



# EJ'S NEWS

EJ is East Jefferson Beekeepers Association's Mascot.

Volume 11

Gloria Neal, Editor

March 2022

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East Jefferson Beekeepers'  
Meeting  
**Chimacum Grange**  
9572 Rhody Drive  
In Chimacum  
.....

**Saturday, March 12th**

Board meeting 9:30 a.m.  
Club meeting-10:00 a.m.  
**Classes 11:00 a.m.**  
.....

**Saturday, March 26<sup>th</sup>**

**Classes only this day!**

**10:00 a.m.**

## THE PREZ SEZ

Dear Fellow Beekeepers,

As we gradually warm up after the unexpected recent cold snap, our bees should be getting ready to begin their spring build-up. To me this is the most exciting time of the year as we determine how well our colonies made it through the winter. It's also time order new bees and/or replacement queens.

It's important that you register your hives with the Washington State Department of Agriculture. For most of you the cost is only 5 dollars. Many beekeepers avoid this, but it is important for several reasons. One of the best is funding bee research projects with Washington State University. (The form is on this website: <https://agr.wa.gov/departments/insects-pests-and-weeds/insects/apiary-pollinators/apiary-reg-and-laws>.)

Our new venue at the Chimacum Grange is working well and we'll be holding meetings and classes there for the foreseeable future. In accordance with the updated covid guidance, masks will no longer be required at our meetings. They are, however, recommended if you have other medical issues or if you still feel that you just want to wear a mask.

*Dave*

The focus for the **March 12** general meeting will be

- Good nutrition for honey bees
- How to know when a hive needs a new queen
- How to recognize a "laying worker" colony
- Demonstration: making a simple, effective hanging wasp trap

**Classes will start at 11:00 after meeting.**

## 2022 EXECUTIVE BOARD

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Gloria Neal

# LETTER FROM THE EDITOR

Hello EJ Beekeepers:

The sun is out and the “girls” are flying! Spring looks like it’s just around the corner.

Yes, I know, we just had another blast of snow a few days ago, but now it doesn’t stay around as long. Can we officially call it “spring fever” after March 21<sup>st</sup>?

If you’re new to the club and would like to read some excellent articles in back issues, you can find them on the club website: [ejbees.org](http://ejbees.org).

Please remember the **TWO DIFFERENT STARTING TIMES** for Beginning Beekeeping Classes. On the General Meeting weeks, (the second Saturday of the month) class starts at **11 a.m.** (after the general meeting.) and runs to about 1 p.m.

Remember, on the fourth Saturday of the month, there is no club meeting, so class begins at **10 a.m.** and runs until about noon.

For those new beekeepers who are interested in having a mentor for their first year, the club will be assigning mentors towards the end of classes, before your honey bees come in.

Be sure to get your bee boxes and supplies before your bees arrive. They will need to be painted and set up in their permanent location, and of course get your bees ordered early. If you are wanting to replace queens, they need to be ordered now.

Hope to see you at our March meeting!

*That’s the buzz for March.*

Gloria 360-301-1850 [eastjeffbees@gmail.com](mailto:eastjeffbees@gmail.com)

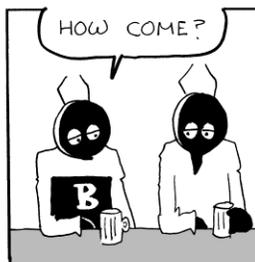
or [gloria@tarboovalleywoodenware.com](mailto:gloria@tarboovalleywoodenware.com)

#### BEEZWAX By John Martin

VETERINARIANS CAN BE HARD TO WORK FOR!



HOW COME?



THEY LIKE TO BARK OUT ORDERS!



BEESWAX © 2022 JOHN MARTIN

## **It's Not Too Late To Join!**

### East Jefferson Beekeepers Association: Beginning Beekeeping Course

**Date:** Although the in-person classes began February 12, 2022, you can make up the first two sessions (i.e., Classes 1 through 4) by visiting the ONLINE version of the classes, and then join us for the rest of the in-person sessions every other Saturday: March 12, March 26, and April 9, plus a hands-on apiary visit during the weekend of April 23-24. For all participants, corresponding *online* course is available for study and review, or for use as the full course for remote learning. Once posted, each class remains online for the full year.

**Location:** *in person* at Chimacum Grange, 9572 Rhody Dr. (Hwy 19), and *online* at the [ejbees.com](http://ejbees.com) blog site. Online presentations are password-protected.

