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August 2015 LCBA Newsletter

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Questions? Suggestions? Resources you’d like to share, stories you’d like to tell?

Please contact LCBA Secretary Susanne Weil: susanne.beekeeper@gmail.com or call 360 880 8130.

UPCOMING EVENTS:

Saturday, August 1: LCBA Honey Spinning Workshop/Party

When: 10 a.m. to 4 p.m.

Where: Rochester (please RSVP to susanne.beekeeper@gmail.com for directions)

What: LCBA members – bring your honey frames to spin! (If you don't have honey this year, but want to see the extracting process up close, please come, too.)

Limit, 2 supers, so wait times won't be very long (if you have more, check with Susanne re: options). LCBA's 3 club extractors will be on hand, plus members' loaner gear: uncapping tanks, hot knives, etc.

Please bring buckets for your honey – food grade so no nasty residues or odors mess with your honey! Spiffy's Bakery in Napavine, 115 2nd Ave. N.E., is selling 5-gallon food grade buckets for \$3. Used buckets are also sometimes available for sale by WalMart and Safeway.

Refreshments provided & members are welcome to bring some too and make it a party :)



Above left, Gottfried Fritz & Alan Sparling spinning honey at our 2014 workshop; right, one of our club extractors in action.

Wednesday, August 12: LCBA Monthly Meeting

**Topic: Mite Control Management & Other Fall Management Issues.
Discussion of Varroa control v.s. eradication. Q&A on fall management.**

When: 6 – 8:45 p.m.: Social Time 6 to 6:30 p.m.

Where: 103 Washington Hall, Centralia College 701 W. Walnut St., Centralia WA

What: LCBA President Norm Switzler & Community Outreach Coordinator Dan Maughan will present some mite management philosophies & lead a discussion of pros/cons of treatment. Please bring your mite experiences & questions! Also, we'll have general beekeeping Q&A re: preparing for fall management. Short business meeting with latest Southwest WA Fair news.



Varroa management philosophies & strategies will be the focus of our August 12 monthly meeting. Above left, "[Honey bee with Deformed Wing Virus and Varroa destructor on her torso](#)," by Stefan de Konink (License: [CC0 1.0 Universal](#)). Above right, "[Visible as a dark, oval shape, an adult female varroa mite feeds on the midsection of a developing worker bee](#)," photo by Scott Bauer, USDA (License: [CC0 1.0 Universal](#)).

Wednesday, September 9: LCBA Monthly Meeting

Topics: Fall Management Issues: Moisture Control methods; Fall / winter feeding; candy boards, pollen patties; Beekeeping Q&A

When: 6 – 8:45 p.m.: Social Time 6 to 6:30 p.m.

Where: 103 Washington Hall, Centralia College 701 W. Walnut St., Centralia WA

What: LCBA Vice President Kevin Reichert will present approaches to moisture control, one of our PNW bees' biggest winter survival challenges. What did you try last winter to help your bees? What are you planning to try this winter? Bring your strategies, experiences, questions! Short business meeting to follow.



Above, hard candy rests on frames below a moisture control board – both methods will be covered at our September 9 meeting.

Saturday, September 12: Fall Management Workshop

When: 1 to 3 p.m.

Where: Adna (please RSVP to susanne.beekeeper for directions)

Topics: What should you look for when doing fall inspections? Testing for mites, treatment pros & cons, treatment methods, when to / how to combine colonies, consolidating boxes, fall feeding, & more. Discussion to follow.



Above left, LCBA members at our 2014 fall management workshop assessing colony condition; right, host Rick Battin discussing his use of Hop Guard & his unique propolis stain for his hive boxes

LCBA Will Bee at the 2015 Southwest Washington Fair, Aug. 18-23!



Left, SW WA Fair 2015 Logo; right, LCBA mentor Mel Grigorich explains bee behavior in the observation hive at LCBA's booth during last summer's Fair.

Call for Volunteers for LCBA Exhibit

The Fair is one of LCBA's best opportunities to help our Lewis County neighbors learn about honey bees – and have fun while we do it! We'll have a sign up sheet for days & times at

the Potluck, but if you can't come on July 11 and would still like to help at the Fair, email Susanne at Susanne.beekeeper@gmail.com or Dan at ultramafic@netzero.net.

We'll have our Observation Hive; the now-famous Reichert-Inmon wild hive & paper wasp nest display; a sample Langstroth hive set up (without bees!), tools & gear, & lots of visual displays & items to give away from the National Honey Board, Burpees Seeds, & our own informational brochures & handouts. If you have a cool idea for a display, please share that too!

Fair Honey Judging Contests – How to Enter

LCBA has TWO honey contests at the Fair. The first is the official Fair Honey Contest; the second is our People's Choice Honey Tasting. Read on for details!

Contest #1: The Official Fair Honey Contest – Submission Process & Judging Criteria

FYI: Entrants must submit honey in 1-pound Queenline glass jars (available free to LCBA members – contact 360 880 8130 or email Susanne.beekeeper@gmail.com).

