

November 2013 Dean Barnett: The plight of the honeybee

Our speaker this month was Dean Barnett, aka “Mr. B” of Mr. B’s Honey fame, speaking on the topic of “The Plight of the Honeybee”. As a former junior high school science teacher turned beekeeper professional, Dean knows his bees and has the additional stamina to lecture grownup gardeners. And unlike admonitions to “please do not attempt this at home”, Dean was here to encourage beekeeping at all levels—backyard, hobbyist, and professional—in order to help save the species and our food supply chain they support, which have both suffered recently.

Dean first began his bio with an aside that his Santa Claus beard will be shaven off after his Christmas duties are over. He began his interest/love of beekeeping during his junior high school years at Leota Jr. HS and Kenmore Jr. HS, where he tired of simply having rodents in the classroom and decided in 1969 to bring his first 3 lb., two frame observation hive into the science room. He soon discovered that the escalation into full-fledged professional beekeeper was a lot harder. He graduated from hobbyist on the weekends and summers into his current full-time career. He’s also proud of the fact that he’s attracted and helped start 20 or more beekeeping enthusiasts along the way. Mr. B not only sells his honey and beeswax candles at his Redmond Mr. B’s Honey location, but also is a bee-for-hire contractor, who hires out his bees to farmers regionally. His “Have bees, will travel” stories were captivating and we could see how he and his hard-working bees have become an in-demand service. But anecdotes aside, there’s a darker struggle going on in the beehive and we learned that this is a worldwide problem that if not curtailed, will affect us all.

Mites: Dean spoke at length about the mites that have devastated the honeybee populations. Two specific mites--Varroa destructor mites (lives on the outside of the bee) and Tracheal mites (internal dwellers that suck their green blood, which clogs up the oxygen flow)—are parasites that have been responsible for colony collapse damage to the honeybees around the world. Varroa mites develop on broods and usually invade a brood cell a day before it is capped and sealed with the larva inside. The mites feed on the growing larva and even lay their eggs on it. By the time the adult honeybee emerges from the cell, many mites have matured and already mated. Tracheal mite-infected colonies may not develop normally (wing and flight muscle damage) and may exhibit symptoms of dysentery and an excessive swarming tendency. And as we learned...bees will not poop in their own hives. Thus drifting bees between hives and swarms produced from infected colonies are ways mites naturally spread within and between apiaries. When first discovered here and the resultant Colony Collapse Disorder (CCD), mites spread quickly throughout the US by the movement of migratory beekeepers, sale of queens, packages and nuc boxes (5 frames). When these colony collapse problems occurred early in the 1980s, many beekeepers became discouraged and abandoned beekeeping. Thus, the beekeeping turnover and costs associated with pesticides (menthol crystals, etc.), replacement of dead colonies, reduced honey production and crop pollination is also an economic problem. Orchard Mason bees are a species that are not affected by these mite problems. However, he went on to explain that although hard-working, it’s hard to have Orchard Masons as pollinators when you need them at specific sites and specific times.

Beekeepers: Dean gave us a brief Beekeeping 101 seminar on how to get started and the necessary equipment. He described three types of beekeepers—1) hobbyist, 2) sideliners and 3)

full-time (defined as about 600 hives or more, strong back and weak mind). He described beekeeping as “No brain, no pain”, so to speak and lots of stings to show for your struggles. Note: Females under attack will use their stingers, males have none. Rewards are many, however. Hobbyists start out with the idea of pollinating their trees/crops with 3 pound packages of 240 bees which are shaken into the hives. A nuc box contains 5 frames. Three frames and a queen with a screen are adequate for one yard’s pollination purposes. Generally hobbyists have 1 to 6 hives. There are about 18,000 colonies in our state and the largest U.S. beekeeping operation consists of 90,000.

The central feature of the hive is the honeycomb, a structure made up of flat six-sided cells made of beeswax. It has two sides with cells on both sides. The cells are perfectly uniform in shape and spacing. Different combs serve different purposes. For example, the brood comb is where the queen lays her eggs. In the fall, bees are refrigerated at 40 degrees in total darkness until the end of January, when hives will be full. During this time the bees subsist on the honey all winter. So, Dean needs to ensure that there is a full box of honey at that time. The fall bees are young and cannot fly. Checking for a queen bee happens at this time. Near the end of March, Dean takes his bees for hire and heads over the mountains to pollinate Zillah’s cherries, Whatcom county’s blueberries and cranberries, Mt. Vernon’s cabbages, Snohomish’s pumpkins and as far away as California (with its many entry restrictions). His bees produce several varieties of honey as a result, including blackberries, raspberries (which needs 4 visits from honeybees for pollination and apples that need 5 visits). Dean mentioned that John Hancock’s purchase of Weyerhaeuser lands in the foothills has hired him for their fruit tree experiments. Nut trees like the almonds are tough to pollenate, since the ground beneath the trees are swept clean of any weeds (dandelions in this case are a good thing) for more efficient nut harvests. There are approximately 1.3 million bees supporting the California almond industry.