**Time:** On March 12, and April 9, the class runs from 11 a.m. to about 1 p.m., following the bee club's monthly meeting. The session on March 26 start at 10 a.m. and go until about noon.

**Contact:** Rich Thomas 360 379-2621 or [richandsusi@ejbees.com](mailto:richandsusi@ejbees.com); to read detailed information please visit [ejbees.com](http://ejbees.com).

**Cost:** Course is FREE to EJBees members, and you must be a member to participate. EJBees membership is \$24/year for an individual or \$36 for a family, and there are many member-benefits.

Join the club and sign up for the **Beginning Beekeeping** course in person at the meeting or via US Post. Send your check made out to "EJBA" to PO Box 1984, Port Townsend, WA 98368-8011, along with your name, street address, email address, and phone number.

**All ages Welcome!**

**As of March 12, masks are no longer required indoors.**

### **EAST JEFFERSON BEEKEEPING OFFERS EQUIPMENT LOAN (Another benefit to being an EJBees member)**

Unless your hobby is rock hunting in your backyard, or stargazing with the naked eye, there are certain costs involved. Did you know EJBA has an extractor available for loan? Save yourself some money and aggravation.

Please email Catherine at [cs@ejbees.com](mailto:cs@ejbees.com)

### **WHAT KIND OF POLLEN ARE YOUR BEES BRINGING HOME?**

My thanks to Tony Goldenberg for sending me this link for a pollen chart

<https://www.eversweetapiaries.com/products/summer-nectar-pollen-chart/>

## TIPS & TRICKS from Susi



March 2022: a monthly offering of useful hints for beekeepers

- When you put frames into service, write the month and year on the top of the frame.
- Fumigate all dead-out hives with concentrated acetic acid (see the article, **Oh No! Nosema!** In this issue).
- Make first speedy hive inspection (just a peek) on a warm day in March to check for any brood and to clean bottom board thoroughly, and feed dry sugar if it is needed.

If you would like to submit your own tip or trick, please send it to [richandsusi@ejbees.com](mailto:richandsusi@ejbees.com).

East Jefferson Beekeepers' Association

## Favorite Links, ETC.

Here is a comprehensive study done seven years ago about the effectiveness of various varroa treatments. This video was recommended on Randy Oliver's Scientific Beekeeping site. Many of the treatments studied were shown to be ineffective in controlling varroa mites.

Rich

<https://www.youtube.com/watch?v=4bm3Y4t1NwQ>

A comprehensive description of the evolution of honey bees. Includes the divergence of our *Apis mellifera* species from the various Asian honeybee species.

Rich

<https://bibba.com/honeybee-origins/>

## Register Your Apiary----You'll Be Glad You Did!

Remember to register all honey bee hives by April 1 with Washington State Department of Agriculture (WSDA). Both both backyard and commercial beekeepers need to register hives annually.

All money collected helps fund honey bee research projects with Washington State University and other entities. Registered beekeepers in compliance with the law are also protected from civil liability connected to keeping honey bees, and *do not pay sales tax on purchase of bees*.

[Apiary registration forms](#) can be submitted by mail to: WSDA, PO Box 42591, Olympia, WA 98504-2560. Or call at 360-902-2070. If you have other questions regarding registering hives, visit the [apiary registration webpage](#) or email [PestProgram@agr.wa.gov](mailto:PestProgram@agr.wa.gov).



## Special Prize Giveaway

President Dave Morris has a woodenware **BEE HIVE** to give away now that he has replaced it with an insulated plastic system.

He has generously decided to present it to a *new beekeeper* who is a current, paid member of EJBees, who could really use a bit of help to get equipped for starting an apiary this year.

So—we're having a very *special* drawing at the March meeting. If you are interested in participating and feel that you qualify as a candidate for receiving this prize, please come to the EJBees general meeting on March 12 at the Chimacum Grange (10 a.m.) and be sure to sign up for the drawing when you come in. The winner will be selected at the end of the meeting before the beekeeping class begins.

If you have any questions, please contact EJBees' secretary, Susi Thomas, at [richandsusi@ejbees.com](mailto:richandsusi@ejbees.com).

## VOLUNTEER SWARM RESPONDERS AND SWARM RECIPIENTS NEEDED

**SWARM RESPONDERS:** EJBees members with at least one year of beekeeping experience who have handled swarms successfully in the past are invited to volunteer as a EJBees swarm responder. Must have your own equipment. To apply, provide name, email, phone, and the location or area that you can serve. Send to Tony Weller: [tony4bees@ejbees.com](mailto:tony4bees@ejbees.com).

