks under 60.

Next, I asked for attendees to brainstorm potential solutions and action items for the problem. The answers were:

- Better promotion. Give young beekeepers the message/invite them in the way they want it delivered. E.g. Facebook, Instagram, Twitter, Email, YouTube, local university radio station ads, campus-wide emails, poster on campuses, poster at hangouts like coffee shops, etc., partner with university biology (or other relevant) clubs and associations, partner with organizations that employ young beekeepers like the Bee Informed Partnership, GloryBee, etc.
- Offer grants specifically for next gen beekeepers (encouraging them to do their own research) and award the grants only to those present, at the banquet.
- Offer scholarships to reduce the price of admission for students or young beginning beekeepers.
- Offer work-trade to students to help advertise (see point number one), set up the conference, check in attendees, etc. in exchange for a reduced, or free, admission.

The next issue we tackled was lack of Next Generation Beekeeping in positions of leadership, both within WAS and in similar organizations. The reason for the problem was shouted out, “Because old white guys with red necks rule the roost!” I feel I need to mention that the one who owns this comment is “an old white guy with a red neck.” But let’s not get stuck too much on that, and move to solutions!

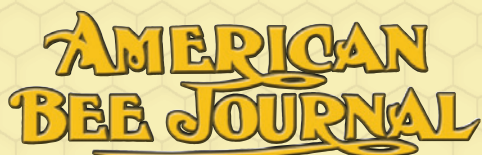

- Cultivate leadership. Assign mentors to younger members to coach them into a leadership position.
- Empower the next generation. Establish a “Next-Gen” committee for the board of directors, and have this committee retain a degree of authority.
- Equip young leaders with the best tools to help. Offer a leadership training program, series, or workshop. Perhaps partner with your local university extension, nearest National Young Farmers Coalition branch, or Farmers Union chapter to pull this off.
- Invite them. If there are no young beekeepers in the organization to promote to leadership, then think about what you are [not] doing to invite them in, and make them feel wanted.
- Make an example. If you have a next gen beekeeper in your midst, celebrate them! Take a chance and promote them into a position of leadership. Make a new position if you have to - social media, outreach, etc. What skills do they have that you lack? If other next gen beeks see one of their peers in power, they are more likely to show up and grow your membership!



The last issue was what we spent the most time on. We really dug down into the nitty gritty of WAS, and asked the very real question, “Can WAS remain relevant?” I’ll do my best to summarize the lengthy, meta, and sometimes painful conversation.

- Who is WAS? Beekeeping has changed a lot since the organization was founded over 40 years ago. This begs the question, who exactly are we? Is our aim at small, medium, or large beekeeping outfits? WAS is run by volunteers, and there is only so much we can do, so we need to pick one, and do it right. The group felt passionately that WAS **could best be a niche for western beekeepers that have fewer than 1,200 hives**, i.e. backyard and small, sustainable beekeeping operations. Many attendees said that they loved that this conference is smaller than the large national and regional conferences. They loved getting face time with their beekeeper icons, and felt more comfortable in a more intimate crowd.
- It’s time to redefine the mission. The current mission reads, “The Western Apicultural Society is a non-profit, educational beekeeping organization founded in 1978 for the benefit and enjoyment of all beekeepers in western North America.” Our group felt this **should be better directed toward the target group of beekeepers** we wish to serve.
- There needs to be **an investment in outreach, speakers, and programming**. WAS gets low attendance year after year, because a) no one knows that it’s happening, and b) often the speakers are the same speakers, talking on the same topics, that locals have at their beekeeping meeting during the same year.
- Innovative breakouts. Since our conferences tend to be smaller, take advantage by offering new, different, cutting edge breakout sessions.
- **Go beyond the basics**. The “sage on the stage” routine is tired. Speaker after speaker presenting slide after slide of their research findings, as the sole offering of the conference, needs to go.
- **Highlight networking opportunities**. Also, because our conference is smaller, set up a space for, and advertise the ability to meet new friends and rub elbows with the stars of beekeeping.
- **Hands on workshops**. This is a huge hit at other conferences. Let’s get sticky! In hives, with wax, with honey... Let’s dig in!
- **Openness and inclusivity**. Because WAS is smaller, and doesn’t attract the titans of the beekeeping world, we have the ability to highlight our specialty of being an open and inclusive group (just look at the number of states and Canadian provinces we represent), that hosts the best open and inclusive conference.

As of 2018, I’m officially retiring from my post as national “Next Gen Beekeeper Breakout Session” facilitator. I’ve got my hands full with little kids’ programs, acres and acres of habitat research, and the 2019 WAS conference to plan!! If anyone would like to pick this “facilitator” position up, in any region of the world, I’m more than happy to share my “formula” with you! Just ask ([sarah@beegirl.org](mailto:sarah@beegirl.org))! This was an intense night to facilitate. I’m so thankful for Amina Harris and the Honey and Pollination Center at the Robert Mondavi Institute for hosting us, and for keeping mead in my cup, to Steve Sweet and Jaylene Naylor for the snacks, the transporting of beer and ice, and for bringing their “A” game to the discussion, and for all that showed up and gave their ideas openly and respectfully!

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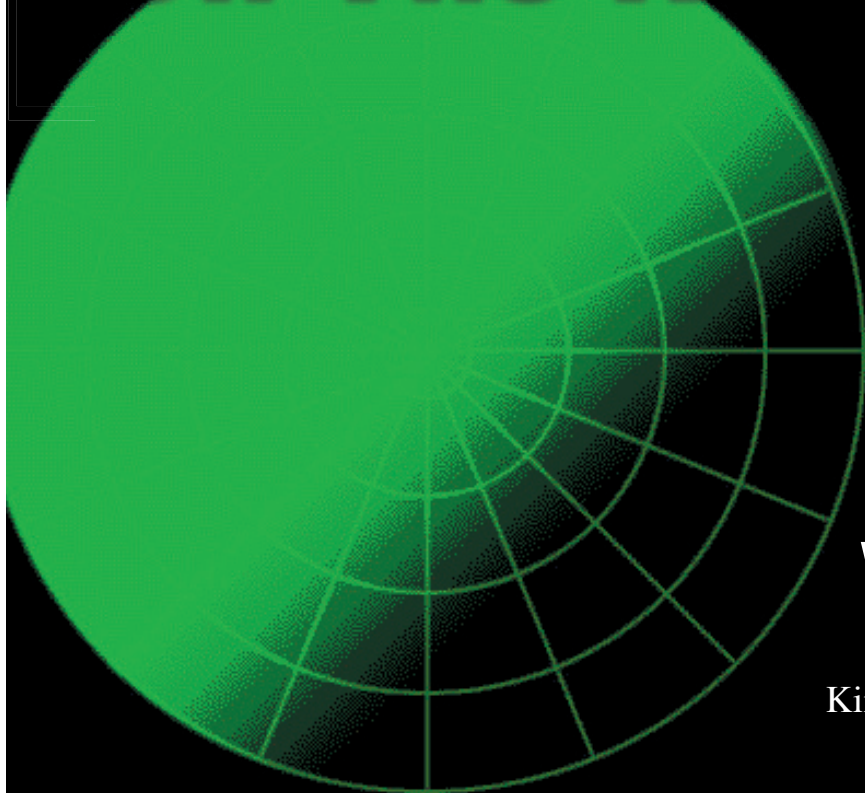


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# On The Radar



**WAS 2017**

Kim Flottum, Bee Culture Magazine

## Honey Bee Health

All the old problems - Varroa and viruses, summer losses only a tad smaller than winter losses and not nearly enough local queens. Beekeeper contaminated wax is almost as bad as Varroa, and getting worse.

Inadequate nutrition, loss of habitat, poor quality forage - The feds are finally helping and private money is becoming available too. The President's Pollinator Task Force is still on the books, but attention has dwindled in most agencies. Drought in the midwest opens CPR land to grazing = less bee forage. State Pollinator Protection Programs are all over the map. Some excellent; others essentially non-existent. Resistance to Bt and glyphosate means ... more chemicals, more soil and water contamination and issues with Roundup in honey. Fungicide/insecticide interactions cause brood/queen loss with sublethal exposures adding to all these problems.

## Honey Market

2016 honey crop was 162 M pounds, 150 predicted for 2017 with weather a major factor. Serious drop in available colonies for almond pollination. Average US honey production also dropping rapidly while consumption and population continue to increase. Imports increasing.

Will honey be a viable market in the future or is pollination a better business? Can we compete with foreign labor and government support, broke migrant labor policy, unhealthy hives and the crooks in the business? Is local honey the future? And what about the new Food Safety Regs?

## But Good Things are Happening on the Radar

No. 1. Stressors - Varroa/virus, nosema, nutrition, pesticides...ALL can be fixed with money, increased bee stock diversity (survivors, local, Russian, Minnesota Hygienic Queens, VSH), more people raising queens. IPM controls/test (need more) and a move away from both ag and in-hive legal and illegal chemicals. Incredible rise in new beekeepers - urban, suburban, rural, male, female.

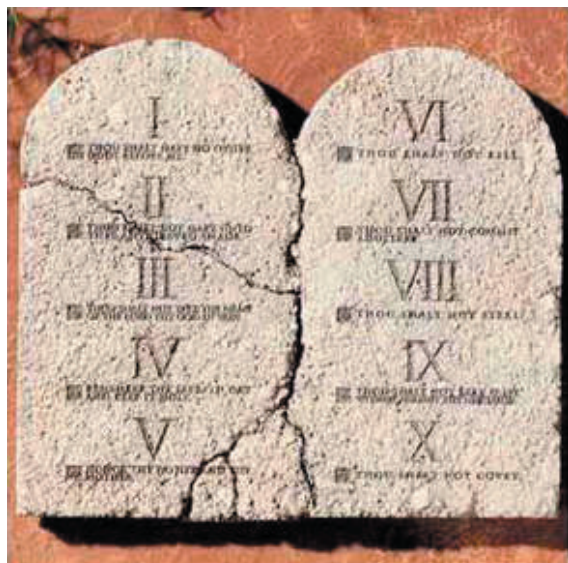
**12 February 2018**

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# Kim's Ten Rules for Modern Beekeeping



**1. Good Queens** - Raised in luxury, extremely mated, healthy beyond belief, an egg laying machine.

**2. Good Genetics** - Adapted to your location, suitable to your management, resistant to common problems, efficient producers, well behaved. (Remember, an average queen in a great colony will out-perform a great queen in a poor colony).

**3. Pest Management** - Know and deal with Varroa and its viruses, foulbroods, noseimas, waxmoth, small hive beetle, tracheal mites, mice, skunks, bears. IPM first, soft chemicals second, hard chemicals never.

**4. Control Swarming** - Make pre-summer splits, anticipate population growth, provide room in advance, seek low to no swarming stock, ensure appropriate populations before honey flows.

**5. Provide a safe environment** - Be safe by keeping your equipment in perfect condition. Be safe inside the hive by keep-

ing only new, clean wax. Be safe outside by being as isolated as possible from other bees and avoiding agricultural chemicals. Keep good records and always have extra equipment.

**6. Enough room at the right time** - for the bees, the brood, the nectar, the honey and pollen. Predict how much room your bees will need ... soon.

