



# **Mt. Diablo Beekeepers Association's Best Management Practices for Urban, Suburban, and Small Scale Beekeeping**

## **INTRODUCTION**

Hobby beekeeping has become increasingly popular in California. Although generally docile, honey bees (*Apis mellifera*) can and may sting. As part of a hive's reproductive process, a healthy hive may attempt to divide and swarm. Responsible management is, therefore, necessary to avoid creating problems for neighbors. This document is intended as a reference and standard for small scale urban and suburban honey bee management in the Mt. Diablo region. It may serve as a resource for information to reinforce community confidence in the safety of beekeeping activities; a standard reference for addressing complaints or conflicts about beekeeping activities in the region; and a collection of best management practices that MDBA members are encouraged to follow.

## **CONSULT AND FOLLOW LOCAL REGULATIONS REGARDING BEEKEEPING**

Beekeeping law varies among communities in California. Before engaging in beekeeping, check your local regulations. In response to increasing concern about honey bee health and interests in local food production, many localities have created laws to allow urban beekeeping. Localities and home owners associations may have specific requirements that may affect your decisions regarding apiary placement and design. Should beekeeping be banned in your area, consider presenting your community leaders with the opportunity to change local regulations to allow beekeeping.

## **GENERAL BEST PRACTICES**

### **Education**

The first and most critical step in responsible beekeeping is education. All beekeepers need to have a solid understanding of honey bee biology and basic beekeeping methods. We strongly suggest that new beekeepers take a basic beekeeping course and read at least three different beekeeping guides. Here are some books that the MDBA recommends:

- The Beekeeper's Handbook by Alphonse Avitabile & Diana Sammataro
- Beekeeping for Dummies by Howland Blackiston
- First Lessons in Beekeeping by Keith S. Delaplane
- Natural Beekeeping: Organic Approaches to Modern Apiculture by Ross Conrad
- The ABC & XYZ of Bee Culture: An Encyclopedia Pertaining to the Scientific and Practical Culture of Honey Bees by Amos Ives Root, Ann Harman, Dr. Hachiro Simanuki and Kim Flottum

- The Practical Beekeeper: Beekeeping Naturally by Michael Bush
- The Backyard Beekeeper: An Absolute Beginner's Guide by Kim Flottum
- Beekeeping: A Practical Guide by Richard E. Bonney
- Honey Bee Biology and Beekeeping by Dewey M. Caron

Beekeepers should stay informed of recommended changes in beekeeping practices, including the treatment of parasites and illness, threats to honey bee health, and government regulations. One way to do so is to become a member of Mt. Diablo Beekeepers Association (MDBA) that holds regular meetings. Joining a bee club will keep you up to date on current health and environmental conditions in your local area. Go to [www.diablobees.org](http://www.diablobees.org) to join MDBA. MDBA also offers a mentoring program.

Additionally, subscribing to a beekeeping magazine such as Bee Culture, American Beekeeping Journal, Beekeepers Quarterly, and Bee Craft offers a broader overview of ideas. There are many on-line repositories of information maintained by beekeeping supply companies and well respected beekeepers. Consider the MDBA website as a place to start becoming more informed.

### **Considerate Hive Management**

Before setting up your hives, it is a good idea to inform your neighbors where you intend to place the hives. Respond to and discuss their concerns; an informed neighbor is more likely to be an understanding neighbor.

Know your hive and plan to work bees when conditions are favorable. Beekeepers should take into account weather conditions, honey flow and bee temperament as they impact bee behavior. Beekeepers should make sure that neighbors are not working or relaxing outdoors when they open hives and should perform hive manipulations as quickly as possible with minimum disturbance to the bees.

Extended hive manipulations, particularly when removing honey, should be carefully planned to accommodate neighbors' activities. Bees can become very active as combs are removed. Be prepared to work slowly, gently and efficiently. Have all tools and adequate closable comb storage containers immediately available. Calming bees using smoke before and during hive manipulations helps to disrupt scent communication among bees when alarm chemicals are released by a sting or inadvertent crush of a bee. Consider using a manipulation cloth (to cover the top of the open hive) to minimize hive disruption. Smoking a hive entrance before mowing or trimming in the hive area can be helpful. Clippings and exhaust should be directed away from entrances.

