

CONTROL OF BEESWAX MOTHS USING CARBON DIOXIDE IN FLEXIBLE PLASTIC AND METAL STRUCTURES

Boris YAKOBSON¹, Shlomo NAVARRO², Jonathan DONAHAYE², Avi AZRIELI²,
Yossi SLAVEZKY³, and Haim EPHRATI³,

¹*Kimron Veterinary Institute, Bet Dagan, Israel;
Fax: 972 39681721*

²*Department of Stored Products, Agricultural Research Organization, Bet
Dagan, Israel;*

³*Agricultural Extension Service, Ministry of Agriculture, Israel.*

The building structure of bee hives is based on the wax cells produced by the bees. Of the species that attack beeswax the most important is *Galleria mellonella* the Greater wax moth, and protection of stored combs is of high priority, especially in hot climates.

A new approach in controlling this pest has been to replace the traditionally used chemical methods such as EDB with environmentally sound methods. We propose the controlled atmosphere methodology using CO₂ for insect control and subsequent protection of honey supers during storage. The results of field tests using mixtures of CO₂ in air at concentrations ranging from 50% to 75%, over a range of exposure periods, are presented. The tests were undertaken using plastic enclosures of 12 m³ capacity, and using specially sealed 20 foot freight containers of 34 m³ capacity. Both methods enabled complete control of the wax moths and subsequent protection from reinfestation. The containers had the inherent advantage of their rigid structure that gave better protection from rodents and pilfering. However each container requires specific sealing procedures followed by sealing tests. The plastic enclosures were found to be suitable for smaller enterprises, had the advantage of ease of portability and installation at the storage site, while the structural seal was checked during manufacture. So far they have been under continual use for 5 years.