



The Buzzz

The Monthly Newsletter of the Gilroy Beekeepers Association

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RFox, Editor

secretarygba@gilroybees.com

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Apiary Photo of the Month



It's Swarm Season!

video can be seen here: <http://bit.ly/2IUZRBM>

Editors Note: A big thanks to those of you who have submitted pictures. Keep them coming and I will feature your apiary.

President's Message

by Dave Stocks

April is a busy month for beekeeper's and it looks like it's also going to be a busy month for the GBA. The bee packages will be arriving somewhere around the middle of the month. For those of you who have ordered bees, you will get the exact date as soon as we hear from the supplier. In preparation, Mike Stang will be talking about package installation at the April 4th meeting. We will also have a round table discussion on spring management of our colonies.

On April 8th and 9th, Melanie Kirby from Zia Queen Bees will be teaching a queen rearing class. There are still spaces available for anyone wishing to attend. On April 22nd, we will have an informational booth at the Gilroy Earth Day celebration. The event will be at Christmas Hill Park from 7:30 to 11:00. Stop by if you can.

It looks like there will be a Gilroy Farmers Market this year. We are exploring the possibilities of having an informational booth. If we do, we'll need volunteers to staff it. Remember, even the novice beekeeper knows more than the general public. Everyone will be welcome! The market will be on Friday evenings. It should start in late May or early June.

News from the Bee World

Articles courtesy of The W.A.S. , Bee Culture Magazine and ABJ

GENES INVOLVED IN HONEY BEE RESPONSES TO MULTIPLE DISEASES IDENTIFIED

By Sara LaJeunesse

Summary:

A core set of genes involved in the responses of honey bees to multiple diseases caused by viruses and parasites has been identified by an international team of researchers. The findings provide a better-defined starting point for future studies of honey-bee health, and may help scientists and beekeepers breed honey bees that are more resilient to stress.

In the past decade, honey-bee populations have experienced severe and persistent losses across the Northern Hemisphere, mainly due to the effects of pathogens, such as fungi and viruses," said Vincent Doublet, postdoctoral research fellow, University of Exeter. "The genes that we identified offer new possibilities for the generation of honey-bee stocks that are resistant to these pathogens."

According to the researchers, recent advances in DNA sequencing have prompted numerous investigations of the genes involved in honey-bee responses to pathogens. Yet, until now, this vast quantity of data has been too cumbersome and idiosyncratic to reveal overarching patterns in honey-bee immunity.

“While many studies have used genomic approaches to understand how bees respond to viruses and parasites, it has been difficult to compare across these studies to find the core genes and pathways that help the bee fight off stressors,” said Distinguished Professor of Entomology Christina Grozinger, Penn State. “Our team created a new bioinformatics tool that has enabled us to integrate information from 19 different genomic datasets to identify the key genes involved in honey bees’ response to diseases.”

Specifically, the team of 28 researchers, representing eight countries, created a new statistical technique, called directed rank-product analysis. The technique allowed them to identify the genes that were expressed similarly across the 19 datasets, rather than just the genes that were expressed more than others within a dataset.

The scientists found that these similarly expressed genes included those that encode proteins responsible for the response to tissue damage by pathogens, and those that encode enzymes involved in the metabolism of carbohydrates from food, among many others. A decrease in carbohydrate metabolism, they suggested, may illustrate the cost of the infection on the organism. The researchers report their findings in BMC Genomics.

“Honey bees were thought to respond to different disease organisms in entirely different ways, but we have learned that they mostly rely on a core set of genes that they turn on or off in response to any major pathogenic challenge,” said Robert Paxton, professor of zoology, German Centre for Integrative Biodiversity Research. “We can now explore the physiological mechanisms by which pathogens overcome their honey-bee hosts, and how honey bees can fight back against those pathogens.”