**7. Enough good food** - quality, quantity, timing. the cheapest insurance and the best medicine you can find. Maybe even grow your own.

**8. Only healthy hives** - Above all, avoid stress. Do not nurse failing colonies - join small healthy colonies. Don't waste time on dinks. Take your losses in the fall. Be proactive with food, queens, medications, room.

**9. Winter well** - Take care of the bees that take care of the bees that go into winter. Make sure there is enough food stored in the right place, both carbs and protein. Work toward superior population, protection and extraordinary ventilation!

**10. And finally, food safety** - Prevent contamination. Insist on clean equipment, clean rooms, and clean containers. Check moisture.

## Could there be more?

**What about modern beekeeper rules?** Continuing education, advanced skills, association membership, be an officer, teach a class, be a monitor.

**Beekeeper Health** - stings, reactions, giving an injection, how to lift heavy boxes, how to avoid and to stop robbing. Do you know the symptoms of heat exhaustion or stroke? Does your spouse know where every one of your bee yards are? Could you control a life-threatening situation in 5 minutes? Could you kill a colony to save lives?

**And what about "Do No Harm"?** Maybe it should be 10+ rules...



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## Reducing the Risk of Agrochemicals to Honey Bees, other Pollinators

*Daniel Schmehl - Bayer; Silvia Hinarejos - Valent U.S.A. LLC; and Hank Krueger, EAG (formerly Wildlife International)*

We want to sincerely thank Dr. Eric Mussen and the Western Apicultural Society for inviting us to provide an overview of our efforts to reduce the risk of agrochemicals to pollinators in the environment. Growers, as well as the agrochemical industry, are faced with the need to utilize agrochemicals to combat extreme pest pressure to certain crops while simultaneously looking for ways to promote pollinator health on the landscape. More and more bee scientists are being hired at agrochemical companies to promote pollinator health as new products are developed, to ensure a sustainable food, feed, and fiber supply. There have been continual scientific advancements in how we test and evaluate the effects of chemicals on bees. Government regulations are becoming more rigorous and more data is being required to make a determination of product safety. As part of our panel, we provided an overview of how and what data are generated and what methods are being developed to support the safe use of a product to facilitate discussion and questions from our audience.

Dr. Dan Schmehl from Bayer provided an overview of how the agrochemical industry conducts an environmental pesticide risk assessment.

The initial screening of ~200,000 chemicals per year yields, on average, only 1-2 compounds for further development. Of these promoted compounds, many are never registered for commercial use because of the extensive testing that occurs over a span of a decade. Studies are conducted on the honey bee as a representative pollinator species due to its global distribution, well-understood husbandry, importance in commercial pollination services, and availability of standardized test protocols. First, we determine the toxicity (i.e. what level causes an effect on survival, growth, development, and reproduction) of a compound to honey bee adults and larvae. Once this information is known, exposure (i.e. what concentration a honey bee may encounter in the environment and how often) can be measured in the bee-relevant matrices (for example, pollen and nectar). By knowing both toxicity and exposure, risk of a potential product on pollinators can be quantified and registered products can be managed in a way to ensure a safe use in the environment.

The Environmental Protection Agency released a document in 2014 titled “Guidance for Assessing Pesticide Risks to Bees” that has provided a detailed overview of the legal data requirements for bee testing in support of a pesticide registration. These safe uses take into consideration pollinator health, but also human safety, water quality, and hundreds of other studies. Our goal for any product is to have an acceptable risk while simultaneously providing an effective tool for growers to combat devastating crop pests.

Dr. Hank Krueger represented an independent contract testing lab and found it rewarding to share with the public the interesting and challenging biology and chemistry that is behind the studies that are performed. It is even better when speaking to an audience that already understands the biology of bees and shares the enthusiasm and wonderment of what they do.

Hank felt we had a very good session in which we not only presented how bees are tested in the lab, but also addressed the bigger picture of how we improve our agricultural practices to maximize the ability to grow food and also protect the environment.

In the past decade there has been a great deal of progress in better understanding how chemicals are affecting bees. Now bees are able to be reared in the lab in order to evaluate how chemicals affect larval and pupal development through adult emergence. Additionally, isolated groups of workers in the lab are utilized to evaluate the effect of a pesticide in sugar solution to simulate long term exposure to nectar from a treated field.

After lab tests, industry has worked closely with EPA to develop field studies that include placing hives in tents that have a treated crop to better understand what is happening at the level of the hive. Other studies monitor hives for pesticide residues and general health. It was a pleasure to present to such an enthusiastic audience. Thanks again for inviting us and giving us the opportunity to communicate our science!

Ms. Silvia Hinarejos provided some examples of new industry research efforts including (i) improving the performance of existing honey bee toxicity bioassays (report can be accessed at <https://drive.google.com/file/d/0B2pu9SkokN3iSWFUb mE3TU41Z1k/view>), (ii) refining honey bee dietary exposure to pesticides for use in pollinator risk management by providing daily nectar and pollen honey bee ingestion estimates, quantifying pollinator attractiveness in crops, or assessing guttation water as a potential route of exposure; (iii) evaluating multifactorial causes of colony failures using mechanistic ecological models; or (iv) evaluating the possible biological differences in exposure and toxicity sensitivity between honey bees and non-honey bees (non-Apis bees).

**14 February 2018**



As discussed during the panel discussion, we expect all these industry research efforts will contribute to preserving and promoting honey bee colony health in particular, and bee pollinators in general. The desire to continue constructive dialogues as witnessed at the Western Apicultural Society annual meeting is of paramount importance to create sustainable solutions for the future of agriculture and enhance harmony among key stakeholders, such as growers, beekeepers, and the agricultural industries.

## Reflections on the Pesticide Panel – Eric Mussen

There seems to be a lot of ill will toward the “Big Ag Chemical Companies” in both the beekeeping and environmental worlds. It is easy to say that those companies put profit above all other concerns. No one can deny they wish to be profitable, but it appears that they also can be swayed by strong public opinion. For decades I have expressed my frustration to state and federal agencies about the limited honey bee toxicological data that is required to get a pesticide registered. Slowly things changed. Instead of just acute “topical” (chemical drop on the body) and “oral” (fed to bees) determinations of LD50 and LC50 doses in cages, I desired similar studies done on immature stages of honey bees in the lab. Often I was told, “There is no generally accepted protocol for those studies.” So, things went nowhere.

Then European countries pushed for “semi-field” (very large, long tunnel) studies in which a flowering crop was sprayed with various doses of pesticides while the bees were foraging and housed in the tunnels. Data had to be collected on many different colony parameters and brood studies were included. And, finally they moved the studies into open fields with full-sized colonies.

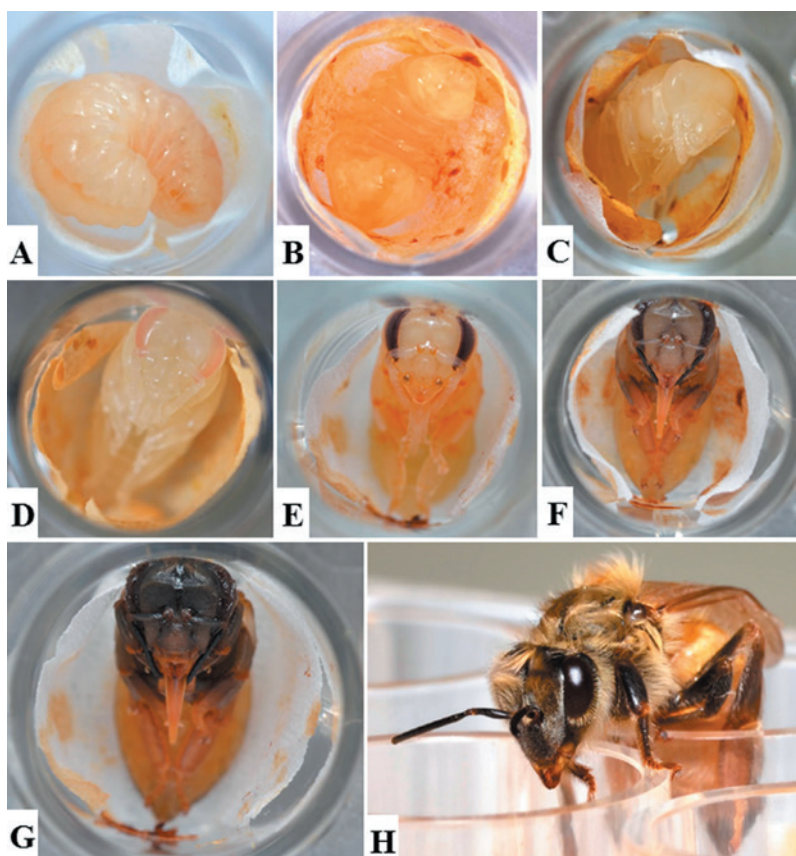
The tunnel studies are pretty well controlled, but I still have a bit of a problem with data collection. If the studies use acetate overlays or period photos to follow development of various individual larvae through their development, then I would hope that the frames be removed from the hives one day before expected adult bee emergence and all the older adult bees brushed off. The combs then would be housed in an incubator, in the dark at brood nest temperature and relative humidity. Any bees that successfully emerge will leave behind an empty cell. If adult bees are present, they are likely to uncap cells and remove dead or dying brood at that time. By just casually observing the open cappings, one might consider that bee removal to be successful “emerging.” But, the researchers are becoming aware of such concerns, and many of the studies use dead bee traps to see if things are dying and being removed. Field studies are not too different, but adding toxins to full-sized colonies that are already taking care of their needs quite well, or surrounding them locally with limited amounts of sprayed plants, allows for too much food dilution to really know what is going on.

Our three toxicity researcher panel members were interesting in their own rights. All three were trained in environmental toxicology. The two pesticide company representatives were also trained in bee biology and husbandry and are being proactive in improving data generation for assessing pesticide risk to pollinators.

One company has phased in new toxicity criteria for potential new pesticides. If they kill the target insect, they move along – not too many products of the thousands tested. If they are found to be highly toxic to honey bees, they are removed from consideration. Those considerations now involve rearing honey bee larvae and pupae in the lab until they transform into adults. They are weighed and held in cages to determine life expectancy.

So, things are sounding a bit better already. Since these changes have not been required by regulatory agencies, it is obvious that pressures from the general public are having a positive effect, from the standpoint of honey bees and other non-target organisms, on the evolution of pesticide development.

*Developing honey bees: © Journal of Apicultural Research 2016. Daniel R Schmehl, Hudson V. V. Tomé, Ashley N Mortensen, Gustavo Ferreira Martins & James D Ellis (2016): Protocol for the in vitro rearing of honey bee (Apis mellifera L.) workers, Journal of Apicultural Research, DOI: 10.1080/00218839.2016.1203530.*



CONFERENCE 2017 ....

## Taste the Honeys of the West

*Amina Harris; Director, Honey and Pollination Center, Robert Mondavi Institute, UC Davis*

For the past year, the Honey and Pollination Center at the Robert Mondavi Institute has been studying the many facets of honey: flavor, aroma, color, pollen and nutrition. The Center has established and trained a honey sensory panel within the UC Davis Department of Food Science and Technology. After an initial training, the panel tasted and scored three varietal honeys with samples produced from across the country. Each honey's score was dependent on factors like aroma, flavor, and color — the Center's goal is to create a description of each varietal's unique characteristics.

