

Oregon State Beekeepers Association

2019 Fall Conference



Conference Program

Florence Events Center | Florence, Oregon
October 25–27, 2019

Welcome



Welcome to the OSBA 2019 Fall Conference, which takes place for the first time here at the Florence Events Center. In addition to learning from conference presenters, their presentations, and one another, we'll have opportunities to:

- Visit during breaks as we check out exhibitor items and resource tables in the Exhibitor Area
- Donate as well as bid on items in the silent and benefit auctions
- Learn about pest and disease analyses in the mobile OSU Honey Bee Lab
- View entries and see how they (ours) rank in the Conference Honey Show
- Enjoy add-on Luncheons on Saturday and Sunday, and the Banquet on Saturday evening
- Access Wi-Fi on site during breaks



Program Contents and Advertisers

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The Oregon State Beekeepers Association is a 501(c)(3) nonprofit organization dedicated to the well-being of honey bees and to the fields of beekeeping, apiculture, research, and education.

Sponsors

Flying Bee Ranch & Vanderpool Farms

Activities and Events

Our opening act is a complimentary Wine and Cheese Social Friday evening, October 25, in the Events Area of the Florence Events Center (see layout, page 12). This year's reception will have accompaniment as well—that featuring the three members of **Caught Red Handed**: Mike Dado (acoustic guitar - bass, banjo, vocals, songwriter), Kenny Croes (acoustic guitar - bass, banjo, vocals, songwriter), and Bob Shaffar (dobro, fiddle, vocals). The trio is well known for its strong three-part vocal harmonies, flashy solo instrumental breaks, and quirky on-stage conversation. We'll hear original tunes along with popular selections from the Americana songbook encompassing bluegrass, country, folk, and even a touch of old time rock 'n roll. They are sponsored by Flying Bee Ranch and Vanderpool Farms.



Throughout Saturday and Sunday, we have opportunities to gain from **Conference Presentations** and to engage with researchers and instructors—and one another.

We will find information, goods, and services offered by **Exhibitors** and those who are staffing **Resource Tables** (page 4) in the Exhibitor Area on Saturday and Sunday. Among Resource Tables are the **Bee Informed Partnership**; the **Oregon Bee Project**, which is currently involved in creating the Oregon Bee Atlas, a joint initiative of the Oregon Department of Agriculture and Oregon State University to identify the bee species in the state (www.oregonbeeproject.org); and the mobile **Oregon State University Honey Bee Lab** (honeybeelab.oregonstate.edu). At the lab table, we will have an opportunity to see how the lab members analyze honey bee samples for Nosema, do Varroa mite counts, and dissect bees for tracheal mites and hypopharyngeal glands. The OSU team will also tell us about current research projects and extension events. Remember to drop off your bee samples for analyses to be completed within 1–2 weeks after the conference.

Oregon State University Honey Bee Lab Members



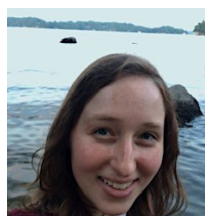
Priya Chakrabarti Basu



Carolyn Breece



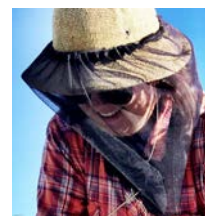
Emily Carlson



Ellie Chapkin



Hannah Lucas



Ellen Topitzhofer

Be sure as well to turn in entries for the **Conference Honey Show** on time! Honey Stewards Susan Rauchfuss and Bonnie King will be accepting them in the Conference Room between 5:00 and 6:00 PM on Friday and 8:00 and 9:00 AM on Saturday. Then the judging will begin, in which:

- Honey Judge Marjie Ehry will evaluate Comb Honey, Extracting Frames, Extracted Honey, Beeswax, and Gift Baskets.
- Conference attendees will judge Beekeeping Photos, the theme of which is, “Through the Eyes of a Child.”
- Attendees (between the ages of 18 and 99) will also be the judge of the Mead entries.
- And OSBA officers will judge the cookies from our kitchens. (Clearly, this is a duty of the offices.) The rest of us will be able to check out remaining cookies during one of the breaks.

Come on by the Honey Show table in the Events Area later on Saturday to check out all the entries. May yours be among them!

In the Events Area as well, take a few moments to check out the display from this year's beekeeper booth at the Oregon State Fair.

And view items donated and participate in the **Silent Auction**, managed by Suzannah Kruse and members of the OSU Honey Bee Lab, all through the day on Saturday in the Events Area.

The Benefit Auction, managed by the OSU Honey Bee Lab, will follow the evening **Banquet**, also to be held in the Events Area.

Around noontime on both Saturday and Sunday, **Luncheons** will provide additional food for thought. They too will be in the Events Area.



Suzannah Kruse

Menu items for the luncheons and banquet, noted below, are subject to change. Those with special dietary needs may request other options.

Saturday Luncheon Menu: Fajita Bar with Beef & Chicken, warm Flour Tortillas, Lettuce, Diced Tomatoes, Sliced Olives, Grated Cheese, Onions, Guacamole, Salsa & Sour Cream served with Refried Beans & Spanish Rice. Vegetarian option: Tofu Tacos.

Sunday Luncheon Menu: Pasta Bar with Spaghetti & Penne Pasta, Meatballs, Chicken, Marinara & Alfredo Sauce, Green Salad with Assorted Dressings and Bread Sticks. Vegetarian option: Vegetarian Lasagna.

Banquet Menu: Prime Rib with Au Jus and Horseradish, Chicken in Wine Sauce, Salmon with Tartar and Cocktail Sauce, Mashed Potatoes with Gravy, Wild Rice, Garden Salad with assorted Dressings, Green Beans with Almonds, Dinner Roll and Marionberry Crisp. Vegetarian option: Veggie Kabobs.

