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November 2014 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:

Nov. 6-8: Oregon State Beekeepers' Association Conference

Where: Seaside Civic & Convention Center, Seaside, Oregon

What: WSBA encourages beekeepers to go to this year's Oregon Beekeepers Association conference. Their speaker roster (attached to this newsletter) reads like a who's who in bee research: Dennis vanEngelsdorp will speak on drivers of bee losses; Marla Spivak will speak on how conversion of resins to propolis affects bee health; Steve Sheppard will speak on the honey bee gene repository; Dewey Caron & others will speak on efforts to breed local queens; other speakers include Kim Flottum, Ramesh Sagili, & Paul Anderson. Additional topics include tree bee hives, predicting/managing pesticide losses, connecting kids with beekeeping, & much more. The full schedule is attached in PDF to this newsletter & posted on our website under upcoming events. Registration details will be available soon at this site: http://www.orsba.org/bee_schools_and_events.php.

Nov. 12: LCBA Monthly Meeting: Topic – Winter Projects

When: 6 – 8:45 p.m.: Social Time 6 to 6:30; Speaker, 6:30 to 7:30; Business Meeting & Beekeeping Q&A, 7:45 to 8:45

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

Topics: What things can you do this winter to help your bees next year? Rick Battin will present his propolis/alcohol stain for weatherproofing hive boxes; Tomme Trikosko will present her homemade, non-spendy mouse guard; Martin Stenzig will present his method for constructing hive boxes using dovetails, and, for those who didn't see Kevin Reichert's vacuum box for swarm and colony removals last year, Martin will show his version.



Above, Rick Battin's whimsical hive box décor painted onto his propolis/alcohol stain.

Dec. 10: LCBA 6th Annual Holiday Potluck (for directions, please contact Susanne at Susanne.beekeeper@gmail.com): Please mark your calendars & get ready to share good food, good fellowship, door prizes, & after dinner, a brief monthly meeting with board elections, fundraising drawing for our 2015 Youth Scholarship Program, our traditional Beekeeping Q&A, suggestions for 2015 speaker topics, and more.

When: 6 – 9 p.m.: Social Time 6 to 7; Dinner 7 to 8; Brief Business Meeting, including Elections & Youth Scholarship Program Drawing, 8 to 9.

Please Bring: A dish of food to share & a plate, cutlery, & cup to eat/drink from. The Grange has tables & chairs, 3 ranges, a refrigerator, & plug-ins for hot pots. LCBA will provide coffee, tea, hot chocolate, & napkins. Food Drive: If you'd like to bring canned food or dry goods for the Greater Chehalis Area Food Bank, please do – we'll have a donation box.

Questions? Contact Susanne.beekeeper@gmail.com or call 360 880 8130.

LCBA MONTHLY MEETING NOTES: OCT 8TH

Speaker: Dr. Tim Lawrence: Tim has been keeping bees for decades: his undergraduate degree was in entomology, but then he “drifted” into sociology for his master’s and doctorate: his special focus is the human dimension of environmental issues, and at this meeting, he focused on the human elements in honey bee decline. Tim is the Extension Director of Island County and worked with Dr. Steve Sheppard at WSU to sample bee bread from 148 apiaries all over the state, including several in Lewis County, looking for traces of neonicotinoids. What they found may be surprising to some, and contains a welcome ray of hope in the bee decline story.

The Human/Honey Bee Relationship: Tim emphasized that we humans are part of the environment we share with our bees, though human beings often tend to see ourselves as separate. The human/bee relationship is ancient: up until about 1500 C.E., though, that relationship consisted mainly of people robbing honey from bees, and not just honey: brood was eaten as a protein source (and still is in other countries). Starting around 1500, though, people began to practice rudimentary bee management, attempting to learn more about bee biology and ways of keeping bees alive. As many beekeepers know, the major leap forward came in 1851, when Rev. Lorenzo Langstroth discovered “bee space,” the 3/8” gap between frames that allows bees to move on two frames simultaneously, leading to his creation of the movable frame hive. This revolutionary move enabled us to remove frames from the colony to examine our bees and extract honey without destroying the hive. We take “bee space” for granted now, not necessarily appreciating how much it aids our understanding of what goes on in our bee colonies. Next, Moses Quinby (1810 – 1875), became the first commercial beekeeper in the U.S., maintaining 1200 colonies in New York, both for honey production and pollination, opening the door to present problems.



Above left, Nepalese child eating brood (photo, Huffpost.com); right, nummy fried honey bee larvae (FAO.org).

How Do We Assign “Value” to Honey Bees? Now, however, pollination is the focus of the huge modern beekeeping industry, with 2.3 million hives in the U.S. today. Tim himself was a commercial beekeeper for many years, and suggested that the USDA’s slide on the value of honey bees may understate matters when they note that bees yield \$16.5 billion dollars/year in pollination value. Tim doesn’t like the “1 in every 3 bites of food you take, you owe to a honey bee” truism: it is more vivid and accurate to note that honey bees and related pollinators are responsible for a large number of food groups. Many crops are wind pollinated (though bees can and do pollinate crops like tomatoes, improving yield): this means that humans would not starve without bees, but our diet would be awfully bland.

