

Explaining the Best Management Practices for Maintaining European Honey Bee Colonies ¹

M. K. O'Malley, J.D. Ellis and G. W. Hayes, Jr.²

In the early 2000s, African honey bees established a wild population in Florida. Since that time, state officials have had to deal with an increased potential for risk to the public and the agriculture industry. In response, the Florida Department of Agriculture and Consumer Services (FDACS), Division of Plant Industry (DPI), Bureau of Plant and Apiary Inspection generated *Best Management Practices for Maintaining European Honey Bee Colonies* (BMPs), a voluntary agreement between Florida beekeepers and state officials that outlines specific practices beekeepers can implement in order to keep the spread of African honey bees from negatively affecting their colonies, the agriculture industry, and the general public. If a negative interaction between African honey bees and humans does occur, the BMPs serve as a potential buffer between Florida beekeepers and a possible lawsuit.

This document serves to outline the twelve recommendations listed in the BMPs, and give an explanation for each one.

Recommendations

1. Beekeepers will maintain a valid registration with FDACS/DPI, and be current with any and all special inspection fees.

This requirement is not peculiar to the BMPs; Florida law requires all beekeepers to keep a valid registration with FDACS. There is a yearly fee involved, and registration entitles beekeepers to yearly inspections by a state inspector who checks for diseases and colony deficiencies. Also, registered beekeepers receive correspondence and publications (such as the *Melitto Files*) from the state.

2. A Florida apiary may be deemed as European honey bee with a minimum 10% random survey of colonies using the Fast African Bee Identification System (FABIS) and/or the computer-assisted morphometric procedure, i.e. universal system for the detection of Africanized Honey Bees, or other approved methods by FDACS on a yearly basis or as requested.

-
1. This document is ENY158 (IN874), one of a series of the Entomology and Nematology Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Original publication date October 2010. Visit the EDIS website at <http://edis.ifas.ufl.edu>.
 2. M. K. O'Malley, former Extension assistant, and J. D. Ellis, assistant professor, Entomology and Nematology Department, Institute of Food and Agricultural Sciences, University of Florida; and Jerry Hayes, state bee inspector, Florida Department of Agriculture and Consumer Services, Gainesville, FL 32611.

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information and other services only to individuals and institutions that function with non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions or affiliations. U.S. Department of Agriculture, Cooperative Extension Service, University of Florida, IFAS, Florida A. & M. University Cooperative Extension Program, and Boards of County Commissioners Cooperating. Millie Ferrer-Chancy, Interim Dean

As soon as a beekeeper signs the BMPs, a bee sample is collected by a state bee inspector and tested for % Africanization using the Fast African Bee Identification System. It is a benefit for beekeepers to have documented proof that their colonies do not contain African honey bees—especially in legal situations.

3. Honey bee colony divisions or splits should be queened with production queens or queen cells from European honey bee breeder queens following Florida's Best Management Practices.

The goal of requeening is to maintain manageable colonies that are not a threat to beekeepers or other members of the community. It is vital that beekeepers ensure that any new queen introduced into a colony is of manageable European stock. New queens should be purchased from breeders; beekeepers are discouraged from allowing colonies to produce their own queens. Even if colonies are certified as European honey bee, the density of African bees in some areas of Florida (particularly southern Florida) is such that if a virgin queen emerges, she has a high probability of mating with an African honey bee drone. To purchase a production queen, beekeepers should buy a queen from a Florida breeder that follows Florida's BMPs for queen breeders (also available on the web at <http://www.doacs.state.fl.us/pi/plantinsp/apiary/apiary.html>), or buy a queen from a part of the country where African honey bees have not permeated.

4. Florida beekeepers are discouraged from collecting swarms that cannot be immediately re-queened from European honey bee queen producers.

There is no way to tell the source of a swarm, and it may be an African honey bee swarm even if it does not immediately exhibit defensive behavior. In fact, most swarms *are* docile, even African bee swarms. The most common response by beekeepers to this point is that requeening a collected swarm with a European queen eliminates the potential for the swarm to cause problems. Yet, requeening a swarm is only half of the solution. When a beekeeper collects and attempts to “rehabilitate” a swarm by

requeening it, they forget that the swarm also contains African honey bee drones. With the high queen turnover rate in managed colonies, a beekeeper cannot afford to introduce African honey bee drones into his or her apiary. Finally, African honey bees have a tendency to nest in open areas, so there could be comb being formed underneath what appears to be a swarm, meaning the colony is becoming established. If this is the case, any attempt to collect or disturb what appears to be a swarm may result in a stinging attack from an established nest.

5. Florida Beekeepers should practice good swarm prevention techniques to prevent an abundance of virgin queens and their ready mating with available African honey bee drones that carry the defensive trait.

When a colony swarms, the parent colony is left with a virgin queen, and due to the high density of African bees in Florida, African honey bee turnover is very likely to occur. Even though the bees that swarmed may have left with an European honey bee queen, she typically will be replaced soon, and the virgin queen that replaces her may mate with African honey bee drones in the wild. Colonies also may send out second and third swarms, each one of these equipped with a virgin queen, thus creating many potential African honey bee colonies in the wild as well as putting one's own apiary at risk. For the protection of beekeepers and the safety of the public, it is vital to control potential swarms by eliminating queen cells or virgin queens.