This study, the first of its kind in the United States, set the backdrop for the Honey Sensory Experience: An Introduction, in November 2017. Attendees at WAS 2017 in September got a hands-on preview, learning how to taste honey, experience a broad selection of varietal honeys and learn from the researchers at UC Davis.

Center Director, Amina Harris explains that with the growing interest in varietal honey throughout the country, the Center's goal is to help consumer's understand what each should really taste like.

Though most of the honey produced in the US is a cross section of floral sources, many are varietal, some commanding very high price points. Well-known varietals include orange blossom and clover honeys, though these are rarely pure. "According to current honey labeling laws, the varietal listed on the label need only be the predominant floral source. Simply, a blended honey of 23% alfalfa, 25% wildflower and 25% cotton with 27% orange blossom can be labeled Orange Blossom Honey. Swap out the orange blossom for clover and you have a new varietal!" she explained.

The Honey and Pollination Center is at the forefront of honey sensory research, and developed the first-ever Honey Flavor and Aroma Wheel, featured on NPR, in the Smithsonian, and at tastings and specialty food conferences across the country.

As Director of the Honey and Pollination Center of the Robert Mondavi Institute, Amina Harris brings over 35 years of experience in the world of varietal honey to the program. In addition to directing the Center's program and developing its courses, she is co-owner of Z Specialty Food with her husband and son.

In a short introduction, Amina introduced attendees to the Center and the work it is doing with the Departments of Entomology and Nematology, viticulture and Enology and Food Science and Technology.

She encouraged the attendees to become educated ambassadors of bees and honey, joining the Master Beekeeper Program offered by State Apiculturist Elina Niña and labeling their sweet product responsibly.



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Her presentation centered on how bees collect nectar and turn it into honey and suggested that the more detail they know, the more the consumer will want to know, too.

She then got to the highlight of the morning, tasting honeys from across the Western US including fragrant Orange Blossom from California; vanilla and marshmallow Meadowfoam from Oregon; Juicy Blackberry from the Oregon Coast and complex and savory Lehua from Hawaii.

Each honey was featured with a concept of how to sell your honey through stories, recipes and taste comparisons.

## Honey Tasting

Let the honey warm in your hand. Sniff the honey and take note of what you smell. Stir the honey to release more volatiles and taste a small amount. Let it sit on your tongue.

- What do you taste besides sweet?
- What is the honey's texture?
- How quickly is it dissolving? How do the flavors evolve in your mouth?
- Finally, note how long the flavors linger. Some honeys have a short finish. Others have a longer duration and the flavors change.



## Education and Information

The more you know about bees and your product, the easier it is to sell. Be a trustworthy resource!

- Know about your floral source
- What should a honey from this floral source taste like?
- What affects it? Weather, health of bees, etc.
- How do you collect it?
- What makes it unique?
- If this year's crop isn't perfect, admit it!
- Infusing? Explain what that means.
- Avoid disinformation
- Someone tells you they must have local honey for their allergies, let them know that many people try it. For some it is successful – for others not so. There is NO research done in this area.

Let your honey sell itself! Do a comparison tasting and let your consumers decide which honey is their favorite.



# Honey Bee Nutrition (Part 5)

*Dale Hill, PhD, PAS, Quincy, IL*

In the previous honey bee nutrition articles in this series, proteins, carbohydrates and fats have been discussed, so now you have a very basic understanding of nutrition. Now we will focus on supplemental feeding for honey bees.

Nature usually provides an abundance of pollens and nectars for honey bee foraging. However, in late winter and early spring, the bee's life cycle is usually ahead of Nature's life cycle, and colony survival and early season brood development depends on winter food stores within the hive. These winter food stores are dependent upon nectars and pollens collected the previous fall, and on foraging population at that time within the hive. Usually there is adequate nectar and pollen available in late summer, fall and early winter (after you have harvested the honey in the supers) for the bees to build up winter food stores.

This scenario is dependent on 3 significant factors. First, Nature must provide good weather and adequate rainfall for the late season plants to produce nectars and pollens for the bees to collect. Second, Varroa mite counts must be reduced as much as possible to maximize the number and health of the foraging bees. Third, the pollens must provide adequate and balanced amino acids levels to provide for colony growth and reproduction. These three factors can significantly reduce food stores and/or colony strength going into the winter. If any or all of these factors are impacting your hives, then supplemental feeding should be considered. Treatment for Varroa mites after honey harvest should be standard practice for beekeepers.

In late summer and early fall, use a 2:1 sucrose:water syrup. This may be fed outside the hive (Boardman feeders) or inside the hive (several different feeders are available). I also add 1 teaspoon of white vinegar per quart of syrup, and 1 teaspoon of Honey-B-Healthy to help encourage consumption. There are also other liquid vitamin and amino acid supplements that many beekeepers add to the syrup. These products have been developed to help improve the nutritional status of the bees. Which products to use somewhat depends on what challenges your bees are facing. If you use these supplements, keep good records of hive weights, brood patterns, food stores patterns, and an estimate of bee numbers (number of frames and what % of each frame is covered by bees) to demonstrate to yourself that the bees are benefiting from your cost inputs. Supplemental feeding should only be done when supers are NOT in place.

Syrup feeding is an option until frost. It takes a lot of calories to warm syrup from 320-400F (outside temperature) to 950F (inside hive temperature with brood). Think of this as heat being taken away from brood production. As temperatures get close to freezing, it is better to feed syrup inside the hive or change to patties (commercial or homemade) or sugar boards. I prefer commercial or homemade patties.

I use what in my area is called "Crabby Patty". For late fall and winter feeding, I use 4.5 lbs sucrose, 0.5 lbs pollen substitute, 8-9 ounces of water, 1-2 tablespoons of white vinegar and 1-2 tablespoons of Honey-B-Healthy, mix this with a large mixer and put into gallon Ziploc bags. This formula results in a blend that is 4-5% protein for late fall and winter feeding as most protein supplements are 40-45% protein. Too much protein when bees cannot make cleansing flights may increase susceptibility to Nosema infection. Many beekeepers don't feed any extra protein and only sugar during the fall and early winter.

I use 2 pieces of 3/4" x 3/4" by 3-4" long pieces of wood to prevent the bag from collapsing on the bees when I cut a 1" x 3" rectangular opening in the bag for bee access (see photo). I put the opening directly on the frames in the upper brood box so that the bag opening allows bee access through the spaces between frames. I use a quilt box on my hives, which provides a 2" space on top of the upper brood box frames for this patty bag. This amount of feed has lasted as little as 2-3 weeks some years, and most of the winter in other years, depending on food stores in the hive. I usually check all hives every 3-4 weeks over the winter months. This can be done with a few seconds opening of the hive cover to check the Crabby Patty, it takes less than 15 seconds to remove an empty bag and replace with a new bag. Make sure you get the cover back on correctly to maintain hive temperature with minimal heat loss (voice of experience on this point). I check hives on the warmest day of the week based on the weather forecast to reduce cold exposure of the bees as much as possible. I also wrap my hives with aluminum bubble wrap and black plastic as I don't have a natural windbreak for my apiary location. I use screened bottom boards with inserts (which are not airtight), restricted entrance openings and the vented quilt box to provide adequate ventilation for the colonies. I have, on a few occasions, had to remove snow from around to hives to allow for ventilation.

In most temperate climate areas in Northern latitudes, the queen stops laying eggs around early-mid November (depending on weather), and does not start laying again until late January-early February when she senses the change to longer daylight and perhaps warmer temperatures outside. During this period of no or minimal egg laying, the internal hive

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temperature may drop to 75-80°F, with the bees clustered to maintain this temperature around the queen. Once the queen starts to lay eggs, the colony increases the internal hive temperature to about 95°F for brood production. If you have internal thermometers in your hives, you can watch the temperature increase and know when brood production has started. This is a gradual process for the queen, as she may start laying a few hundred eggs per day and gradually increases egg laying activity through the spring and summer.

Based on previous articles in this series, the hive requirement for protein (amino acids) and carbohydrates increases significantly when the colony starts feeding the queen for egg production and increases the hive temperature to support brood production and survival. This is typically when we see starve-outs. The bees simply run out of food stores, and the entire colony dies. It is important to know the condition of the hive in late fall, and to know whether supplemental feeding may be needed in the very early spring. I normally start patty feeding in November to ensure that the bees don't run out of food. I would rather have the extra food in the hive and not consumed rather than lose the hive to a starve-out.

I also change the patty formula in late winter to 3.0-3.5 lbs sucrose and 1.5-2.0 lbs of protein supplement powder so that the patty formula is now 15-20% protein to support the greater amino acid needs of the hive to support brood production. By this time, there are often a few warmer days so bees can make cleansing flights. I continue this feeding until Nature provides pollens and nectar sources for the bees. This means continued feeding when we have cold wet springs when flowers come up late, or there is excess rain and the bees cannot get out to forage. Early supplemental feeding usually produces greater colony buildup when Nature does not provide adequate pollens and nectars.

Again, due to the calorie requirement to warm syrup to hive temperature, I don't start feeding syrup until late March-early April, when the likelihood of a hard frost is usually past. Use a 1:1 sucrose:water syrup in the spring and early summer. High fructose corn syrup may also be used in the fall or spring, but wax production needs glucose rather than fructose, and sucrose is higher in glucose than high fructose corn syrup. Which sugar source to use depends on your ability to handle liquids, and cost and easy availability of these two sugar sources.

Once Nature has provided adequate pollen and nectar flow and the hive is doing well, I stop supplemental feeding. In my area, we usually have a good pollen flow in spring and early summer, then by mid-July, the rain stops and it goes from abundant to limited foraging in a few weeks. Depending on your local conditions, supplemental feeding may need to be considered in late summer due to pollen dearth. If these conditions develop, easy access to water is the top priority for the bees for hive cooling. Adequate ventilation is essential as well to help bees manage temperature inside the hive. This is also the time when beekeepers must decide how much honey can be harvested, and how much needs to leave in the hive for colony winter survival. Last year (2016), I harvested a total of 40 lbs of honey from 14 hives and left the rest for the bees. This year (2017) will be a much better honey harvest. If you decide to provide supplemental feeding, harvest honey in the supers, let the bees clean them out before putting them back in storage, and then start supplemental feeding. Do not provide supplemental feeding while supers are on the hive to minimize risk of sugar honey instead of flower honey.

Starter packages of bees, production of nucs, queen rearing, captured swarms, and colony splits will all benefit from supplemental feeding, either syrup and/or patties to encourage brood production. Always watch for robbing of one colony by another colony. Too much patty material in a hive may encourage small hive beetles in the warmer months, so provide smaller amounts of patties and check your hives more frequently. Add more supplemental feed only when the previous patty material has been consumed. Weak hives will be more susceptible to small hive beetle infestation than strong hives. Varroa mite treatment(s) should also be used as may be indicated by the various mite testing options.

Pollen from known sources may be used in place of pollen substitutes. Don't use pollens from colonies with disease problems or pollens that you are not sure of the source. Pollens may be frozen for future use, but the proteins (amino acids), lipids, and vitamins will degrade over time even when frozen, so it is best used within a year after collection. Pollens should be stored in vacuum-packed bags to reduce oxygen exposure and slow down the degradation rate.