Almonds Drive the Commercial Bee Industry: 50% of all bee colonies in America are moved to California at the start of each year to pollinate over 800,000 acres of almond trees – 85% of the world’s almond crop. Mexican beekeepers would love to come in, but the border is closed to them. Some stats: 680,000 bearing acres; 115,000 non-bearing acres; 26,724 new acres are planted each year. All these acres require 1.6 to 2 million bee colonies to get their trees pollinated. The average price for pollination in 2014 was \$180 to 200 per colony, up from \$135 in 2010. Once the almonds are “done,” their owners want the beekeepers out, so the bees go back on the trucks, fanning out around the nation: some go to Texas, Louisiana, Florida to pollinate assorted fruits, then on to New England to pollinate cranberries. Others come up to the Pacific Northwest, especially Washington, for berry and apple pollination, then on to Montana and the Dakotas for honey production. How significant a problem is stress on bees from all this transport? A study by Jeff Pettis recently showed that data doesn’t support the idea that all this movement is bad: the 5 to 10 percent loss reported is within the range considered acceptable by commercial beekeepers. [One problem in transport, though, is that bees get exposed to parasites and diseases by other bees.]



Above left, pollinating almonds in California: note how barren the fields look (photo, Gordyholding1.com); right, tracheal mites in honey bee windpipe (Wikimedia Commons)

The Commercial Queen Rearing Industry: Another aspect of the beekeeping industry is worth scrutiny when we think about bee decline: the commercial queen rearing and package bee industry. G.M. Doolittle developed the first queen rearing system and is attributed with starting the package bee business. Today about a million queens a year are replaced: not quite 40% of beekeepers re-queen yearly. The quality of queens – their longevity – has been reduced (more on that below). Queens sell now at an average price about \$20; package bees sell for about \$22/pound (there are usually 3 pounds in a package of bees). Back when Tim was in the industry, lots of bees were exported to Canada: a cozy relationship until 1987, when tracheal mites came in, followed by the inroads made on bee populations by Varroa mites. Tim was the president of the California Beekeepers’ Association, and he can attest that this was a rough period, featuring quarantine areas . . . literally, fist-fights broke out at California beekeepers’ meetings, mainly over the question of how to manage the industry with imports and exports of bees

banned. Today, Tim says that tracheal mites are no longer a significant issue because we were able to select against them [more on that below].

The Genetic Bottleneck: In 1922, in an attempt to prevent tracheal mites from entering the U.S., our borders were closed to importation of bees; in 1956, even bee semen was banned. This created a genetic bottleneck, which has created much of our trouble keeping bees alive – when a population lacks genetic diversity, it is easier for disease to take hold. No imports were permitted until the early 1990s. In modern queen production, fewer than 500 breeder queens produce all the one million queens produced annually: some say as few as 350 actual queens being grafted from, a really small genetic pool. Many beekeepers have met Tim’s wife, Sue Cobey, who goes to Europe with Steve Sheppard’s WSU team each year: they deal with a quarantine station even bringing semen back into the U.S., with samples and progeny sent to the USDA lab in Beltsville for analysis for viruses: the semen can’t be released until the lab clears the samples. However, gradually they are bringing in more genetic lines, focusing mainly on the New World Carniolans, Italians, and Caucasian bees. A new focus is *Apis mellifera pomelii*, from Kirkistan, where apples evolved: the apple industry is contributing funding to see if we can bring this bee, adapted to pollinate apples, into the U.S..

What Traits Do Commercial Queen Rearers Select For? Tim showed a list of favorable characteristics in bee breeding: pollen and honey productivity; temperament; hygienic behavior; brood viability; spring buildup; swarming tendency; color; Nosema resistance; reduced susceptibility to Varroa and tracheal mites. Note: other than color, each trait is a behavioral trait. How do breeders graft and select? This takes a lot of work, though it is do-able. Now pressure on breeders to breed selectively is low “because anything with six legs sells.”



Above left, Sue Cobey in bee insemination lab; right, inseminating a bee (VOAA News.com)

Is Colony Collapse Disorder A Real Phenomenon? Tim really doesn’t like the term “CCD.” In the 1970s, the same phenomenon was called “disappearing disease,” and we still don’t know its definitive cause: there are many factors. WSBA reported a 39% loss of bees in our state in 2009-10. Yet these losses are fluid: beekeepers will always manipulate colonies and still have some not make it. In Tim’s opinion, the stress Varroa mites put on a colony – and what we are doing to control these mites – are causing the worst of our losses. The problem is not only the mite, but our response to it. How many chemicals are mites no longer susceptible to? Fluvalinate, Amitraz, and others have been used for over 25 years. Once, beekeepers could treat twice a year and have good control; however, Dennis van Engelsdorp just did a study that showed four treatments a year are now needed to control mites. This says that something has gone wrong. The pathogens that Varroa mites bring into a colony are another factor. The Varroa jacobsoni mites that co-evolved with *Apis cerana* in Asia has evolved to become Varroa destructor: as the name suggests, a bigger, more robust mite that causes much more damage. How did it get here? Through illegal imports: for example, Tim used to hear Florida bee breeders brag about

bringing foreign queens into the U.S. in their shirt pockets . Now it's here, wreaking havoc: commercial beekeepers can't make money off dead bees, and many feel that research scientists are out of touch with that reality.

