



# The Buzzz

The Monthly Newsletter of the Gilroy Beekeepers Association

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## President's Message

by Dave Stocks

I want to begin by thanking Roark Dieters for his hard work in organizing the GBA booth at the Santa Cruz County Fair. A big thank you also to all of those who helped set up the booth and staffed it during the fair's run. During my shift, I was amazed at the number and diversity of people who wanted to talk about bees.

I also want to thank Nick Peters in advance for stepping up and putting a booth together at the San Benito County Fair. For several reasons it seemed we weren't going to be able to participate this year. Nick took it upon himself to make sure we were represented.

October is officer election month. Although all board positions have only one candidate, we still need to make it official. We also need to accept the latest addition of our by-laws. Although not as fun as talking about bees, they are both things we need to do. We look forward to seeing all the members at the meeting!

As we begin to look forward to 2018, I would like to ask all the members what they want from the Association in the coming year. This past year we tried to have a more hands on approach to beekeeping. We've made bottom boards, had a swarm school, and held two of our meeting in a beeyard where we could see firsthand beekeeping related task. If we're on the right track, please let us know. If not, please share your ideas.

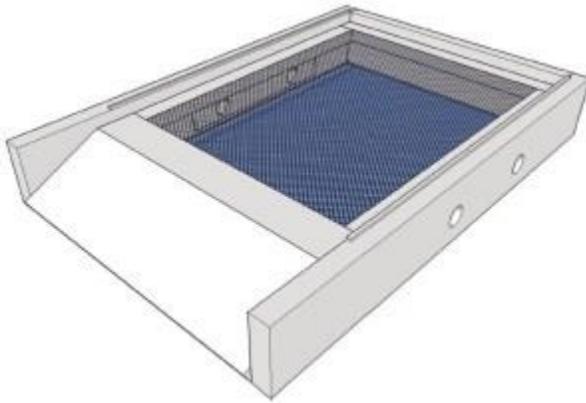
# News from the Bee World

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

## What's on your bottom board?

POSTED ON [AUGUST 4, 2017](#) BY [WERNER GRUNDLINGH](#)

As a new beekeeper you often wonder what the bees are doing. Are they building comb? Are they bringing in honey? Is the queen laying? Are they hungry and need food? So many questions. The only way to truly see — first-hand — what they're up to is to open up the hive and inspect. However, a second-hand view on the hive's activity is often provided through what you find on the bottom board. What do you have on your bottom board?



A common perception is that bees tend to be clean insects — they remove the dead or other foreign material from the hive by flying into your neighbour's yard and dumping it. They even clean my hive tool when I leave it on the inner cover, but they can be equally dirty at times when you inspect your bottom board. Here are three samples from three adjacent hives in my back yard:



It is clear that both A and B have been quite active on the left side of the hive, while C more so on the right. Perhaps this would indicate a favourable side due to the way the sun heats the hives during the day.

Here are some highlights from what a bottom board inspection could yield:



1. These cornflake-like shells are the wax cappings placed over larvae just after a week of development. Once the bees hatch, these cappings are chewed away in order for the bee to emerge.
2. The glistening shine on the bottom board could indicate a lack of airflow, resulting in a moisture build-up. Perhaps it's time to give them some more air.
3. Previous inspections may have involved scraping off propolis between the frames in order to restore the proper bee space between frames pushed together, or even from cleaning up the frame rests. Or, this could be large wax pieces that fell off after damaging the comb.
4. This little *arachnid* with its eight legs give most beekeepers the creeps — [Varroa Destructor](#). If there's too many (yes, this is vague) of these on your bottom board, it's time to launch an assault.
5. Thin platelets of clear wax litter the bottom board during the time when the colony starts ramping up construction of the comb. These platelets are shed from the abdomen of the worker

bees through extrusion; here's a close-up view ([image source](#)):



6. When travelling with luggage, airlines somehow loses track of where your belongings went. Bees experience the same travelling woes. These pollen packs allows one to identify the type of forage the bees are favouring at that particular time in season. What colours do you see? Which flowers do you think they come from? Here's an example of [a pollen colour identification chart for a region in Europe](#).
7. The bees' knees... literally.