Submission time: Entries accepted Mon. 8/17, 12 noon – 7 p.m. in the Floral Hall, SW Washington Fairgrounds. **No entry fee.**

Release Time: Sunday 8/23, from 2 to 5 p.m.; or contact Susanne (see above) for pickup.

What you can enter: The Fair's contest features raw honey - not processed or heated. Bee products fall under Division G-01 (Grain-Forage-Farm Products), Class 1 – Bee Products. You can enter honey under one of these 6 categories: please, no identifying labels on your entry! Lot 1, Comb honey with sample; (continued next page)

- Lot 2, Raw honey Light with sample in 1 pound Queenline jar.
- Lot 3. Raw honey Amber with sample in 1 pound Queenline jar
- Lot 4. Raw Honey Dark with sample in 1 pound Queenline jar
- Lot 5. Wax
- Lot 6. Other (this could be any bee-related item, like homemade equipment, a bumblebee nest, etc.)

Honey Judging Criteria:

- Color –3 classifications: light, amber, & dark, using Jack's Scale
- Entries over 18.6% moisture are disqualified (a refractometer will be used to measure moisture content)
- Filtration: 400 micron filtration is maximum
- Crystallization will be marked down this year
- Judge will taste for scorching only (taste is subjective)
- Precise jar filling: head room between 3/8 inch & half an inch with no visible gap between honey level & cap
- Judge: Peter Glover, LCBA Education Coordinator



Above left, Michaela with her prize-winning honey at the 2014 Fair. Michaela harvested her first honey in 2013, and spun it at our honey extraction workshop that year; she entered it last summer and was one of our winners. Above right, our official Fair honey display & winners' ribbons.

Contest #2: The People's Choice Honey Tasting

This contest showcases raw honey that has not been heated or processed so that the public can experience true honey flavors.

- Judging takes place Saturday, Aug 22, 1 p.m., at the Floral Building. Our visitors do the judging based on flavor & aroma – honey is labeled by number only, & visitors put their voting ticket in the can next to their favorite honey.
- To submit honey for People's Choice Tasting Contest, please bring a half-pint glass jar of honey to the Fair on Monday, August 17: entries accepted from 12 noon – 7 pm in the Floral Hall; if this time won't work for you, contact Susanne – see below. Please . . . no labels to give your identity away! There is no entry fee.
- Retrieving your honey: sorry . . . it's pretty unlikely that any of your honey will be left to pick up ☺
- Questions? Contact LCBA Secretary Susanne Weil, 360 880 8130 or email Susanne.beekeeper@gmail.com.



Above left, the 2014 People's Choice Honey Tasting; right, LCBA mentor & Fair volunteer Steve Howard explaining how raw honey is different from what you get in the supermarket bear. . . .

Local Lewis County Honey Is Available for Sale!

LCBA members have begun selling their local, raw honey. To learn more, visit our website: http://lewiscountybeekeepers.org/honey/buy_local_honey. If you are an LCBA member selling honey & would like to be listed, please contact Susanne! For some photos, see our "Announcements" section (page 19, below).

Washington State Fair Honey Show in Puyallup

If you'd like to enter your honey in Puyallup, here's how:

LCBA member Louis Matej, our May speaker on the chemistry of pollen, honey, and wax, is also Assistant Superintendent of Agriculture at the Washington State Fair in Puyallup. If you'd like to enter your honey or wax products in the Washington State Fair Honey Show, send your exhibit to Louis, and he'll make sure it is entered (address: Louis Matej, 445 S. 96th St., Tacoma, WA 98444; see below re: tips on mailing honey). He notes, "If we receive exhibits through the mail, we cannot send them back in the mail. The fair only sends out monetary awards."

The Washington State Fair Honey Show is statewide and open to all Novice and Open Class Exhibitors. They award "Best of Show", "Novice Best of Show", "Best in Honey, Wax, etc." Ribbons (see "Premium List" on their website, noted below).

To enter, you must register your entry online before sending it to Louis. Louis will save your exhibits after the Fair and return them when he can, probably at one of LCBA's monthly meetings, along with any ribbons your entry may win. (Prize money is sent by the Fair via mail.)

A big caution about mailing honey: Louis notes, "I would make sure the bottles have tops that are clean since there would be some turn over in shipping."

If you would rather visit Puyallup and submit your honey or wax products in person, you can bring in your entries to the Fair - entry days are Sept 8 and Sept 9 in the Puyallup State Fairgrounds Agriculture building.

The Honey Show Cabinets will be located outside the Pierce County Beekeepers' Association booth with an exhibit representing all beekeeping associations in the state who send materials (Louis will have LCBA brochures & cards.)

To enter your honey:

1. Go to the "thefair.com" website and click on Competitive Exhibit Entry and click on the Honey Show Premium List for all the rules and regulations.
2. Register online with your exhibits
3. Bring your exhibits to the fair on Tuesday, Sept 8 or Wednesday Sept 9.
4. You will receive free tickets to the fair for your entry.
5. Judging takes place on Thursday morning, Sept 10.
6. View the display cabinet and pick up your ribbons in the Ag Office.
7. You may pick up your exhibits after the fair on the Monday following the fair.