Reminder: Tickets for the Banquet and the Luncheons are separate from conference registration. On-site availability is limited and on a first come basis.

Enjoy the Conference!

Exhibitors and Resource Tables

Welcome, Exhibitors and all who are staffing the Resource Tables!

We'll see you in the Exhibitor Area across from the Auditorium throughout the conference.



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Conference Presenters



Priyadarshini Chakrabarti Basu, PhD, is a post-doctoral researcher in Dr. Ramesh Sagili's Honey Bee Lab at Oregon State University. Priya's chief focus lies in improving honey bee health by understanding honey bee nutrition and deciphering the effects of pesticides on pollinators. She is currently studying the importance of optimal nutrition in improving bee health, the impacts of pesticides and other stressors on bees, and whether or not nutrition, as an important factor, can help mitigate other forms of stress. She earned her PhD from the Department of Zoology and Centre for Pollination Studies at the University of Calcutta in India, where she studied the effects of pesticides on native wild Indian honey bees. Recipient of several prestigious awards, she also mentors students and teaches schoolchildren.



Since 2009, **Carolyn Breece** has been a research assistant at the Oregon State University Honey Bee Lab (Go Beavs!). She studied mosquitoes at UO (Go Ducks!) and bark beetles at Northern Arizona University. She is also a committee member, Journey student, and mentor for the Oregon Master Beekeeper Program. In addition to managing OSU's apiary of 60 colonies, she has eight colonies of her own and sells her honey (Honey, I Love You!) to her sister's fitness club. When not in bees, you can find Carolyn and her son, Simon, hunting for mushrooms, clams, and mussels, fishing, hiking, or suffering through one of Simon's killer track workouts.



Tom Cinquini never expected to be a beekeeper. After graduating from Pacific University with a Bachelor of Arts with an emphasis in ceramics, Tom worked at a bronze factory and a cast glass studio. When the economy slowed, he began to work for Sowers Apiaries. In 2012, when Chuck Sowers had a debilitating heart attack, Tom was able to step in and keep the business going with the help of the supportive Oregon beekeeping community. Today he continues to run the business and lives in Aurora with his wife, Janell, and their two sons, Corbin and Cole.



Jordan Dimock is a commercial beekeeper from Nyssa who raises about 5,000 queens a year. He is well known to members of the Oregon State Beekeepers Association for his active OSBA participation for many years.



Jay Evans, PhD, is Research Leader at the USDA Bee Research Lab-Beltsville, where he has worked for 20 years. The BRL is focused on the development of management strategies to help honey bees thrive in the face of disease, chemical stress, and inadequate forage. Lab members are developing and testing new nutritional and anti-disease products, and are especially interested in how bees respond to multiple stress factors and the efforts beekeepers might make to help them through these challenges. Jay's own research uses genetic techniques and controlled experiments to find new ways to reduce the impacts of parasites and pathogens. Current projects involve honey bee immunity, interactions among stress factors, and the development of novel, safe controls for mites and viruses.

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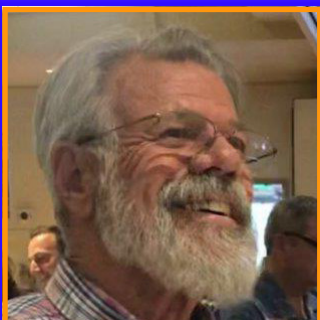
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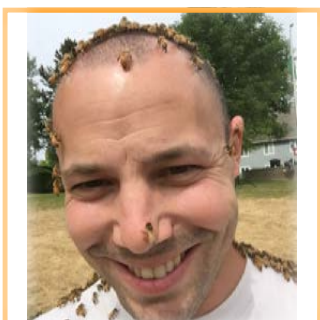
PO Box 190 Polson, Montana 59860



After a 6-year-long career in public schools, **George Hansen** transformed a hobby beekeeping operation into a commercial endeavor. Starting from a few swarms and a collection of retrieved nuisance hives, the company now runs 7,000 colonies in three states. The focus of the beekeeping is now primarily pollination service, with honey and wax making up no more than 30 percent of gross revenues. Recently, sales of starter colonies have become an important part of the business as well. George and his wife Susan are currently transitioning their business to their sons Matt and Joe. George represents the ABF on the Honey Bee Health Coalition, participating on various work groups. He also serves on the boards of the Bee Informed Partnership and Project Apis m. as well as the steering committee for the Bee and Butterfly Habitat Fund.



Pat Heitkam started keeping bees in Santa Cruz in 1979. He got run out of town by Greg Walls and Bob Miller, and moved to Orland that same year. The goal was 300 hives and 20 acres of apples. Fast forward to 2019, they now have 6,000 hives and 20 acres with no trees. Along with son Russell and some very good employees, they have a queen and pollination business which has kept them, their families, and 25 employees and their families clothed and fed. Pat is very thankful for the life and the friends beekeeping has brought him.



Brandon Hopkins, PhD, is an Assistant Research Professor at Washington State University in the Department of Entomology initially working on the development of cryopreservation of honey bee germplasm for breeding and conservation. This work enabled the establishment of the world's first honey bee germplasm repository at WSU and inclusion of honey bee semen in the USDA National Animal Germplasm Program. Brandon also administers the WSU Disease and Diagnostic Laboratory, a facility that provides beekeepers with timely information on the health of their colonies. His research efforts have been focused on developing practical solutions for the beekeeping industry ranging from bee breeding to Varroa control.



