



September/October 2015

Welcome, Charley! Honey Bee Breeding CSBA Convention Kids' Corner Upcoming Events

Newsletter Emailed to You

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Welcome, Charley!

We are very excited to welcome our new Staff Research Associate and the Laidlaw facility manager – Charley Nye. Charley comes from Illinois and for the past five years he has been working as a technician in the laboratory of Dr. Gene Robinson. He has also assisted with honey bee projects coming from the laboratory of Dr. May Berenbaum.

Charley was involved with the Illinois beekeeping community and prior to leaving Illinois he was the president of the Central Eastern Illinois Beekeeping association where he's been involved in outreach. Charley was also instrumental in creating plantings at the University of Illinois Bee Research Facility supported by a \$60,000 grant.

Charley and his wife Joy have been traveling around the country for the past few months and will be settling in Northern California in December. We are very excited to have Charley join our Bee Biology and Pollination group and we can't wait for December!

Honey Bee Breeding Course (by Bernardo D. Niño)

This October we were excited to offer a new course "Honey Bee Breeding Basics". This course is a complement to our Queen Rearing Techniques Short Course that we offer twice in the spring, and the participants in this course are Alumni of the QRTSC. Their operations range from just a few hives in their backyard to over a hundred hives in multiple apiaries.

In this one-day short course, we discussed topics including different races and breeds of honey bees, a few basics of honey bee genetics, and different breeding schemes and challenges with implementing them.

Our guest speaker Dr. Matt Tarver discussed a successful breeding program he was a part of during his time in the USDA Baton Rouge Lab. He outlined methods they used in developing the Varroa Sensitive Hygiene (VSH) lines as well talked about the Russian bee breeding program.

There was a lot of great discussion about implementing specific breeding programs and many potential challenges facing beekeepers interested in starting their own breeding programs. Of particular interest was a discussion on breeding survivor stocks of bees.

There are numerous traits to choose and screen for when breeding honey bees. It is safe to start small and simple and select for a small number of traits. Inbred populations can be a potential pitfall so understanding drone populations and density play an integral part in managing an effective honey bee breeding scheme.

Controlling genetics in honey bees is a primary challenge when setting up a breeding scheme. Instrumentally inseminating queens maybe not only the best choice to control the genetics in your population, but perhaps the only choice depending on the proximity to other colonies. This is why we spent a good portion of the class talking about the possibility of doing an area wide breeding program and some ways to entice your beekeeping neighbors to join in the effort.

Finally, detailed record keeping along with good management practices are an essential part to any honey bee breeding scheme. This also applies to any beekeeper out there who wants to support honey bee health as well as other beekeeping colleagues.

And for those who are planning on developing a breeding program and are interested in doing instrumental insemination we do plan on offering a hands-on instrumental insemination course in the near future. Keep reading the newsletter for any updates.

CSBA Convention

And in keeping with the tradition here is the CSBA tentative schedule:

California State Beekeepers Association
 2015 Convention Program
 Hilton Sacramento Arden West Hotel
 2200 Harvard St. Sacramento, Ca 95815
 November 16-20, 2015

Sponsors:

Platinum- Convention Presidents Reception Dinner Sponsor: Mann-Lake Ltd.
 Gold- Research Lunch & Ladies Auxillary Lunch Sponsor: Barkman Honey; Day Sponsors: Beekeeping Insurance Services, Dadant & Sons, Pierco Inc.
 Silver- Day Break Sponsors: Dutch Gold Honey, A&O Forklift, JZs BZs Honey Co., Corning Ford
 Bronze- Break Sponsors: Cowen Mfg., Dave Smith Motors, Global Patties, Kona Queen Hawaii Inc., Shasta Millwork, Bennett's Honey Farm

Monday, November 16, 2015

9:00 am	Board of Directors Meeting	Folsom
1:00 pm	Mann lake Facility Tour	Buses departing Hilton Arden West
7:00 pm	Presidents Reception Dinner Sponsored by Mann-Lake Ltd.	Tahoe Shasta