**SWARM RECIPIENTS:** EJBees members who want to receive a swarm must have the capacity to receive it in its raw state—that is, collected in a suitable box, and to house it appropriately upon receipt. The swarm responder is always first on the recipient list, and may pass swarms on to other recipients. To apply, provide name, email, phone, and your location. Send to Tony Weller: [tony4bees@ejbees.com](mailto:tony4bees@ejbees.com).

Please find detailed information on the blog site in the section, "Report a Swarm" at [ejbees.com/swarm/](http://ejbees.com/swarm/).

*NOTE: This is all volunteer work, a service to the community. There is no fee for responding, no reimbursement for expenses, and no sales of collected swarms. Swarm responders use their own transportation and equipment.*

## IN THE GARDEN



The thermometer reads 57° up here on the hill and the bees are afoot. Or a-wing, as it were. Seven hives surviving out of the 12 that my apiary sported in September. I'm still scratching my head trying to put together clues for what happened. While pathological detective work is in my head's virtual hopper, I peruse nurseries to see what's in full bloom and what is at the end of its blooming period. Last summer I focused on rooting pussy willow that will be planted soon in the damp gully NW of my hives. Pussy willow (*Salix discolor*) has been blooming for two weeks – always a delight to see any sign of spring when the thermometer reads in the 20s. Ironweed seeds are at the end of their cold stratification and ready for sowing. Ironweed (*Verbena alternifolia*) is a wildflower native to North Carolina, so the jury is out as to how it will do here in Western Washington. My introduction to ironweed – also called wingstem – came to me by way of Kamon Reynolds, Tennessee beekeeper and frequent YouTuber. Ironweed has a reputation for self-sowing in warmer parts of the country, so I'll be keeping a close watch on how quickly it spreads.

And what's this little darling in bloom at my favorite nursery? Manzanita!

I've never grown manzanita, but there's always a first time. Manzanita, a relative of kinnikinnick (*Arctostaphylos uva-ursi*) blooms March to June with fruit ripening July to August. Manzanita, named by early Spanish explorers, meaning *little apple*, is drought resistant once established. Manzanita flowers require buzz pollination (sonication) so honey bees are able to collect nectar by cutting through the tubular bloom.

All of this comes out of a beekeeper's quest for pollen and nectar for her bees when pollen and nectar are scarce. We know nectar provides carbohydrates for the bees, but what is pollen's role? We know bees collect pollen and store it as food but what nutrients does it provide, and for whom? For the brood? For the workers? For the queen? For those free-loading drones (just kidding – we know drones are essential to the hive) who wander around asking the house bees: You gonna finish that?

Nurse bees consume pollen, which enables them to produce royal jelly which is essential for brood. Increasing the hive's population is dependent, therefore, on available pollen.

According to University of Florida's Extension Lab: *Pollen is the most nutritionally variable food source that honey bees use and typically is composed of the following: water (7%–16%); crude protein (6%–30%); ether extract (1%–14%); carbohydrates, including reducing sugars (19%–41%), nonreducing sugars (0%–9%), and starch (0%–11%); lipids (5%); ash (1%–6%); and unknown (22%–36%). Pollen from different floral sources has different quantities of each component: all pollens are NOT equally nutritious to the bees.*

How much pollen is enough? Do I need to supplement with pollen patties or powder? As always I generate more questions than answers. But what's the fun if you know the answer to everything? Stay tuned for more information on nutrition in April's newsletter.

Catherine

[https://www.bbg.org/news/what\\_are\\_pussy\\_willows\\_anyway](https://www.bbg.org/news/what_are_pussy_willows_anyway)

<https://plants.ces.ncsu.edu/plants/verbena-alternifolia/>

<https://plants.ces.ncsu.edu/plants/verbena-alternifolia/>

<https://edis.ifas.ufl.edu/publication/IN868>

<https://www.honeybeesuite.com/pollen-patties-when-and-why/>

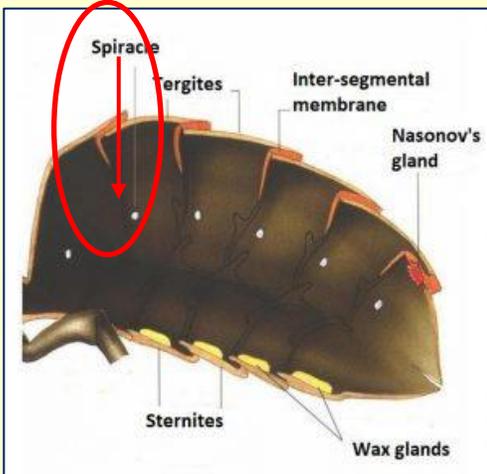
<https://www.pacifichorticulture.org/articles/arctostaphylos-for-pacific-northwest-gardens/>