LCBA'S 7TH Annual Summer Potluck: July 11

About 80 beekeepers & family members gathered at Alexander Park in Chehalis yesterday for LCBA's 7th Annual Summer Potluck - a great time! We shared food (so much food...), fellowship, bee talk (of course), & raised \$450 for our 2016 Youth Scholarship program – an additional donation from the Farm Store brought this total to \$500, enough to outfit one middle- or high-school student from a family new to beekeeping with bees & the necessary gear - each new student gets an experienced beekeeper as mentor. With what we already had raised, we now can outfit two new youth in beekeeping students in 2016 - with another fundraiser at our holiday potluck, we may be able to bring 3 new young people into the bee world next year!



Above left, some of the prizes: Dan Maughan's hand-tooled deep hive box was won by Bob Becker, & the nuc box went to Sandy Moore; Pamela Daudet won the 25 pound sack of sugar from Reichert's Distributing.

Right, Terrie Phillips finally wins her LCBA logo mug as president Norm Switzler & drawing assistant Michaela look on. . . .

MANY thanks to our members who bought drawing tickets, our board members who organized - especially Dan Maughan, our community outreach coordinator - & to those who donated drawing items, both members & local vendors: Dan, whose hand-crafted cedar deep hive box and nuc (with bottom boards & covers) were the 1st 2 items chosen . . . Kevin Reichert, our VP, for the bee feeders, and for working with Reichert's Distributing, who donated a 50 pound sack of sugar, and Reichert's Meats, who donated a \$30 gift certificate; Beeline Apiaries, who donated 3 \$25 gift certificates; Jeremy's Farm to Table Restaurant & Market, The Pearl Café, & the Tiki Tap House for donating gift certificates for meals; Kaija's Garden Center for donating a head veil; Copy Depot - Precision Printing for donating LCBA logo mugs; Peter Glover & Susanne Weil for donating Woogie Bee honey bears, bee escapes, & honey buckets; Kimo Thielges for donating honey jars.... in fact, members, showing their usual generosity, put so many items on the table that your scribe couldn't match them all with names - the hand-tooled wooden picture frames, hand-made jewelry, the 25 pound bag of sugar, and more.

For the potluck photo gallery, visit our website:

http://lewiscountybeekeepers.org/photo_gallery/july_11_2015_lcbas_7th_annual_summer_potluck

Bee Beards: A Different Way To Bee. . .

Bee Beards are not for the faint of heart. LCBA Treasurer Rick Battin and Journeyman student Nancy Toenyan stepped up to wear tens of thousands of bees at the WSU short beekeeping course the day of our LCBA summer potluck. What follows are some photos with commentary . . . to see the complete photo gallery, visit our website:

http://lewiscountybeekeepers.org/photo_gallery/bee_beards_at_wsu_july_11_2015/admin



Above left, Rick Battin wearing a bee beard at WSU's beekeeping short course; right, Nancy Toenyan with her bee mantle. Below, left, Dr. Timothy Lawrence pins queen cages onto Rick's shirt: the bees then fly to the queen. About 20-25,000 bees comprise the bee beard. Rick noted that you need to stay calm to do this, even as you feel the tiny claws of the bees at times digging into your arm. Rick & Nancy experienced the bees chaining between their arms and bodies.

Below, right, to transfer the bees to the next bee-bearder, the queens get transferred (see the cluster at Nancy's neckline); the person wearing the bees then jumps to dislodge them & quickly backs away. Rick took only one sting in the entire process! Below, right, Sue Cobey looking for that stinger. Rick wrote, "It's a privilege to be in her smoke."



LCBA's July 18 Supers Removal Workshop

Over 20 beekeepers braved the heat to share ideas & learn about 4 major methods for getting bees out of honey supers without harming them: fume boards, bee escapes, leaf blowers, and the “bang and brush” method. Many thanks to our host, LCBA's community outreach coordinator Dan Maughan, & to Dan & LCBA Vice president & mentor Kevin Reichert for leading demos & discussions. It was a fun day in the bee yard, followed by refreshments & Q&A in the shade!

For descriptions & details about how to use fume boards (with “honey robber” / butyric acid OR almond oil extract), bee escape boards, the leaf blower method, and the “bang and brush” approach, see the slideshow on our website:
http://lewiscountybeekeepers.org/photo_gallery/july_18_2015_lcba_honey_supers_removal_workshop .



Above left, Dan Maughan holds up a frame during a discussion of assessing frames for harvesting as Ed Carter looks on; right, Kevin Reichert demonstrates the “leaf blower” method. Below, “x marks the spot” on the fume board – Kevin showed that a little Honey Robber really does go a long way. Right, see how many bees left the honey super through the one-way cones of the bee escape board:



BEES IN THE NEWS

Thanks to Fran Bach, Steve Norton, Norm Switzler, & the folks at Bee Culture, American Bee Journal, and WSBA for bee news stories.