For those beekeepers who provide bees for pollination, it is important to frequently check hives when the bees are foraging on single pollen sources. If foraging opportunities are limited by access to single pollen sources, it may take only a few weeks for hive pollen stores to run short for the bees need for essential amino acids from pollens. This is common when single pollen sources are their primary food source. When this happens, the worker bees will start cannibalizing larvae to meet their amino acid needs. This will result in a loss of brood and a weak colony within 3-4 weeks. This may be another time when supplemental feeding is prudent for colony survival.

Commercial beekeepers will likely find that liquid feeding inside the hive and/or commercial patties are more economically feasible due to labor availability and cost, and that feeding methods other than described here will be more applicable to specific operations and management practices. ■

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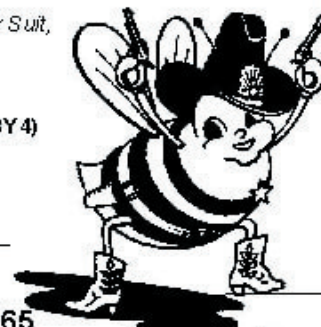
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## Microbes Associated with Honey Bee Health

My name is Slava Strogolov, the CEO of Strong Microbials Inc. I am in the business of microbiology. I spent many years studying microbiology. In graduate school, and work in industry I developed microscopy as one of my expertise. One day I was looking at bacterial division under a microscope and dividing bacteria formed a shape resembling a letter “m” or a Greek letter “μ” (mu). Greek letter mu is also a symbol for micro, and micro means very, very small. The picture that I took that day came back to me when I was starting a company that manufactures active microbial products, Strong Microbials Inc, and needed to find a logo to represent the company. The logo of Strong Microbials Inc is an actively dividing Bacillus bacterium. This talk will be about benefits of microbes for honey bees.

The importance of honey bees is huge. Bees are environmental stewards. They are a key component for environmental stability and diversity among flowering plants. Additionally, the annual economic contribution to the United States alone is \$20 billion, a significant amount. Honey bees play a vital role in keeping fruits, nuts and vegetables in our diets. However, the most imperative factor to consider is food security, especially when 87 of 115 food crops depend on pollinators contributing to 35% of global food production. We all want the investment in beekeeping and pollination to be profitable. My answer to the challenges that the honey bees are facing today is probiotics.

The discovery of probiotics isn't new. In late 1800's the first theory about health benefits of probiotics came from a Russian Nobel prize-winning scientist Dr. Ilya Metchnikoff who theorized that health could be enhanced and senility delayed by manipulating the intestinal microbiome with host-friendly bacteria found in yogurt. This theory came from observation of Bulgarian villagers who looked younger, stayed healthier and lived longer compared to the residents in the neighboring villages because they were drinking soured milk. After analyzing the soured milk sample, he discovered that Lactobacillus species were responsible for souring of the milk. This observation and theory laid ground work for the modern understanding of host-microbiome interaction.

The scientist who coined the term ‘microbiome’ is an American microbiologist, Dr. Joshua Lederberg. He discovered that bacteria are very sophisticated organisms. Some of his major discoveries were bacterial transformation or the fact that bacteria reproduces sexually by exchanging genetic material between each other. The discovery of plasmids, or small circular DNA that is present in bacteria separately from the main DNA. Plasmids laid ground work for genetic engineering and biotechnology. Another very important discovery was bacterial transduction or the fact that bacteria can survive and educate their progeny how to resist certain environmental hardships such as antibiotics.

Natural bacteria is picked up by honey bees from flowers while collecting nectar and pollen and reside predominantly in honey bee midgut and hindgut. Gut bacteria that is naturally found in honey bees is dynamic. During development of the larvae, bacterial population fluctuates. Bacteria are acquired from feeding larvae food by the nurse bees. During pupation, gut lining is shed, and when adult honey bee emerges, its gut is sterile. The young bee quickly repopulates its gut with characteristic microbiota via oral trophallaxis, interaction with hive material, and faecal-oral transmission.

The gut of the honey bee is subdivided into crop, midgut, pylorus and hindgut. The majority of naturally residing bacteria are found in the hindgut. The relative abundance of Lactobacillus and Bifidobacterium is the highest in honeybee gut microbiome. Diverse and abundant microbiome composition is a normal situation in healthy honey bees and is not considered an infection, however the abundance and naturally found balance of bacteria in the gut is not autonomous. It can be disrupted in a condition called dysbiosis. Various challenges and stresses affect relative abundance of bacteria in the gut.

For example, colonies that succumbed to colony collapse disorder in 2007, Cox-Foster D., et. al. (2007), were found to have decreased levels of Lactobacilli. Loss of these bacteria has detrimental consequences for bee health.

There is a solution: It is probiotics. We developed SuperDFM a probiotic supplement for honey bees that contains very powerful and necessary ingredients. SuperDFM-HoneyBee contains several commensal strains of lactic acid bacteria, yeast, bacilli, enzymes.

Peer reviewed publications unequivocally demonstrate that many commensal Lactic Acid Bacteria and Bacillus suppress honey bee diseases caused by bacterial pathogens such as Paenibacillus larvae that causes American foulbrood disease (Forsgren, E, et. al. 2010), Melissococcus plutonius that causes European foulbrood disease (Wu M., et. al 2014), and



fungal pathogen *Ascosphaera apis* that causes chalkbrood (Sabaté D.C., et.al. 2009).

There are currently 2.6 million honey bee hives in the United States. It is a significant decline from 6 million hives available in 1950. Numerous stress factors affect the honey bee population and many of those are bacterial pathogens. The solution to reduce some of those problems is probiotics. Unlike antibiotics, probiotics can be used throughout the year and do not leave any residue in the honey or hive products.

Our research staff took samples from hundreds of hives in different states and quantified lactic acid bacteria in the gut of those honey bees. We found that lactic acid bacteria levels decrease later in the summer. The observation that natural lactic acid bacteria are not at a constant level during the summer season is significant. It helps us to understand the seasonal benefits of supplementing lactic acid bacteria levels with probiotics. Therefore, we recommend using SuperDFM four times per year. SuperDFM-HoneyBee contains freeze dried bacteria. Freeze dried bacterium is akin to that which is sleeping or metabolizing very slowly. It activates or “wakes up” with moisture. Lactobacilli are anaerobic, live without oxygen, thus we want them to activate exactly where they should, in the gut. Moisture from the hypopharyngeal gland and

gut lining is enough to activate the probiotics. We do not recommend using SuperDFM in pollen patties or syrup because the probiotics will become active outside of the honey bee’s gut.

Our research division is determined to solve multiple problems that honey bees are facing today. Two products that are currently being developed are biological controls designed to suppress Varroa destructor mite and Small hive beetle *Aethina tumida*.

There is a natural way to deal with stress factors that honey bees are facing today. We can do business with nature. Strong Microbials Inc is the leader in creating and manufacturing active microbial products to support honey bees’ health.

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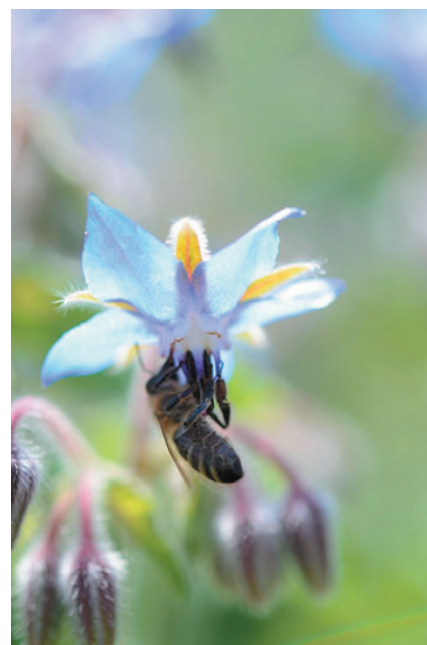
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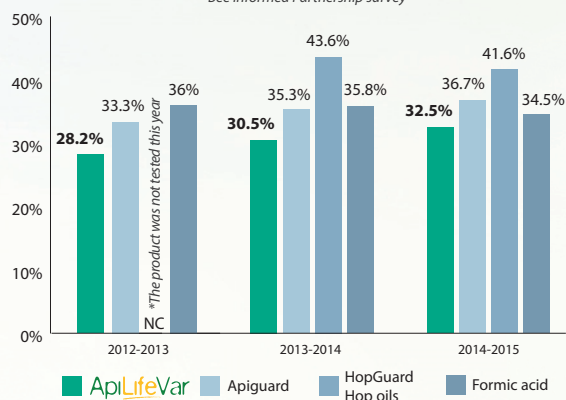
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CONFERENCE 2017 ...

## Last Glimpse of Doings at UC Davis, 2017

*Clockwise from top left - Bob Nyberg of Fresno, CA, a WAS Life member, ready for tour day; one of Albert Chubak's exquisite creatures; Life member Kari Hallopeter of Spokane, WA and Ettamarie Peterson of Petaluma, CA take a breather in the bee garden; Tim Molenda of Western Bee Supplies in Polson, MT in the vendor room; Brandi Rogers of Wilsonville, OR and the Ruhl-Brushy Mountain exhibit; reminiscing (l to r) Kathy Summers, Kim Flottum, Phil Craft, Randy Oliver, Norm Gary.*



February 2018 27



## It's the Law...

# FDA, VFD and VCPR – What Does This All Mean to Beekeepers?

*Jerry J. Bromenshenk, Ph.D.; 10/18/2017*

Veterinary Feed Directive (VFD), January 1, 2017 Proposed in 2013, the US Food and Drug Administration (FDA) published a revised Veterinary Feed Directive (VFD) on January 1, 2017. This new Act applies to any food-producing animals (cattle, pigs, poultry, fish, etc.), including honey bees! The overall goal is to limit and decrease the amount of antibiotics in the food that we consume. Simply stated: (1) Bees and their beekeepers now need veterinarians, (2) Antibiotics can only be obtained by prescription or a veterinary food directive on written order by a veterinarian, (3) Over-the-counter sales of antibiotics have more or less been removed (antibiotics are no longer available at farm and ranch supply stores), and (4) Advertising of antibiotics and claims of growth promotion are prohibited.

The VFD applies specifically to three antibiotics used to treat bees, other animals, and humans. These include: (a) oxytetracycline for control of European Foul brood, (2) tylosin for treatment to control oxytetracycline-resistant foul brood, and (3) lincomycin. Depending on individual state regulations, beekeepers may be able to use antibiotics to treat colonies with low levels of American Foul Brood, or they may be required to burn affected colonies. Although previously little used by beekeepers, the third listed antibiotic, lincomycin apparently has been approved for use in beehives since 2012.

Depending on the antibiotic and method of administration, a beekeeper either needs a prescription for water soluble forms (oxytetracycline, tylosin, or lincomycin) or a Veterinary Feed Directive for dry, powdered forms (oxytetracycline as a sugar dust) of the antibiotic. The prescription or VFD must be issued by a licensed veterinarian. The antibiotic products can only be obtained from the veterinary clinic, a licensed pharmacist, or a licensed and approved supplier. Montana beekeepers can have their prescription or VFD filled by Western Bee in Polson, especially useful to large scale beekeepers.