Pollen is gathered from the hive as their main food. Nectar and pollen make up the “bee bread” that is fed to the bee larvae. Royal jelly is secreted by the bees and is fed to the one that they select to be the queen. This royal jelly (very expensive) is an ingredient in some cosmetics. Bees create a mold (honeycomb)—a yellow/orange frame with nipple-like cells—which helps the Queen fill the space with drone larvae. The queen will mate with 10-15 drones outside the hive and lay about 1500 eggs per day (more than her weight), which explains why she must be constantly fed. Commercial harvesting of honey and wax are done by machines with vibrating knives that cuts the wax off. Since the honeycomb is built downward, they spin and pump it into 2 tanks. The filtered “bee’s knees” and junk flow to the top.

Honey & Wax: Honey is the thick liquid produced when the honeybees repeatedly regurgitate flower nectar. Honeybees produce enough honey for the winter so that they can eat it when flower nectar isn’t available. Dean encouraged us to buy raw, local honey, so that you know it’s the best product and processes. One of Dean’s early customers was the now-closed Edmonds’ Brousseau’s Bakery. His bees create delicious honey from cranberry, blueberry, raspberry, blackberry and even maple tree blossoms. Another great source is fireweed. Check labels, as you want to buy honey that is less than 8% water. Costco honey is best used for baking, since you can’t taste the difference once it is incorporated into another form. However, local honey is best used for eating or as toppings for breads, ice cream, etc. The honey packets at fast-food places are actually fermented honey. China’s honey is under scrutiny and should not be used because it

contains antibodies that are not resistant to bacteria. Dean passed around a cylinder of bee pollen, which we could taste sample, as well as a heavy, dripping honeycomb that we were encouraged to taste test by scraping off the wax and dipping into the delicious honey, which was available for sale in various sizes.

The hive wax is melted down to make natural, long-lasting, hand-dipped beeswax candles, which Dean brought along for sale. Needless to say, these candles sold out quickly, so close to the holidays. Brother Steffan from Fall City's monastery where these candles are made, buys Dean's wax for \$2 per pound and hand-dips them 3 times. These candles burn longer and have a much higher melting point and are much better for you than the wire-wicked candles. Bees can fly as much as 500,000 miles to make one pound of beeswax—loads of work for a beautiful product. Beehives can extract as much as 173 lb. of honey per hive, and when conditions are good Dean's 600 hives can produce 152 lb. per hive at roughly \$240 per bucket.

Question and Answer sessions erupted and we listened to fascinating tales about Dean's bee travels to perform pollination tasks at various sites, mostly orchards. His bees can pollinate a 20 acre site in about 4 hours and are collected at dusk, several hours before the farmer comes through with a de-blossoming machine to remove unnecessary blooms in order to induce larger fruit production. This is a harmful process to his bees. Dean makes sure his bees are loaded up to go home way in advance of that procedure. Those who are late to return to the truck sometimes trail him for a while. Those hanging onto the sides are forced into the hive by the wind from the truck's movement. Dean demonstrated the pocket veil he wears when working with the bees and the "smoker" instrument, which is the most expensive type of bee equipment, sounded like a must purchase.. The smoke has a tranquilizing effect on the bees which allows the beekeeper to open the beehive and work while the colony's defensive response is interrupted.

Other bee trivia: Bees have varying lifespans, depending on the type—queen bees, drones (who cannot even feed themselves), workers (sterile females), but 85% of the hive's worker bees live generally for 20-30 days. What about the bumble bees? Dean explained those fat, furry-like bees we remember from our youth have sadly now been labeled extinct. There are many varieties of honeybees and these mites are native to many varieties--SE Asian, European, Italian and our western honeybees. Killer bees are the same as honeybees, but are not a problem in our region, since they only hover around warm/hot climates (CA, AZ, TX, FL). Dean was aware of a new study that pointed toward diesel pollution that may throw honeybees off the nectar-rich flower trail. Worker honeybees rely heavily on their expert sense of smell, but this research suggests diesel exhaust may fool their noses making the search all the more difficult. "With the economic value of pollination worldwide estimated at more than \$200 billion a year and 70% of the world's food crops" (Robbie Girling, lead study author) this could be one more nail in the hive.

What Can We Gardeners Do to Help the Honeybees? Dean recommended not spraying anything that blooms (dandelions included) when there is no wind and while we're at it, do not use so many herbicides. Mites aside, Dean's latest hive trouble is related to the "Winnie the Pooh Bear" honeycomb theft capers. He's lost 3 hives to the pesky black bears. Dean explained that he's located an honor-system stand selling his honey alongside HWY 202 just outside of downtown Redmond heading toward Fall City or you can order honey products on his website www.mrbhoneyllc.com. He was quick to explain that it's Mr. B's Honey, not Mr. B.S. Honey.

We felt fortunate to share in some of Mr. B's sweetness, including an informative night explaining "the secret life of bees". Quite the buzz...