John Jacob founded Old Sol Enterprises in 1997. He served as president of Southern Oregon Beekeepers Association from 2004 to 2018 and is now current president of the Oregon State Beekeepers Association. Old Sol has specialized in bee breeding and finding innovative, sustainable agricultural solutions. John's educational background includes a BS in biology, with minors in Chemistry and Economics. Old Sol's business endeavors include queens, nucs, commercial pollination, honey, and agrivoltaic consulting. Old Sol is the largest commercial queen producer in the state of Oregon and has built a highly respected national brand. John operates Old Sol Enterprises LLC with his wife Mysti and two children, Makai and Maya, in the beautiful Rogue Valley of Southern Oregon.



Melanie Kirby is a graduate researcher with Washington State University focusing on queen breeding and the comparison of mating behavior between *Apis mellifera* subspecies. She began beekeeping in the late '90s as a US Peace Corps volunteer and established Zia Queenbees in the Rocky Mountains in 2005. Zia Queenbees specializes in selection for longevity through collaborative exchanges with beekeepers. Melanie is also an international apicultural consultant and writer, and serves as the editor of Kelley Beekeeping's online newsletter.

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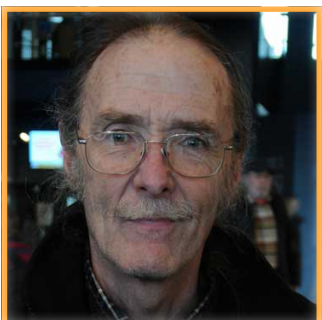
Andony Melathopoulos, PhD, is an Assistant Professor in Pollinator Health Extension in the Department of Horticulture at Oregon State University, which was the first such position in the US. He also sits on the Steering Committee of the Oregon Bee Project, which coordinates pollinator health work across state agencies, and hosts a weekly podcast called *PolliNation*. In 2018, Andony was recognized with the National Pollinator Advocate Award by the North American Pollinator Protection Campaign.



Garth Mulkey and Susan Mulkey farm on the western edge of the Willamette Valley, between Monmouth and Corvallis. They grow a broad spectrum of seed crops and specialize in the production of hybrid vegetable seeds. They are innovators who have adapted no-till farming practices and cover crops to enhance their diverse farming operation.



In his 50th year as a beekeeper, **Morris Ostrofsky**, a retired biology instructor, says he learns something new every day about bees and beekeeping. Since 2010, Morris has participated in the development and implementation of the Oregon Master Beekeeper Program. Morris is also an active member and past president of the Lane County Beekeepers Association. In October 2013 Morris was awarded the Washington state Master Beekeeper certification. Morris is an occasional contributor to *Bee Culture* magazine. His passion for teaching and beekeeping becomes apparent when he shares his knowledge with others. An interest in genetics and queen rearing has led to a quest to breed locally adapted queens using graft-free methods. He is planning to compare several graft-free techniques this spring.



As a child, **Michael Palmer** spent most of his spare time outdoors. He escaped his suburban New York City environment by going off to the University of Vermont, where he fell in love with the countryside, his future wife, and eventually the little bugs that we all hold so dear. The first colonies of honey bees arrived in 1974, and he built French Hill Apiaries into a farm of nearly a thousand colonies. About 1990, Acarine mites and then Varroa mites arrived, and the result was not pretty. In 1998, Michael tried raising a few queens, wintering them in nucleus colonies. Not only did the bees winter more successfully and store larger surplus honey crops, the fun level rose to new heights. He focused on raising the best queens possible. French Hill Apiaries now produces, on average, some 1,200 queens and 30–40 tons of honey annually.



Frank Pendell began his own beekeeping business along with his wife, Sheri, in 1991 on the family farm in Stonyford, California. All three of their children grew up working in the bees, and the youngest, Joy, currently manages the business full time. Frank always had a strong interest in queen breeding and centered the bee operation around creating the finest Cordovan Italian queens available. Frank and Sheri started small and slowly built the business under a debt-free model that continues today. Pendell Apiaries is committed to providing quality queens, honey, packages, and pollination services with a customer-first philosophy.



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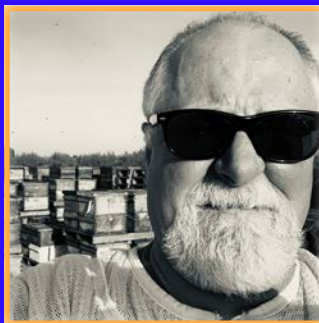




Ramesh Sagili, PhD, is an Associate Professor in the Department of Horticulture at Oregon State University. He obtained his PhD in Entomology from Texas A&M University in 2007 specializing in honey bee research. His primary research focus at OSU is honey bee health, nutrition, and pollination. Ramesh initiated the creation of the Oregon Master Beekeeper Program and chaired the Oregon Governor's Task Force on Pollinator Health. His research program addresses both basic and applied questions to improve honey bee health and nutrition; hence, the majority of his research projects are collaborative efforts involving both beekeepers and growers. He has authored important research and extension publications, including the popular extension publication and app titled *How to Reduce Bee Poisoning from Pesticides*.



Saffet Sansar is a graduate student in the Department of Entomology at Washington State University. He is from Turkey. In 2014, he graduated from the Department of Animal Science at University of Gaziosmanpasa, Tokat, Turkey. Saffet is interested in honey bee breeding, queen bee insemination, and semen collection from drone bees. He is studying Carbon Microparticles that might help to save honey bees against pesticide exposure.



