

## Colony collapse disease in Brazil

David De Jong

Genetics Department  
Faculty of Medicine  
University of São Paulo  
Ribeirão Preto Campus  
BRAZIL

Brazilian beekeepers are able to maintain Africanized honey bees without antibiotics, acaricides and other chemical controls. Among the benefits are reduced management costs and less risk of contaminating honey and wax. Unfortunately, we have not completely escaped the consequences of “Colony Collapse Disease” (CCD). Beekeepers have been complaining in recent years of partial or complete loss of apiaries. Since we noticed similarities in the symptoms between CCD in the USA and what we see in the bees here, several research groups have begun to concentrate on these problems. As a result of this research, we have already found Israeli Acute Paralysis Virus, *Nosema ceranae*, problems with nutrition and mortality due to a new class of pesticides, the neonicotinoids. The brood mite *Varroa destructor*, which is also associated with virus problems that appear to be characteristic of CCD, has become increasingly evident, apparently due to a changeover from the original Japanese/Thai mitotype originally introduced to Brazil to the more virulent Korean/Russian mitotype, which is now almost exclusively present throughout the country. Mite reproduction rates have greatly increased and infestation rates have also risen; treatment still remains unnecessary throughout most of the country, though there have been some reports of increased problems with *Varroa* in the cooler regions of the south. Some areas of research that are being pursued include the dynamics of infestation of the new *Varroa* mitotype in Africanized bees, variation in hygienic behavior, how management affects bee diseases, improved bee nutrition, bee viruses and their effects, morbidity and mortality due to insecticides, and the impact and epidemiology of *Nosema ceranae*. Research financed by CNPq and FAPESP.