What is not commonly known or clearly explained in the FDA Directive is that each beekeeper needs to set up a formal patient relationship with a veterinarian (VCPR). FDA says: In “order for a VFD to be lawful, the veterinarian issuing the VFD must: (1) Be licensed to practice veterinary medicine; and (2) Be operating in the course of the veterinarian’s professional practice and in compliance with all applicable veterinary licensing and practice requirements, including issuing the VFD in the context of a veterinarian-client-patient-relationship (VCPR) as defined by the State.

Clearly, most beekeepers, as well as veterinarian’s and the state licensing boards never anticipated having bees as patients. Typically, veterinarians providing service for herd animals like cattle use VCPRs. We found that others often asked – what should be in a VCPR for bees?

Ohio has an online example for all animals, and I obtained permission to modify it to better fit Montana state directives. I have asked that my example VCPR be posted on the WAS Facebook and Web page.

Please note, neither beekeepers nor veterinarians anticipated that the federal directive would include bees. Regardless, it is unlikely to be rescinded, changed, or modified to exclude bees. The goal is to ensure that antibiotics, and only the proper antibiotic, at correct dosage and application, for the appropriate bacterial disease are authorized by a licensed veterinarian; when needed, for the proper purpose, and in the amounts needed.

Hoarding of antibiotics and carry-over from year to year should not occur. The beekeeper receives the amount needed for the time specified and for the number of colonies that require treatment.

To meet the requirements of the FDA directive, each and every beekeeper needs to establish a patient (client) relationship with a veterinarian. Finding a veterinarian to provide service to bees can be difficult, especially in rural areas. All of this is new to them, and many are justifiably concerned that their license could be suspended or revoked if they inadvertently break the rules. For all small scale beekeepers and for the local bee clubs and associations, I recommend visits to local veterinarians by your more experienced beekeepers, each taking along a copy of an example VCPR. Use that as a starting point toward establishing a veterinarian-client-patient-relationship.

In addition, our Montana Board of Veterinary Medicine emphasized: Do not call a veterinarian and start the conversation by stating that you ‘need a prescription or a VFD for antibiotics for your bees and you need it right away’. In essence, you are asking the veterinarian to violate the new FDA directive, especially if the veterinarian doesn’t know you.

Finally, few veterinarians have any training in bees, bee diseases, bee colony inspection, or how to safely work bees. The advice from our state Veterinary Board was that the beekeeping community may have to ‘train’ the veterinarian. That seems to be a rather risky approach – having beekeepers of unknown experience teach their veterinarians. As such, in Montana I, the University of Montana’s School of Extended and Lifelong Learning, the State Board of Veterinary Medicine, and the State Veterinary Association are working to develop and provide appropriate training to veterinarians willing to provide their services to bees and beekeepers. I’ve always thought that bees need veterinarians – I just didn’t think this was how it would happen.

## 28 February 2018

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# **SAMPLE**

## **Veterinary Client/Patient Relationship (VCPR)**

### **Agreement for Montana Honey Bee Colonies**

Name of Clinic:

This agreement reaffirms a relationship between the Veterinarian of Record (VoR) and the client that they are committed to use drugs in a safe, effective and appropriate manner, which includes avoiding residues in honey.

- No medication will be used in a manner that is not listed on the label unless directed by the veterinarian and written in the treatment protocols for the client by the VoR.
- The client and veterinarian agree to keep accurate and detailed treatment records (i.e., apiary ID, date, drug, dosage, route of administration, personnel involved).
- Regardless of where drugs (prescription or over-the-counter) are obtained their use should be consistent with this agreement.
- The veterinarian will provide consultation and oversight of treatment records and drug use for client apiaries.
- All withholding times between drug administration and honey flows will be provided by the veterinarian and followed by the client or representative.
- The client is responsible to immediately notify the veterinarian of any honey residue violations.
- All medications will be stored, labeled, and administered only to colonies within registered apiaries according to state and federal regulations.
- Prescription medications can only be used for colonies within registered apiaries for which they were prescribed.

The VoR is unique to all other veterinarians working with the client in that this veterinarian is responsible for providing appropriate oversight and treatment protocols of all drug usage. All other veterinarians working on the farm should notify the VoR of their recommendations and/or actions regarding treatment protocols.

This document is to be reviewed annually by the client and the VoR.

Client: \_\_\_\_\_

Veterinarian of Record (VoR): \_\_\_\_\_

Signed: \_\_\_\_\_

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

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## Native bee life styles

*Robbin Thorp, Emeritus Professor, Department of Entomology and Nematology, UC Davis*

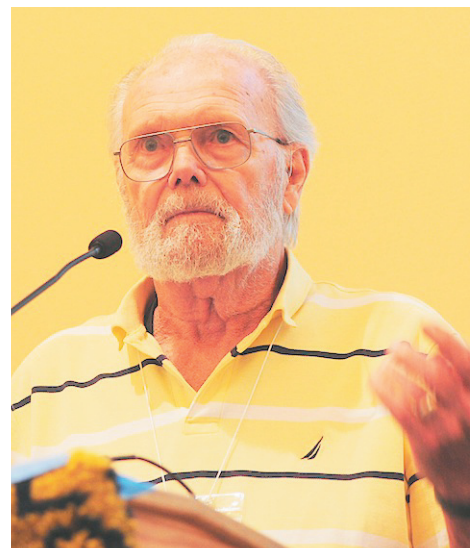
The western honey bee is what comes to mind for most people when the word bee is mentioned. But there is a great diversity of bees, 20,000 to possibly 30,000 species of bees on a global scale. This is more than all mammals, birds, reptiles and amphibians put together. A very significant taxonomic group that provides a crucial ecological service as pollinators of flowering plants..

Unlike honey bees, most bees are not social, do not make honey, and females do not die when they sting.

Bees are derived from a common ancestor with carnivorous predatory wasps. They have changed the diet they provide for their young from animal protein to plant protein in the form of pollen.

In order to collect pollen, they have developed branched body hairs in contrast to the simple hairs of their wasp ancestors. Pollen accumulated on bodies of female bees is groomed and stored in specialized structures for transport to their brood nests. Transport structures may be brushes of hairs (scopae) or bare areas surrounded by long hairs such as the corbiculae on the hind legs of honey bees and bumble bees.

Bees exhibit three major life styles: solitary, social, or parasitic (cuckoos). Most bees, about 75%, are solitary species in which females work independently to construct and provision brood nests for rearing their offspring. Only about 10% of bees are social, with overlap of female and her adult female offspring cooperating to rear additional offspring. The remaining 15% of bees are cuckoos, mostly cleptoparasites, in which females have given up building and provisioning their own brood nests, and instead, seek out nests of industrious relatives and lay eggs in host nests. Thus, when the host bee seals a brood chamber after laying her egg in it, the cuckoo bee egg hatches and the cuckoo larva kills or out-competes the host offspring for the food provisions. The result is that the cuckoo survives at the expense of the host offspring..



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## Meet the 2018 WAS Executive ...



### **President**

#### **Steve Sweet, Boise, ID**

Steve's bio ran in the November 2017 WAS Journal. Also the Idaho rep to WAS, his regional report is on page 34.

### **1st Vice President**

#### **Joe Carson, Wasilla, AK**

Also the Alaska rep to WAS, Joe's bio and regional report are on page 35.



### **2nd Vice President**

#### **Sarah Red-Laird, Ashland, OR**

Also the Oregon rep to WAS, Sarah's bio and regional report are on page 36.



### **Past President**

#### **Eric Mussen, Davis, CA**

*As a child, Eric preferred to be outside as much as possible. All things in nature interested him, especially insects. Encouraged by his self-taught, naturalist grandfather, Eric pursued those interests by obtaining a BS in Entomology at the University of Massachusetts (1966), and an MS and PhD (1975) in Entomology at the University of Minnesota. While at UMin, Eric had Dr. Basil Furgala, a Professor of Apiculture, as a mentor. Eric studied sacbrood virus of larval (and adult) honey bees for his PhD thesis.*

*After a few months of postdoctoral work, Eric was hired as the Extension Apiculturist in the Entomology Department at UC Davis (1976). He served in that capacity for just under 39 years. During that time, he published a monthly newsletter, "from the UC apiaries," with more than a decade of back issues on his UC Davis Entomology website.*

*Eric became very well entrenched in both the non-commercial and commercial aspects of the beekeeping industry. He was involved with the initiation of the Western Apicultural Society (WAS) (1977) and the American Association of Professional Apiculturists. He is a member of the Western Apicultural Society, The California Beekeepers' Association, the California Bee Breeders' Association, the American Beekeeping Federation, and the American Honey Producers' Association. He has served on committees with the National Honey Board and Project Apis m, and is well-known and respected by the California Department of Pesticide Regulation and the US Environmental Protection Agency.*

*Although he retired in 2014, Eric's input and assistance is still in demand. He was pressed into service for a sixth term as president and conference coordinator of the 2017 40th Anniversary WAS Annual Conference. He still reads and comments occasionally on the weekly announcements of requests for registration of pest control chemicals with the California Department of Pesticide Regulation. He responds to some of the inquiries from the public or beekeepers that are submitted to the American Beekeeping Federation and he still responds to significant numbers of email contacts at his retained university address.*

## **32 February 2018**

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**Secretary**  
**Cyndi Smith, Bonney Lake, WA**

*Cyndi is an LPN and medical transcriptionist who accidentally got involved in the beekeeping world through her husband, Jim. Over the years her respect for these fascinating creatures has grown and she has learned so much about their world. Cyndi has served in the past as secretary to the Washington State Women's Council of Realtors and numerous other smaller groups over the years. She likes working outside in the garden, showing her granddaughter the beauty and wonder of nature.*

**Treasurer**

**Sherry Olsen-Frank, Twin Falls, ID**

*Sherry got into beekeeping in 2010, in a roundabout way. She read in Mother Earth that the bees were in trouble and how they are so important to our food chain. Included were plans to build a top bar hive (TBH). Since she is a woodworker, she decided to help the bees by building a hive. But if you have a hive, you should have bees in it. In spite of her husband's concerns about urban beekeeping, she became a beekeeper - or, more precisely, a bee guardian. She has built five TBHs and tried a few foundationless Langstroths. Some TBHs are located in her yard. The Langstroths are hosted by willing people in the community. Through this process, Sherry has learned her back isn't strong enough to lift those deep boxes full of honey and bees, so she is going back to TBHs.*



*Out of curiosity about the bees and beekeeping, Sherry attended the 2012 WAS conference in Seattle, WA. At that convention, she was recruited to be a member of WAS, then treasurer (she is a Certified Public Accountant). She is also a member of the local beekeeping organization and works to help new beekeepers thrive in this fascinating and rewarding endeavor!*

*Sherry now has a four-year-old granddaughter who has been exposed to bees and beekeeping since before she could crawl. She has all the signs of becoming Grandma's beekeeping buddy!*



**Executive Member-At-Large**  
**Jaylene Naylor, Stevensville, MT**

*Jaylene's beekeeping life began nearly without her knowing it. Six years ago, she heard her significant other get off the phone with the famous Vicki from Western Bee. He'd just ordered a package of bees and the beginner beekeeping kit! "I was instantly petrified...we didn't know anything about bees, and shouldn't we know something before we get them??" Fortunately, they were able to enroll in the first ever face-to-face University of Montana Apprentice Beekeeping course with Dr. Jerry Bromenshenk, Scott Debnam and Phil Welch that was to start before the bees arrived. Jaylene became "absolutely hooked on beekeeping" - though she donned her entire beekeeping suit just to change the top feeder that first year.*

*The next year she started attending local Beekeepers of the Bitterroot meetings, became involved in outreach efforts, and soon after assumed executive positions. Currently, she is President. Concurrently, she completed the Journeyman and Master levels of the UM Beekeeping Program, teaches and organizes the club's half-day Beginner Beekeeping Course each January where newbees get a look at what is involved and decide if beekeeping is for them.*

*Jaylene works in the Department of Physics and Astronomy in IT and as a physics lab instructor, planetarium manager and Assistant Director of UM's Autonomous Aerial Systems Office (drones!), and loves being able to help others learn about science and critical thinking.*

*And finally, the mark of a great organizational person - "I very much enjoy being active in organizations, particularly because I see that it is difficult for people to step up to be leaders with so much going on in their lives. I'm really excited to be a part of the WAS Executive. After years of working at a local level to educate and share my love of bees, I'm looking forward to doing even more at a regional level."*

*WAS Up! BOISE, 2018!! See you there!*

**February 2018 33**

## REGIONAL NEWS....

### Idaho - Steve Sweet, Boise

Steve is also 2018 WAS President. See the November 2017 issue of the Journal for his bio.

