

## UPDATE ON AFRICANIZED HONEY BEES

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The Italian race of European honey bee, *Apis mellifera ligustica*, has been the dominant honey bee in North America for about 100 years. It is widely used for commercial honey production and crop pollination. It is a generalist forager and pollinates a wide variety of plants, both wild and cultivated. Even though the honey bee lacks specialized pollinating behaviors – useful for some crops like blueberries – the honey bee's large forager populations and ease of management make it the most practical pollinator for most crops.

In the 1950s researchers imported an African race of honey bee, *Apis mellifera scutellata*, into Brazil in an attempt to introduce a bee adapted to tropical conditions. The introduction was wildly successful, and *A. m. scutellata* quickly spread across tropical South and Central America, reaching Texas by October, 1990. Florida reported established populations of *A. m. scutellata* in 2005.

These bees are extremely defensive, and when they perceive their nest under attack they respond with mass stinging behavior. They tend to competitively exclude European honey bees or interbreed with them to various degrees. The resulting Africanized honey bee (AHB) has caused numerous animal and human deaths in the US.

Of particular concern are the effects of AHBs in commercial crop pollination situations. This lecture covers three arenas of concern: (1) the utility of AHBs as pollinators, (2) on-farm risk management when AHBs are used as pollinators, and (3) emergency response.

### Utility of AHBs as Pollinators

The pollinating behavior of AHBs is generally regarded as good or better than that of European honey bees (EHBs). The flower visitation rate is generally faster with AHBs. Moreover, AHBs are comparatively resistant to many of the diseases and parasites plaguing EHBs. Thus, one expected outcome of AHB movement into the Southeast is a re-saturation of the habitat with feral honey bee nests. This may constitute a human health risk in urban environments, but in croplands this constitutes free pollination.

### On-farm Risk Management

The risk of AHBs is exclusively associated with disturbances the bees perceive as threats to their nest. A single bee foraging on a flower is not a hazard to a human observer. Moreover, the sting of one Africanized bee is not more toxic than a European bee; in fact, it's a little less. The danger with AHBs is the risk of sustaining a large number of stings at one time from a colony defense reaction – doses that have been

shown to encroach upon the human LD<sub>50</sub>.

Operators of open-cab tractors are particularly vulnerable to mass-stinging incidents. So are the elderly, infirm, roofing workers, or individuals in similar situations that cannot make a fast get-away.

Some recommendations for reducing on-farm risk include:

- Enclose tractor cabs.
- Check for bee flight activity before entering old or abandoned sheds or handling trash or other debris.
- Locate pollinating bee hives as far as possible away from confined animals and human traffic.
- Position pollinating bee hives so that their entrances immediately face some kind of solid, vertical surface above head-level. This will force flying bees to fly above the height of an average person.
- Provide farm laborers bee suits for emergency situations.
- Position pollinating bee hives as far as possible away from heavy machinery or any kind of disturbance.
- Be sure farm laborers are advised of the location of pollinating bee hives and instructed against approaching them.

### Emergency Response

The best AHB emergency response is knowledge and preparation. With the bee hive siting recommendations given above, much of the risk of mass stinging is minimized. If, however, someone is enveloped in a cloud of stinging bees, it constitutes a life-threatening situation. Call for emergency rescue help.

The most important thing for a victim to do is to run away from the scene of attack. AHBs will pursue a victim for a mile or more, so it is important for the victim to run – and keep running. It is important to get inside a building or enclosed vehicle as quickly as possible. Don't worry about the few bees that follow you inside; better a dozen stings than the thousands that wait for you outside.

If a person is unconscious or disoriented in a cloud of stinging bees, direct rescue is the only recourse. Make sure the rescuers are themselves properly suited in a complete bee suit. Conventional fire-fighting gear is NOT bee-proof. Flying AHBs can be subdued with water sprayed with a pressurized hose. Spray the cloud of bees and victim to subdue the bees enough for rescuers to move in. Ambulance workers should be pre-suited in protective gear as well because many bees will remain air-borne and enter the emergency vehicle along with the victim.

### Citation

Delaplane, K.S. 2006. Africanized honey bees. The University of Georgia Cooperative Extension Service, Bulletin 1290, <http://www.ent.uga.edu/bees/Publications/B1290.pdf>