### **Hive Placement**

Correct placement of hives is a very important consideration for responsible beekeeping. Ensure that your hive is in a location that can be accessed regularly, safely, and easily. Hives should be placed in a quiet area and not directly against a neighboring property unless a solid fence or dense plant barrier of six feet or higher forms the property boundary. Hives should be kept as far away as possible from roads, sidewalks, and rights of way. Flight paths into the hive (generally ten feet in front of the hive entrance) should remain within the owner's lot, although barriers (e.g.,

fencing and tall shrubs) can sometimes be used to redirect the bees' flight pattern.

Receiving email alerts from the Contra Costa County Mosquito & Vector Control District may alert insecticide spray applications in the areas of apiary locations.

### **Provision of Water**

Beekeepers should establish permanent water sources near the apiary to encourage bees to forage for moisture near the hive. Bees use large amounts of water to control temperature and humidity within the hive. They prefer a sunny place with surface moisture, such as gravel or a sponge set in a dog water bowl or the edge of a birdbath, where they will not drown. The water should be kept fresh and clean so as not to become a breeding ground for mosquitoes. It is particularly important in an urban environment to provide a source of fresh and consistent water for the honey bees, to prevent them from seeking water from sources such as air conditioners, swimming pools, hot tubs, or other locations where the honey bee would be perceived as a nuisance.

### **Queens**

Queens should only be obtained from reliable sources. Please check with MDBA for suggestions on sources. Local sources, where available, are preferred to reduce the chance of introducing Africanized honey bees and to ensure that the queen is well suited to the climate. Each beekeeper must evaluate their queens on a regular basis for performance and hive gentleness. Desirable characteristics for a queen include:

- gentle disposition
- brood viability
- low swarming instinct
- colony build up
- disease and pest resistance
- pollen hoarding

Any colony exhibiting unusually defensive behavior or an excessive swarming tendency should be re-queened as soon as possible.

### **Colony Temperament and Behavior**

A colony's temperament is determined by its queen's characteristics, its health, environmental factors (e.g., weather), and proximate activities. Every effort should be made to maintain a docile and non-aggressive colony. Guidance on selecting queens, maintaining hive health, and mitigating environmental impact is important to "Best Beekeeping Practices".

- Monitor the behavior of the bees
- Determine if defensive behavior is due hive management procedures, to predators (i.e. skunks, wasps, mice) or a dearth in nectar supply
- Replace the queen if defensive behavior is not otherwise explained
- Re-queen only with queens from a reliable source (local when possible)

- Maintain re-queening records and purchase information
- Monitor re-queened hive for continued defensiveness

### **Recordkeeping**

Good recordkeeping should be a priority for all beekeepers. Beekeeping logs can be found online, but any format of dated notes on individual hive activity will increase awareness of hive health and successful management. A colony management log should include a catalog of the equipment used, planned actions, a record of inspections and findings therein, a history of actions (e.g., adding / removing honey supers), and any relevant observations regarding the hive.

Developing record keeping processes will organize planned hive inspections. Understanding reasons for entering a hive, what to look for, what to expect and what to do if certain conditions exist promote an efficient and educated way of observing hive activity. This written record of colony observation and manipulation will help determine the next steps to a management plan and give a solid foundation when consulting with others regarding particular beekeeping experiences.

### **Swarming**

Swarming is natural honey bee behavior, but it should be prevented or minimized particularly in urban settings. Congestion in the hive is one manageable factor that affects swarming behavior. To avoid this condition, beekeepers should consider:

- Appropriately timed addition of extra boxes for brood rearing
- Brood chamber manipulation and/or colony division
- Use of screened bottom boards
- Annual re-queening may help to discourage swarming

These, and other swarm management practices, are explained in detail in most good beekeeping textbooks such as those referenced above.

When a swarm occurs, efforts should be made to collect the swarm. MDBA has a swarm rescue list where eager beekeepers make themselves available to capture swarms. Inform your local animal control departments of the MDBA swarm list to minimize possible negative impact of beekeeping on local residents and code enforcement officers. Swarms captured from areas of interstate transportation or heavily populated areas or other locations where the origin of the bees may be questionable should be monitored frequently for abnormal defensiveness.

### **Robbing Behavior**

When nectar is scarce, honey bees may rob from other hives. When they do, hives tend to become more defensive. Under such conditions, beekeepers should work hives for only short periods of time and only if really necessary. Exposing honey can encourage robbing. The use of hive-front Boardman feeders except for water in the summer months may increase the chance of robbing. Should feeding be necessary, internal feeders can decrease the chance of robbing.