2017 turned out to be an epic year for beekeepers across Idaho. Working hand-in-hand with local governmental officials, the Treasure Valley Beekeepers Club worked closely with the Governor's office to assure that this would be a memorable year. Following months of negotiations and detailed planning, the TVBC, with the full support of the Governor's office, was able to successfully arrange the sun and moon so that a Total Solar Eclipse could occur in Idaho within just a couple of days of National Honey Bee Day.

Just in time for National Honey Bee Day, Dennis vanEngelsdorp arrived in Idaho and spent a day on the campus of Boise State University delivering a presentation to a full house on recent advances in honey bee science. Dr. vanEngelsdorp then followed his indoor presentation with an in-depth, in-hive examination of the University's Roof Top Bee Farm, much to the delight of the audience that could safely view the entire episode behind the full height windows right next to the hives.

The conclusion of National Honey Bee Day activities led to a mass Boise exodus toward Cascade, ID, where an ensemble of international beekeeping luminaries (Annette Bruun Jensen, Dennis vanEngelsdorp, Colleen Taugher, Steve Sheppard, and Stephanie and Randy Oliver) gathered to observe the Total Solar Eclipse.

The year 2017 also marked the 10th Anniversary of the founding of the Treasure Valley Beekeepers Club. President Melinda Jean Stafford welcomed Randy Oliver back to Boise in December, where he delivered a full day, packed with wonderful information on "Reading the Frames" and "Raising Local Queens." The Club's meeting quarters was a packed house, full with beekeepers from across the state - all eager to learn from one of the legends of beekeeping.

Between the events tied to National Honey Bee Day, Total Solar Eclipse activities and the triumphant return of Randy Oliver to help observe the TVBC's 10th anniversary, 2017 was a tremendously eventful year for Idaho's beekeeping community. The TVBC and our fellow clubs look forward to helping host the Western Apicultural Society annual convention in August, 2018, as we all look forward to another successful event. While we haven't yet quite figured out how to top the Total Solar Eclipse in 2018, we'll be working on it! See you in August! **WAS Up! Boise - 2018**



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## **Alaska** - Joe Carson, Wasilla

*Dr. Carson grew up on a dairy farm in the Matanuska Valley of South Central Alaska. Joe and Holly have been married 40 years and have 3 children, 13 grandchildren, Honey Bees, Schnauzer Dogs, Dexter Cattle, Dorper Sheep and Red Wattle Hogs.*

*After much schooling, with a major in microsporidial diseases and nutrition, Alaska Heavenly Honey was formed; followed closely by Complete Bee Honey Bee Food Supplements Company, eKoBeekeeping Supply and Dr. Carson's Pet Food Supplements, Personal Care Products and Health and Wellness Nutritional Products. Dr. Carson's products are currently in about 32 countries around the world.*

*Dr. Carson has spent over eight years on the Board of Directors of the American Beekeeping Federation, is their past Chairman of Research, Past American delegate for international beekeeping symposium "Apimondia," State representative for American Honey Producers, Board of Directors for Western Apicultural Society for many, many years and current 1st Vice President.*

Alaska, as of this writing, is absolutely normal - warm, cold, no snow, snow, ice (watch your step), warm, hail, rain, hard freeze, snow..... For South Central Alaska (Anchorage and the Matanuska Valley) we had some warm 40+ degree days in December which allowed the bees to go out on cleansing flights, which is good, but one really needs to watch the food stores on each hive. With the great fluctuation in temperatures the bees tend to go through their winter rations quickly. Additional candy boards and frames of honey are required! Single digit temperatures up to the high 20's seems to be the forecast for the first part of the new year.

Moving north to Interior Alaska, we saw some slight warming trends but the usual winter weather moved in and is here to stay. Good snow cover acts as great insulation and a temperature regulator with temperatures ranging from -10 at night to +10 in the day time. Last year, in early March, it was -50 F with a wind chill reaching -82. I was in it with my dog sled - I know what it feels like!

On a side note: those that like to store their bees in 20' or 40' containers with no means of refrigeration might have poor survival rates come Spring. It is not enough to have air flow through the Conex, you must also have refrigeration and CO<sub>2</sub> monitoring equipment. I have heard of as much as 70% loss coming out of containers or Conex's without artificial refrigeration, especially when we get 40+ degree days and the Alaska sun is beating down on the side of those big metal boxes. Add the sun to the heat and moisture the bees generate and you have a recipe for disaster!



## **Washington** - Jim Smith, Bonney Lake



*Jim Smith is a Mechanical Engineer with a Masters degrees in Engineering and in Business, and his Professional Engineering License for the state of WA. He assisted in designing the F22, L22 and V22 aircraft, and a satellite that hangs in the Smithsonian Air and Space Museum in WA DC. He has used his love of sciences and engineering in learning all he can about bees, the hows and why they act and react to their world. Then applied what he learned to improve beekeeping best practices, sharing what he learned with others. He has been president of the Pierce County Beekeepers Association, was actively involved in getting the state government to recognize the importance of bees and beekeepers, served on the Apiary Advisory Committee for the state of WA and mentored new beekeepers. He is called the Bee Whisperer in his family as even in the middle of an ice field in Alaska, a honey bee flew up, Jim put out his finger, she rested, warmed up, then flew off. Our amazed guide said he had never seen anything like it before! Although*

*his current health issues keep him from beekeeping, it does not stop him from loving his bees. You can still find him watching the bees work in our garden on sunny days.*

2017 in WA state has been a nose to the ground working type of year. There has been a continued focus on education and legislation. We are putting forward a Beekeeper's Liability Protection bill which will be introduced this year in the Legislature as a continuation of our ongoing endeavor to bring forth the importance of honey bees in our environment and education of the public and legislators regarding the issues that are important to honey bee health. This past year has seen an uptick in reports of small hive beetles in WA and an increase in American and European foulbrood. WA State Agriculture is keeping track of both these issues. Our local bee clubs have been extremely active across the state, reaching out and teaching the public and fellow beekeepers.

## Oregon - Sarah Red-Laird, Ashland

Sarah Red-Laird is the founder and Executive Director of the Bee Girl organization, a nonprofit with a mission to educate and inspire communities to conserve bees, their flowers, and our food. She is a graduate of the University of Montana's College of Forestry and Conservation with a degree in Resource Conservation, focused on community collaboration and environmental policy. Sarah also serves as the "Kids and Bees" program director for the American Beekeeping Federation, is president elect of the Western Apicultural Society, and the regional representative for the Southern Oregon Beekeepers Association. When she is not tirelessly working with bees, beekeepers, kids, farmers, land managers, and policy makers, Sarah loves to read historical fiction, ride her bike, hike in the hills, see new places and things, people watch, and snuggle any animal that she can catch.



**Honey Bees:** We are having an oddly mild winter here in Oregon, but as they say about our weather patterns the last few years, "no normal is the new normal." Strong hives are munching through their honey, and getting out to visit ivy, helbore, and anything else they can find on warm days. Though last year was rough, this winter seems to be treating the bees better. All of the rain in 2017 gave way to some bumper nectar flows, as long as the bees weren't sealed in their hives by smoke. So far, our larger commercial beekeepers are reporting much lower losses than the rest of the country.

**Policy:** The Residential Beekeeping Legislation, House Bill 2653, guiding cities in Oregon forward on "legalizing" beekeeping, has moved into official law, now called ORS 602.035 and 602.045. For full details, please visit: <https://www.oregonlaws.org/ors/602.035>. There will be a series of informational webinars and live educational presentations for beekeepers, homeowners, and municipalities, offered through Oregon State University Extension and the Oregon Master Beekeeping Program. Other states are welcome to use this program as a "model" for creating better relationships between beekeepers and their communities.

**Education and Advocacy:** Oregon is diligently working to protect pollinator species that are integral to the food supply and the natural environment, lead by the Oregon Department of Agriculture (ODA) and Oregon State University (OSU), as part of the collaborative Oregon Bee Project (OBP). The OBP will be working with eight commodity groups to address bee health, and establish environmental stewardship best management practices. First are landscaper/nursery groups and golf course managers, followed by support of local initiatives for Pollinator Week, culminating in a celebration

at the Oregon Zoo in Portland on June 24th.

**Research:** Dr. Ramesh Sagili of the OSU Honey Bee Lab continues his focus on honey bee health, nutrition, and pollination. Ongoing projects are conducting a comprehensive analysis of honey bee health in Oregon by statewide sampling and monitoring for pests and diseases; investigating colony-level prevalence and intensity of the gut parasite, *Nosema ceranae*, and examining the role of optimal nutrition in concurrence with *N. ceranae*; evaluating effects of nutrition (pollen diversity) on honey bee health, physiology, and immunocompetence; and enhancing pollination efficiency of honey bee colonies in hard-to-pollinate crops using brood pheromone technology.