The implications of the findings are not limited to honey bees. The team found that the core genes are part of conserved pathways — meaning they have been maintained throughout the course of evolution among insects and therefore are shared by other insects. According to Doublet, this means that the genes provide important knowledge for understanding pathogen interactions with other insects, such as bumble bees, and for using pathogens to control insect pests, such as aphids and certain moths.

“This analysis provides unprecedented insight into the mechanisms that underpin the interactions between insects and their pathogens,” said Doublet. “With this analysis, we generated a list of genes that will likely be an important source for future functional studies, for breeding more resilient honey-bee stocks and for controlling emerging bee diseases.”

Journal Reference:

1. Vincent Doublet, Yvonne Poeschl, Andreas Gogol-Döring, Cédric Alaux, Desiderato Annoscia, Christian Aurori, Seth M. Barribeau, Oscar C. Bedoya-Reina, Mark J. F. Brown, James C. Bull, Michelle L. Flenniken, David A. Galbraith, Elke Genersch, Sebastian Gisder, Ivo Grosse, Holly L. Holt, Dan Hultmark, H. Michael G. Lattorff, Yves Le Conte, Fabio Manfredini, Dino P. McMahon, Robin F. A. Moritz, Francesco Nazzi, Elina L. Niño, Katja Nowick, Ronald P. van Rij, Robert J. Paxton, Christina M. Grozinger. Unity in defence: honeybee workers exhibit conserved molecular responses to diverse pathogens. BMC

Genomics, 2017; 18 (1) DOI: 1186/s12864-017-3597-6

<http://www.beeeculture.com/catch-buzz-core-set-genes-involved-responses-honey-bees-multiple-diseases-identified>

APPS TO HELP PROTECT POLLINATORS

Beekeepers can work with growers and applicators to find alternatives to applying bee toxic pesticides, as well as problematic tank mixes of pesticides, while bees are on-site. A variety of smartphone apps are available for download to Apple or Android phones. Some smartphone apps are for specific pesticides registered in Canada or the USA, so make sure you review the app features for applicability in Canada or the United States. A few apps may charge a subscription fee since they have to continually update the data for pesticide labels and chemical registration, so check out any fine print before you purchase an app.

The National Pesticide Information Center (NPIC) offers a variety of apps from pesticide label information to reporting pesticide incidents.

Mobile Access to Pesticides and Labels (MAPL)

“Search for pesticide products by name, site, pest, EPA Registration Number, registrant, or search for a combination of these. For example, search for products registered for use in apple orchards against fire blight, or products with citronella that can be used on horses. When you find the right product, you can bookmark the results, bring up the federal label (pdf), and browse the product’s ingredients, registered use sites, signal word, formulation, and more. This web app is optimized for mobile devices, such as smartphones and tablets, and works on desktop computers as well.”

Herbicide Properties Tool (HPT)

The HPT is a “collection of herbicide ingredient properties presented with references as a decision-making aid. Decision-makers may need to compare herbicide active ingredients according to their water solubility, half-life, sorption potential, and other factors. These properties can help to predict an herbicide's movement through soil, water, and air.”

NPIC Product Research Online (NPRO)

“Designed for professionals using desktop computers, this tool performs powerful product searches and is lightning quick! Search for pesticide products by name, EPA registration number, manufacturer, use site, active ingredient, pest, product type, formulation, signal word, or a combination of these. Refine previous searches using additional criteria, and view individual product information in a simple format. See synonyms for active ingredients and follow them directly to EPA’s ChemSearch related science and regulations. Product details and federal product labels can be bookmarked or shared.”

Pesticide Education & Search Tool (PEST)

“Designed for the general public as they search for pest control solutions, this app brings together product search functions and new pest control information, written by NPIC. Users are prompted to pick a pest or pick a product. When you pick a pest, you’ll find a bullet list of action items grounded in integrated pest management (IPM). When you pick a product, you’ll find a one-stop interface with options to view the formulation, ingredients, the signal word, and the pests controlled by the product. Interpretive statements make the technical information easy to understand.”