Steve Sheppard, PhD, is the Thurber Professor of Apiculture in the Department of Entomology at Washington State University, Pullman. His graduate research at the University of Illinois centered on population genetics and evolution in honey bees. With the USDA, he conducted research on Africanized honey bees and the genetic processes that accompany insect range expansions. In addition to ongoing research on genetics and evolution, the WSU Bee Program conducts research on insect introductions, basic mechanisms of genetic differentiation, and honey bee colony health. Interests include selecting and breeding honey bees for Pacific Northwest conditions, sublethal effects of pesticide exposure, the effects of metabolic gases on indoor storage of colonies, and use of fungi as a biological control agent for parasitic mites.



Annie Young-Mathews is a District Conservationist with the USDA-Natural Resources Conservation Service (NRCS) based in Waldport and covering Lincoln and west Lane Counties. Annie has been working for NRCS for 10 years as a Conservation Agronomist, with expertise in native plant propagation, growing native plants for seed, pollinator habitat enhancements, cover crops, and soil health. Annie has a BS in Biology from the University of Oregon and an MS in Horticulture & Agronomy from UC-Davis.



For over 50 years, **Marjie Ehry** has offered local raw honey in a self-service stand located just out of Dundee in beautiful Yamhill County. The honey business has maintained many returning customers from around the world. Always stressing the importance of beekeeping, Marjie served on the National Honey Board for nine years and has been active in several other agricultural, civic, educational, and political groups throughout the years. She has also served as past president and in other capacities with the Oregon State Beekeepers Association, of which she is a life member. Marjie is Honey Judge for the 2019 Conference Honey Show.

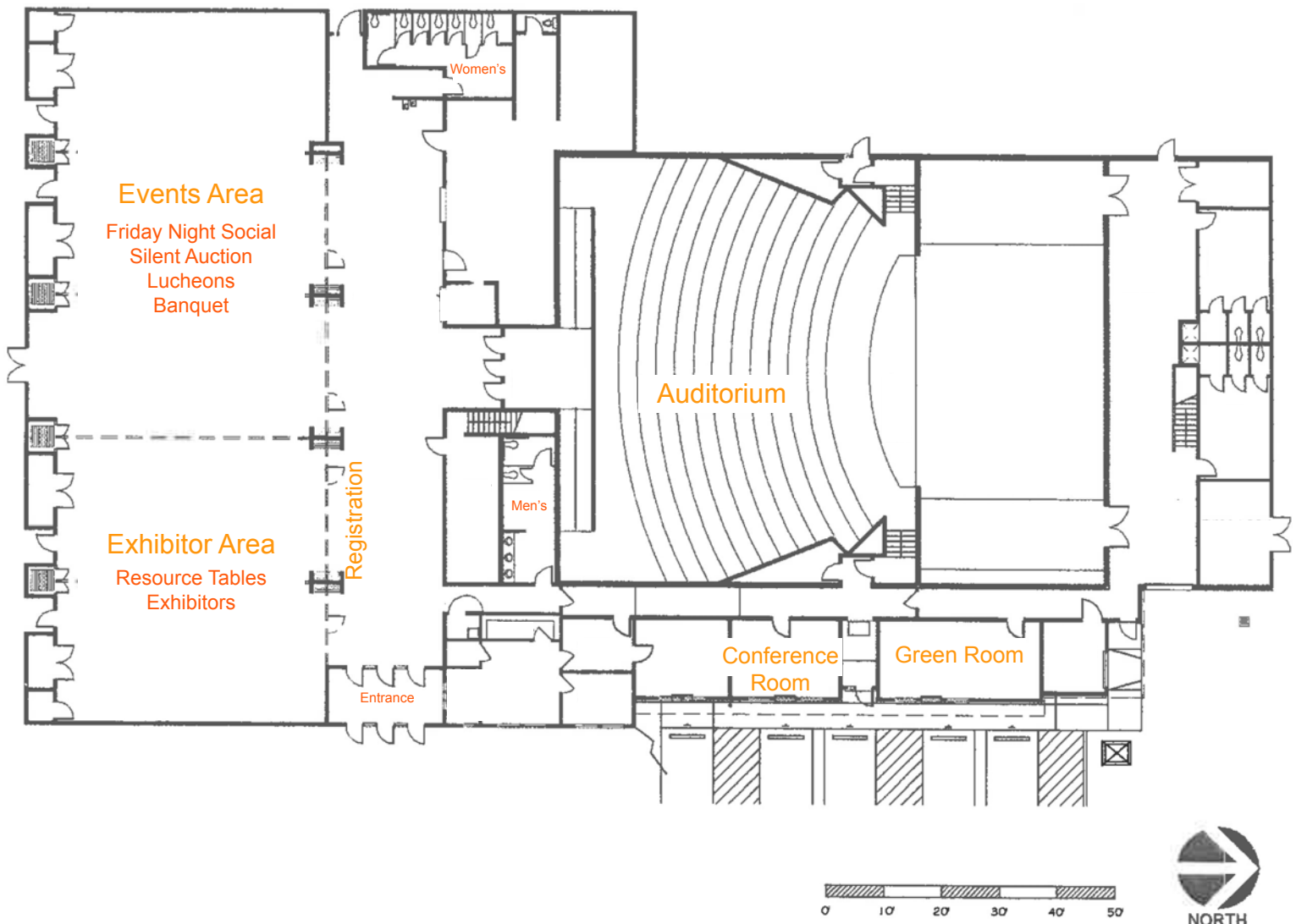
Honey Stewards: Bonnie King and Susan Rauchfuss

Session and Event Locations

Florence Events Center

715 Quince Street, Florence, Oregon

541.997.1994 | 888.968.4086



Conference Agenda



—Friday, October 25—

- 4:00 PM Executive Committee Meeting (Green Room)
- 5:00 PM **Registration** (Lobby)
- 5–6:00 PM Submit Honey Show Entries (Conference Room)
- 7:00 PM Kick-Off **Wine and Cheese Social** (Events Area)