1. Frosted flakes from capped brood.
2. Crystals from sugar syrup that was not consumed during a feeding session. Bees *drink* the syrup, but have no effective way of consuming — *eating* — undissolved sugar crystals. They tend to traipse around it, spreading it around and mostly picking it up with their mouth parts and removing it from the hive.
3. Unclaimed luggage on the bottom board carousel.
4. Another knee? Replacements must be cheap in this colony.

Examining the bottom board is like palm reading...? Not really. It gives you some insight into what's happening without opening up the hive. You still have to investigate to truly see what the critters are up to.

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## Plant color, fragrance attracts pollinators

Study demonstrates color-fragrance integration for an entire plant community

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ITHACA, N.Y. — Who knew that it's possible to predict the fragrance of a flower by looking at its color?

This is true for many of the 41 insect-pollinated plant species growing in a Phrygana scrubland habitat on the Greek island of Lesbos. An international research team [published their findings Sept. 4 in \*Nature Ecology & Evolution\*](#).

The team investigated the way these plants communicate with a diverse assemblage of insect pollinators in the same community. They discovered a link between the color of the flowers and their fragrance, such that the two characteristics can be regarded as one integrated signal.

This is the first study to demonstrate color-fragrance integration for an entire plant community.

“This result shocked us because we collected and analyzed the data in a blind and unbiased way, and because previous studies had not even considered the possibility of scent-color coordination,” said Robert Raguso, professor of neurobiology and behavior, who participated in the study.

The flowers use coordinated signals of color and fragrance to attract insects, which acquire pollen during floral visits and ensure pollination of the plants. In turn, the insects benefit by acquiring nectar and pollen as food.

By connecting visual and olfactory channels, the flowers render their signal stronger and more stable under the intense environmental conditions of the Aegean. On windy days, fragrances may dissipate but colors will remain viable floral attractants, whereas fragrance could be the primary attractant when flowers are concealed by the dense vegetation of the Phrygana scrublands.

According to Raguso, it is also likely that many insects learn to associate nectar or pollen meals with specific combinations of color and fragrance.

“Bees are the dominant pollinators in our study site, and they have trichromatic color vision – they see UV, blue, green,” Raguso said. “But butterflies and beetles have divergent visual systems, and can also

see in red. We designed our study to account for these different forms of perception and selective pressure.”

The study provides a new direction for research on the interactions between plant signals and animal senses.

“Progress in our field has been hampered by the ways that we study plant-pollinator interactions – focusing only on one spatial scale or one sensory channel,” Raguso said. “With this study, we took a step closer to what I suspect is the reality for most pollinators, which seamlessly integrate across sensory channels as they approach a food item, just as we do.”

The researchers estimate the study will lower the barriers to reaching a more holistic understanding of pollination, by providing a blueprint for how to perform unbiased sensory-ecological analyses in any plant-pollinator community.

—Cornell University

# This month in the Beeyard

By Serge Labesque

## Mid-Fall Checklist

### Colony:

- Queenright
- Queen reducing production of eggs

### Population size:

- Sufficient to cover all brood plus three additional frames (minimum recommended)

### Colony health:

- No sign of disease
- Parasites under control by bees

### Brood nest:

- Minimum 2 frames of brood, preferably 4 (these will be the “winter bees”.)
- Low open-to-sealed brood ratio (i.e. mostly sealed brood; brood nest shrinking as the queen is reducing her egg production.)

### Stores:

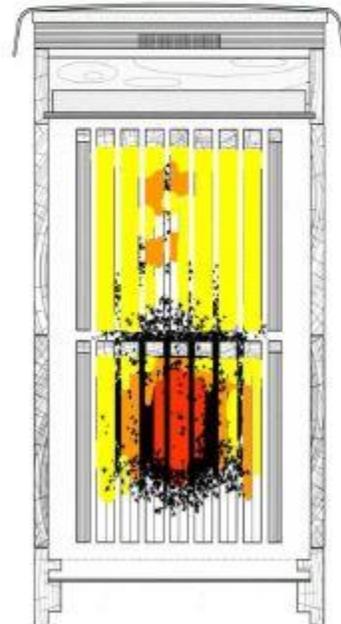
- Adequate for colony size (from 10 lb. of honey minimum for a very small nuc to 35 lb. for a mature colony with good population)
- Bee bread in and around nest
- Areas with bee bread in center of upper store chamber (one to two frames with areas of empty cells or uncapped honey in the center of the stores is desirable)