“Poisoning the womb of the hive”? This is Randy Oliver's phrase, but it reflects what Tim raised next: the dangers of using chemicals in our hives. Kim Flottum told Tim that within three issues of *Bee Culture*, people moved from deploring pesticides to arguing that they were the only way to control mites. Approaches like genetic control or breeding for resistance quickly got ignored. Is “hygienic behavior” the fix? Tim thinks hygienic behavior “is lame” since he's seen bees “cannibalize healthy brood.” Mexican beekeepers are actually ahead of us in mite control now because of – bee-lieve it or not – the hardy Africanized bee, which is aggressive but now manageable because of careful breeding and insemination. Back in the USA, we rely on chemicals like Tactic (amitraz) – we keep it in the colony year-round. Judy Wu, studying for her Master's at WSU several years ago, analyzed chemicals found in wax: she found fluvalinate, cumaphos, chlorpyrifos, and metabolites of amitraz. 4 of the 5 chemicals she found were introduced by beekeepers. The USDA looked into this and found 21 different chemicals in wax and bee bread.

How about agricultural chemicals like neonicotinoids? Tim is not a fan of spraying: he got out of commercial beekeeping after getting doused by a plane spraying chemicals while he was sleeping in his truck. It is mainly foragers who get hit by direct application of agricultural pesticides. However, it is true that the systemic action of neonicotinoids used to treat seeds does affect more bees through ingestion of honey and pollen.. Neonicotinoids are a prophylactic treatment, used by farmers who are not considering integrated pest management. It is not illogical, Tim commented, that beekeepers are associating neonics with bee losses. However, he noted that the studies done thus far show correlation – but correlation is not causation. Tim noted that the now-notorious Harvard paper that named neonics as the cause of CCD “has been blasted and was badly written.” Before we point the finger at neonics, we need better data. In fact, neonics are relatively safe for mammals because of their low toxicity, and this makes them attractive to use. Today, more than 465 products sold in Washington state contain neonics. These chemicals are not enough to kill bees outright, but when fed to workers, to brood, to queen: theoretically, there is a reduction in overall colony strength. Some studies done with field-realistic dosages of neonicotinoids – that is, dosages akin to what foragers bring back to colonies in real life – have sublethal, cumulative effects on bees' learning behavior and ability to forage effectively. These effects are much harder to quantify: however, field-realistic doses of imidacloprid have, so far, not been credibly associated with mortality.



Above, spraying crops (Drvegan.com)

WSU's Washington State Neonicotinoid Study: Here in Washington, Tim and Steve Sheppard sampled 148 apiaries this year, specifically looking for neonic concentrations in bee bread. Tim personally visited 138 apiaries. In the study, they sampled a two inch diameter area of comb with bee bread, taking one sample of wax from each hive, 3 samples per apiary. They divided big commercial apiaries into sections (groups of 30). The holes they drilled were filled up by the bees within a couple of days during good honey flows. Data are still being analyzed, but so far, they have found zero detectable levels of neonicotinoids at 5 parts per billion. That does not mean that neonics are not there: but they did not find them. If 50 parts per million cause damage (some say 20), and they cannot find them even at 5 parts per million, to Tim, these findings do not justify outlawing neonicotinoids. Alternative ways to protect crops are being sought – for example, some researchers are looking into using spider venom against piercing/sucking insects – this may prove to be better than using neonics in the long run. For now, though, neonicotinoids are what farmers have, and research does not support banning them.

The Smorgasbord of Potential Culprits in Bee Losses: Every month, new issues seem to be touted as “the cause” of bee collapse. For example, in London, there are allegations that pollution is crippling bees' capacity to smell. A *New York Times* article noted that selenium could be the problem. But in reality, Tim notes that many things are causing the problem. Nosema disease is a major factor: there is some evidence that neonicotinoids make bees more susceptible to Nosema. Many samples that are sent to the diagnostic lab at WSU have tested positive for *Nosema ceranae*. Also, now 25 viruses are detectable in bees, with wounds caused by Varroa as their vector. Further, monoculture agriculture creates food deserts for bees: no riparian areas. In California, after e-coli was found in crops, farmers and officials wiped out hedgerows and decimated anything except the target crops.

What Role Do We Beekeepers Play? However, big agriculture is not alone in doing that. Look at industrial beekeeping: Tim gave an example of one area in which huge numbers of bees are all fed sugar syrup. Literal tanker trucks of syrup are brought in, giving artificial feed to these bees 24/7. May Berenbaum at the University of Illinois recently showed that when bees are fed only sugar syrup, the gene responsible for helping bees detoxify does not turn on: when they are fed honey, though, that gene is turned on. Beekeepers need to look their own role in bee collapse the large operation that Tim described lost 40% of bee colonies after feeding only sugar syrup.



Feeding lots of sugar syrup (Cookvillefarms.com)

“We Live in a Toxic World”: Tim concludes that the underlying problem is: we live in a toxic world. Native pollinators are at even greater risk than honey bees, as no one is caring for them. We need to change mindsets: for example, to encourage the farming community not to spray during bloom times.