While the “Bees in the News” column was on hiatus, many stories of interest to beekeepers broke. Among these, both the federal and Washington State governments have begun initiatives to protect honey bees and other pollinators. Many might feel that none of these initiatives go far enough, but they are at least a start. What follows is a summary of what’s happened at the federal and state levels, followed by new research findings in Varroa control, bee losses, neonicotinoid dangers, and bee behavior.

“U.S. Details New Efforts to Support Ailing Bees”: 19 May 2015, The New York Times

The White House plan to support honey bees and monarch butterflies focuses on “adding [to] and improving wildflower habitat. . . on seven million acres of land, an area slightly larger than Maryland, by 2020.” The plan targets the central states because so many managed bee colonies are placed there during summer months and because of the butterflies’ annual migration path. Interstate 35, from Duluth, Minnesota to the Mexican border at Laredo would become “a continuous wildflower buffet for migrating monarchs and other pollinating creatures.”

Whether these initiatives will be enough to meet the White House task force goals of “reducing honey bee colony loss to no more than 15% in 10 years [and] increasing monarch butterfly populations to 225 million by 2020” has been questioned: the plan does not address neonicotinoid pesticide applications, though it does provide increased funding for research into the effects of neonicotinoids, as well as other stressors on honey bees.

To read more, visit: http://www.nytimes.com/2015/05/20/us/us-details-new-efforts-to-support-ailing-bees.html?_r=0 To see the White House plan itself, visit:

<https://www.whitehouse.gov/sites/default/files/microsites/ostp/Pollinator%20Health%20Strategy%202015.pdf>

“EPA Takes Strong Steps to Better Protect Bees from Pesticides”: 4 June, 2014, WSBA

“The EPA is proposing restrictions to protect bees used for pollination services from harmful pesticide exposure. Large numbers of bees may be exposed to pesticide spray when growers contract with beekeepers to provide pollination services. EPA believes that strong regulatory measures should be in place to protect bees used for pollination services.

“The proposed restrictions would not replace more restrictive, chemical-specific, bee-protective provisions that may already be on a product label. Additionally, the proposed label restrictions would not apply to applications made in support of a government-declared public health response, such as use for wide area mosquito control. There would be no other exceptions to these proposed restrictions.”

For more, visit: <http://wasba.org/epa-takes-strong-steps-to-better-protect-bees-from-pesticides/>

“EPA Announces It Is Unlikely to Approve New Outdoor Neonicotinoid Pesticide Uses”: 2 April, American Bee Journal

The EPA has told those applying to register neonicotinoid pesticides for new outdoor uses that new licenses cannot be granted “until new bee data have been submitted and pollinator risk assessments are complete.” This affects regulatory decisions on imidacloprid, clothianidin, thiamethoxam, and dinotefuran, whose manufacturers have petitioned for aerial applications, crop group expansion requests, and more. However, the EPA would consider emergency exemptions if “a significant new pest issue should arise that may be uniquely addressed by one of these chemicals.” To read more, visit: <http://us1.campaign-archive1.com/?u=5fd2b1aa990e63193af2a573d&id=afeae51cf0&e=e9ff21e0bb> , or visit the EPA’s site: <http://www2.epa.gov/pollinator-protection>.

“Passed! House Bill 1654 – Controlling noxious weeds while still having forage for honey bees”: HB 1654, which passed the Washington state legislature in April, “requires state agencies, as part their mandate to control noxious weeds on the land they manage, to give preference, when practicable, to replacing pollen-rich noxious weeds with native bee forage plants.” The bill also green-lights the Noxious Weed Board to “evaluate[] the advantages of replacing pollen-rich noxious weeds with native forage plants that can produce similar levels of pollen to support honeybee populations.”

To read more, visit: <http://apps.leg.wa.gov/billinfo/summary.aspx?year=2015&bill=1654> .

“Changes to Washington State Roadside Maintenance Policies”: *July WSBA Newsletter*: In response to a joint report by the Federal Highways Administration and Xerces Society this May, “Literature Review: Pollinator Habitat Enhancement and Best Management Practices in Highway Rights of Way,” WSDOT is now reducing its non-safety-related roadside mowing by a third to help preserve forage for pollinators, and future mowing will be governed by a multi-year plan to reduce unwanted and increase beneficial plant species. They plan to incorporate planting for pollinators into future roadside restoration work. Finally, though they do continue to use herbicides, they are examining this usage, and have stopped using insecticides and fungicides, according to WSDOT landscape architect Ray Willard. To read more about WSDOT’s roadside management plan, visit: <http://www.wsdot.wa.gov/Maintenance/Roadside/vegetation.htm>.

“Washington State to Implement Managed Pollinator Protection Plan,” WASBA.org: After the statewide Honey Bee Work Group reported the results of their yearlong project last December, the Washington State Department of Agriculture agreed to develop “an MP3 - Managed Pollinator Protection Plan,” as the work group recommended. WSDA's Erik Johansen reports that “the tree fruit industry is ready to work on the MP3 in late 2015, and the alfalfa seed industry is ready to go now.” WSBA reports that beekeepers interested in helping develop the plan can contact Erik at ejohansen@agr.wa.gov. To read the HB work group’s report, visit: <http://wasba.org/wp/wp-content/uploads/2015/01/FINAL-Honey-Bee-Wk-Group-Report.pdf> .