Tuesday, November 17, 2015- Sponsored by Dadant & Sons **Berryessa/Eagle Room**

8:00 am	Registration & Exhibits open	
8:30 am	Opening Ceremonies	
	Anthem & Flag Salute	Buzz & Nicole Landon
	Welcome & Call to Order	Brad Pankratz, President
	Invocation	Troy Bunch
	President's Message	Brad Pankratz
	Memorial Service	Troy Bunch
	Reading of the Rules	Elina L Niño
8:55 am	***Sponsor Recognition***	Brad Pankratz
9:00 am	Presentation by Platinum Sponsor- Mann-Lake Ltd.	
9:15 am	Brief Reports from Standing Committees	
9:45 am	Platinum Advisors Report	Holly Fraumeni
10:00 am	Exhibitor's Break- Sponsored by A&O Forklift & Dutch Gold Honey	
10:25 am	Door Prizes	Bob & Joan Seifert
10:30 am	American Honey Producers Report	Darren Cox
10:50 am	American Beekeeping Federation Report	Gene Brandi, ABF Vice President
11:10 am	National Honey Board Report	Brent Barkman
11:25 am	California Ag "We're All in This Together"	Paul Wenger, CFB President
Noon	Lunch	
1:15 pm	Door Prizes	Bob & Joan Seifert
	Introductions by Brad Pankratz	
1:20 pm	Presentation by Gold Sponsor- Dadant & Sons	
1:30 pm	"Synergistic effects of amitraz & other agro Chemicals on adult worker bee survival", Elina Nino PhD., Department of Entomology, U.C. Davis	

2:00 pm "Microbiology Associated with Colony Dynamics and Hive Environment," Kirk Anderson UDSA- ARS Carl Hayden Bee Research Center, Entomologist/Microbial Ecologist

2:30 pm "BIT Program update", CHP Officer, Craig Weaver

3:00 pm **Exhibitor's Break- Sponsored by Corning Ford & JZ's BZ's Honey Company**

3:25 pm Door Prizes- Bob & Joan Seifert

3:30 pm "Bee Informed Tech Team Update", Dennis VanEngelsdorp", assistant Research Scientist at U of MD

4:00 pm "California Council of Land Trust Update", Kelly Velasco, Program Manager of CCLT

4:30 pm "Dadant Pollen Sub AP23," Dale Hill PhD., American Society of Animal Science

5:00 pm Exhibits Close

5:00 pm Apiary Board Meeting

7:00 pm Welcome Reception- **Sponsored by All Exhibitors- Atrium Solarium Room**

Tuesday November 17, 2015- Concurrent Sessions- Brandywine Room

Introductions by Russell Heitkam

2:15 pm "Results Beekeepers Can Use", Katie Lee, Midwest Honey Bee Tech Transfer Team

3:00 pm **Exhibitor's Break- Sponsored by Corning Ford & JZ's BZ'S Honey Company**

3:30 pm "Three Ways to improve Colony health," Gordon Wardell PhD, Bee Biologist for Paramount Farming Company

4:15 pm "Setting Up an Increase Nuc without Finding the Old Queen", Lawrence Connor PhD, Wicwas Press LLC

5:00 pm Exhibits Close

Wednesday November 18, 2015- Sponsored by Beekeeping Insurance Services- Berrvessa/Eagle Room

7:00 am American Sioux Honey Association Breakfast - **Brandywine Room**

8:00 am Registration and Exhibits open

Introductions by Dion Ashurst

8:30 am "Heat Production in the Wintering Colony," James Tew PhD., Entomologists Auburn University

9:00 am "Testing Queen Quality", Dave Tarpy, PhD.

9:30 am "California Dept. of Food & Agriculture Healthy Pollinator working Group," Courtney Albrecht, Environmental Program Manager

10:00 am **Exhibitor's Break- Sponsored by Cowen Mfg. & Dave Smith Motors**

10:25 am Door Prizes- Bob & Joan Seifert

10:30 am "Pesticide Risk Assessment Testing on Bees and Effects of Neonic's on Queen Behavior," Judy Wu PhD., University of Minnesota

11:00 am "California Association of Pesticide Advisors Update," Rachelle Antinetti, Mid Valley Agricultural Services Development Manager

11:30 am Gold Sponsor Presentation- **Beekeeping Insurance Services**

11:45 am **Break**

12:00 pm **Research Lunch- Ticketed Event- Tahoe Shasta Room**

"Disappearing Bees Harbingers of the End Times," Jim Frasier PhD., Professor of Entomolgy, P.S.U

Sponsored and Presentation by Barkman Honey

2:00 pm Auction – Fundraising for Research

Committee Meetings

6:00 pm Research- chaired by Alan Henninger- **Brandywine Room**
7:00 pm Resolutions Meeting- Chaired by Roger Everett