We need to develop products or strategies that reduce impact on pollinators. As breeders, we need to select for increased nectar and pollen production: that, in turn, will improve nutrition and attraction. Further, we need to promote natural vegetation and pollinator habitat. We need to continue to seek short-term solutions to detection and treatment while also aggressively funding and implementing long term strategies and breeding programs. More money should be allocated for research: Tim added that he does not get those funds as an Extension agent, but that we need to learn more about the interactions of various stressors on bees. We need to develop non-chemical management strategies: to expand outreach education and stop pandering to the industry – not only the agricultural industry, but the beekeeping industry.

The Critical Role of Habitat: Echoing messages LCBA members heard earlier this year from Franclyn Heinecke and Bill Wamsley, Tim noted that we need to stop wiping out weeds and invasive plants: “it’s delusional to think we could wipe out tanzany and scotch broom.” Instead, we need to assess area by area, not just spray because it is easy and convenient via helicopter. We must also promote habitat. May Berenbaum said, “If you want to help bees, plant more flowers.” We need to involve the Department of Transportation in roadside beautification and the conservation reserved enhancement program (CREP), planting in reclaimed areas, marginal or unused areas, and preserving riparian or marshy areas. In this way, Tim said, we can “get real about how to protect bees.” When you plant a bee garden, consider abundance, sequence, diversity, and pesticide use. As many of us saw when the forage dried up in August, the psychology of bees improves when natural food is available. For good lists of plants to put in, see www.pollinator.org. Also, BeeSmart “has an app for that” which you can install on your phone, inputting your zipcode to see what plants work in your area.

Finally, Beekeepers Can Step Up Our Game: Tim noted that when he was doing the bee bread sampling study, he saw a lot of bad beekeeping techniques. Timing, he commented, is so important: it’s not just what you do, but when you do it. We need to monitor our bees to help them be ready to take advantage of the nectar flow. He saw bees without enough foundation: they had already plugged out their available storage space before the honey flow had started. Also, he saw too many splits being done early on when probably weaker colonies should have been combined. He urged us not to be afraid to squish a low-performing queen, pull out her spermatheca, and see how well mated she was.

QUESTION & ANSWER PERIOD: LCBA President Norm Switzler asked Tim if his weed patches are keeping bees alive? Tim admitted that he does still buy and feed a lot of sugar when forage dries up. However, we can plant to encourage better nutrition. Tim’s notorious “bee beard” photo, he said, shows that bees are stimulated in predictable ways, and nutrition is one way. He noted that he urged the Extension agent in Yakima not to cut dandelions – maybe they do compete with cherries, but bees need diverse protein sources. Another member asked whether climate change was influencing bee losses: Tim thinks yes, because as the climate warms, forage dries up sooner.



Above, Tim lecturing with an assist from apian friends at WSU/WSBA's "Bee Field Days," Pullman, June 2011 (FYI, "Bee Field Days" are the 3rd or 4th weekend in June in odd-numbered years. Watch for 2015 dates.)

Tim was asked how bee breeders selected against tracheal mites. This was done by looking specifically for it and selecting bees that showed they were not susceptible, then breeding from those bees. If beekeepers find a tracheal mite problem relatively rare now, he suggests re-queening to deal with it. Norm raised the issue of the genetic bottleneck, asking whether breeding from feral bees is a solution. Tim suggested that we may not know for certain that feral bees truly do have diverse genetics: they could be someone's package that swarmed. "Sorry, survivor bee people," Tim said, "I don't buy it." However, Tim agrees that we need diversity of genes to improve selection. He strongly encourages bee groups to raise their own local queens. He urged us to invite Sue Cobey down: "She's patient," Tim said. "I just yell at people if they go too slow." But seriously, he urges that we look at our colonies, decide whose traits we want, and then artificially inseminate, graft from those queens. A closed population queen breeding system is an effective way to select for bee improvement. When WSU started with the New World Carniolan, they were constantly selecting and making sure there was a mix within the spermotheca: they were not trying to breed individual bees. "You need to think not of pedigree, like your dog, but rather a population." Norm asked for a show of hands: how many members have done artificial insemination for queens? None of us had. Maybe in 2015!

Gary Stelzner noted that he's feeding sugar syrup heavily and pollen patties: he sees the syrup disappearing, but not much pollen patties. Tim answered that there could be a number of variables for they don't take the patties: they may not need more pollen supplies – he'd have to look in the colony," but even then I'd be guessing." Bee bread can contain a lot of fungicides, which are detrimental to bees, as Gloria de Grandi-Hoffman has shown. Bees need enzyme and microbial activity to be able to break down nutrients.

Gary Kalich held up a hive tool and asked Tim if it belonged to Sue Cobey. Tim was delighted to have it returned, commenting that someone might have found their garden trowel beside a hive after he sampled their bee bread, since he lost her tool and had to use the trowel to finish his day's inspections.