—Saturday, October 26—

- 7:00 AM **Registration** (Lobby)
- 7:30 AM **Silent Auction** Begins (Events Area)
- 7:45 AM **Welcome & Announcements** (Auditorium)
John Jacob, OSBA President
- 8:00 AM **Research Update from the OSU Honey Bee Lab**
Ramesh Sagili, Oregon State University
- 8–9:00 AM Submit Honey Show Entries (Conference Room)
- 8:45 AM **The Sustainable Apiary**
Michael Palmer, French Hill Apiaries
- 9:30 AM **Break** (Lobby)
- 10:00 AM **Origin and Diversification of Honey Bees: Conservation Status and the Consequences of Colonization**
Steve Sheppard, Washington State University
- 10:45 AM **Bee Nutrition: One Ring to Rule Them All?**
Priya Chakrabarti Basu, Oregon State University
- 11:30 AM **Break** (Exhibitor Area)
- 11:45 AM **Luncheon** (Events Area)
Panel: **Queen Breeders**
Jordan Dimock, J & TD Apiaries, Moderator,
Pat Heitkam, *John Jacob*, and *Frank Pendell*
- 1:00 PM **Managing Stress in Bee Colonies**
Jay Evans, USDA ARS-Beltsville
- 1:45 PM **Can Carbon Microparticles Solve the Issues Associated with Sublethal Doses of Pesticides?**
Saffet Sansar, Washington State University
- 2:30 PM **Break** (Lobby/Exhibitor Area)
- 3:00 PM **Weathering Heights: Evaluation of Honey Bee Subspecies Mating Behavior Utilizing RFID**
Melanie Kirby, Washington State University
- 3:45 PM **Indoor Storage of Colonies in the Spring and the Effects on Brood Rearing and Swarming Behavior**
Brandon Hopkins, Washington State University
- 4:00 PM **Silent Auction** Ends (Events Area)
- 4:30 PM **Break**
- 4:45 PM **General Membership Meeting** (Auditorium)

- 6:00 PM **Social Hour** (Events Area)
- 7:00 PM **Banquet** (Events Area)
- Ongoing WSU Projects in Colony Health Research and Honey Bee Breeding**
Steve Sheppard, Washington State University
- Benefit Auction** to Follow

—Sunday, October 27—

- 7:15 AM **Registration** (Lobby)
- 8:00 AM **Welcome & Announcements** (Auditorium)
John Jacob, OSBA President
- 8:15 AM **10 Years at the OSU Honey Bee Lab & Donations**
Carolyn Breece and *Ramesh Sagili*, Oregon State University
- 8:45 AM **The (Considerable) Obstacles to Increasing Honey Bee Forage in Oregon**
Andony Melathopoulos, Oregon State University
- 9:05 AM **Pollinators and Seed Crop Farming**
Garth Mulkey, GS3 Quality Seeds Inc
- 9:25 AM **NRCS Programs for Pollinators**
Annie Young-Mathews, USDA NRCS-Waldport
- 9:45 AM Panel: **Pollinator Habitat**
George Hansen, Foothills Honey Company, Moderator, *Andony Melathopoulos*, *Garth Mulkey*, and *Annie Young-Mathews*
- 10:15 AM **Break** (Lobby/Exhibitor Area)
- 10:30 AM **From Bloom to Boom: An Investigation of Oregano (*Monarda fistulosa* var. *menthifolia*) for Bee and Pollinator Wellness**
Melanie Kirby, Washington State University
- 11:15 AM **Break**
- 11:30 AM **Luncheon** (Events Area)
Challenges in Varroa Control & Beekeeping Philosophies
Ramesh Sagili, Oregon State University
- 12:45 PM **Walk Away Splits: Steps You Can Take for Stress-Free Queen Rearing**
Morris Ostrofsky, Master Beekeeper-Washington
- 1:30 PM **Operation of Sowers Apiaries**
Tom Cinquini, Sowers Apiaries
- 2:15 PM **Break** (Lobby/Exhibitor Area)
- 2:30 PM **Queen Rearing in the Sustainable Apiary**
Michael Palmer, French Hill Apiaries
- 3:15 PM **Good and Bad Microbes**
Jay Evans, USDA ARS-Beltsville
- 4:00 PM **Final Comments & Adjourn**

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



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Shonnard S
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Program Abstracts



Friday, October 26

OSBA Executive Committee Meeting (Green Room)	4:00 PM
Registration (Lobby)	5:00 PM
Submit Honey Show Entries (Conference Room)	5:00–6:00 PM
Kick-Off Wine and Cheese Social (Events Area) featuring <i>Caught Red Handed</i>	7:00 PM

Saturday, October 27

Registration (Lobby)	7:00 AM
Silent Auction Begins (Events Area)	7:30 AM
GENERAL SESSION (Auditorium)	
Welcome & Announcements <i>John Jacob</i> , OSBA President	7:45 AM
Research Update from the OSU Honey Bee Lab <i>Ramesh Sagili</i> , Oregon State University This presentation will predominantly focus on current research at Oregon State University Honey Bee Lab pertaining to honey bee health (Varroa) and nutrition (pollen abundance and diversity). Some additional ongoing miscellaneous honey bee research projects will also be discussed briefly.	8:00 AM
Submit Honey Show Entries (Conference Room)	8:00–9:00 AM
The Sustainable Apiary <i>Michael Palmer</i> , French Hill Apiaries We all lose bees in the winter, and replacing those bees can get expensive. Expensive in dollars, if we have to go to the package bee and nuc dealers for our new bees, or expensive in bee resources and/or lost honey production if we have to divide our best colonies in the spring. I suggest we use the brood and bee resources in our nonproductive colonies to make mid-summer nuclei, which are over-wintered and become our replacement bees come spring. I then take it one step further, by showing how we can use over-wintered nucleus colonies as the brood source for making additional nuclei and strong cell builders for raising the quality queen stock we need in our apiaries. The presentation includes theory, history, and management of nucleus colonies.	8:45 AM