Wednesday November 18, 2015- Concurrent Sessions- Tahoe/Shasta Room

Introductions by Bill Lewis
8:00 am "Artificial Insemination Troubleshooting," Elizabeth Frost, Apicultural Services Technician
8:30 am "Randy's Take on Current Bee Topics," Randy Oliver, Commercial Beekeeper/ Researcher- Northern California
9:00 am "The Honeybee Hygienesphere: Hive-adapted bacterial communities associated with nutrition, pollen preservation, and larval rearing," Kirk Anderson
9:30 am "Bargain Hunting Forager Bee," James Tew PhD.
10:00 am **Exhibitor's Break- Cowen Mfg. & Dave Smith Motors**
10:30 am "Pesticide Use Reports," Larry Lima, Beekeeper/Biologist/Inspector for Merced County Dept .of Agriculture
11:00 am **Break**
12:00 pm **Research Lunch- Tahoe Shasta Room**
7:00 pm "Next Generation Beekeepers Breakout," Sara Red Laird, "Bee Girl"
Offsite Venue- "The Brick House"- 2837 36th St. Sacramento, Ca 95817

Thursday November 19th, 2015- Sponsored by Pierco- Berrvessa/Eagle Room

8:00 am Exhibits open
8:30 am CSBA Annual Business Meeting
Introductions by Steve Godlin
9:30 am "Almond Outlook," Steve Rothenberg, Field Supervisor for Blue Diamond Almond Growers
10:00 am **Exhibitor's Break- Sponsored by Shastina Mill Work**
10:25 am Door Prizes- Bob & Joan Seifert
10:30 am "Activating Honeybee Immunity Against Nosema Ceranae Infection," Dr. James C. Nieh, Professor in the Division of Biological Sciences at University of California San Diego
11:00 am "Infrared Imaging and Acoustic Scanning for Increased Efficiency of Bee Managing," Jerry Bromenshenk, PhD. University of Montana Division of Biology/ Bee Alert Technology, Inc.
11:30 am "News and Research from University of Minnesota Bee Lab," Dr. Marla Spivak Extension Entomologist University of Minnesota
12:00 pm **Lunch**
12:00 pm Ladies Auxiliary Lunch- Ticketed Event- **Brandywine Room**
Sponsored By Barkman Honey
1:10 pm Door prizes- Bob & Joan Seifert
Introductions by Bob Miller
1:15 pm "Chicken Soup for the Beekeepers Soul Inspiration to Get Where We Need To Go!" Christi Heintz, Executive Director, Project Apis m.
1:45 pm "Stressors for Honeybee: How cells are Diagnostic," Dr. Jill Jenkins, Research Microbiologist US Geological Survey

- 2:15 pm **Almond Panel Discussion:** Bob Brandi, Joe Traynor, Denise Qualls
 2:45 pm "Effects of Agro-Chemicals on the Reproductive Health of Honeybee Queens and Drones," Dr. Juliana Rangel-Posada, Assistant Professor of Apiculture Dept. of Entomology Texas A&M University
 3:15 pm **Exhibitor's Break - Sponsored by Global Patties & Kona Queen Hawaii Inc.**
 3:40 pm Door Prizes- Bob & Joan Seifert
 3:45 pm Exhibits Close

Thursday November 19, 2015- Concurrent Sessions- **Tahoe Room**

- Introductions by Bryan Ashurst
 8:30 am "Beneficial Bacteria Suppress Honeybee Diseases," Earl Hoffman, Operates Essential Honey Bees LLC
 9:00 am **Queen Breeder Panel Discussion:** Jackie Burris-Park, Linda Pankratz, Buzz Landon, Gus Rousch, Pat Hietkam, Northern California & Hawaiian Queen Breeders
 9:30 am "How to Guide for Top Bar Hives," Megan Mahoney, Bee Informed Tech Team
 10:00 am Exhibitor's Break- Sponsored by Shastina Mill Work
 5:15 pm Social Hour/Silent Auction- Solarium
 6:00 pm Silent Auctions Ends
 6:15 pm Annual Banquet- Ticketed Event- **Berrvessa/Eagle Room**
 8:30 pm Entertainment: **Big Mo &The Full Moon Band- Sponsored by Can-Am Apiaries/ Jackie Burris-Park**

Friday November 20th, 2015- **Folsom Room**

- 8:00 am CSBA Board of Directors Breakfast Meeting Chaired by Dion Ashurst

Kid's Corner: Becoming royalty might be more about what you don't have then what you do!