“Washington beekeepers win ‘farmer’ tax status”: 15 July 2015, *The Daily Astorian*

Accepting arguments that “beekeepers are a vital part of food production,” Washington’s State Senate passed Bill 6057, which gives “beekeepers the same tax status as other agricultural

producers.” Any beekeeper who has at least one colony and has registered his/her hives with the state will be eligible for at least some of the exemptions, which include “paying state business taxes on money they collect for pollination services or by selling their products, such as honey, wholesale. They also will be exempt from sales taxes for production expenses, such as bee feed and chemicals to keep hives healthy.”

Ephrata commercial beekeeper Tim Hiatt, WSBA’s legislative director, said, “I was really pleased (legislators) took common sense advice and made beekeepers the equivalent of farmers as far as the state is concerned. . . . Sen. [Jim] Honeyford [R-Sunnyside] was our great champion on this one.” Hiatt noted that this exemption was “a matter of fairness” since out of state beekeepers who bring their bees to pollinate crops in Washington have not had to pay the business taxes that in-state beekeepers did.

To read more, visit: http://www.dailyastorian.com/Local_News/20150715/washington-beekeepers-win-farmer-tax-status .

Registration of Oxalic Acid for Varroa Control: adapted from Notes for Beekeepers, Fran Bach

The EPA has approved oxalic acid to treat Varroa mites in bee colonies: it should be legally available for beekeepers in all 50 states by this fall in a 3% solution from Brushy Mountain (see below). But beekeepers beware: though oxalic acid is easy to buy – it’s the main ingredient in wood bleach – in that form, it’s almost 100% pure and would be toxic to bees and dangerous to beekeepers applying it. The registered product will be the only LEGAL application (see: <http://www.brushymountainbeefarm.com/>). (For those not familiar with it, “oxalic acid is an organic acid, a naturally occurring chemical found in plants and insects. It has been used for some time in both in Europe and in Canada as a varroa mite control. Since traces of oxalic acid are found naturally in honey, residues are not a concern.)

How would oxalic acid be used in bee colonies? “The registration for oxalic acid is for a liquid which can be used in that form or as a gas. In liquid form, it is mixed with sugar syrup and applied by “dribbling” a stream of the mixture between the frames of the hive, directly onto the bees. Package bees can be treated in the same way. Alternatively, it can be vaporized by the application of heat. Use the links below for more information on the possible treatment methods.”

Beekeepers should be aware, though, that oxalic acid only kills phoretic (hitchhiker) mites on adult bees: it does not penetrate brood, so is most useful when there’s little brood in the colony.

For more detailed coverage of the pros and cons of using oxalic acid for Varroa control, see:

- Jennifer Barry’s article in the June issue of *Bee Culture* magazine: <http://www.beeculture.com/oxalic-acid-effective-easy-on-bees-but/>.
- “Oxalic Acid: Questions, Answers, and More Questions,” by Randy Oliver: <http://scientificbeekeeping.com/oxalic-acid-questions-answers-and-more-questions-part-1-of-2-parts/>
- Bulletin from Dadant & sons concerning approval by the EPA of oxalic acid for varroa control: <http://www.dadant.com/news/epa-okays-oxalic-acid-for-varroa-mite-control>

- “An Investigation of Techniques for Using Oxalic Acid to Reduce Varroa Mite Populations in Honey Bee Colonies and Package Bees,” PhD dissertation by Nicholas Aliano, University of Nebraska, 2008:
<http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1000&context=entomologydiss>
- “Oxalic acid: A prospective tool for reducing Varroa mite populations in package bees, Nicholas Aliano, University of Nebraska, 2009”:
<http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1186&context=entomologyfacpub>

“What Bee-killing Mites Can Teach Us About Parasite Evolution”: 2 July 2015, Science Newsline

Scientists who were investigating whether “plant-based alternatives” could control Varroa mites found out that some “tick repellents repress mites from finding their honey bee hosts.” What the repellents do is turned off a sensory protein –“the transient receptor potential or TRP channel” on the mites’ forelegs. found on the mites' front legs. However, these tick repellents did not have the same effect on honey bees and fruit flies, leading scientists to speculate that this protein may have “helped the mites adapt as honey bee parasites in the hive environment.”

These TRP channel proteins “are used to detect whether the environment is hot or cold for some organisms, while for others they are important in vision, hearing, smell, and taste. When [the research] team activated TRPA1 channel activity in Varroa mites, it could repress them from entering honeycombs with bee larvae, where they reproduce. . . . In addition, [scientists] would like to explore whether natural pesticides could be developed that specifically target TRP channels.”