Pesticide and Local Services (PALS)

This app allows you to “ Find pals in your state to help you 1) report pesticide incidents, 2) get pest control advice, 3) learn about area-wide pest control in your neighborhood, 4) get licensed to apply pesticides or contact pesticide law enforcement professionals, 5) determine whether pesticide poisonings are "reportable" in your state, 6) comply with occupational standards and select appropriate PPE (personal protective equipment), and 7) dispose of unwanted pesticides.”

NPIC Apps are available at <http://npic.orst.edu/webapps.html>

The Pest Smart™ app created by Pollinator Stewardship Council Science Advisor, Dr. Susan Kegley, has information for “over 18,000 pesticide products. “Find the Hazard Tier ranking you need to make informed decisions about pesticide use. The PRI Pest Smart™ app ranks each pesticide product utilizing a three-level Hazard Tier based on potential for health and environmental impacts.”

- Hazard Tier 1 = High Hazard
- Hazard Tier 2 = Moderate Hazard
- Hazard Tier 3 = Low Hazard

With this app “you can quickly find hazard-ranked pesticide products to manage pests in commercial buildings, on landscape and turf, or in the home and garden. The Pesticide Research Institute (PRI) Pest Smart™ mobile app is a new user-friendly tool for LEED professionals, Integrated Pest Management (IPM) professionals, and anyone with an interest in finding information about pesticide products, including identifying the least-toxic products.”

A user of the Pest Smart™ app will be able to:

- “-Conveniently look-up pesticide product information on your mobile phone while on the job, in the store, or at home.
- Quickly verify the eligibility of a pesticide product for use in the LEED v4-certified Integrated Pest Management (IPM) program.
- Search by product name or registration number.
- Search by pest to find pesticide products that target common household and garden pests like ants,

fleas, cockroaches, lawn weeds and aphids.

-Compare products and find least-toxic alternatives to streamline decision-making.

-Link to PRI's Pest Management Bulletins to learn about low-impact methods of pest control that minimize pesticide use and exposure." The Pest Smart™ app only provides information on pesticide products available in the United States. For more information about this app go to

<https://itunes.apple.com/us/app/pest-smart/id976412743?mt=8>

"Grow Smart, Grow Safe® began as a Local Hazardous Waste Management Program publication in 1998, it went online at <http://www.GrowSmartGrowSafe.org> and is now available free at the iTunes App Store."

"Use Grow Smart, Grow Safe® to choose a safer garden product. The app lists over 1000 lawn and garden chemicals and natural gardening tips. It's designed to help Pacific Northwest gardeners find safer products and learn more about what they already use. Gardening without pesticides is always the safest choice. In Alternatives you'll find great ideas on how to deal with those pesky pests without using pesticides and tips on creating a beautiful, healthy yard and garden. Your health, and your children's and pets, can be impacted by pesticide use. Pesticides can have lasting impacts on the environment, fish, wildlife, birds and bees. Natural yard care, natural lawn care and Integrated Pest Management (IPM) give in-depth information to help you learn more." More information is available at

<http://www.GrowSmartGrowSafe.org> and on the app store <https://itunes.apple.com/us/app/grow-smart/id881636448?mt=8>

Pesticide Labels is an app allowing "users to search for labels registered for use in Canada by Health Canada's Pest Management Regulatory Agency (PMRA). Users can search by:

- Product Name
- Active Ingredient
- Registrant Name
- Full Label Contents

The results will provide details about the product, along with a PDF version of the label. Users can save their searches, as well as download the labels as 'Favourites' for offline access." For more information go to <https://itunes.apple.com/us/app/pesticide-labels/id1063815307?mt=8>

Another smartphone app for Canada is Pest Manager by the Grain Farmers of Ontario. "Pest Manager allows you to identify, map and find integrated management options for common weeds, insects and disease in corn, soybean and cereal crops. A user can also look up information on a pest and specific pesticide." For more about this app go to <https://itunes.apple.com/us/app/pest-manager/id945684754?mt=8>

Beekeepers need to have information at their fingertips to work with growers and applicators to select the best pesticides for crop pest management and to protect honey bees. Farmers want to have their

crop pollinated and protect it from pests. Beekeepers want to protect their livestock so they have a strong field force to fully pollinate a crop. Most importantly, beekeepers want to be able to have healthy honey bee livestock to pollinate the next farmers' crop. Working together beekeepers and farmers can protect crops, increase crop yields through pollination, and ensure sustainable agriculture for the farmer, the beekeeper, and the next farmer and their crop.

