

# Colonization, Impact and Control of Africanized Honey Bees in Mexico

## —Research Review—

Reviewed by PETER LORING BORST

**A** report published recently in the journal *Veterinaria México* described the impact Africanized bees have had on that country. Ernesto Guzman-Novoa, of the University of Guelph, and his colleagues have written a lengthy summary of the history of the Africanization of the Americas and their negative effect on the beekeeping industry of Mexico, dispelling any thoughts that the bees from Brazil might be a welcome change.

The authors emphasize the fact that the process called Africanization is essentially a conversion of the honey bees in a given region from the traditionally kept European bees to a hybrid which has predominantly the characteristics of the bees that were originally imported in 1956 by Warwick Kerr. The reasons for this are various and include the high reproductive and swarming capability, the numeric superiority and behavior of the African drones, the process called colony usurpation, and the dominance of African genes.

Regarding reproduction, the African bees tend to occupy smaller cavities than the European type. They put most of their energy into raising bees, they so quickly outgrow their small nests which stimulates the colonies to swarm. While European bees seldom swarm more than once in a season, African bees can cast up to 16 swarms a year. In this way, the number of colonies of African bees increases rapidly as they enter a new area. According to Guzman, et al, African colonies produce large quantities of drones which not only saturate an area, but actually move into the European colonies, inhibiting the production of drones in those hives. Even their aggressive mating behavior ensures that the majority of queens will be mated to African drones.

The most insidious habit of African bees is colony usurpation, whereby the African bees actually invade the existing hives. The report states that the swarms kill the resident queens and replace them with their own queens. Finally, the African race appears to exert genetic dominance, especially in crosses which are fathered by the invading drones. The authors state that hybrid colonies of European mother and Africanized father show defense levels similar to those of Africanized bee colonies. In all, the process of Africanization leads to their predominance in the tropical regions to which they are ideally suited.

The impact on the Mexican bee industry has been such that Africanized bees are considered as one of the most damaging factors to the in-

dustry. Mexico still maintains its position as a major honey producer, sustaining approximately 40,000 beekeepers. However, ten years after the arrival of the African bees, honey production had fallen to 66% of its former level. At the twenty-year mark, there was some improvement, but the annual output of 56,000 tons was still far below the 74,600 tons the country produced in 1986.

The reasons for the reduced output are various and include lower honey production of the African bees and the increased difficulty



**An Africanized honey bee (left) and a European honey bee (right). Without laboratory techniques AHB and EHB often cannot be distinguished by observable differences. Photo by Scott Bauer, USDA Agricultural Research Service.**

the management of these bees entails. In fact, the behavior of Africanized bees differs in many ways, which the report lists in great detail. For example, factors which make them more difficult include the higher defensiveness which leads to much extra labor. The bees themselves are more difficult to control, which necessitates smaller apiaries and the placement of these bees much further from human habitation, especially avoiding livestock. While there are not reliable numbers on how many livestock have been killed by bees, Guzman et al states that it is likely thousands, as complaints of animals being killed by bees are common throughout the entire country where bee hives are kept.

One of the principal ways in which beekeepers normally control the temperament of their bee colonies is by the selection of manageable stock. Unfortunately, African bees have many behaviors that interfere with this

typical beekeeping practice. They tend to produce their own queens annually or even more often, which means that the effort to reintroduce selected queens must be constant. Further, there are not enough queens raised in Mexico to maintain continual stock replacement, and according to Guzman et al, only a few of the queen breeders use the proper selection methodology.

These bees are not without their values, however. It is reported that the African bees are much more resistant to diseases, parasites and predators. Additionally, they are vigorous collectors of pollen and propolis, which are valuable products, which beekeepers can use to supplement their income from honey.

The report concludes by affirming the misguided nature of the introduction of African bees into Brazil, which led to one of the most dramatic examples of species invasion. Despite their undeniable success in colonization vast areas of the Americas, for the beekeeping industry their flaws far outweigh their advantages. Many commercial beekeeping operations folded, many colonies perished. Additionally, the aggressive Africanized bees killed people and livestock, especially during the initial adjustment period.

Beekeeping, which has long been a successful and prosperous industry in Mexico, has been made more difficult and more expensive. While strong prices for honey can offset increased costs, the fact remains that additional effort and expense is necessary to improve the efficiency and productivity of the honey bee colonies and the businesses that depend on them for their income.

A few years ago, Ernesto Guzman-Novoa presented at the annual seminar of the Southern Adirondack Beekeepers Association (SABA). I was fortunate to attend the dinner the night before where the guest speakers were in attendance and got a chance to talk with him at length. I mentioned that some people were suggesting Africanized bees as a remedy for mites and diseases in general. He said that he had worked for many years with the bees in Mexico. He told me, "You don't want these bees."

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