For more information, visit: <http://www.sciencenewsline.com/articles/2015070311270015.html>

“Losses of Honey Bee Colonies Over the 2014/15 Winter: Preliminary results from an international study,” 24 July 2015

Those who heard Dewey Caron’s report on honey bee losses in the U.S. may be interested to learn of similar studies in Europe, Russia, and North Africa by the research association COLOSS, formerly funded by the EU and now by the Ricola Foundation. Over the 2014-15 winter, the average losses from 23,234 respondents managing a total of 469,249 colonies in 31 countries were 17.4% - twice as many as in 2013-14. Among factors were Varroa mites and “unsolvable queen problems.”

Losses ranged widely, from 5 % in Norway to 25 % in Austria (regional differences played a role within countries, as they do in the U.S.). The study explains that “North European countries have traditionally had lower losses, compared to west and central European countries. This can partly be explained by the later start of the breeding season of their honey bee colonies due to low temperatures in March/April, as was the case in 2014. This later start limits the number of brood cycles of the varroa mite . . . However, honey bee colony loss is a multifactorial problem.”

To read more, visit: <http://us1.campaign-archive2.com/?u=5fd2b1aa990e63193af2a573d&id=9e15548cca&e=e9ff21e0bb> . For COLOSS’s website, visit: <http://www.coloss.org/> .

***“Global Health Challenged by Mankind. The End Is Near. Pollinator Loss Leads The Way,”
27 July, Bee Culture “Catch the Buzz”***

Two new Harvard studies inspired this apocalyptic headline from *Bee Culture*. The first study shows that falling numbers of bees and other pollinators, a drop the study attributes “in part . . . to pesticide use and destruction of habitats,” may cause a commensurate drop in nutritional crops that help human beings “stave off disease.” The second study suggests that “increasing levels of atmospheric carbon dioxide (CO₂) could lead to lower levels of zinc in food and thus to greatly expanded zinc deficiency.”

Samuel Myers, the lead researcher, says that “This is the first time that the global health community has come out in a concerted way to report that we are in real danger of undermining the core ecological systems that support human health.” Myers notes that “accelerating” changes in “land use, deforestation, degradation of global fisheries, disruption of the climate system, biodiversity loss, appropriation of fresh water, changes to aquatic systems . . . represent a significant challenge to global health.”

The pollinator study investigated “224 types of food in 156 countries to quantify total per capita intake of vitamin A, folate, fruits, vegetables, and nuts and seeds under various pollinator decline scenarios.” Based on this, “the complete loss of animal pollinators globally would push an additional 71 million people into vitamin A deficiency and 173 million more into folate deficiency, and would lead to about 1.42 million additional deaths per year from non-communicable diseases (NCDs) and malnutrition-related diseases—a 2.7% increase in total yearly deaths. A 50% loss of pollination would result in roughly half that impact, the researchers found.”

For more details, visit: http://www.beeculture.com/catch-the-buzz-global-health-challenged-by-mankind-the-end-is-near-pollinator-loss-leads-the-way/?utm_source=Catch+The+Buzz&utm_campaign=aaffa348ec-Catch+The+Buzz+4+29+2015&utm_medium=email&utm_term=0_0272f190ab-aaffa348ec-256261065

Climate change: “Likely culprit found in bumblebee decline, a devastating cousin to honeybee losses”: 24 July 2015, SFGate.com

A new study published in the journal *Science* has linked declining bumblebee numbers to difficulty adapting to changing climate conditions: “Scientists expected bumblebees to simply move into cooler climates, abandoning their habitats as temperatures went up and moving towards the poles. But they didn’t. Instead they found that colonies were neither migrating away from nor surviving in their newly uninhabitable homes. While the reason for this isn’t completely clear, one theory suggests that the plant populations in cooler areas are too difficult for bumblebees to adapt to.”

Bumblebees are very important players in some commercial pollination (such as greenhouse-raised tomatoes). The *Science* study looked for possible causes of their declining numbers, including pesticides, but “patterns in more than 400,000 observations of 67 bee species from data going back to 1901” pointed to “climate change arose as the probable culprit.” Changing climate, among other things, leads to declines in key natural forage, leading the *Science* researchers to urge people to start planting for pollinators.

For more information, visit: <http://blog.sfgate.com/science/2015/07/24/likely-culprit-found-in-bumblebee-decline-a-devastating-cousin-to-honeybee-loses/>

“Pesticides Found in Most Pollen Collected from Foraging Bees in Massachusetts”: 24 July 2015, American Bee Journal

The question of how much pesticide honey bees carry into their hives from contact during foraging has been investigated in a Harvard School of Public Health study: they found that “at least one neonicotinoid” was found in over 70% of samples of pollen and honey from bees foraging in Massachusetts had neonicotinoids. Imidacloprid was most commonly found; dinotefuran was second. Unlike previous studies, which looked at pollen collected at one time, the new study sampled pollen throughout the spring and summer foraging months, looking at the same group of 62 colonies and letting scientists look how levels of 8 neonicotinoids varied over time.