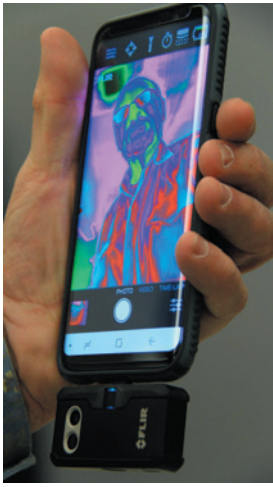


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## Montana - Jerry Bromenshenk, Missoula



*Ph.D. Entomology, minor in Chemistry/Biochemistry, Montana State University, Bozeman, 1973. 44 years of worldwide research and education focused on Honey Bees.*

*Grew up on a livestock feedlot and dairy farm near Billings, MT. Originated use of honey bees as wide area environmental sentinels and monitors (1974-2003). Integrated use of citizen science and geo-spatial statistics in combination with honey bees to achieve landscape level mapping of pollution sources, dispersion patterns, and impacts to bee colonies (1985). Brought about EPA-approved, bee-based protocols for Ecological Assessments at Hazardous Waste Sites (1989).*

*Team leader with Colin Henderson for projects that produced (1) electronically monitored Smart Hives®, (2) microprocessor-controlled operant training systems for conditioning bees® (2005), (3) LIDAR for honey bee position and density mapping over fields with decimeter resolution® (2004, 2009, and 2011), and (4) acoustic recording and analysis® for monitoring colony health, including detection of exposures to toxic chemicals, presence of honey bee diseases, and prevalence of honey bee pests such as queenless colony, Africanized colony, Nosema*

*spp. and mites (2009).*

*Developed Infrared imaging as a management tool for beekeepers. With Scott Debnam and Phillip Welch, developed the first Master Beekeeping Program (2012) specifically designed to be an ADA compliant, media-rich, three level course for internet delivery. The program has now reached all of the states in the US, all Provinces in Canada, and over a dozen other countries. A total of 814 Certificates of completion has been issued to successful graduates of these courses.*

*Currently engaged in contract research in New Zealand. Primary focus, at the moment, is beta testing of an acoustic scanning APP for the detection and identification of bee pests and diseases.*

*If this is too long or too technical, the option is - Retired but not expired old fart, with lots of Buck Rogers gadgets. Mostly regarded as either being crazy or brilliant - the outcome remains to be seen. Currently in the Grumpy Old Man phase of life.*

2017 brought new changes and new challenges to the state's beekeepers. In the spring, Cam Lay, our State Entomologist, left to take a new job in Maine. This summer, we welcomed our new state entomologist, Alyssa Piccolomini, a recent graduate of Montana State University in Bozeman. She and her associates have been working on the State's Apiary page, making new additions, and developing a digital interface intended to facilitate identifying registered and registerable apiary locations

Extensive fires, both forest and grassland, caused colonies to shut down foraging, tended to make the bees very aggressive, and forced some beekeepers into moving apiaries or pulling honey supers early to protect both the bees and the honey crop. Despite these efforts, in eastern Montana, racing grassland fires burned through some apiaries. However, given the extent and length of the fire season this year, it's surprising that damages weren't worse.

As in all states, Montana beekeepers and its veterinarians have been coming to grips with the January, 2017 Federal Food Directive, which now requires a prescription or food directive from a licensed veterinarian for antibiotics to be used for treatment of bee colonies to control foul brood. Initially, shipments of fumagillin into the US from Canada were blocked and for a short period, there was no licensed supplier of the larger quantities of antibiotics required by many of our commercial beekeepers, who run thousands to tens of thousands of colonies.

After meeting with the Montana Board of Veterinary Medicine, both the state's beekeepers and the state's veterinarian had a better understanding of the rationale for the changes and a course of action for addressing immediate needs. Also, Western Bee is now the state's licensed supplier of these pharmaceuticals. Attention has now turned to providing training in beekeeping, diseases, and safety to veterinarians who are interested in providing this new service to beekeepers. Dr. Bromenshenk, in conjunction with the University of Montana's School of Extended and Lifelong Learning's Master Beekeeping Program, is working with the Montana Veterinary Medical Association's Educational Committee to plan and deliver appropriate training.

As we begin 2018, most of our commercial beekeepers already have their bees in holding yards in California, ready for almond pollination. At least two of our beekeepers now have wintering sheds, and their bees are in the process of being loaded out and shipped to California. As land for stockpiling bee colonies dwindles in California and as bee colony thefts continue, wintering sheds provide a practical and secure means of stockpiling bees until the colonies are needed for pollination.

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## British Columbia - Nancy Burkholder, Pritchard

Nancy started keeping bees with her 13 year old son in 2009. She now has 50 hives in 3 vastly different apiaries. The majority of her hives are at their home on Martin Mountain in Pritchard, British Columbia at an elevation of about 3300 feet.

Nancy has an ever-growing interest in the well-being of the over 450 species of native bees in BC. While selling honey and other hive products at the local farmers' market in Chase BC, as well as taking bees into the area schools, she educates people in the importance of all insects and the many benefits in maintaining and increasing their natural habitat.

2017 was a challenging year for many bees and beekeepers in British Columbia, Canada! Much of BC reported a late, cold, wet spring, delaying the nectar flow by 2 to 3 weeks.

When summer did arrive in the Interior, it brought with it drought conditions and major forest fires. The smoke remained thick in the valleys for weeks and in some cases most foraging activity ceased. For those beekeepers directly affected by the fires, there were several programs from government and non-profit organizations to which they could apply for assistance.

Some of the regions reported higher than usual wasp and hornet hive invasions and a couple regions reported bear problems late in the season possibly from the poor berry crop due to the excessive drought throughout the summer.

Luckily Small Hive Beetle has not taken a strong hold in BC at present. There are concerns about poor colony condition and productivity following blueberry pollination; a study is currently being planned to address this issue.

According to the Annual Beekeeping Production Survey 2017 from the BC Ministry of Agriculture, provincial estimates for honey production were down in 2017 compared to the past 5-year average. According to the voluntary survey the provincial average honey production per hive was 40kg (88lb) retailing at an average price of \$14.90/kg. The average retail price for wax was estimated at \$13.19/kg and pollen sold for an estimated \$30.71/kg.

The British Columbia Honey Producers Association (BCHPA) held their annual AGM and conference in October. The Canadian Honey Council (CHC) and the Canadian Association of Professional Apiculturists (CAPA) also held their meetings at the Coast Capri Hotel and Conference center in Kelowna BC at the same venue. The 3-day conference had 335 registered guests, 18 trade show vendors, 25 presenters and an incredible group of volunteers.

The BCHPA semi-annual AGM is scheduled for March 9 and 10, 2018 in Kamloops BC featuring guest speaker Andony Melathopoulos, from Oregon State Univ. Other speakers include: Bill Stagg, Heather Higo, Carlos Castillo and Leonard Foster. For more information contact: <http://bcbeekeepers.com/events/events-in-british-columbia/>

The BC Ministry of Agriculture continues to offer educational programs, apiary inspections, extension services and laboratory diagnostic services for no cost to beekeepers. It continues to put on an annual beekeeping course via webinar.

As in many places around the world, more and more British Columbians are beginning to take an interest in bees and other pollinators. We are seeing an increase in hobby beekeeping, however, there are over 450 different species of native bees in BC alone. Many bee advocates are imploring the general public to plant a variety of native flowering plants and to preserve or recreate natural habitats for bees and other pollinators.





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## California - Archie Mitchell, Lompoc

*Archie Mitchell has done a lot of things in life. To name a few, he has traveled the world as an intelligence analyst in the U.S. Air Force, retiring as a chief master sergeant (the highest enlisted rank in the Air Force). He started a boxing club and worked as a newspaper reporter. Now, it's all about the bees. He serves as regional director for the Western Apiculture Society, director of the Lompoc Valley Beekeepers Association, member of the California State Beekeepers Association and Santa Maria Beekeepers Clubs. He also teaches beekeeping classes at Allan Hancock College, leads honey-tasting events at area wineries, and enjoys teaching his grandchildren the joy of beekeeping. Somewhere in there, he finds time to run Lompoc Honey, a cottage business selling honey, beeswax, and bee removal services.*

*For over 30 years, Archie has lived on the Central Coast of California and worked passionately with honey bees. He represents California as Regional Director of the Western Apicultural Society and is a member of the California State Beekeepers Association. He is active in the Lompoc and Santa Maria Beekeepers Clubs, teaches beekeeping classes at Allan Hancock College, leads honey-tasting events at area wineries, and enjoys teaching his grandchildren the joy of beekeeping.*

*Mitchell blazed the trail in creating a beekeepers association in Lompoc and in teaching beekeeping courses at Allan Hancock College. He wrote a successful grant proposal seeking to provide environmental justice for honeybees and native pollinators. With grant funds, the Lompoc Valley Beekeepers Association seeks to underwrite the necessities to support large-scale education programs and to maintain honey bees in the Lompoc Bird, Butterfly and Bee sanctuary. More specifically, the Association promotes the advancement of beekeeping through best management practices, the education and mentoring of people about honey bees and beekeeping, and increasing public awareness of environmental concerns affecting honey bees. Mitchell also seeks to change the bee ordinance in Lompoc.*

Dry conditions in California are partly to blame for the worst fire season on record in this state and the first rain storm, in January, helped bring about 100 per cent containment of the mega-fire named the Thomas Fire. Low humidity and lack of rain coupled with high winds fueled extremely destructive wildfires from Northern California's Mendocino County down to San Diego County.

In Northern California's "wine country" including the Napa Valley and in Sonoma and Mendocino Counties, during October, more than 40 died and more than 10,000 homes were lost. To the South where I live, in Santa Barbara County and in Ventura County, many farmers, ranchers, private home owners and beekeepers suffered devastating losses, in December and January, as they experienced the Thomas Fire. This was the most destructive wildfire in California's history. There were two deaths associated with this fire, including one firefighter. More than 1,000 structures were destroyed and more than 19,000 residents were evacuated.

In Northern California, at least 17 beekeepers who are members of the Sonoma County Beekeepers Association (SCBA), were devastated by the fires in that area, losing not only their homes, farms and gardens but also their bee colonies and equipment. Consequently, the SCBA has established a Sonoma Bees Fire Fund to help those beekeepers who lost everything. Make a donation at [www.sonomabees.org/sonomabees-fire-fund](http://www.sonomabees.org/sonomabees-fire-fund) or mail a check to: SCBA, Attn: SBFF, P.O. Box 98, Santa Rosa, Ca., 95402, or email: Ann Jereb, 1st VP@sonomabees.org for more information.

In Ventura County, only one of an estimated 10 commercial and local beekeepers felt the sting of the Thomas Fire, suffering 85 percent loss of hives valued at more than \$50,000.

In summary, the latter part of 2017 and early 2018 were very bleak for many in our state ; however, it could have been much worse had it not been for the dedicated firefighters including the more than 11,000 who fought and extinguished the Northern California fires in October and the 8,600 federal, state and local firefighters who dealt with the Thomas Fire over Christmas and New Years. To them, we extend our gratitude for their service and their sacrifices.

Jan. 9 update: The main north-south freeway in California was closed due to mudslides from heavy overnight rainfall and up to 7 inches more was forecast the next day. The county has declared a state of emergency over the heavy rain, flash flooding, mudslides and powerful winds! 13 deaths in Santa Barbara County, 20,000 evacuated, 50 rescued by helicopter.