Break (Lobby/Exhibitor Area) 9:30 AM

Origin and Diversification of Honey Bees: Conservation Status and the Consequences of Colonization <i>Steve Sheppard</i> , Washington State University <i>Apis mellifera</i> is a species within a genus that contains perhaps a dozen recognized species. Most of the species comprising <i>Apis</i> are endemic to eastern Asia, whereas the “western” honey bee, <i>Apis mellifera</i> , has a range that includes Europe, Africa, and much of western/central Asia. Within this vast range, over two dozen “subspecies” are recognized. Human movement of bees and the recent effects of parasitic mites and pathogens have resulted in severe population losses within some of these Old World subspecies leading, in some cases, to concerted efforts to conserve honey bee germplasm and habitat.	10:00 AM
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A number of subspecies were introduced into North America during European expansion and form the basis for the honey bee populations currently maintained by US beekeepers. However, only about a third of the described subspecies of *A. mellifera*, were introduced into North America. Of these, only three subspecies found “favor” with US beekeepers and were maintained in some manner to be subsequently sold as strains or varieties (Italian, Carniolan, and Caucasian). Furthermore, the concept of “grafting” daughters from selected colonies (introduced in the late 1880s) led to the development of our modern queen production industry, where hundreds of thousands of daughter queens are produced from a relatively small pool of queen mothers. In 1922, the passage of the US Honey Bee Act restricted further importation of honey bees, and this restriction continues today

The manner in which bees were initially sampled and introduced to North America, the methods by which production queens are produced annually from a small pool of mothers, and the increased annual colony losses that resulted from parasitic mites and diseases all represent “genetic bottlenecks” that have impinged on US honey bee populations. The importation and distribution of Old World honey bee germplasm to US beekeepers serves to provide additional “raw material” for bee breeding purposes. The use of cryopreservation of honey bee germplasm is in its infancy, but already has had an impact on both bee breeding and honey bee conservation programs.

Bee Nutrition: One Ring to Rule Them All?

10:45 AM

Priya Chakrabarti Basu, Oregon State University

With the United States being one of the largest centers of commercial beekeeping, honey bees ensure sustenance of the billion dollar industries for both beekeepers and crop producers. Recent alarming honey bee colony losses due to a multitude of factors—such as pests and pathogens, poor nutrition, and pesticides—have affected both beekeepers and growers, especially as they are interdependent for their economic sustainability. Pollen forage and protein supplements provided by the beekeepers form the backbone of bee nutrition. In light of colony losses and reported adverse effects on bee health and pollination services, it is extremely crucial to understand the needs of optimal nutrition. The recent studies in the Sagili Honey Bee Lab at OSU will be discussed, including (1) impacts of phytosterols (a critical micronutrient that all bees require) on honey bee colony performance and individual bee health; (2) pollen nutritional quality of various bee-pollinated commercial crops; (3) impacts of two common, commercially available, probiotics on bee health; (4) preliminary findings on the impacts of pesticides on royal jelly; and (5) preliminary findings on the impacts of two sterol biosynthesis inhibitory fungicides on honey bees. In all these studies, the role of optimal nutrition in counteracting any form of stress will also be discussed.

Break

11:30 AM

Luncheon (Events Area—Preregistration required)

11:45 AM

Panel: Queen Breeders

Jordan Dimock, J & TD Apiaries, Moderator, **Pat Heitkam**, Heitkams' Honey Bees, **John Jacob**, Old Sol Apiaries, and **Frank Pendell**, Pendell Apiaries

The Queen Breeders Panel provides a great opportunity to ask professional queen producers all of those questions about queens that you have been wondering about. The audience will be encouraged to take part and ask questions from the floor through the moderator. You may submit questions in writing in advance of the luncheon by sending them to joemaresh@bctonline.com. And you will have opportunities to write questions during the luncheon itself.

Managing Stress in Bee Colonies

1:00 PM

Jay Evans, USDA ARS-Beltsville

Honey bees face pressures from parasites, pathogens, nutritional “gaps”, and chemical exposures. As an applied bee research laboratory, the USDA-ARS Bee Research Laboratory (Beltsville, Maryland) seeks management methods that beekeepers can use to avoid colony losses due to these threats. This talk will review current research at the BRL, including (1) efforts to reduce viral and parasite disease and fight Varroa mites, (2) efforts to look at chemicals stress and interactions between exposure and disease loads, and (3) explorations of new products for improving honey bee health.

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Can Carbon Microparticles Solve the Issues Associated with Sublethal Doses of Pesticides? 1:45 PM

Saffet Sansar, Washington State University

Honey bees (*Apis mellifera*) are valuable insect species for pollination that is a matter of vital importance to agricultural crops. They are the most commonly used species to provide pollination services because of the ease of transportation and high abundance during crop bloom. However, pesticides use poses a continual risk to honey bees. Research has demonstrated adverse effects of pesticides on foraging activity. However, these studies require labor-intensive observations and introduce human error. We used a radiofrequency identification (RFID) system to monitor the effect of sublethal doses of Imidacloprid on individual forager bees by measuring the timespan between hive and feeding station. The experiment included the feeding of a carbon microparticle in sugar syrup intended to reduce the effects of the neonic on forager bee activity. This study demonstrates that sublethal doses of Imidacloprid led to significant reduction in foraging activity and no significant difference was observed with the inclusion of the carbon microparticle. The RFID method demonstrates a powerful system for studying effects on forager activity. The study contributes to further information on foraging behavior under sublethal doses of Imidacloprid insecticides.

