

Honeybee Benefits

Honeybees are vital pollinators:

- One third of our daily diet comes from crops pollinated by honeybees. Without the pollen that honey bees transport, many plants can't produce fruits, vegetables and seeds.
- Honeybees are responsible for \$15 billion in U.S. agricultural crops each year. For example, California produces 80% of the world's almond crop — and almonds require pollination by honeybees.
- Honeybees also pollinate a wide variety of backyard fruit and vegetables.
- Honeybees pollinate wild and native plants that support local wildlife.

Bee and hive-product business opportunities:

- Honey! Not only is it delicious, but raw/minimally processed honey contains hundreds of different biologically active compounds including enzymes, amino acids, and beneficial antioxidants. Its antibacterial and anti-inflammatory properties have led the FDA to approve specialized honey bandages to treat infection and enhance healing in burns, ulcers, and other wounds. Additionally, many people eat local honey to treat pollen allergies.
- Beeswax is used in a huge variety of products. You've doubtless seen candles, lip balms, lotions, and other skin care products made with it, but did you know it's also used in surgical bone wax (to stop bones from bleeding during surgery), cheese coating (to seal out air and prevent spoilage), shoe polish and furniture polish, and even for filling the seams between pieces of slate when setting up a pool table. When combined with bacteria that can digest oil and formed into specialized microcapsules, it's also used to help clean up ocean oil spills.
- Propolis is the resinous substance bees use to seal small gaps in the hive. In research studies, propolis was found to be a potent antibiotic, antifungal and antiinflammatory (against acute and chronic models of inflammation). Humans have used propolis medicinally for thousands of years, both internally and externally. In the last 10-20 years there has been steady growth in scientific/clinical research into its efficacy in a wide range of medical applications. Propolis tinctures, lozenges, and oral sprays can be used to treat conditions including canker sores, sore throats, superficial burns, inflammations, ulcers, and viral diseases.

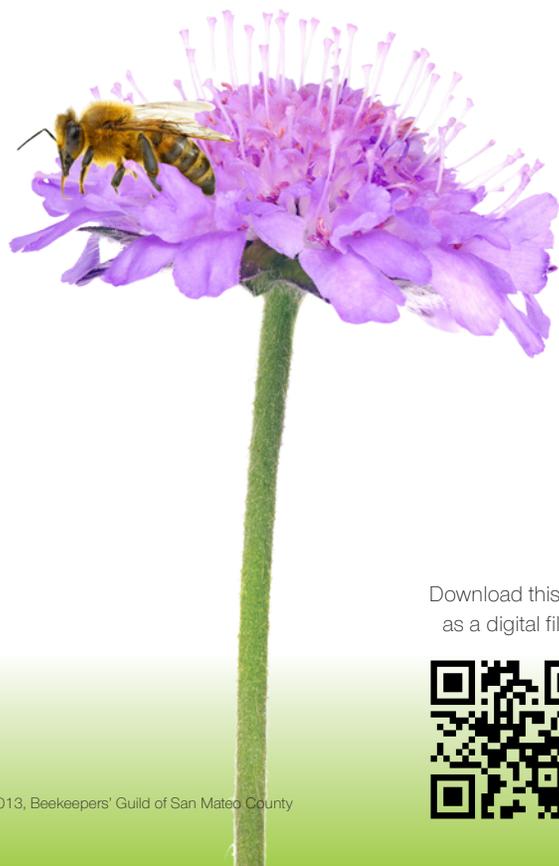
About the Beekeepers' Guild of San Mateo County

The Beekeepers' Guild of San Mateo County was founded in 1979. Our members range from people wanting to learn about bees before acquiring them, to "newbee" beekeepers with their first hives, to master beekeepers with many years of experience and education. The Guild provides a valuable community for sharing information, tips and resources, and camaraderie. Experienced members frequently guide and mentor beginning beekeepers.

For more information, email learnaboutbees@sanmateobeeguild.org or visit our web site, www.sanmateobeeguild.org

You Can Help the Honeybees!

Honeybees are important for pollination and the security of our food supply, but currently face unprecedented threats. Learn more about these remarkable insects and how you can help create a more honeybee-friendly environment.