# BEE BIOLOGY

## How Honey Bees Breathe

Honey bees have no lungs or diaphragm, nor do they bring air in and out through the mouth...and there is no “nose” at all. Instead, air is exchanged through a set of ten pairs of tiny “portholes” called *spiracles* – three pairs on the thorax and seven the abdomen. A bee contracts the abdomen to expel carbon dioxide through the spiracles, and as the abdomen relaxes, oxygen-rich fresh air is pulled in through the same openings.



Six spiracles run down each side of the abdomen as shown; another pair is tucked within the sting chamber (Image: abejas.org)

Fresh air flows into the trunk of the trachea and continues through a system of branching tracheal tubes that connect to thin-walled sections that form air sacs (*atria*) for temporary storage. From these atria, it travels through branches of smaller dimensions (*tracheoles*) to carry oxygen to all parts of the body. There are various sizes of these sacs that serve the head, thorax, abdomen, and legs.

Changing the air pressure in the atria helps to move oxygen to wherever it is needed, and waves of muscle contractions from top to bottom or from front to back of the abdomen control the flow of air in and out of the sacs. To maintain the necessary air pressure in this system, every spiracle has a valve that shuts tightly between “breaths” of air in and out, preventing backflow.

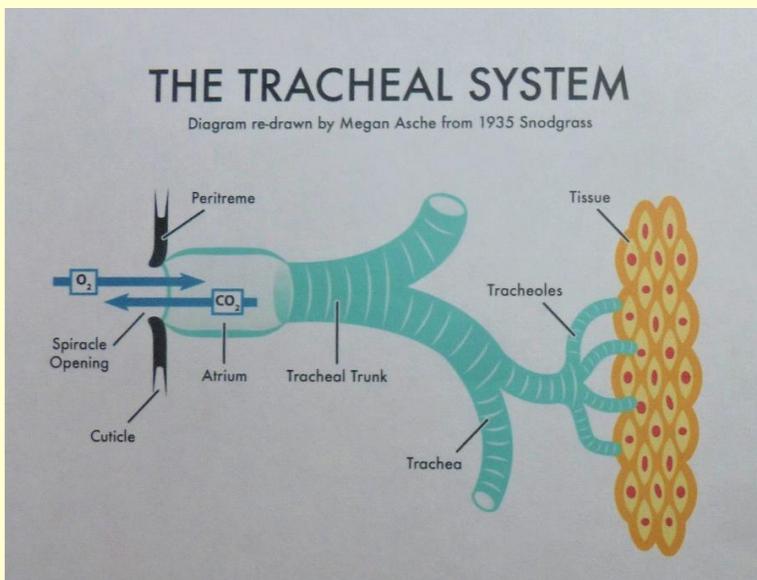


Diagram of the honey bee tracheal system (adapted from NOPBA “Swarm,” 2020)

This type of respiratory system transports oxygen directly to the tissues and removes carbon dioxide without the need for binding and carrying the gases within any mammalian blood-like liquid.

That is, what is called “haemolymph” in bees and other arthropods does not carry gases, but rather, it is a fluid that distributes nutrients throughout the body, also carries components for immunity and defense against invading microorganisms.

--Susie

## OH NO! NOSEMA!

**Nosema in Honey Bees:** Nosema disease is caused by a microorganism, *Nosema apis*. This organism was classified as a protozoan for many years but is now regarded as a fungus. This disease infects the honey bee's gut and is passed by spores in the feces of infected individuals.

It can be regarded as a "wasting disease"—that is, nosema generally does not kill a bee outright, but rather, it reduces its lifespan and vitality. In winter, this can lead to colony death.

Clear signs in the hive of nosema are usually visible as brown splotches on frame tops, on comb within the hive and at the hive entrance. It is especially noticeable if the bees use an exit hole rather than the bottom board, as shown in the photo below (note entry hole at the center).



Figure 1. Brown stains on frames indicate nosema.