### Hive organization:

- Compact nest and stores
- Brood nest centered in lower part of brood chamber
- Brood nest surrounded by stores
- Stores above brood nest
- “Chimney” in the center of stores, with worker-size cells
- Empty comb below brood nest is okay.
- Empty or partly empty comb above stores is okay (not shown).
- Reduced number of frames between follower boards

### Hive:

- Upper ventilation slot
- Reduced entrance
- Mouse guard in place
- Top secured against wind
- Hive top feeder in place, filled with insulating material
- Hive configuration to be tall and narrow rather than short and squat
- Protected from cold gusty winds
- Should receive at least two hours of sunlight on sunny winter days



## How much honey should we leave in our hives for winter?

Much of our hive work tends to facilitate and increase our bees' production of honey. Therefore we can rightfully expect to harvest some of it, at least when the weather, colony health and apiary location among others factors, are also favorable. So, the question is: What is our equitable share of this bounty? Or, to rephrase it from the vantage point of the bees: *How much honey must we leave in the hives for them?*

As I inspect the brood chambers of my hives in mid-fall, I consider the volume of brood, which then is mostly sealed, because the queens are reducing their egg production. Since the brood nests project the size of the future winter clusters, they are good indications of how much honey needs to be left in each individual hive at this time of year. In my Glen Ellen, California apiaries, this may be anywhere between ten and forty pounds. Indeed, whereas a small, nuc-size colony will be safe on well-organized combs that hold as little as ten to fifteen pounds of honey, very large colonies that still nourish a lot of open brood might need forty pounds. For example, I've learned over the year that, in my location, thirty-five pounds of honey is an adequate amount for a mature colony that carries a decent-size brood nest of about four deep Langstroth frames of mostly sealed brood. In other locales or under conditions that differ this number might have to be shifted up or down, possibly quite a bit. Only pertinent experience can tell by how much. Knowing that a deep Langstroth frame of honey holds approximately five pounds of honey and a medium frame three pounds, it's easy to arrive at an estimate of the amount of honey the hives contain without weighing anything. For example, seven deep frames of honey or their equivalent in comb surface area hold about thirty-five pounds of honey. This is a sufficient amount for this colony as long as it will be accessible by the cluster. The honey does not need to be a solid mass; it may be spread over many frames and placed on combs that also contain brood or bee bread. Regardless, if a comb contains bee bread or brood along with honey, it is needed in the brood chamber and it is not harvestable.

Any honey that is in excess of what the colony will need is surplus honey, and it may be harvested. I might even say that it *should* be harvested, as a large thermal mass of superfluous stores may harm the colony during its effort to emerge from winter. So, except for adding a little safety margin, there is no good reason to leave much more honey in the hives than will be necessary. It's important to remember that the configuration of the hives and of their contents matters greatly: The bees should be in direct contact with their stores when they are forced by cold weather to form tight clusters.

Based on these observations, here is a rule of thumb that is easy to implement during the preparation of the colonies for winter: I leave from one-and-a-half to two frames of honey for every frame of brood that is found in the hives in early to mid-fall, during the production of the winter bees. This is assuming that all the frames in the hive are of the same size, or that an adjustment is made to compensate for different frame dimensions. To apply the same approach in your apiaries, you may want to adjust this, in order to take into account your past experience and various conditions that affect your hives, such as your local climate, whether the queen is still actively producing eggs or not, etc.

When we manage the contents of our hives responsibly we give our colonies a good chance of living well between honey flows and from fall to spring. And when it comes to honey, the bees are to be served first. As I see it, the skill in harvesting it is to figure out how much the bees need and to harvest surplus honey and only surplus honey.

## **October in the apiaries**

The beekeeping season is winding down. While some colonies have already completed their preparations for winter, others are still at it, topping off their stores and raising winter bees. On sunny fall days, there is still a lot of activity in the flight paths and at the entrances of the hives. Most often, these are forager bees flying in and out of the hives to gather the last nectar and pollen that is offered by the meager fall flow. However, robbing is also a threat at this time of year. Soon, all these aging summer bees will have disappeared. The future of the colonies will then depend on the young that are inside the nests, the winter bees.