Drippings from the Extractor

by Dave Stocks

I guess by now you have figured out that I think providing good quality, pesticide free forage for our bees is perhaps the most important step in keeping them healthy. It is heartening to see the number of people, nationwide, who are coming to the same conclusion. And it's not just beekeepers. In the most recent edition of *Gilroy Life*, Joyce Joyner from the Wildlife Education and Rehabilitation Center (WERC) wrote an excellent column on how keeping your garden free of toxins benefits all wildlife. Many gardeners still use pesticides, most particularly insecticides, to control garden pests such as aphids. But why not let nature take care of it? As an example, a lot of us have hummingbird feeders. The sugar syrup we feed gives the hummingbirds the energy they need to go out and forage for protein, i.e. aphids. By encouraging the hummingbirds to stick around, they can, with the help of other aphid predators, keep the pest population in check without the use of insecticides. The relationship to the health of all pollinators is obvious. With plenty of forage and no pesticides, we have eliminated two of the major factors affecting bee health.

While on the topic of planting for bees, thanks to Gurpreet for passing on the following. The company that makes Cheerios, General Mills, was offering free seed to plant for the pollinators. You can go to cheerios.com/bringbackthebees/form to check out their web site. Their goal was to give away 100 million seeds. After giving away a 1.5 billion seeds, they've had to end the offer! It's nice to see larger companies, who I sometimes feel are not necessarily bee friendly, thinking about the pollinators.

Editors Note: Please be aware that while the Cheerios offer is well intended many of the seeds in the packets are highly invasive plants that can, if not closely monitored, over run your other plants and adversely affect neighboring properties as well. The California Native Plant Society is advising against the use of these seeds.

Bee Condos



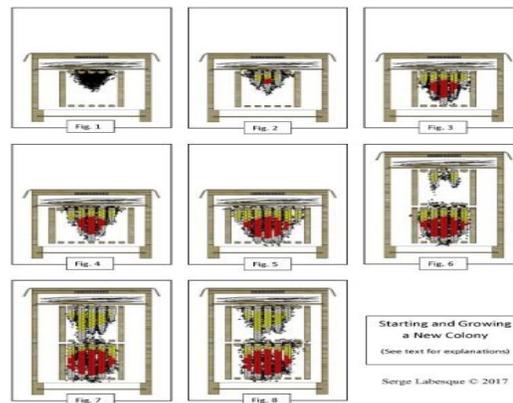
Beekeepers near Chowchilla, have joined together with the local architectural community to build the first "bee condos". The hope is that with more space in less area, more bees will choose to come to the area.OK, it was a poor attempt at an April Fool's joke! These hives were located alongside of Highway 152. When I first saw them, I thought they were "dead outs". After taking a closer look, I realized they were all active. Their work in the almonds is done, and they're waiting to be moved to a new location.

This month in the Beeyard

By Serge Labesque

My April Beekeeping To-Do List

Growing a new colony



Springtime brings us new colonies. Be they divides, nucs, or swarms, they all need to grow, gain strength, build comb, fill their nests and prepare for winter in just a few months. This can be a tall order! But it is vitally important to them. To achieve this goal, the bees depend to a large extent on the honey flows and their own abilities. Yet, how we manage their hives can make a significant difference in the outcome.

