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# Varroa in Panama: detection, spread and prospects

RAFAEL A CALDERÓN, ALBERTO ORTIZ, BOLIVAR APARISIO AND MARÍA TERESA RUIZ

**On 6 July 2000, the ectoparasitic mite, *Varroa jacobsoni*, was first detected in Panama. Samples of sealed brood and adult bees, and varroa traps taken from Chiriquí, Veragua, Coclé, Herrera and Colon provinces, confirmed the presence of the mite throughout the country. Both the National Beekeepers Association of Panama and the Ministry of Agricultural Development are working together in order to combat this mite efficiently.**

## Introduction

Beekeeping in Panama with *Apis mellifera* started in the 1970s and grew in the early 1980s. Nevertheless, after the arrival of Africanized honey bees in 1982<sup>2</sup>, many beekeepers abandoned the activity and honey production decreased drastically.

Nowadays, the National Beekeepers Association of Panama (ANAPIS) and the regional associations of Chiriquí (APROACHI) and central provinces (APIPROC) in co-operation with the Ministry of Agricultural Development (MIDA), are promoting beekeeping. However, the number of colonies and honey production has been growing only slowly. Almost all beekeeping is done on a small scale: 155 beekeepers own 7000 hives. Hives are of the Langstroth type, but in general their condition is poor. Most of the hives are used for honey production and some of them are used for crop pollination, especially melon (*Cucumis melo*) and watermelon (*Citrullus lanatus*). The price of honey sold on the local market is high if compared with the rest of the countries of Central America.

Varroa was officially detected in Costa Rica in 1997<sup>3</sup> and this mite was already present

in Colombia by 1996<sup>1</sup>, and so the arrival of this pest was imminent to Panama.

In this article we report on the detection, spread and prospects of varroa in Panama.

## Detection

Varroa was first detected in Panama on 6 July 2000. However, in June 2000, some beekeepers suspected its presence on the eastern coast of Panama, in Colon province, but they were confusing it with the bee louse, *Braula coeca*.

The mites were officially identified as *Varroa jacobsoni* by entomologist Alberto Ortiz and bee pathologist Rafael Calderón, of the Bee Pathology Laboratory, Centre for Research on Tropical Beekeeping (CINAT), National University of Costa Rica. The adult female mites, found as ectoparasites on worker honey bees and pupae, are reddish brown, oval and flattened.

## Sampling

A survey of commercial honey bee colonies from nine beekeepers in Chiriquí, Veragua, Coclé, Herrera and Colon provinces was

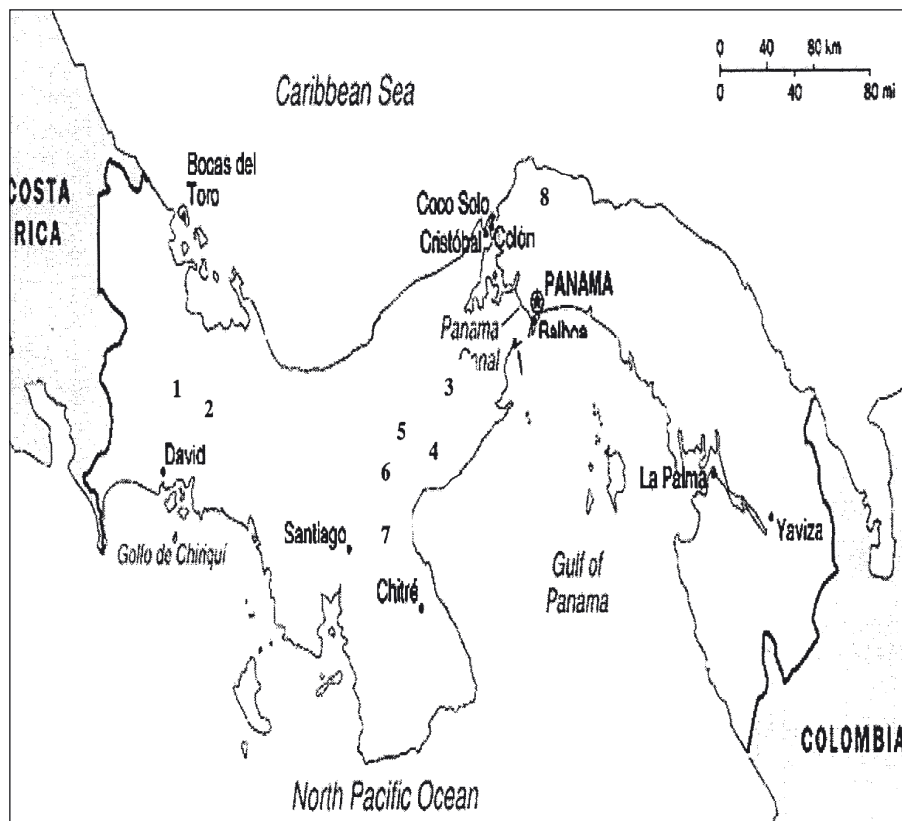


FIG. 1. Map of Panama showing the sites where *varroa* has been found (1. Bugaba; 2. Boquete; 3. Penonome; 4. Agua dulce; 5. Jaguito; 6. Divisa; 7. Santa María; 8. Rio Indio).

made (fig. 1 and table 1). Twenty-three sealed brood samples were examined and 17 samples of adult bees were collected. For the detection of mites in the brood comb, at least 50 sealed cells from each hive were opened using a pair of forceps and pulling out the brood. Samples of about 200 adult bees were collected from the brood nest in a jar, washed in water with soap solution and then filtered. Furthermore, six hives belonging to different beekeepers were sampled with *varroa* traps using tau-fluvalinate (Apistan) strips placed on the brood nest. *Varroa* traps consisted of a  $36 \times 45$  cm

white card coated with a thin layer of Vaseline protected with a wire mesh. The sticky card was slid through the hive entrance all the way to the back of the hive and left in the colony for two hours.

## Prospects

*Varroa* is a new sanitary problem that has been added to beekeeping in Panama. Treatment of infested colonies with expensive acaricides will not be available for small-scale beekeepers. Therefore, it is expected that those beekeepers that are unable to buy

**TABLE 1. Preliminary results of sampled apiaries in Panama for the detection of the mite *Varroa jacobsoni*.**

Sample type	<i>Varroa jacobsoni</i> present	
	yes	no
Apiaries examined*	11	0
Colonies inspected	23	0
Adult bees	15	2
Sealed brood	23	0
Varroa traps	5	1

\*Belonging to nine beekeepers

these acaricides may have to abandon their hives if no affordable alternative treatment becomes available.

In the tropics, both honey bees and varroa can reproduce all year round. Consequently, infestation with mite populations can build up over the whole year, although apparently not to such high levels as seen in temperate climates. *Varroa* infestation was low in almost all the apiaries inspected (about 1–2% in adult bees and less than 5% in sealed brood), with the exception of the western area, adjacent to the Costa Rican border, where high levels of infestation were found (adult bees 10% and brood 25%). Therefore, there is time available to train beekeepers and to plan a strategy for varroa control. According to the experience in Costa Rica<sup>3</sup>, treatment with formic acid

after the honey harvest in combination with a second treatment with tau-fluvalinate two months before the honey flow, seems to offer good possibilities for the future.

## Response

ANAPIS in co-operation with MIDA are trying to import some chemical acaricides such as tau-fluvalinate (Apistan) and to incorporate alternative treatments such as formic acid to combat the mite. A survey to determine varroa infestation in the areas where no information is available is needed immediately. Some beekeeping educational activities to improve hive management and to implement sanitary strategies for varroa and other disease control have been carried out.

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