

Mosquito Control and Beekeepers¹

Jamie Ellis and Jerry Hayes²

Introduction

This document addresses the concern among beekeepers in Florida over mosquito control programs and how they may impact honey bee colonies. Florida climate ranges from tropical in the south to subtropical/temperate in the central and north. Furthermore, Florida has many lakes, rivers, streams, and ponds, and high annual rainfall. The abundance of fresh water in Florida makes it the perfect breeding ground for mosquitoes and the diseases they may carry and transmit. Many joke that if it were not for mosquito control and air conditioners, Florida would be uninhabitable. Obviously this is not true, but it does underscore how important mosquito control is to Florida's citizens and its economy.

About Mosquito Control

In Florida, mosquito control is conducted as a function of two primary needs: emergency situations following natural disasters and routine local governmental control measures. Emergency mosquito control is the responsibility of the Florida Department of Agriculture and Consumer Services (FDACS) - Division of Agricultural Environmental Services (AES), a state-level agency that conducts large-scale mosquito spraying in response to major storm events or other natural disasters. For example, hurricanes can deliver tremendous amounts of fresh water to many areas in Florida. Heavy rain or flooding can create reservoirs (even as small as a water puddle) that serve as breeding sites for mosquitoes. The state uses GIS data to locate potential

breeding areas and mosquito trap counts to determine where populations of mosquitoes are likely to be high. Once they determine what areas need to be treated, they use planes and equipped vehicles to administer pesticides. This is done in an effort to limit large-scale mosquito outbreaks and, consequently, disease outbreaks that threaten public safety and agriculture.

Local governmental Mosquito Control Districts (MCDs) are responsible for mosquito control throughout the state. Beekeepers regularly encounter mosquito control efforts initiated by Mosquito Control Districts because these agencies are responsible for "routine" mosquito control in local areas. This may occur on the city or municipality level. Regardless, local Mosquito Control Districts practice regular spraying when mosquito populations are highest.

Mosquito Control and the Beekeeper

The best thing a beekeeper can do to minimize the damage resulting from any mosquito control program is be educated. Beekeepers should work with their local Mosquito Control District and determine (1) when they spray, (2) where they spray, and (3) what pesticide(s) they use. This information can help one locate apiaries appropriately, thereby protecting bees. Furthermore, it may be possible to work with the local Mosquito Control District to help them create a "bee friendly" spray program. Keep in mind that Mosquito Control Districts are constrained somewhat by regulations. These regulations may make it necessary to

1. This document is ENY-149, one of a series of the Entomology and Nematology Department, UF/IFAS Extension. Original publication date May 2009. Revised August 2014. Visit the EDIS website at <http://edis.ifas.ufl.edu>.

2. Jamie Ellis, associate professor, Department of Entomology & Nematology, UF/IFAS Extension; and Jerry Hayes, former state bee inspector, Florida Department of Agriculture and Consumer Services, Gainesville, FL 32611.

spray areas where apiaries are located. For this reason, it is important to communicate with the local Mosquito Control District. The active Mosquito Control Programs in Florida are listed on UF's Medical Entomology Laboratory site at: http://mosquito.ifas.ufl.edu/florida_mosquito_control_districts.htm. Most will provide updates on their respective spray schedules.

What Can the Beekeeper Do?

The following is a list of things beekeepers can do to encourage their local Mosquito Control Districts to minimize damage to bees:

- 1) Review the information on the Mosquito information website. Then, if necessary, ask the Mosquito Control District to review the list of pesticides available to them and use those that are the least toxic to bees and have the shortest persistence in the environment. Remember that the Mosquito Control District will want to rotate chemicals to lessen the chance that mosquitoes will become resistant to any one product. Consequently, you may have to work with the team to identify a couple of lower-risk pesticides.
- 2) Encourage the Mosquito Control District to spray after dark, when bees are not flying. Remember, most Mosquito Control Districts must spray at or just after dusk because that is when mosquitoes fly. However, the later in the evening that the Mosquito Control Districts can spray, the better it is for the bees.
- 3) Work with the spray team to identify areas that need to be sprayed. Local terrain will determine the location of mosquito hotspots. Consequently, spray teams can review their spray area (using GIS and trap information) and maybe limit the amount of pesticide that they spray.
- 4) Create a list of local beekeepers and include their contact information (home and cell phone numbers). You can give this list to the local Mosquito Control District and ask them to notify all area beekeepers prior to spraying for mosquitoes. This is especially important when Florida Department of Agriculture and Consumer Services is conducting emergency mosquito control operations. A helpful reminder that a beekeeper can have colonies located all over the district will be instructive.

Beekeepers need to remember that Mosquito Control Districts work under certain constraints and may not be able to follow all of the recommendations above. The obligation is on the beekeeper to protect his/her bees. Here are some suggestions for protecting bees:

- 1) First, locate bees in areas that are not sprayed routinely. If bees are located in a subdivision, for example, they very likely will be exposed to a mosquito control effort. To that end, it is best to locate bees in rural areas.
- 2) Do not cover colonies with plastic or other covers when a spray event will occur. This could cause colonies to overheat and will lead to other problems.
- 3) Communicate openly with local mosquito control districts about the importance of honey bees. Volunteer to give a presentation on bees to the employees so that they will understand the situation better.
- 4) Public safety takes precedence over everything else: be grateful and patient.

The advice above targets local Mosquito Control Districts specifically. Remember there is a state-level mosquito control effort that occurs during or shortly after disasters. The state maintains a disaster-preparedness website (<http://www.flaes.org/aes-ent/mosquito/index.html>) where an announcement concerning when and where a spray event will occur is posted. It is important that beekeepers visit that website after a disaster (such as a hurricane) so that proper action may be taken. It is also advisable to be in contact with the local County Emergency Operations Center (EOC). All communication regarding emergency mosquito control is channeled through the local EOC. Information related to bee apiaries should be provided to Florida Department of Agriculture and Consumer Services so that they can include this information when they make spray plans. Please know that your personal safety is most important. If a disaster threatens you, protect yourself and your family first. If, however, the danger to you has passed, you can take appropriate action to protect your bees.