Before the end of the month all the hives will have received a little more of the beekeeper's attention to secure them against the weather and various predators. Possibly, we will also harvest any surplus honey. If so, we will preferably take the dark honeydew honey and leave the lighter honey for the bees. Here are two reasons for doing this: Bees that overwinter on honeydew honey frequently have dysentery, as they cannot digest it very well; to us, honeydew honey is very tasty. The entrances will have been adjusted to reduce draft and to prevent robber bees and yellowjackets from becoming a problem. It will be time to install mouse guards, if they are not already in place. Actually it's interesting to see how some colonies amass propolis at the hive entrances. In effect they are spontaneously reducing the size of the openings and warding off predators. It's a lot of hard work that we can easily spare our bees by using our entrance reducers judiciously.

The queens have diminished or stopped their production of eggs and most of the brood is sealed inside the shrinking brood nests. We verify one last time that no health problems have developed since our previous inspections, and we address any issue that we may encounter without delay. The contents of the hives have become quite compact, with stores taking over the cells freed up by emerging brood. This is a good opportunity for us to remove old or misshapen combs, an important task that helps keep the bees healthy and that facilitates frame manipulations. As these frames are removed, the follower boards are brought closer to the remaining frames. This results in relatively tall and narrow hive configurations and in increased lateral air gaps, all of which provide for better overwintering conditions than squat hives. I place dry lavender in the upper parts of the hives to serve as moisture-absorbing insulation, and I verify that the upper ventilation slots are open.

Before we harvest any honey, we make sure that the bees will be left with adequate amounts of stores. Just as important as the quantity of honey and bee bread we must leave in the hives is their placement relative to the brood nests and future winter clusters. I give particular attention to the center of the mass of stores that the bees have packed above the brood nests, mainly to verify that I have not inadvertently compromised the bees' natural set-up during earlier visits: There, I should find one or two combs with patches of bee bread typically covered by a glaze of honey. Most of these combs should be

comprised of worker-size cells. These two points are important because the colonies will establish and grow their new brood nests in these areas, in January and February. We also frequently find some uncapped honey there. This will actually be beneficial to the bees as they'll be able to consume it easily, without struggling to remove cold hard cappings. Once emptied, these cells will then be readied to cradle the new generation. Replacing these combs and their special content with solid honey could penalize the colonies at the end of winter, when they need to develop. Normally, these conditions occur spontaneously in the hives, but, as beekeepers manage their contents during the summer, they sometimes upset the work done by the bees. The list of the details that deserve beekeeper attention to complete the preparation of a hive for winter is not unlike an airplane preflight checklist. Neglecting any one step, no matter how trivial it may seem, can compromise the future of the colony.

Having performed these tasks, we will not disturb the colonies for a few months. Yet, we will regularly walk through the apiaries during the cold season to make sure that the bees are alright.

At this point, all that's left to do is to place a clean monitoring tray under the screen of the hive bottoms, secure the hive tops against the wind, and hope for the best.

### **In summary, this month:**

- Assess colonies, their health, queens, brood nests and stores. Verify that they are queenright.
- Examine how the bees have organized their brood chambers and how the stores are packed around them. Ensure that there is some comb with empty cells, uncapped honey and pollen centered above the brood nests, surrounded by honey.
- Combine or requeen hives that are not performing satisfactorily (early in the month). Better yet, reduce their volume to strengthen them.
- Adjust the volume of the hives to match individual colony strength and needs.
- Remove old and misshapen combs (follower boards greatly facilitate this).
- Early in the month, configure hives for the consolidation of honey stores (Scratching the cappings of patches of poorly located sealed honey helps.)
- Harvest, extract and bottle only surplus honey.
- Render wax from discarded frames and from cappings
- Return wet frames and cappings to the bees for cleaning (by placing them above hive top feeders or inner covers).
- Watch out for yellow jackets and any instances of robbing. Reduce the entrances of the hives that are threatened.
- Ensure that the hives are adequately ventilated.
- Install mouse guards and reduce hive entrances.
- Routinely clean and torch tools and equipment.
- Store unused equipment to protect it from wax moth or mouse damage, and from the weather.
- Secure the hive tops against high winds.

## Classes and Conferences

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

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