Break (Lobby/Exhibitor Area)

2:30 PM

Weathering Heights: Evaluation of Honey Bee Subspecies Mating Behavior Utilizing RFID 3:00 PM

Melanie Kirby, Washington State University

The connection between habitat and health, and how it affects bee health, hive management, and community wellness elucidates their relationship with the bees for selective breeding. Through selective breeding and quality stock integration, beekeepers can help to strategize hive management and encourage environmentally friendly stewardship. The improvement of honey bee stocks through selective breeding represents one sustainable approach to assure future pollination services for food production/security, and to maintain and enhance the queen production industry, which struggles to meet market demand in the early spring.

Weathering Heights: Evaluation of honey bee subspecies mating behavior utilizing RFID is a research project designed to improve our understanding of honey bee mating flight behavior of various strains utilizing RFID (radio frequency identification). The findings could improve breeding protocols to enhance production and minimize losses. Inadequate mating of queens is known to limit quality and affect the capacity of producers to provide quality stock. RFID technology permits evaluation of a larger set of genotype x environment combinations and number of mating events than has been possible using direct observation. I will share the process of this research from its design with WSU engineering students to WSU Bee Lab field applications over the past couple of years. The results from this research will provide a fundamental improvement of our understanding of honey bee mating behavior and enhance profitability of queen producers and beekeepers.

Indoor Storage of Colonies in the Spring and the Effects on Brood Rearing and Swarming Behavior 3:45 PM

Brandon Hopkins, Washington State University

Interest in the practice of indoor wintering has been progressively increasing. New purpose-built buildings are being constructed each year, spurred on by reports of improved winter survival. The main focus for the use of the buildings has been for storing bees during the winter months prior to almond pollination. There remains a big potential for use of those same refrigerated spaces for colony storage at times other than the wintering period. One exciting potential use is the forced reduction or cessation of brood rearing to improve Varroa control. Preliminary data suggest it is possible with little or no reduction in colony performance. However, the timing and specific effects on colony metrics remain to be studied. This report focuses on the manipulation of storage time after almond pollination and the effects on brood rearing and swarming behavior.

Silent Auction Ends (Events Area) 4:00 PM

Break 4:30 PM

OSBA General Membership Meeting (Auditorium) 4:45 PM

Social Hour (Events Area) 6:00 PM

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Presentation: Ongoing WSU Projects in Colony Health Research and Honey Bee Breeding**Steve Sheppard**, Washington State University

At present, the WSU honey bee program personnel includes 2.5 faculty members with research, extension, and teaching responsibilities, two PhD postdoctoral researchers, and six graduate students (five MSc and one PhD). There are a number of research and outreach projects underway within the program, in addition to an ongoing long-term honey bee breeding effort. These projects include:

1) Efforts to address honey bee colony health concerns (mites and viruses) with mycologically based approaches. This includes biological control of mites using a strain of *Metarhizium* selected for virulence (against mites) and for improved thermotolerance. We are also involved in research and development to reduce the impacts of viruses in bees through improved immune function by feeding polypore mushroom extracts. In addition, the team is evaluating potential effects of these mushroom extracts on *Nosema* and foulbrood.

2) Indoor storage of colonies and manipulation of metabolic gases in controlled atmosphere storage to address colony health. Research on best practices to improve both overwintering and support of summer bee populations using indoor storage are underway.

3) Importation, cryopreservation, and distribution of Old World honey bee genetic diversity. The rationale for this work is two-fold: WSU is assisting bee breeding efforts of queen producers in the US by providing producers with i.i. breeder queens of novel stocks (such as Caucasian honey bees). The WSU honey bee germplasm repository contains genetic material (frozen sperm) from a number of Old World subspecies, including those for which there are conservation concerns.

4) WSU also maintains a line of honey bees (WSU Program Bees) that has been under continual selection for apicultural traits in the Pacific Northwest for 19 years. These bees are maintained without antibiotics and have been used for commercial almond pollination in California for the past 5 years.

5) Use of RFID technology to evaluate foraging and mating behavior in honey bees. Two ongoing MSc projects are using this technology.

6) Honey bee reproductive biology, including discovery research to improve our current methods of cryopreservation, and cooperative establishment of an international network of germplasm repositories.

7) In addition to annual queen rearing and beekeeping workshops, we are developing an updated video about instrumental insemination and bee breeding, with the goal to make these techniques more assessable to beekeepers interested in queen breeding and production.

Benefit Auction to Follow

Sunday, October 28

Registration (Lobby)**GENERAL SESSION** (Auditorium)

7:15 AM

Welcome & Announcements

8:00 AM

John Jacob, OSBA President**10 Years at the OSU Honey Bee Lab & Donations**

8:15 AM

Carolyn Breece and **Ramesh Sagili**, Oregon State University

The OSU Honey Bee Lab is celebrating its 10th anniversary under the leadership of Dr. Ramesh Sagili. The lab has grown in many ways: research, extension, staff, and, most importantly, collaboration with Oregon beekeepers of all shapes and sizes. Share memories with us as we present a slideshow of the lab's activities over the past 10 years.