Below is an outline of the procedure I like to follow with colonies that are hived in Langstroth equipment. It's a gradual augmentation of the volume of the brood chamber that may also be implemented in other types of hives, albeit with some modifications. Note that the actual timing may vary substantially from what is indicated here, as it depends on many factors, not the least of which are the strength of the colony and the honey flow.

Let's consider here an average size swarm that is hived on four or five empty deep frames or as many as six or seven medium frames (Fig. 1). The frames and the bees are placed between follower boards, inside a super. The hive entrance is kept rather small initially, at about two inches in width. While some of the bees begin to forage actively, others, inside the hive, start building comb. The bees place honey, nectar and pollen in the combs that are under construction even before the cell walls are completely drawn. Frequently, queens lay eggs in cells that are barely started.

A week later, the little brood nest is beginning to noticeably grow. Yet the adult bee population continues to lose bees until three to four weeks after its hiving (Fig. 2). That's when the first of the young emerge from the brood nest. Combs are now being constructed in all the frames, but the outer

ones are still lagging behind the others (Fig. 3). It's time to add a little volume to the nest cavity in order to allow for the expansion of the population and to permit more comb building. This is easily done by inserting one frame between the nest and each of the follower boards (Fig. 4).

The bees respond very well to this widening of their brood chamber. The young hive bees that produce wax festoon in the newly opened spaces and they start building combs from the top bars. Meanwhile, the brood nest expands further and stores amass above and around it (Fig. 5). Soon, when the outer combs are half built, it's time to provide the growing colony with more space. Although we could add another frame, let's instead bait the bees into a second super by moving the original follower boards and the outer frames into it. Three new frames are also inserted in the new super and two new follower boards are placed around the brood nest (Fig. 6). In doing so, we transfer the odor of the colony into the new space and the bees move in immediately.

In less than two months after hiving, the young colony has developed a nice brood chamber and a strong forager force. It is now accumulating stores in the second super (Fig. 7). The entrance may be safely widened by two or three more inches to facilitate the foragers' traffic. The follower boards are spread apart from the frames to make room for four new frames, two in each super. These frames are placed alongside the existing ones that hold capped honey, pollen or brood along the top bars, as this ensures that the new combs are nicely built (Fig. 8).

By proceeding as was just described, beekeepers do a lot of very good work to help young colonies grow. All the while, the bees respond very well to this measured expansion of the hive and thanks to the use of follower boards the manipulation of the frames is always easy.

April in the apiaries

This spring is a bees' and beekeeper's delight around here. Thanks to the unusually abundant winter rainfall that saturated the ground, a generous honey flow is on. The colonies are growing beautifully, filling new white combs with brood, colorful pollen and light honey.

Yet, our main goals at this time of year remain the multiplication of our colonies, the production of young queens, obtaining new combs, and providing our bees with ample nectar-storage space. As a side benefit of executing these tasks, we see the risks associated with swarming reduced.

At this point in time, many hives have already been divided, and there are more hive divisions to do to produce yet many more colonies. Young queens are developing. They are the future of our apiaries.

As the first honey supers fill up, we are prompted to harvest some of the early spring bounty or to add more nectar storage space. It is good to note that the presence of forager clustering space between the hive entrances and the brood nests is beneficial, as it helps reduce the congestion of the brood chambers. In addition to this apiary activity, the opportunities to chase swarms abound. Is it necessary to say that bees and beekeepers are very busy during this season?

In order to stay on top of fast-evolving hive situations, we inspect our hives regularly at this time of year. Weather permitting, we aim for weekly visits until the colonies have been divided or the risk of

swarming has subsided. This pace is necessary to determine the optimum timing for the division of the colonies.

As always, during the inspections of our colonies we keep an eye on their health. Chalkbrood, European foulbrood and queen-related problems are the issues most frequently encountered in the spring. These various conditions must be addressed without delay, as they can be corrected easily at this time of year. Along with the excellent nutrition offered by this year's generous bloom, the period of broodlessness that is an integral part of the hive division during the queen-rearing process and the removal of contaminated brood combs from the hives help ensure good colony health.