6. Maintain all European honey bee colonies in a strong, healthy, populous condition to discourage usurpation (take over) swarms of African honey bees.

It is important to keep European honey bee colonies strong and healthy to prevent usurpation. This is accomplished by practicing swarm control techniques, keeping colonies well fed, and maintaining the colonies free from diseases and pests. Weaker colonies are prone to usurpation, and this occurs commonly. During usurpation, an African honey bee swarm (including the queen) lands on the outside of a managed box, the African honey bee workers enter the box, the European queen is lost, and the colony is over taken by African honey bees.

The most effective means of preventing usurpation is to maintain strong, vigorous colonies.

7. Do not allow any weak or empty colonies to exist in an apiary, as they may be attractive to African honey bee swarms.

Keeping empty colonies in an apiary is unadvisable because it provides feral swarms with an attractive location on which to settle. If an African honey bee swarm does move into your apiary, it may target the weaker colonies for usurpation.

8. Recommend re-queening with European stock every six months unless using marked or clipped queens and having in possession a bill of sale from an European honey bee queen producer.

Multiple studies have shown that the average queen in managed bee colonies may last from 6 to 8 months. To ensure that the colony's queen is the same one that the beekeeper introduced, it is necessary to replace the queen about every six months. However, if a beekeeper maintains a clipped and marked queen, and the queen survives longer than 6 months, it will be easy to identify her as the queen introduced by the beekeeper, and it will not be necessary to re-queen as often. So, the queen does not need to be replaced at 6 month intervals unless she is unclipped and/or unmarked. Beekeepers should consider purchasing queens from queen breeders who are following the FDACS-DPI Queen Breeder BMPs.

9. Immediately re-queen with a European queen if previously installed clipped or marked queen is found missing.

If the clipped/marked queen is missing, the bees will begin to rear a new queen. When this virgin queen emerges, she will begin her mating flight and will mate with several drones from the area. African honey bees produce a much higher proportion of drones than do European bees. When a virgin European queen conducts a mating flight in an area where African bees may be present in the feral environment, she has a very high likelihood of encountering and mating with African drones. As a result, it is important that beekeepers do not allow

their bees to rear queens but replace an old or missing queen with a European clipped/marked queen.

10. Maintain one European drone source colony (250 square inches of drone comb) for every 10 colonies in order to reduce supercedure queens mating with African honey bee drones.

Generally, a beekeeper should cut queen cells in an effort to thwart both swarming and newly emerged virgin queens. However, if an accidental supercedure queen does emerge, a beekeeper should maintain in his or her apiary a drone source colony that contains at least 250 square inches of drone comb to prevent a virgin queen from mating with African honey bee on her mating flight. Drone cell foundation is available to create drone source colonies; one side of deep foundation is about 170 square inches. Consequently, a single drone comb can provide enough drone comb to support ~13.5 colonies. In a 27-colony apiary, only 2 total drone combs are necessary to maintain the correct amount of comb.

11. To protect public safety and reduce beekeeping liability do not site apiaries in proximity of tethered or confined animals, students, the elderly, general public, drivers on public roadways, or visitors where this may have a higher likelihood of occurring.

This “out of sight-out of mind” practice stems from both good common sense and a recognition of the current, robust legal system in America. In the event of a lawsuit as a result of a stinging incident whether from a beekeeper's colony or a nearby feral colony, a beekeeper will have a solid defense if his or her bees are not located in proximity to areas frequented by human traffic or land used to keep penned/corralled livestock or horses. Additionally, if apiaries are located in these areas, there is a good chance that an onlooker will be stung eventually. Regardless of the potential for a lawsuit, such a situation does not help to further the good name of the beekeeper in the community, nor does it reinforce the vitally important public image of those gentle bees in managed colonies.

12. Treat all honey bees with respect.

Treating all honey bees with respect is a fundamental pillar of beekeeping as honey bees are indispensable and important to the human food supply.

Additional Resources

EENY429/IN790 African Honey Bee, Africanized Honey Bee, Killer Bee, *Apis mellifera scutellata*, Lepelletier (Insect: Hymenoptera: Apidae)

<http://edis.ifas.ufl.edu/in790>

University of Florida/IFAS Extension EDIS document that offers information about the African honey bee in Florida.

ENY140/IN738 Frequently Asked Questions about the African Honey Bee in Florida

<http://edis.ifas.ufl.edu/IN738> University of Florida/IFAS Extension EDIS document that addresses questions frequently asked about the African bee in Florida

ENY141/IN739 What to do About African Honey Bees: A Consumer Guide

<http://edis.ifas.ufl.edu/IN739>

University of Florida/IFAS Extension EDIS document that offers recommendations and precautions to Florida's general public about the African honey bee

AFBEE Program

<http://entnemdept.ifas.ufl.edu/afbee/>

The African honey bee Extension and Education Program was established by the Florida Department of Agriculture and Consumer Services' and the University of Florida, and it serves to educate all Floridians about the presence of African bees in Florida. The AFBEE Program website is a clearing house of information on African bees. In the resources section, customers can find fact sheets, presentations, videos, and educational documents catered specifically for their needs.

African Honey Bee Page

<http://www.doacs.state.fl.us/pi/plantinsp/ahb.html>.

This Florida Department of Agriculture and Consumer Services Division of Plant Industry, Bureau of Plant and Apiary Inspection website includes links to videos, fact sheets, press releases, and more.