The (Considerable) Obstacles to Increasing Honey Bee Forage in Oregon

8:45 AM

Andony Melathopoulos, Oregon State University

The erosion of the area planted to honey bee forages has significant impacts not only to honey yields but also

to the health of honey bee colony stocks. While there have been a number of efforts to increase forage area by federal, private, and local regional initiatives, the bulk of investments have been made in the northern Great Plains or California. Oregon, in contrast, lags behind. Notably, however, the Pacific Northwest region has grown into one of the largest sources of honey bee colonies shipped to California for the pollination of almonds, is also one of the most significant for propagation of the managed blue orchard bee (*Osmia lignaria*), and is home to a native bee fauna that is more diverse, with almost 900 species, than all the states east of the Mississippi. This presentation outlines some of the specific needs for forage in Oregon and some of the key challenges facing the expansion of area planted to forages. It will also outline some of the low-hanging fruit for getting honey bee forage projects off the ground in the state.

Pollinator Habitat Seed for Western Oregon

9:05 AM

Garth Mulkey, GS3 Quality Seeds Inc

NRCS Programs for Pollinators

9:25 AM

Annie Young-Mathews, USDA NRCS-Waldport

The Natural Resources Conservation Service offers both technical and financial assistance to producers to help them implement habitat-enhancement projects for pollinators on their land. We will go through a brief overview of the programs that are available, look at some sample practices, and provide information on how to apply for assistance.

Panel: Pollinator Habitat

9:45 AM

George Hansen, Foothills Honey Company, Moderator, **Andony Melathopoulos**, Oregon State University, **Garth Mulkey**, GS3 Quality Seeds, and **Annie Young-Mathews**, USDA NRCS-Waldport

Break (Lobby/Exhibitor Area)

10:15 AM

From Bloom to Boom: An Investigation of Oregano (*Monarda fistulosa* var. *menthifolia*) for Bee and Pollinator Wellness

10:30 AM

Melanie Kirby, Washington State University

Monarda fistulosa var. *menthifolia* is a widespread North American native plant (also known as bee balm, bergamot, or oregano de la sierra) that possesses a similar chemical profile to oregano, including carvacrol, thymol, α -pinene, β -pinene, sabinene hydrate, α -terpinene, citronellyl acetate, and β -caryophyllene (Zamureenko, et al., 1989). Specific to bee health, thymol has been used to successfully control Varroa mites and prevent fermentation and the growth of mold in bee colonies (Calderone, 1999), and thymol-based formulations are already commercially available (Floris, 2004). In addition, essential oils of oregano have been tested as a supplement to realize the same effects (Sammataro, et al., 2009).

Our research evaluated *Monarda* as a habitat-enhancing plant by assessing the presence and relative concentration of thymol and carvacrol in nectar, honey, and hive architecture while *Monarda* is flowering, and then afterwards by determining the persistence of the chemical constituents and evaluating effects on bee health. Objectives include analysis of *Monarda* nectar, honey, and pollen using gas chromatography to determine volatile compounds content, and determining Nosema and Varroa counts in hives with access to different diets.

Break

11:15 AM

Luncheon (Events Area—Preregistration required)

11:30 AM

Presentation: Challenges in Varroa Control & Beekeeping Philosophies

Ramesh Sagili, Oregon State University

For the past three decades, Varroa has been the most challenging parasite to tackle. In this presentation, various factors that have limited our ability to gain control over Varroa effectively will be discussed. Further, beekeeping philosophies of two distinct beekeeping groups (commercial and backyard beekeepers) will be discussed in the context of Varroa control, and how these philosophies may help or hamper Varroa control will be debated.

Walk Away Splits: Steps You Can Take for Stress-Free Queen Rearing

12:45 PM

Morris Ostrofsky, Master Beekeeper—Washington

A walk away split is an ideal way to raise a few local queens. The traditional walk away split involves taking a few frames of bees and brood and putting them in an empty brood box and walking away. You come back a

month later to see how successful you were. Walk Away Splits Plus builds on the traditional method and makes it better. The *plus* represents lessons learned from more than 50 years of raising new colonies. Topics that will be addressed include graft-free local queen rearing, preparation for the split, how to do the split, and care and feeding.

Operation of Sowers Apiaries

1:30 PM

Tom Cinquini, Sowers Apiaries

This presentation provides a brief history of Sowers Apiaries, from a one-hive hobby to mid-size operation with six full-time employees. In addition, it gives a 12-month survey of day-to-day operations, including pollination, honey, and hive maintenance.

Break (Lobby/Exhibitor Area)

2:15 PM

Queen Rearing in the Sustainable Apiary

2:30 PM

Michael Palmer, French Hill Apiaries

Brother Adam said many times, "Let the Bees Show You." No truer words have ever been spoken. Let me show you how I use a variation on Brother Adam's cell building method to grow quality queen stock in my sustainable apiary.

Good and Bad Microbes

3:15 PM

Jay Evans, USDA ARS-Beltsville

Honey bees are surrounded with microbes and benefit from their richness. Some are benign, some are damaging to bee health, and some are beneficial. I will review current thinking on the interactions among microbes and their collective impacts on honey bee queen, worker, and colony health. A second focus will be on the Bee Disease Diagnostic Service, a decades-old service used by regulators and beekeepers to determine causes of colony loss.

Final Comments and Adjourn

4:00 PM

John Jacob, OSBA President

Please turn in Evaluation Forms at Registration or Exit!

THANK YOU, EVERYONE—

All attending, presenting, exhibiting and advertising, donating and participating in the silent and benefit auctions, working behind the tables and behind the scenes in planning, registering, sorting, tracking, figuring things out—and all not mentioned!

Safe Travels Home



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