According to lead researcher Chensheng Lu, "Data from this study clearly demonstrated the ubiquity of neonicotinoids in pollen and honey samples that bees are exposed to during the seasons when they are actively foraging across Massachusetts. Levels of neonicotinoids that we found in this study fall into ranges that could lead to detrimental health effects in bees, including CCD." Lu also suggested that human inhaling pollen contaminated with neonicotinoids might suffer adverse health consequences.

For more details, visit: <http://us1.campaign-archive2.com/?u=5fd2b1aa990e63193af2a573d&id=39ac2bf887&e=e9ff21e0bb> . *The New York Times* also covered this story: <http://www.nytimes.com/2015/07/28/science/honeybees-show-evidence-of-insecticide.html?emc=eta1&r=0>

“Examining the Neonicotinoid Threat to Honey Bees”: 9 July 2015, American Bee Journal

A new study published in the American Chemical Society’s journal has shown that the persistence of neonicotinoids in rivers and streams is not always mitigated by the effects of sunlight, as was previously thought. Researchers found that “although sunlight plays an important role in degrading pollutants, its effects on neonicotinoids can diminish dramatically even in shallow water.” Two of the five neonicotinoids tested “in water under simulated sunny conditions, took several “days to break down. But a depth of just 3 inches of water was enough to shield at least one, thiamethoxam, from the degrading effects of the sun. The researchers say that this persistence at shallow depths could increase the chances aquatic life and other wildlife, including bees, could get exposed to the insecticide.”

For more information, visit: <http://us1.campaignarchive2.com/?u=5fd2b1aa990e63193af2a573d&id=6af5b4800e&e=e9ff21e0bb>

“Mounting Evidence Of Pesticide’s Danger”: 29 June 2015, Bee Culture

Though most scientists agree that a combination of Varroa mites, viruses, forage and habitat losses, and more factors are harming honey bees, a new study published in the journal *Nature* suggests “that low-dose exposure to neonicotinoid pesticides is the tipping point, the first domino in a long line of implicated causes.” The new study supports earlier work “showing that sublethal

doses of imidacloprid, a neonicotinoid insecticide, impairs olfactory learning in exposed Asian (*Apis cerana*) honey bee workers.”

Chinese Academy of Science’s Ken Tan, lead researcher, says that “Honey bees need to learn to associate nectar reward with floral odor. One of the main reasons why flowers produce odor is so that this odor can be learned by pollinators and used to repeatedly visit the same flower species. Without this repeat visitation, pollination does not occur. We showed that a neonicotinoid pesticide, at sublethal doses, harms this odor memory formation.” The study shows that “adult [bees] that ingested a single imidacloprid dose as low as 0.1 ng/bee had significantly reduced olfactory learning acquisition, which was 1.6-fold higher in control bees. Bees exposed as larvae to a total dose of 0.24 ng/bee had significantly impaired olfactory learning when tested as adults; control bees exhibited up to 4.8-fold better short-term learning acquisition.”

This study supports a January 2015 finding that sub-lethal doses of imidacloprid caused “mitochondrial dysfunction in bumble bees, which then negatively impacts navigation and foraging skills. For example, exposed bees will have greater difficulty in recognizing the smell of a flower, or how to find their way back to their colony, which in turn can affect the colony as a whole. Two other recent studies found that, not only does neonicotinoid exposure result in reduced bee density, nesting, colony growth, and reproduction, but also that bees actually prefer foods containing neonicotinoid pesticides, despite their adverse effects. Put simply, this means that bees can become addicted to neonicotinoid-contaminated flowers in the same way that humans can become addicted to cigarettes [see next summary].”

For more information, visit: http://www.beeeculture.com/catch-the-buzz-mounting-evidence-of-pesticides-danger/?utm_source=Catch+The+Buzz&utm_campaign=86a6893ec7-Catch_The_Buzz_4_29_2015&utm_medium=email&utm_term=0_0272f190ab-86a6893ec7-256261065

“Are bees 'hooked' on nectar containing pesticides?”: 23 April 2015, Science News

Scientists at Newcastle University and Trinity College Dublin have found that nectar with neonicotinoids attract bees, raising their risk of being exposed to high levels of these toxins. Published in the journal *Nature*, the study showed that “buff-tailed bumblebees and honeybees could not taste the three most commonly used neonicotinoid pesticides and so did not avoid them. In fact, the bees showed a preference for food which contained pesticides: when the bees were given a choice between sugar solution, and sugar solution containing neonicotinoids, they chose the neonicotinoid-laced food.” Of the two species, the bumbles ate more pesticide-rich food and received higher doses.

Why would bees do this? Lead researcher Geraldine Wright explains that “[n]eonicotinoids target the same mechanisms in the bee brain that are affected by nicotine in the human brain. The fact that bees show a preference for food containing neonicotinoids is concerning as it suggests that like nicotine, neonicotinoids may act like a drug to make foods containing these substances more rewarding” – more rewarding than healthy alternatives. Compounding the problem, “since neonicotinoids can also end up in wild plants growing adjacent to crops, they could be much more prevalent in bees' diets than previously thought.”