Above, Sue Cobey brandishes her hive tool at a queen rearing workshop (Kathy Keatley Garvey, UCR)

Kent Yates, who knows May Berenbaum and Gene Robinson from his time in Illinois, noted that they talk a lot about how of the hymenoptera, bees have half the genes that a wasp does, so bees depend greatly on honey for their immune system. Should we, then, be putting honey in with sugar syrup when we feed? Tim thinks no - because of the potential for spreading bacterial disease throughout your operation. Honey can harbor disease organisms. Tim says that May's point is that an exclusive diet of sugar is a problem – bees need some natural nectar in colony. Rick asked how long the detoxification gene takes to turn on: Tim said for that, he'd need to ask May.

All present thanked Tim for a highly informative and entertaining presentation!

October 8 Business Meeting

Brief Business Announcements: Susanne announced that at our November 12 meeting, members will receive ballots for the vote on LCBA's proposed bylaws revisions. To apply for 501C3 status, our bylaws have to incorporate specific required provisions and language. The proposed revisions will be attached to our November newsletter in PDF: the board asks that members please review them as you have time and bring questions to our November meeting – you're also welcome to contact board members with questions (please see the board of directors page under "Home" on our website for contact info). Tomme has researched and written the revisions the law asks of 501 organizations and emphasized that though they sound very formal, they would not change the way our meetings run.

Board elections at our December 10 Holiday Potluck: The Vice President, Secretary, and Mentorship Coordinator positions are open; if the bylaws revision is accepted at the November meeting, there will be two new positions, Education Coordinator and Community Outreach Coordinator. Susanne explained that as our association and projects have grown, the board needs more hands to do the work. Over the past two years, LCBA has: (1) taken on all publicity, registration, management, teaching, & curriculum development for the beginning beekeeping courses; (2) mounted an active program of mentored hands-on workshops for new beekeepers; (3) begun fundraising for association equipment (extractors, projector & screen for courses & community presentations); (4) been invited to give beekeeping talks by community groups; (5) expanded our exhibit at the Southwest Washington Fair & started participating in the Spring Youth Fair; (6) added the Youth Scholarship Program; (7) mounted & developed a website and

Facebook page; and (8) undertaken a sister beekeepers' association relationship with the KiReeco Kenyan beekeepers that involves mentorship & fundraising. If you'd like to pitch in, please contact our nominating committee.

Post meeting announcement: our nominating committee is comprised of Treasurer Rick Battin (rick.battin@gmail.com; 206 915 0466) and Marcelle Stenzig (marcelle.stenzig@gmail.com; 206-841-1146): if you're interested in serving on the board, please contact them. FYI: board members serve strictly as volunteers and receive no compensation.

At present, Dave Gaston is willing to continue as Vice President; Kent Yates is willing to run for Mentorship Coordinator; and Susanne Weil is willing to continue as secretary. If the revised bylaws are adopted, the Membership Coordinator and Treasurer's positions, which have many overlapping duties, will be merged into the Treasurer position (Rick Battin is filling out the remainder of Jon Wade's term, through December 2015). Tomme Trikosko is willing to run for Education Coordinator and Gary Stelzner for Community Outreach Coordinator. Elections will be by ballot at our December 10 meeting. FYI, only members (*i.e.*, those who have paid dues) may vote in LCBA elections.



Winter Feeding & Moisture Control ~ Kevin Reichert

Following announcements, LCBA mentor Kevin Reichert presented the approach that he, Jeanne, and Grant Inmon have used for the last few years to help their bees overwinter. Their approach to winter moisture control and dry feeding has resulted in about a 15% drop in hive losses for them. Your mileage may vary: Kevin noted that as with everything in beekeeping, there's no such thing as a guarantee, but this approach has worked for them. (He had a successful summer too, pulling 400 pounds of honey.)

This presentation relied heavily on visuals –helpful illustrative photos supplied by Jeanne – so looking at their slideshow will be useful in reading what follows: the slideshow is posted on our website's Monthly Meetings page, as well as the Overwintering link on our Mentors/Classes page.

Kevin noted that as the photos show (see above), some of their boxes are tall going into winter, as many as 2 deeps and a super, plus his moisture control box. He doesn't want to kick out bees: they will eat more, true, but survivability tends to be higher with more bees.

When Kevin, Jeanne & Grant prep their apiaries for winter, they have five goals: Insulate; Ventilate; Control Moisture; Feed; and Create a Wind & Moisture Break. Wrapping the hives in roofing paper, as shown in the photo, is optional. Kevin used to be in fire service and asked us to think of a hive as a chimney: if you open the top, all the heat goes out. When he used to come to a structure fire, people

would ask why they cut holes in the roof. They did this to ventilate get smoke and toxins out. During the first few years Kevin got into bees, ten or twelve years ago, he had wet boxes over winter. It's not cold that kills – bees can fan to stay warm – but moisture, which promotes fungus and disease. There's a lot of condensation and heat buildup in hives as the bees fan to keep their cluster around 90+ degrees, so he wants to vent in a controlled way to keep heat in and moisture out. . . .

