

Breeding Mite-Biting Bees to Control Varroa

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Beginning in 1997, at Purdue University a breeding program was conducted to breed bees with winter hardiness and lower population growth of Varroa mites. Since 2007, we have been selecting for bees that have a high proportion of chewed mites on the sticky sampling sheets under the brood nest, because our studies and another recent study showed that the proportion of chewed mites correlates with how well the bees groom Varroa mites from themselves. The average proportion of chewed mites in our population has increased from 3% in 2007 to nearly 50% today. It appears that colonies with bees that bite more mites also have fewer mites overall. In the last two years we worked with beekeepers to conduct a blind study comparing two Indiana mite-biter grafting sources to three commercial sources, for a total of 27 side-by-side comparisons. Beekeepers got two queens marked different colors but did not know which was which. After de-queening and splitting a hive, they introduced the queens and followed their success for a year. The IN mite biters had about as third as many mites and more than twice the survival of the commercial-source colonies (55% survival versus 22%). Beekeepers preferred the IN mite-biters ten to one in this blind test. We are distributing the stocks through the Indiana Queen Breeders Association and the Heartland Honey Bee Breeders Coop to make instrumentally inseminated breeder queens available, and we encourage queen breeders to do their own selection.

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