

Integrated Pest Management of *Apis mellifera scutellata* (Africanized Honey Bee): Bee-proofing a Home and School

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Africanized honey bees (AHB) first spread to the United States through the southern tip of Texas in 1990. Since then, eight more states—New Mexico, Arizona, California, Nevada, Oklahoma, Louisiana, Arkansas, and Florida—have identified nests of this honey bee. AHB are believed to have entered Florida through a human-assisted transport system—ships docking at our major ports. Many of our western states have learned to live with these new, more defensive bees. For most people here in Florida this means taking some extra precautions when partaking in outdoor activities. Some of these are being aware of possible nesting sites, inspecting your property during swarming season, listening for buzzing, and looking for bees entering or leaving the same area. The second step is to bee-proof the home or school by sealing all gaps larger than 1/8 inch in walls and chimneys, and plugging or covering holes greater than 1/8 inch with hardware cloth. Through these steps an informed and educated public with an action plan can make the best decisions. We can learn to live with AHB and their cousins, which are essential to Florida and U.S. agriculture.

Honey bees from Africa were brought to Brazil in the 1950s. The purpose was to introduce genetic material from the tropically adapted African honey bee into the resident European bees, thereby making better honey producers. Some of the introduced bees escaped and their offspring quickly established a large wild population, which spread to most of the tropical and subtropical Americas (Sanford et al., 2005). In 2002, Africanized honey bees (AHB) became established in Florida. Numerous attacks on animals and humans have occurred, but no human fatalities have been reported. Regrettably, most experts agree that it is only a matter of time until AHBs cause a human fatality.

Basic Honey Bee

All honey bee colonies are composed of three castes: a queen, several hundred drones (males), and thousands of workers (sterilized females) (Fig. 1). Because colonies are highly specialized,

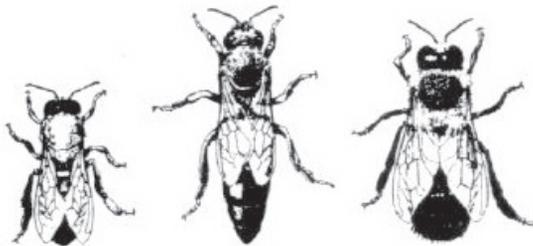


Fig. 1. Adult honey bees consist of castes: (left to right) worker (2/5–3/5 inch), queen (3/5–3/4 inch), and drone (3/4–5/8 inch). Photo courtesy of Ohio State University.

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no individual bee, including the queen, is capable of living alone or establishing a new colony.

Although the AHB looks like our European honey bee, it can be differentiated by a laboratory examination and computer analysis. An identification method called the Fast Africanized Bee Identification System (FABIS) is currently being used. First, a bee sample (usually 50 individuals) is taken and the wings are measured. Results are then compared with standard European bee wing measurements. If the results indicate a probable positive AHB, a complete body part measuring analysis is conducted (Fig. 2) (Tew, 1997).

Africanized Honey Bee

All bees will sting when a perceived danger is acknowledged. Bees become defensive when they feel threatened or there is apparent danger to their nest. If an individual comes within 100 ft

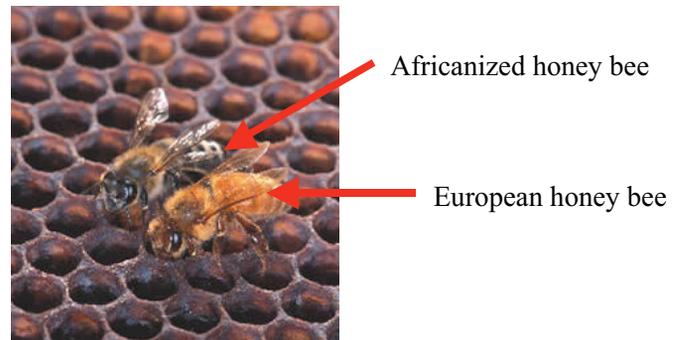


Fig. 2. A comparison of the sizes of the Africanized and European honey bees. Photo by Scott Bauer, USDA Agricultural Research Service.

Table 1. General precautions.

Listen for buzzing, indicating a nest or swarm of bees.
Use care when entering sheds or outbuildings where bees may nest.
Examine work area before using lawn mowers, weed cutters, and other power equipment.
Examine areas before tying up or penning pets or livestock.
Be alert when participating in all outdoor sports and activities.
Don't disturb a nest or swarm; contact a pest control company or an emergency response organization.
Teach children to be cautious and respectful of all bees.
Check with a doctor about bee sting kits and procedures if sensitive to bee stings.
Develop a safety plan for your home and yard.
Organize a meeting to inform neighbors about Africanized honey bees to help increase neighborhood safety.

of an AHB nest, this could cause the workers to attack. Africanized honey bees are very sensitive to alarm pheromone (smells like banana and is released from their sting glands) and produce much more of it than European honey bees. Africanized honey bee venom is no more painful or in greater amount than temperate honeybee venom; it's just that many more bees will sting! The threshold for stinging response in Africanized honey bees is much lower; therefore only a minor disturbance such as a slight motion, vibration, or odor is needed. During an attack AHB will sting anything in sight that is moving and may pursue a source of disturbance for up to a quarter mile or more.

A trifold brochure, "The Africanized Honey Bee: What You Need to Know" (Sanford, 2005), was created and distributed at major events throughout St. Lucie County and placed in welcome packets. A total of 2500 were distributed in 4 months. This brochure outlined general precautions everyone should take; what can be done to bee-proof a home or school; and what to do if attacked by Africanized honey bees (Tables 1–3).

Classroom lesson plans were developed to teach elementary students about honey bees. A "Bee-proofing a Home and School" television show and video were produced to educate the homeowner and school custodian on methods to protect families and children. An educational toolbox was created to assist extension agents in delivering pertinent information to stakeholders.

Honey bees are important to all of us. We count on them to pollinate our fruits, vegetables, and flowers. Some honey bees are more defensive, the closer one gets to their nest. All foraging bees are non-aggressive. This is also true for swarming bees; they

Table 2. Bee-proofing a home and school.

Remove potential nesting sites.
Inspect exterior walls and eaves.
Seal openings greater than 1/8 inch.
Install screens (1/8-inch hardware cloth) over vents, rain spouts, water meter/utility boxes, tree cavities, etc.
During peak swarming season (spring through fall), inspect once or twice a week for any bee activity.

Table 3. What to do if attacked by Africanized honey bees.

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1. Run away quickly (small children, older individuals, or handicapped may need assistance).
 2. While running protect your face and eyes (pull your shirt up over your head).
 3. **Do not** stop running until you have reached shelter (vehicle or building). **Do not** jump into water! The bees will wait for you to come up for air.
 4. Once you have reached shelter, remove all stingers. A honey bee leaves its stinger in the skin and venom will continue to enter the wound until removed.
 5. Do not pull stingers out with tweezers or fingers. This will only squeeze more venom into the wound. Instead, scrape the stinger out sideways using your fingernail, the edge of a credit card, a dull knife blade, or other straight-edged object.
 6. Wash stung areas with soap and water like any other wound to prevent infection. Apply ice to relieve swelling.
 7. If you see someone being attacked by bees, encourage them to run to shelter. Do not attempt to rescue them yourself. Call 911 to report serious stinging attack.
 8. If you have been stung more than 15 times, or are feeling ill or if you have any reason to think you may be allergic to bee stings, seek medical attention immediately.
 9. The average person can safely tolerate 5–10 stings per pound of body weight.
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are only defensive when they have something to defend—their nest. BEE AWARE!

Literature Cited

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