. . . Toward this goal, over the last few years, Kevin and Grant developed a system: see their "Materials" slide. Tools: 1 inch all-purpose wood screws; tin snips or heavy scissors; a hardware stapler with 5/16 staples; cedar shavings, \$7 to 10 worth; 3/8 inch drill & 3/8 and 5/32 drill bit; 15-pound roofing paper, about \$20 for 100 feet; and gloves and paint of your choice. Kevin likes to use a 1x6 box to get more ventilation; a shallow super works well, too. He gets bulk hardware cloth at Sunbirds. His burlap comes from Walmart. The Farm Store in Chehalis has the best price Kevin's found on cedar shavings. Kevin predrills holes to prevent the wood from splitting. They use roofing paper to wrap the hives. Cedar shavings are not only good for absorbing moisture, but for keeping moths out.

Kevin takes his drill bit and angles holes up at 45, both so bees don't get escape and so moisture doesn't come in. See photo below left, which shows the inside:



Above left, see the drilled holes in the shallow super box, & note that the screen is inserted midway, so that there is space above and below; right, Jeanne putting cedar chips into the box (photos in this section by Jeanne Reichert)

Kevin pre-cuts the screen and staples it into the shallow super using a stapler. He tests the fit by putting the spacer box into the telescoping lid as a guide for measurement, to be sure it will work. On a one by four, you only end up with three and a half inches. They inset the screen midway into the box because they will put candy on top of the frames when they set the box on the hives and want space above it, too, for insertion of the moisture control materials, the burlap and cedar chips. Jeanne layers in burlap, pours in the cedar chips, then tucks in more burlap, like a baby in bed. If you want a little more ventilation, you can step the burlap inward and leave it away from the sides an inch or so to give more ventilation. About the screen: they used a screen door screen the first time, they tried this, but it was nylon and the bees chewed through it. Now they use eighth inch mesh. Also, one could use a one inch spacer on top of the screen.

Next, once the materials are ready, it's time to put them on the bees. Kevin doesn't always smoke his bees, but noted that in the case in the slideshow, his cameraman got stung, so she said, "Fire up

that smoker!” In Kevin’s slides, as noted above, there were many bees, so in some cases, he had to leave supers on: however, Kevin noted that if the supers are empty, you should get them off at this time of the year so that the bees don’t have to keep them warm.

Next up: they give each colony a candy board. Kevin uses smoke to drive bees down, then puts candy in the screened box. Here is his candy board recipe:

Kevin & Jeanne’s Candy Board Recipe:

MIX:

1.5 cups water

5 lbs dry cane sugar

2 Tb. Honey B Healthy

1 tsp “Durvet” vitamins & electrolytes (Farm Store)

Boil to 250 degrees in deep pan

Let it cool

About his candy board recipe, Kevin commented that to let it cool, he puts it in the freezer. If you try to make a candy board on the stove at home, Kevin warns that you must stir constantly or it will boil and caramelize. He also notes that it’s good to score it down the middle, then snap it in half to feed to the bees.

Kevin & Jeanne’s homemade Honey-B-Healthy Recipe:

We have used this for some time: it works great and costs pennies to make.

Ingredients:

5 cups water

2.5 lbs. sugar

1/8 teaspoon lecithin granules [this is a emulsifier]

15 drops spearmint oil

15 drops lemongrass oil

How to Prepare It:

Pre-soak the lecithin granules overnight in a small amount of water.

Dissolve sugar and water as you would for syrup

Remove from heat and add ingredients; stir and let cool

Place in blender and whip for 3 to 4 mins.

About their Honey-B-Healthy recipe, Kevin commented that commercial HBH has sodium laurel sulphate: they don’t use that, yet their bees like it. They put this in their mix and feed not during a nectar flow, but during spring buildup and for fall feeding. Kevin also notes that when you use lecithin granules, you want to presoak the granules overnight, then stir them up well and be sure they dissolve, then put the mix in the blender and whip it. Then put it in the refrigerator. You can make this for pennies, whereas commercial HBH is spendy.



Above, putting the candy board on the frames, then the shallow super with its screen & burlap on top of the candy.

Back to the actual insertion of Kevin's candy board: Kevin noted that it was snapped in half. It had been in the freezer since spring. After putting the candy on top of the frames, Kevin puts his repurposed shallow super, with its 3 inch recess before the screen to give space, on top of candy and frames. Next, he adds a layer of burlap on top of the screen inside the spacer, then cedar shavings, then more burlap. Kevin said of the burlap: "think of it as a towel, more absorption." Kevin also noted that if you don't use that burlap as a barrier beneath the burlap, the bees have a tendency, "little devil creatures that they are," to try to seal up the screen – but they don't with the burlap in place. Peter asked whether there was a notch in the inner cover: Kevin says not usually: they rely on the space provided by the telescoping cover to vent. Once they pull their last supers in September, they add weight back to hives by feeding sugar syrup. Kevin quipped: "I'm retired, so that's what I do: I go round feeding bees all day long." They don't feed sugar boards until the end of November/early December.

Richard Kain asked how often they check that the bees still have a food supply. Kevin said that they check every three weeks or so, choosing a nice day, in the 50s/60s, not raining or windy: but we can wait longer to check if it's a very cold winter: in a very cold winter, the bees will feed less, whereas in a warm winter, they may eat more. Kevin suggested that you don't have to open the hive box: you can just pick it up and feel for weight, then, when it starts feeling light, supplement food. For checking that the chips aren't saturated with moisture, you can do a quick in and out, but again, choose a mild day, and don't leave the box open long so that you don't cool the bees down.