Colonies infected with nosema will not build up in the spring. Before transferring a new colony into a hive, you can minimize this health risk by sterilizing all frames ahead of time, as explained below.

The antibiotic fumagillin was not available in recent years for treatment, but it is currently sold under the brand name *Fumadil*. Efficacy of this antibiotic is marginal at best. The efficacy of treatment with essential oils, as shown in some YouTube videos, is not known.

**Treatment: Acetic Acid Fumigation:** Fumigation with acetic acid is the only technique I know about that will kill nosema and dysentery spores on contaminated hive parts. It should be used to disinfect hive woodenware, frames, etc., whenever you have a dead-out. The best use is for empty drawn comb, but frames containing honey and pollen can also be saved and reused after this procedure.

The technique is quick, easy, and inexpensive. Concentrated acetic acid solidifies at temperatures under 60°F, so it is advisable to apply this treatment in a greenhouse or a small, slightly heated room.

This procedure is used extensively in Europe but has not been as popular in the US.

Glacial (concentrated) acetic acid should be handled with protective gloves and safety glasses; use a good respirator when you are working in an enclosed space. The acid is available from Duda Energy at \$14/quart; it is much more expensive if you buy it on Amazon.

### Method--Step by Step:

1. Scrape all boxes and frames free of propolis and try to place 9 frames per box to allow extra space for the vapor.
2. Set up for fumigation by stacking up-to 5 hive boxes in each column.
3. If the bottom board can be made solid, use it. If not, stack boxes on a piece of plywood.
4. Seal all holes with wood, duct tape, or cork.
5. Place a 9" pie pan (glass or aluminum) on top of the frames in the top box in the stack with shims underneath to hold it slightly off the frames (see Figure 3, page 8).
6. Into the pie plate, carefully pour 500 mL acetic acid for a 5-box stack or 250 mL acetic acid for a short stack and enclose the pan with an empty hive box or spacer.
7. Place a hive top (without ventilation shims) over the enclosed pie pan.
8. Allow fumigation to take place for 1-2 weeks.
9. Discard used acid into a water-filled bucket and pour onto the lawn.

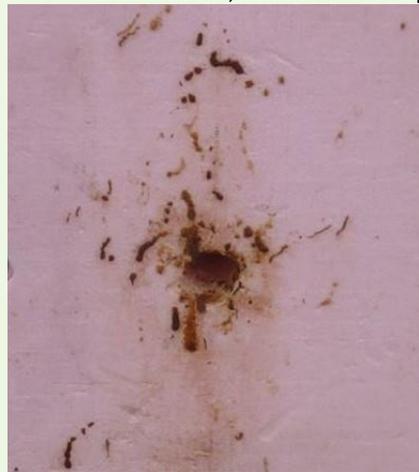


Figure 2. Heavy brown stain around entrance hole and elsewhere on hive face indicate nosema

For a good how-to video, visit <https://www.youtube.com/watch?v=SDgkLEJqw>.

---Rich

Continued (image) on page 9

Nosema (continued from page 8)



Figure 3. Set-up for acetic acid fumigation, view from above the stack of hives to be treated.

## BEE BIOLOGY

### The Honey Bee's Good Taste

In the February issue of EJ's News, you can find Part 1, in which I described **where** the honey bee's gustatory receptors are located, **what** these sensors can taste, and **how** they function. Here, the story continues with a summary of the role and importance of taste to honey bee life, and the ways in which it is employed in the various tasks and activities of the colony members.

#### PART 2: The WHY and WHEREFORE of Taste



**Finding and Choosing the Best Food:** The most obvious role of good taste is in the choice of food sources. Bees select high-quality nectar with a desirable concentration of particular sugars and the best pollen, which is their only source of proteins, but also supplies lipids, vitamins, and certain minerals. On a fundamental level, they must distinguish edible from nonedible items, and beneficial substances from those that are potentially toxic or harmful.

(Continued on page 10)

Taste (continued from Page 9)



Water foragers (image: beemaniacs)

**Assessing Water Quality:** Foragers with the specific task of collecting water for the colony choose sources that contain mineral salts or other components that are needed at any given time. For example, sodium, magnesium, and potassium are essential to the developing larvae. Thus, the foragers often select pond-water, puddles, or droplets on a plant leaf over the tasteless, purified water from an artificial supply. (For more information, please see the article, “Water Foragers” in the Bee Biology section of our blog, [ejbees.com](http://ejbees.com) or in the Feb. 2021 EJ’s News.)