Remember when, way back in April, we learned how every fertilized egg can become a queen, but it is protein royalactin that puts the crown on their head? Since then we have learned even more about how a queen becomes a queen.

For the first three days after hatching all larvae coming from fertilized eggs (those that will become females) receive royal jelly. BUT after those first three days, larvae destined to become queens continue

receiving copious amounts of royal jelly while worker-destined larvae are fed a mixture of honey and beebread (a delightful combination of bee saliva, plant pollen, and nectar - yum!).

Present in both honey and beebread is p-coumaric acid, or for simplicity sake let's call it p-c acid. Mao et al. (2015) in their studies wanted to determine what might be the effect of this acid on caste differentiation (a.k.a. how might it influence the female larvae to become either a queen or a worker). You might say that this work was sort of an extension of a previous study (Mao et al. 2013) that found that p-c acid upregulates detoxification response

(removal of harmful/toxic substances from the body) in honey bees.

What they found was super cool! When p-c acid was fed to female larvae it caused changes in the expression of genes that regulate caste differentiation. Meaning, on a molecular level those larvae fed p-c acid were looking more like workers than queens. It appears that pc-acid was blocking the path to royalty!

Furthermore, Mao et al. decided to create queens by feeding larvae a nutrient rich diet with royalactin (protein determined to trigger development into a queen) and with or without p-c acid. In the presence of p-c acid queen destined larvae showed inhibition of ovary development. SO these queens were looking more like workers!

It seems like it might be as equally important what a queen does not eat as it is what she does eat that is making her a queen. Her royal jelly diet does not normally contain p-c acid allowing her to become a queen!

And here is the full reference in case you'd want to get down to the nitty-gritty details of the findings of Mao and colleagues: Mao et al. 2015 A dietary phytochemical alters caste-associated gene expression in honey bees. *Science Advances*. 1 (7) e1500795 DOI: 10.1126/sciadv.1500795 <http://advances.sciencemag.org/content/1/7/e1500795.full> Also see: Mao et al. 2014 Honey constituents up-regulate detoxification and immunity genes in the western honey bee *Apis mellifera*. *Proc. Natl. Acad. Sci. U.S.A.* 110, 8842–8846. <http://www.pnas.org/content/110/22/8842.full>

Upcoming Events

1.) **Beginners Introduction to Mead Making.** Robert Mondavi Institute, Honey and Pollination Center, UC Davis. November 13 and 14, 2015. To register: <http://honey.ucdavis.edu/events/introduction-to-mead-making>

2.) **2015 California State Beekeepers Association Annual Convention.** November 17-19, 2015. The convention will be held at the Hilton Sacramento Arden West, CA. To stay updated go to: <http://www.californiastatebeekeepers.com/events.html>

3.) **2016 American Honey Producers Association Annual Convention and Trade show.** January 5-9, 2016. The conference will be held at Embassy Suites, Albuquerque, NM. To stay updated go to: <http://www.ahpanet.com/>

4.) **2016 American Beekeeping Federation Conference and Tradeshow.** January 5-9, 2016. The conference will be held at Sawgrass Marriot Golf Resort & Spa, Ponte Vedra Beach, FL. To stay updated go to: <http://abfconference.com/>

5.) **2016 American Bee Research Conference and Apiary Inspectors of America meeting.** January 8-9, 2016. To be held in conjunction with the American Beekeeping Federation Conference and Tradeshow at Sawgrass Marriot Golf Resort & Spa, Ponte Vedra Beach, FL. To stay updated go to: <http://aapa.cyberbee.net/events/>

6.) **2016 American Beekeeping Federation Conference and Tradeshow.** July 18-20, 2016. The conference will be held on Penn

State campus, University Park, PA:
<http://ento.psu.edu/pollinators/events/2016-international-conference-on-pollinator-biology-health-and-policy>

7.) **2017 Western Apicultural Society Meeting.** At this year's WAS meeting in Boulder, CO there was an exciting announcement. The 40th WAS meeting will be held in Davis, CA – the place where it all started.

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Sincerely,

Elina L. Niño

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