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Honeybee Facts

- Honeybees live in colonies of up to 60,000 bees.
- Honeybees develop in four phases: egg, larva, pupa, and adult.
- There are 3 types of bees: female worker bees who make up most of the colony, male drones mostly produced in the spring mating season, and removed from the hive by the worker bees by end of summer, and one queen bee.
- The time for a bee to transition from an egg to an adult varies: 24 days for drones, 21 days for worker bees, and 16 days for queens.
- Worker bees live about 6 weeks, drones live up to 4 months. Queen bees can live up to several years, although it's now rare to find one surviving that long, due to diseases and other stresses on bees.
- Each type of bee has a specific role in the colony:
 - Worker bees progress through a series of jobs. For the first 3 weeks of adulthood, a worker bee is a "house bee" performing tasks inside the hive. The house bees clean the hive, regulate its temperature, feed the larvae, build wax combs, and make honey. For the next 3 weeks, the worker bee works outside the hive, first as a guard bee defending the hive against intruders, then as a forager gathering nectar, pollen, water, and propolis and bringing them back to the hive.
 - Drones mate with queens. Other than that, they do nothing — they even depend on worker bees to feed them!
 - The queen lays eggs (up to 2,000 per day!), producing all of the bees in the colony. If the worker bees determine the queen is weak or isn't laying any more, they will create new queens by feeding selected larva a diet of royal jelly, a substance secreted by the bees and containing compounds that cause larva to become queens.
- Forager bees make ~10 trips a day, and can range up to 3 miles from the hive in a trip.

- A worker bee makes ½ teaspoon of honey in her lifetime.
- To make a pound of honey, bees must visit 2 million flowers.
- To make a pound of beeswax, bees must fly 150,000 miles (~6 times around the earth).
- Productivity varies dramatically depending on available forage, weather, open space in the hive and other factors, but a healthy beehive can produce 50–80 lbs of honey in a year.

Threats to Honeybees

- **CCD (Colony Collapse Disorder).** Over the last 3 years, more than 1 in 3 honeybee colonies has died nationwide. After WWII there were 5 million honeybee colonies in the USA, today there are only 2.5 million. The exact cause of CCD is still unknown, but research results increasingly point to it springing from a number of interwoven factors working together.
- **Parasites.** Tracheal mites and varroa mites not only weaken bees by feeding on them, but also transmit viral and bacterial bee diseases.
- **Disease.** Bacterial diseases such as American Foulbrood, viral diseases such as Nosema, and fungal diseases such as Chalkbrood — all of which are more virulent when the hive has been weakened by exposure to sub-lethal levels of pesticide or parasites such as varroa mites.
- **Pesticides.** Some pesticides meant to kill pests can harm honeybees. Homeowners often apply them at far higher concentrations than recommended by the manufacturer and may apply them to plants actively being visited by honeybees. Many pesticides banned by other countries because they harm bees are still available in the USA.
- **Habitat loss.** Land development, abandoned farms, growing crops without leaving habitat for wildlife, and gardening with plants that are not pollinator-friendly all reduce the amount of forage available for bees and other pollinators.
- **Climate change.** Shifts in seasonal temperatures can cause flowers to bloom earlier or later than usual. When pollinators come out of hibernation, the flowers that would provide the food they need may have already bloomed, or not be blooming yet.
- **Fear.** The most common concern about honeybees is the possibility of being stung, and some colonies are poisoned or destroyed because people are afraid of being near them. Domesticated honeybees are not aggressive by nature and are unlikely to sting unless they are defending their hive. In the USA, severe reactions to an insect sting occur in roughly 1 in 5,555,556 cases, and almost none of these involve honeybees (JustFood.org).

How You Can Help Honeybees

- Buy local honey at farmer's markets and stores. Much of the 'honey' sold in supermarkets and drugstores is imported, and frequently laced with less expensive additives, such as high fructose corn syrup.
- Support bee-friendly policies, both locally and nationwide.
- Don't use insecticides — try spot applications of Neem oil, insecticidal soap, or adding predator insects such as ladybugs to your garden.
- Grow bee-friendly plants in your garden.
- Join a pollinator support group — there are several local/national groups dedicated to promoting the health of pollinators through conservation, education, and research.
- Reduce the amount of lawn on your property and replace it with beds of nectar-rich pollinator-friendly plants (garden centers can recommend plants for your specific location).
- Plan your garden to have a succession of bloom, rather than having everything flower all at once — it will provide pollinators food for a longer period, as well as looking lovely for months!
- Ask local stores not to sell plants/seeds treated with systemic pesticides (neonicotinoids). When purchasing plants, try to avoid buying those that have been treated in this way.
- Create a "watering hole" for visiting bees. Fill a shallow container of water with pebbles or twigs for the bees to land on while drinking. Make sure to maintain the water level so they can return to the same spot every day (if you have a drip irrigation system, it's easy to add an emitter that will top up the container). Bees don't care if water is brackish, so don't worry about cleaning it too often.
- Help the EPA investigate and document bee kill incidents. Information on how to report suspected pesticide problems is available on the National Pesticide Information Center web site: <http://npic.orst.edu/reportprob.html>, or email beekill@epa.gov.
- If you're battling insect pests in your home, school, or business (ants, termites, etc.), visit the Green Shield Certified website (www.greenshieldcertified.org) to locate a certified IPM (integrated pest management) service provider.
- Become a beekeeper — we would love to help you get set up!