## Utah - Albert Chubak, Murray

*Albert migrated to Utah from Saskatchewan, Canada, where his heritage is in dry farming. He is a Utah General Contractor with 30 years construction experience, alumnus of the Universities of Saskatchewan, Three Rivers (Quebec), and Utah and the Golden Key International Honor Society. He has served as Program Director for both the Wasatch Beekeepers and the Greater Salt Lake Beekeepers, is currently the Western Apicultural Society Director for Utah and the delegate for Utah at the American Beekeeping Federation, Utah State Beekeepers' historian and president of the Wasatch Beekeepers.*

*While keeping more than 250 of his own hives, Al started a bee removal business, a blending of his three loves - bees, construction, and problem solving - with close to a thousand live bee removals and a TV show to his credit.*

*In 2011 he developed his Eco Bee Box product and began educating others on revolutionary ways to keep bees. His focus is natural queen rearing and teaching and mentoring children, seniors, and those with handicaps.*

*He recently discovered a trove of documents related to beekeeping from the Territory of Deseret spanning half the 19th century and will be sharing as funds permit. His Eco Bee Box Hive is at Research Triangle Park in Raleigh, North Carolina, in every state in the US and many countries around the world., videos in National Geographic. Eco Bee Box was awarded Most Innovative Company in Utah in 2014 and nominated for Inventor of the Year in 2015. At the 2017 WAS annual meeting, he received the prestigious Thurber Award for Inventiveness for the Eco Bee Box and his Mini Urban Beehive publication. Last but not least is his hobby of researching and acquiring historical beekeeping artifacts in hopes of generating interest in a national beekeeping museum in the near future.*

The Utah Beekeepers Association hosted their annual convention on February 23rd and 24th. Speakers included UGA Bee Program Director Dr. Keith Delaplane, bee breeder Stephen Coy, and USDA research leader Dr. Diana Cox-Foster. Topics included bee evolution, Russian stock and bee health stressors.

Bonnie Morse, organizer of the "Bee Audacious" bee conference was invited to Salt Lake City by the University of Utah Beekeeper's Association and MoaBees on February 3rd. The event was a smaller version of the international conference that was held in Marin, California in 2016. Topics included bold and unconventional ideas to improve bee health.

The Utah Department of Agriculture Apiary Program detected seven apiaries with American foulbrood disease across the state in 2017. Hives infected were either buried deep or treated with BYU's experimental bacteriophage therapy. The program also hosted nine training events to prepare veterinarians and beekeepers for new Food and Drug (FDA) rules which require veterinary oversight of antibiotics administered to beehives.

## Wyoming - Catherine Wissner, Carpenter

*Catherine is the University of Wyoming Extension Horticulturist and heads the Master Gardener Program in Cheyenne. Calls to the extension office from people wanting to know how to be a beekeeper, or had beekeeping problems looked like a great opportunity to help, and tie into what she does as a horticulturist. So she started the Wyoming Bee College. Originally, it was two days and three tracks per day, including basic beginning beekeeping. In 2018, it will combine the Wyoming Bee University - tackles more in-depth concerns - for one day and the Wyoming Bee College for two, now up to 5 tracks per day.*

*When not doing bee conferences and education programs, Catherine coordinates and teaches the Laramie County Master Gardener program and a summer Advanced Master Gardener program, provides plant diagnostic services, yard calls and on-line plant help.*

*On the personal side, she runs a small flock of 45 ewes and six Dexter cattle on the high prairie of southeastern Wyoming. The ranch 'help' includes three Welsh Pembroke Corgis and a livestock guard dog called Faith.*

No regional report.



## 40 February 2018

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## **Saskatchewan** - *Doreen Bradshaw, Regina*

*Doreen is currently retired, living in Regina, and remains active with the Regina and District Bee Club as well as a member of the Saskatchewan Beekeepers Association.*

*Doreen first got involved with beekeeping in 1974 with two hives. The two hives gradually increased to 75 hives in 2012 and then reduced again to two hives. In addition to being Secretary of the Regina and District Bee Club for 25 years, Doreen was also a volunteer for 28 years with the Canadian Western Agribition, promoting the honey industry. In 1981 the Bee Club entered an educational booth at Agribition (Agri-Ed Showcase) to inform school students and the general public about bees and beekeeping. Approximately 8,000 students register each year to attend the week-long event. In 1995, the Club also included a second booth for members to sell honey and promote the industry in Saskatchewan. In 1999, a Honey Show competition for products of the hive was implemented and operated until 2009.*



*Prior to retirement, Doreen worked in banking for over 20 years, then with the Gov't of Saskatchewan for 24 years.*

In Saskatchewan, 2017 started with another mild winter and early spring. Bees were off to a great start with a normal first extraction. The summer in the south of the Province became one of the driest in history and thanks to the high rainfall the previous year; the bees did have enough food to provide a less than average production, the northwest had too much rain, and a large portion of the Northeast had excellent conditions and a good crop. Saskatchewan currently has 1,044 beekeepers, with 115,000 hives. There are 120 Commercial beekeepers and an average production of 191 pounds per hive.

The focus the 2017 calendar year was to ensure beekeepers remain vigilant in inspecting their colonies for the hive beetle, mites and disease. Importation of hives into the Province must be accompanied with proper inspection reports to ensure hives meet Saskatchewan importation standards and requirements. In addition, the University of Regina, Saskatchewan Beekeepers Association and local Bee Clubs are providing courses on Queen rearing and beekeeping at the introductory and intermediate levels. The focus for 2018 will be on continuing to deal with mites, and bee health. The other major issue is a weak honey price and accessing new markets.

The Regina and District Bee Club continued to enter their two booths in Canadian Western Agribition. Agribition is a great opportunity to promote our industry and to encourage beekeeping as a hobby and the local Clubs can provide support. This year there was an increase in foreign visitors to Agribition with foreign buyers attendance up 40%. There was also an increase in attendance to the 2017 weeklong show.

Beekeepers are now looking forward to 2018, hoping for lots of snow and spring rains in southern Saskatchewan.



## **WAS Journal Editor** - *Fran Bach, Selah WA*

*A Canadian and a professional ag journalist, Fran has worked as a free lancer for most of Canada's major farm publications and some international ones for over 40 years. In 1990, she became owner of a general farm paper, about the same time the beekeeping industry in Canada began to demand newsletters. Although she has never kept bees herself, she has been around them most of her life. Her Dad was a beekeeper when she was young; family and friends have been in the industry all her life. It was an easy step into editing some of these journals along with her other projects.*

*From 1990 to 2003, she edited the British Columbia Beekeepers Association "BeesCene", did a 4-year stint as editor of the national Canadian Honey Council's "Hivelights" and even filled in a couple of years when the Saskatchewan Beekeepers Association needed help.*

*Married to former Washington State Apiary Specialist Jim Bach in 2001, she was "imported" to the US and soon found herself accompanying him to beekeeper meetings south of the border. That resulted in taking over editorship of the WAS Journal in January of 2003 and in 2012, the Washington State Beekeepers Newsletter.*

*Now 75 years old, Fran needs to retire from the bees in order to put what energy she has left into family endeavors, and will be passing the bee journals over to new editors shortly.*

*The bee trail has been sometimes rough indeed, but forever interesting, and I treasure the many friends I have made along the way. However our paths diverge, I wish you all well and hope we will meet again.*

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- 9-1/8" 6-1/4" Sizes



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### Plastic Snap-in Foundations

- Plastic Snap-in Foundations fit well in 9-1/8" and 6-1/4" Wood Frames
- Optional Breakaway Communication Hole



**BRAND NEW!**

6-1/4" Drone

### Drone Combs

- Integrated Pest Management (IPM)
- Varroa mite control
- Queen Breeding
- 9-1/8" 6-1/4" Sizes

## Features

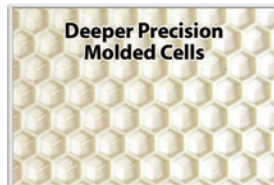
- Well Defined Precision Molded Cell Base
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Bees in Action on Acorn Foundation

Photo: Rollin Hannan



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Feb 2 - 3: New Mexico Beekeepers Association Annual Conference "Hive Mind: Decision-Making Secrets of Bees" featuring Dr. Tom Seeley, South Broadway Cultural Center, 1025 Broadway St SE, Albuquerque. Annual Meeting Feb 3 from 3:45 - 5 pm.

Mar 2 - 4: 11th Annual Organic Beekeepers Conference, Triangle YMCA Ranch/Camp, Oracle, Arizona. Info Dee Lusby, HC 65, Box 7450, Amado, Arizona 85645 or email [deecalusby@aol.com](mailto:deecalusby@aol.com).

Mar 9 - 10: British Columbia Honey Producers Semi-Annual Meeting, Kamloops. Feature speaker Andony Melathopoulos of Oregon State University. Info <http://bcbeekeepers.com/events/events-in-british-columbia>.

May 5: California Honey Festival, Downtown Woodland. Info 530-668-8839, [vendors@californiahoneyfestival.com](mailto:vendors@californiahoneyfestival.com), or [californiahoneyfestival.com](http://californiahoneyfestival.com).

## Beekeepers' Calendar

July 11-13: Heartland Apiculture Society's 2018 Missouri Conference, Washington University, St. Louis, MO. Speakers confirmed to date - Dr. Marla Spivak, Dr. Keith Delaplane, Jennifer Berry, Dr. Dennis vanEngelsdorp, Samuel Ramsey. More details will be posted as they are finalized at <http://www.heartlandbees.org>.

**Aug 3 - 5: Western Apicultural Society 2018 Conference, Boise, ID.** Info [www.westernapiculturalsociety.org](http://www.westernapiculturalsociety.org) as it becomes available.

Aug 13 - 17: Eastern Apicultural Society Conference, Hampton Roads Convention Center, Hampton VA. Info <http://www.easter-napiculture.org/conferences/eas-2018.html>

**TABER'S on the web ...**



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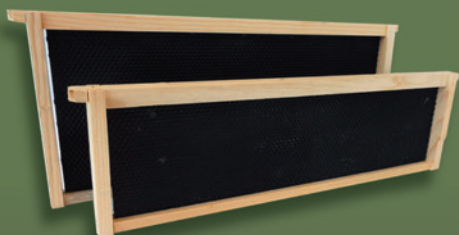
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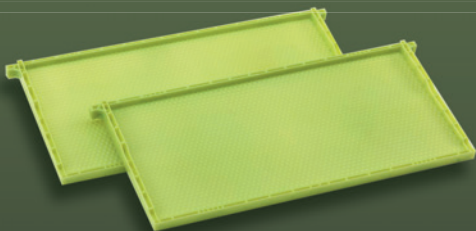
## Frames - Plastic

- Super Strong and Durable
- Safe - FDA food grade plastic
- Easy to use - No Assembly Required



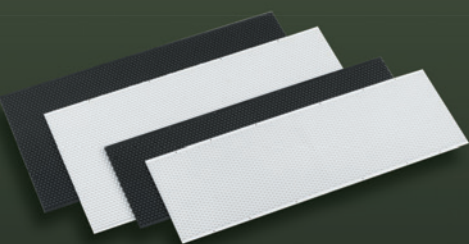
## Frames - Wood

- Stronger than Industry Standard
- New 1/2" thick end bars - 3/4" top bars
- Assembled, Glued, and Stapled



## Drone Frames

- IPM Method for Varroa mite control (No Chemicals)
- Perfect for Queen breeding



## Snap-in Foundations

- Impervious to wax moths, rodents, and hive beetles
- Preferred by Professional Beekeepers
- Precision molded, perfect cells
- Easy to use - Snaps into wood frames



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# WHAZZUP? WAS 2018!

*Boise, ID - August 3 - 5, 2018*

*Watch the WAS website  
for future developments!*

*<http://www.westernapiculturalsociety.org/>*



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