There should be no open feeding at any time. All honey and syrup spills should be cleaned up immediately.

As bees are attracted to the scent of honey, areas used for honey extraction should be bee-proofed to prevent robbing situations, thus a completely enclosed bee tight area should be set up for this procedure. Never attempt to harvest honey outdoors.

Concurrently, beekeepers should ensure that no bee comb or other hive materials that might encourage robbing be left upon the grounds of the apiary. Upon their removal from the hive, all hive materials should promptly be sequestered. If intended for subsequent use, place all hive products within a building or other bee-proof enclosure. If intended for disposal, place in a sealed container within the disposal container.

### **Disease Control**

There are a number of honey bee diseases and pests for which beekeepers should be concerned. It is critical that beekeepers be educated to recognize and respond to disease. Some diseases, like American Foulbrood, are extremely contagious. Beekeepers should be extremely cautious about using hive tools in more than one apiary and purchasing used equipment for this reason. It is incumbent on beekeepers to manage all diseases and pests to ensure colony health and honey quality.

### **Hive Densities in an Urban Setting**

Beekeepers are advised to closely observe their apiary locations to determine the carrying capacity (the number of hives that can be successfully maintained year after year) of the area - both the immediate area and roughly three miles in all directions and to limit the number of hives accordingly. Signs of over-saturation in an area include slow colony growth, poor honey production, and excessively defensive behavior. While it may be difficult to negotiate how hive numbers are managed in the area, it is in the best interest of all involved beekeepers to address this situation.

### **Wildlife Management**

Your beehive and its honey stores may draw a wide variety of opportunists. As a beekeeper you will notice the impact of mites, wax moths, ants, and perhaps hive beetles. Follow available recommendations to manage these pests. As problematic, and much more noticeable to your neighbors, are the larger hive predators - mice, raccoons and skunks.

Winter mouse guards successfully keep mice out of hives. Skunks and raccoons are easily managed by raising the hive off the ground on a cinderblock or wooden base. As these animals explore the hive entrance, soft underbellies are exposed to guard bee management techniques (stings). Placing a heavy object on the hive lid reduces the likelihood that an animal or strong wind will lift the hive cover and expose honey stores.

### **Africanized Honey Bee**

The Africanized honey bee ("AHB") was introduced to Brazil in 1957 and accidentally escaped from confinement colonies. While maintaining its genetic identity, this race of bee expanded its range in South and Central America and arrived in the United States around 1990. Since that time, AHB have colonized Texas, New Mexico, Arizona, California, Nevada and Utah, Oklahoma, Louisiana, Arkansas, Alabama and Florida. Due to defensive behaviors and difficulties managing

AHB using European honey bee beekeeping methods, the AHB population has disrupted agriculture, beekeeping, tourism, recreation, and public life in general as it has spread. It is not yet known whether AHB will be able to establish in cooler climates. That said, colder states rely upon warmer states as a source of package colonies and queens, and commercial beekeepers routinely transport colonies to over-winter in southern states.

### **Management to Avoid AHB Introduction and Establishment**

The queen management techniques laid out in the General Best Practices - Colony Temperament and Behavior section of this manual are relevant to the discussion of AHB avoidance practices.

- Re-queen only with queens of known heritage
- Maintain re-queening records and purchase documentation
- Monitor bee behavior. Determine if the behavior is due to predators (e.g. skunks, wasps, mice, raccoons) or a dearth
- Replace the queen if the hive becomes difficult to manage due to other behavioral issues

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### **DISCLAIMER**

This document is, and always will be, a work in progress intended for regular update and revision. It offers guidelines for responsible hobby beekeeping in the Mt. Diablo region of California. It is not an instructional text. We strongly urge anyone interested in beekeeping to take a course on beekeeping. See the Mt. Diablo Beekeepers Association (MDBA) website: [www.diablobees.org](http://www.diablobees.org) for class, trainings and course listings as well as information and links on beekeeping. Furthermore, this document is not intended to provide legal advice. It does not address practices related to selling honey or any other farm product; moving colonies, bees, or beekeeping equipment; or liability insurance issues.

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*This document was adapted (with permission) from the Colorado State Beekeepers Association's Best Management Practices. MDBA "Best Practices" offers a guideline for responsible hobby beekeeping. MDBA welcomes you to the art and adventure of beekeeping and encourages you to follow the guidelines within this document.*