Another way to help the bees is to take duct tape and seal the cracks between the moisture control box and upper hive box (see below). Bees won't seal that top box as they would in July, and sealing the gap cuts the air flow and prevents possible leaching in of moisture.



Above, duct tape seals cracks in the hive set-up; right, a contrast with summer shading: here, Kevin cracked the telescoping lids to help cool the hives during our summer heat wave. Susanne gave Kevin & Jeanne a bad time on Facebook over this, asking whether they were giving them umbrella drinks, too....

Kevin's next step is wrapping the boxes with roofing paper: he does one continuous wrap and staples each corner as he goes along. This creates a wind and moisture break, helping to keep pounding rain off the hive boxes (the threshold is left open with an entrance restrictor so that bees can exit on warmer days to do cleansing flights). Kevin also tips the boxes a bit forward to help moisture drip out. He noted that you can punch in a hole where the notch in the inner cover is. Peter asked if Kevin uses solid bottom boards: Kevin says that he does, having had good luck with these, though others prefer screened bottom boards.

Norm asked what kind of bees Kevin works with; Kevin said Italians. Norm suggested that that's why the queen excluder is a "bee excluder" for his colonies: the bees are bigger, unlike Carniolans. Norm noted that it will be interesting to see which bees more frugal over winter. Gary Gorremans asked whether Kevin provides a water source: Kevin said that he does if there is not an ample water supply nearby. Gary Stelzner noted that he keeps water on his bees all year. Jeanne reminded Kevin to note when he takes the tar paper off: that happens in spring. Norm asked his criteria for removing: Kevin said that's usually when the temperature warms up to the 50s/60s and hard pounding rain is done. Kevin noted that one thing to be careful of is the box location: if the box is in a sunny location, the bees will fly from a black-wrapped box earlier.

Rick asked where on the hive box the hole we can see in the roofing paper is located: Kevin said it's below the handle so they do not get stung when they handle the box. They like to provide an extra entry hole in supers so that the bees don't have to crawl as far during a honey flow. Kevin concluded with a note on moving bees, which he does to place them in optimal locations for winter. He straps them down the night before moving and puts screens over the entrances, taps the screens in with nails, and the box is sealed. Also, you can stuff towels in hive entrances for transport.

Announcement re: our November 12 Meeting: Steve Howard commented that Kevin's talk gives the kinds of hand-on application help we need. Norm noted our November 12 monthly meeting will be members presenting winter projects: things you can do this winter to prepare for a great beekeeping year in 2015. Rick Battin will demonstrate his innovative propolis/alcohol stain for hive boxes, a way to weather-proof boxes that also promotes bee health; Martin Stenzig will show how he builds hive boxes using dovetails; Martin will also show the adaptations he made to Kevin Reichert's vacuum nuc box design for swarm and colony captures; for those of you whose backs complain lifting those hive boxes, Richard Kain will show his cheap, quick & easy method to make those lifts easier. Membership Coordinator Tomme Trikosko will present a fix people can implement now – her homemade, non-spendy mouse guards. Norm asked anyone who has some cool ideas and techniques to let a board member know for November's or another upcoming meeting. For tonight, as we were sated with questions and answers, we adjourned ☺

Lauri Miller's Candy Board Method: for those leery of boiling & pouring sugar syrup (thanks to Jan Opsitnick for passing this along):

From Miller Compound, accessed on Beesource.com:

<http://www.beesource.com/forums/showthread.php?290641-My-recipe-method-for-sugar-blocks>

Ingredients:

25 lbs cane sugar

1 Qt Cider Vinegar

Sprinkle of electrolytes

(Durvet works – see above)

½ Tb Citric Acid

(canning department)

Splash of Honey B Healthy

Method:

Mix 1/3 of sugar + 1/3 vinegar at a time in 5 gallon bucket with paint paddle mixer.

Mix should feel soft, not wet or sticky. If you try to mix it all at once, moisture will be unevenly distributed.

Use a shallow aluminum baking sheet or pan – be sure bricks aren't taller than frame extension under inner cover – fill

Roll out & lightly compress in pan.

Be sure to cut sugar into block sizes BEFORE it hardens!

Takes about 2 weeks of sitting in unheated greenhouse to harden...OR

Will set up & harden in 1 – 2 days in food dehydrator at about 130 degrees..... OR

You can let it sit several hours in your oven on low temperature.

Bees in the News

Thanks to the good folks at American Bee Journal and Bee Culture magazines, as well as the Pollinator Stewardship Council, for sending news this month.

U.S. EPA will decide how to regulate neonicotinoids – in 2016 or 2017 (Bee Culture, 23 Oct 2014):

Jim Jones, who heads the EPA's chemical safety and pollution prevention program as well as the Office of Pesticide Programs, has announced that EPA will decide on how neonicotinoids should be regulated sometime in 2016 or 2017. The agency expedited analysis of data from its extended research on how neonics affect honey bee colonies: originally slated for 2016-17, this will begin in 2015. Jones noted, "We are frustrated with the pace, but at the end of the day we need to recognize the science."