To read more, visit: <http://www.sciencedaily.com/releases/2015/04/150423234110.htm>

***“Poor Nutrition for Honey Bee Larvae Compromises Pollination Capabilities as Adults”*: 9 April 2015, American Bee Journal**

A study from Wellesley College has shown that when larvae don't get enough pollen, they grow up to be smaller bees who die sooner, after foraging too ineffectively to feed the colony's next generation. The study is the first to link “poor nutrition at a young age, and foraging and waggle dancing.” What makes the study particularly compelling is that it was “conducted entirely in a natural hive environment, which allowed larvae and adults to function in normal colonies, rather than in the incubators and cages that are more typical of nutrition studies.” This let researchers watch “the bees foraging and dancing in a natural context, activities they would not be able to perform in artificial lab conditions.”

Among behaviors observed in this natural setting: many adults never foraged. Those that did forage did so earlier in life, but proved “more likely to die after just one day” of seeking food. They also waggle-danced less and communicated less useful information to hive mates: “[t]heir dances were often visibly inconsistent and almost disoriented in the worst instances.” Thus, this early nutrition deficit creates a vicious circle in which undernourished foragers can't adequately provide for the next developing generation.

The researchers urge beekeepers to “ensur[e] that honey bees have access to diverse and plentiful forage throughout the year could mitigate the potential for collapse . . . This means keeping bees in areas that are bee friendly, green, and full of flowering plants within the normal foraging radius of a colony, regularly checking colonies' food supplies, and providing supplements when natural forage is not available or colony stores are low. Failure to provide these necessities may impose a legacy of dysfunction on colonies.”

To read more, visit: <http://us1.campaign-archive2.com/?u=5fd2b1aa990e63193af2a573d&id=94deedbae2&e=e9ff21e0bb>

***“The Miraculous Space Efficiency of Honeycomb: Hexagons and the science of packing”*: 22 July 2015, Slate.com**

Scientists and architects have marveled at – and copied – the hexagonal structure of honeycomb for millennia. More recently, mathematicians have analyzed how “[t]he hexagon tiles the plane with minimal boundary”: the “Honeycomb Conjecture.” This conjecture builds on “Kepler's Conjecture” or “Cannonball Problem,” which “asks whether the traditional pattern used to stack oranges (or cannonballs) is optimal.” “If equal-sized balls are dropped into a large container at random, experiments suggest that the density—the proportion of the container's volume filled by balls—is roughly 65%. The hexagonal close-packing arrangement [of spheres] yields an average density of . . . 74%.” percent.” Mathematicians have analyzed the honeycomb's hexagonal structure in a series of major questions and studies over the past 100 years: these are summarized in the *Slate* article. Honey bees' instinct led them to apply the principle long before human beings could map it.

Math aficionados in search of details may wish to visit:

http://www.slate.com/articles/health_and_science/science/2015/07/hexagons_are_the_most_scientifically_efficient_packing_shape_as_bee_honeycomb.html

ANNOUNCEMENTS

Local Honey is Available Now: Visit our website, click on Honey, then on “Buy Local Honey.” If you’re an LCBA member who is selling your honey, let Susanne know to be listed on the site.



Above, Jeanne Reichert stands by a stack of just-removed supers; right, Kevin & Jeanne’s 2015 honey. Below, Steve Howard’s honey features photos of his very charismatic Labs. . . .



2015 Vita International Honey Bee & Beekeeping Photo Competition: Entrants may submit up to 4 photos in Vita's competition. Winners will be featured in the 2016 Vita (Europe) Ltd Calendar (winners receive a free copy). Winners receive both a cash prize and Vita anti-Varroa products. Also, best "entries will be added to the Vita Gallery, a free online resource of more than 600 honey bee-related photos which is used by beekeeping lecturers and associations across the globe." Submission deadline: October 18. For details on how to enter, visit: <http://www.vita-europe.com/news/2015-vita-international-honeybee-and-beekeeping-photo-competition/>

October 1-3: 38th annual Western Apicultural Society (WAS) conference: Theme is "Healthy Bee / Bee Healthy," co-hosted by the Colorado State Beekeepers' Association in Boulder, CO. Days 1 & 2 will focus on bee health; the final day will emphasize the relationship between bees and human health and interaction. Speakers will include Marla Spivak, Elina Lastro (who succeeded Eric Mussen at U.C. Davis), and more. For young people, the conference includes the NextGen Beekeepers Summit facilitated by beegirl.org on Thursday evening and the ABF Bees and Kids "Bee Curious" program on Saturday afternoon. For more details, visit the WAS website: <http://www.westernapiculturalsociety.org/category/2015-conference-news/> .

August Western Apicultural Society Newsletters: http://groups.ucanr.org/WAS/WAS_Journal. Click on the line in the paragraph on the right as directed. If you're still getting the old issue, click on "empty cache" in your browser or "refresh" or "reload" under VIEW in your menu bar.

July WSBA Newsletters: Pick up your copy online at www.wasba.org: click on "Newsletters."

That's all for now ~ take care, & bee happy!

~~ Susanne Weil, LCBA Secretary (Susanne.beekeeper@gmail.com; 360 880 8130)