Once we know that young queens are developing, the colonies are left undisturbed until follow-up inspections are performed to ensure that the queen-rearing process concluded satisfactorily.

Since the conditions during this season are nearly ideal for the development and mating of young queens, we do well to produce some from our best colonies. Issued from our good, locally-adapted stocks, these queens will be available to requeen poorly performing hives or divides that failed to produce satisfactory queens. These good queens may also be given to neighbor beekeepers, as this helps develop healthy bee populations around our apiaries.

The honey supers also deserve some attention. Quite often, the bees fill the centermost frames faster than the side frames. Their positions may be switched to hasten the filling of the supers. However, my preference is to harvest and process individual frames of surplus honey as they become filled with ripe honey instead of waiting for entire supers to be filled. Placed in a beeswax-finished frame stand, a beautiful comb can adorn our dining room table. That is, before it vanishes rapidly under the assaults of our spoons! In recent years, I have come to let the extractor idle. This was not just the result of the drought and poor honey flows, but a deliberate decision, as crushing combs has become my preferred method of processing the harvest. Anyway you do this, enjoy it all! This is a wonderful spring.

In summary, this month:

Do NOT buy or bring package bees, nucs and queens from outside our immediate area! Instead, arrange to obtain bees from neighbor beekeepers.

Inspect the hives regularly.

Ensure unimpeded development of the brood nests. Add frames to provide egg-laying space and comb-building opportunities, as necessary.

Add supers to provide nectar storage space.

Ensure the presence of clustering space between the brood nests and the hive entrances.

Perform divisions when the hives are initiating their preparations for swarming.

Rear a few queens from good stock.

Observe the monitoring trays, particularly for signs of brood diseases, possible chalkbrood mummies, EFB-affected larvae, or other health-related problems.

Gradually open the entrances of the hives to match the increasing forager activity.

Monitor the swarm traps that were set out.

Requeen or combine hives that are not performing satisfactorily, and those that have failing queens.
Keep some equipment at the ready to catch the occasional swarm.
Maintain sources of water for the bees.
Pull weeds from in front of the hives.
Discard old and misshapen combs.
Render wax from discarded frames.
Routinely clean and scorch tools and equipment.
Harvest only surplus early spring honey.
Make sure you leave enough honey in the hives.

Calendar of Events

Meetings

First Monday of the month

Santa Clara Valley Beekeepers Guild

6:15 pm

Dwell Christian Church San Jose

1292 Minnesota Ave San Jose CA 95125

<http://beeguild.org/>

First Tuesday of the month

Gilroy Beekeepers Association

7:00 pm

Old City Hal Restaurant

7400 Monterey Rd.

Gilroy, Ca

<http://www.gilroybees.com>

First Wednesday of the month

Santa Cruz Beekeepers Guild

6:30 pm

El Rio Mobile Home Park,

2120 N. Pacific Ave.

Santa Cruz, CA

<http://santacruzbees.com>

First Thursday of the month

Beekeepers Guild of San Mateo

7:00 pm

Trinity Presbyterian Church

1106 Alameda de Pulgas

San Carlos, CA

<http://www.sanmateobeeguild.org/>

First Saturday of the month

Monterey Bay Beekeepers

8:00 am

<http://www.montereybaybeekeepers.org/>

Classes and Conferences

May 5 - 6: California Honey Festival (Main Street, Downtown Woodland, CA). NOW ACCEPTING VENDOR APPLICATIONS - by April 1st. <http://www.CaliforniaHoneyFestival.com>

May 7: Bee Symposium. Info <http://honey.ucdavis.edu/events>

Sept 5 - 8: Western Apicultural Society of North America 2017 40th Anniversary Conference, UC-Davis, CA. Info <http://www.westernapiculturalsociety.org>

Nov 14 - 16: California State Beekeepers Association annual convention, Harrah's/Harveys in Lake Tahoe, CA. Info <http://www.californiastatebeekeepers.com/events.html>