**Collecting Resins:** Bees collect various plant resins to make propolis. Although no specific receptors have been identified to date that respond to the taste of resins, it is likely that the specialized foragers collecting the sticky stuff rely on both taste and odor of terpene derivatives other components to make their choice. They gather droplets that ooze from leaf buds, twigs, or bark of certain trees and various other plants, which produce these resins to protect themselves and to seal and heal their own wounds.



A big drip of pine sap (image: davey.com)



Workers extrude wax from 4 pairs of special glands.

**Processing Wax:** Similarly, receptors that might detect the taste of beeswax have not yet been discerned in honey bees, but because hive workers process the wax that they produce from their wax glands by chewing it, it is possible that they taste and react to at least some of this building-material’s components, such as hydrocarbons, fatty acids, esters, or alcohols, to carry out their task.

**Recognizing Nestmates:** Every honey bee colony has its own chemical signature—that is, its own taste and scent. It is in part genetic, but also determined by the colony’s diet and complete sharing of food, and by the local floral fragrances that cling to the foragers’ hairs and cuticle.

This chemical signature allows nestmates to recognize each other and to distinguish bees that arrive from other colonies. Guard bees on duty at the hive entrance press their challenge to any bee attempting to go inside if its scent and taste profile are not familiar.



Nestmates recognize each other by taste and smell.

An intruder is often pushed and pummeled by a series of guards continuing the challenge, and through that contact ultimately might acquire enough of the colony’s scent that it can blend in with the resident population with no further resistance. Ted Hooper (*Guide to Bees and Honey*) explains that this is essentially the principle employed when a beekeeper combines two colonies by the “newspaper method.”

**Communication:** Honey bees communicate by means of a complex and sophisticated chemical language of *pheromones*, the molecules of which are recognized by receptors for taste or for odor. The tasting aspect is most important as bees feed, provide water, and groom one another, transferring messages in liquid form. The olfactory component receives airborne signals, such as alarm pheromones. The bee’s brain processes information from both types of sensors to make an appropriate response.

(Continued on page 11)

Taste (continued from Page 10)

Each pheromone can consist of a single chemical or a combination of up to dozens of different compounds. Further, these messages may be used in combination, or in series, or by different castes, roles, and ages of individual bees to convey a particular meaning----that is, to elicit a particular response from the recipients.

The colony cannot function without this effective communication system to coordinate each aspect of honey bee society and life, including mating, swarming, development of brood, foraging, defense, orientation, construction and maintenance of the hive and its wax comb, etc. Pheromones allow the colony to accomplish necessary functions throughout changing seasons and conditions, and to deal with unforeseen events by informing and recruiting or dispersing the nestmates.



Grooming the queen

As attendants groom and feed the queen, they gather her queen substance pheromone, then pass minute quantities to all colony members via food-sharing.

All of the colony members employ this chemical language: queens communicate back and forth with workers and drones, workers with workers, adult bees with brood, and so on. However, due to the different life-tasks required of the “royal” castes, the queens and drones do not require as many taste receptors as do their “blue-collar” working sisters.



Workers and brood exchange pheromones to communicate.

Other senses are also involved in communication: for example, sounds and contact are important within the dark chambers of the hive, and visual signals out in the sunlit world. All the various input is integrated in the brain.

**To conclude.** There is still more research to be carried out to fully understand the honey bee’s sense of taste. Considering the universe of substances to which bees are exposed and need to avoid, ignore, or make use of at different seasons, phases, ages, and conditions of colony life, we might expect that they have a more sensitive and wide-ranging capability than is currently described. I am always eager to learn more about this flavorful and engaging topic.

And I’m glad *WE* don’t have to taste with our *FEET!*



-----*Susi*

**TARBOO VALLEY WOODENWARE & HONEYBEES**

**Frank Neal- Ph. # 360-301-1850...**

**5% discount to EJB club members**

**for bee supplies**

NEW WEBSITE: [tarboovalleywoodenware.com](http://tarboovalleywoodenware.com)

NEW EMAIL: [gloria@tarboovalleywoodenware.com](mailto:gloria@tarboovalleywoodenware.com)

**PLEASE CALL AHEAD!**

**We have our new supply of pollen patties in...**

**If you would prefer not to receive this newsletter, please email us at [Eastjeffbees@gmail.com](mailto:Eastjeffbees@gmail.com)**