Among issues EPA is investigating: how much treating crops with neonicotinoids actually helps crop yield and survival. Earlier in October, a study showed that neonics "provide little added benefits" to soybeans, though it showed that corn was aided somewhat more. Meanwhile, the debate over the extent to which neonics, as opposed to (or in combination with) stressors like habitat loss, forage decline, and depredations by the Varroa mite, rages on. Multiple studies have suggested that neonics affect honey bees' immune systems and memory capacity.

EPA is also working on coordinating services provided by contractors to avoid exposing foraging bees to pesticides, particularly in the almond industry via a "pest control schedule" set up in concert with commercial beekeepers. Among the states working with the agency on pollinator protection plans are Colorado, Florida, and Mississippi.

To read more, visit: <http://live.ezine.com/ezine/archives/1636/1636-2014.10.22.16.32.archive.html>

H.R. 5447 misses the target: 19 Sept, 2014, Pollinator News

H.R. 5447 (<http://www.gpo.gov/fdsys/pkg/BILLS-113hr5447ih/pdf/BILLS-113hr5447ih.pdf>) - now on the docket in the House of Representatives, introduced by Rep. Austin Scott – would expedite registration of pesticides to improve pollinator bee health," focusing on Varroa mites. HR 5447 would task USDA with researching "scope and threat to the health of managed pollinator bees from"—pathological factors, other arthropod pests, diseases, environmental factors, "including habitat, forage, beekeeper practices and husbandry, and nutritional needs of managed pollinators."

However, the Pollinator Stewardship Council opposes "fast-tracking" any new Varroa-control products, given potential impact on the broader ecosystem. "The Pollinator Stewardship Council urges Congress to aggressively fund honey bee mite control research through NIFA, ARS, and the National Science Foundation." Further, PSC is concerned that "H.R. 5447 did not specifically direct and fund EPA to investigate the effects of pesticides on bee health," given that recent research suggesting that chronic, sublethal doses of neonicotinoids in field-realistic doses "compromise the immune system of bees." The synergistic effects of these substances must also be examined.

Research Headlines from the Pollinator Stewardship Council:

FYI: Your scribe could not get sustained Internet access to read these links, so posts them here for those interested to follow:

- a. Neonicotinoids Let Virus Thrive in Bees:
<http://www.rsc.org/chemistryworld/2013/10/neonicotinoids-let-virus-thrive-bees-colony-collapse-disorder>

Neonicotinoid clothianidin adversely affects insect immunity and promotes replication of a viral pathogen in honey bees <http://www.pnas.org/content/early/2013/10/18/131492311>

b. Pesticide Mixtures have Damaging Effects on Bees:

<http://extension.psu.edu/pests/ipm/news/2013/pesticide-mixtures-have-damaging-affects-on-bees>

c.) Effects of insect growth regulators on honey bees and non-Apis bees. A review

<http://www.apidologie.org/articles/apido/pdf/2001/06/tasei.pdf>

d. Bees Exposed to Fungicide More Vulnerable to Nosema Parasite:

<http://www.ars.usda.gov/is/pr/2013/130724.htm>

e. Pesticides, fungicides harming bee colonies, UM study says:

http://articles.baltimoresun.com/2013-07-26/features/bs-md-bee-death-study-20130726_1_pollen-um-study-nosema

f. A multi-year field study evaluating the environmental fate and agronomic effects of insecticide mixtures:

http://pollinatorstewardship.org/wp-content/uploads/2014/09/Whiting-et-al_2014_A-multi-year-field-study-evaluating-the-environmental-fate-and-agronomic-effects-of-insecticide-mixtures_includes-clothianidin_SciTotEnv.pdf

g. Pesticide residues in honeybees, honey and bee pollen by LC-MS/MS screening: Reported death incidents in honeybees <http://www.ncbi.nlm.nih.gov/pubmed/24747255>

h. California Bill for Neonicotinoid Review (AB 1789) passes, but review deadline extended from 2015 to 2018. Pollinator Stewardship Council

Announcements

Potluck to Celebrate the Life of Bud (Ken) Walker, Nov 16: One of LCBA's original members, Bud Walker, passed away on August 22. Those who knew him are welcome to join his family and friends at a potluck celebration of his life at the Chehalis Moose Lodge, 1400 Grand Ave, on November 16, 1 p.m. "till the sun sets." Those attending are asked to bring a potluck dish to share, stories, and pictures if you have them. Questions: call Bev at 253 297 3551.

ORSBA Conference in Seaside, Oregon, November 6-8: WSBA isn't having a conference this fall, but encourages beekeepers to visit the Oregon State Beekeepers' Association meeting: for details, please see Upcoming Events, above.

November Western Apicultural Society Newsletter: 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.

November WSBA Newsletter: Pick up your copy online at www.wasba.org: click on "Newsletters." *Special announcement – there are two stories about LBCA events in this month's WSBA newsletter, including photos from the Fair.*

That's all for this month - take care, & bee happy! ~~ Susanne Weil, LCBA Secretary
(Susanne.beekeeper@gmail.com; 360 880 8130)