Could we control bee-killing Varroa mites by exploiting their genetic vulnerabilities?

Seemingly indestructible Varroa mites have decimated honeybee populations and are a primary cause of colony collapse disorder, or CCD.

Michigan State University scientists have found genetic holes in the pests' armor that could potentially reduce or eliminate the marauding invaders.

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Controlling pests like Varroa mites succeeds by either eliminating them or reducing their ability to reproduce. The team used RNA interference to identify the key genes, which could achieve these outcomes. They injected the mites with double-stranded RNA, or dsRNA.

Interfering reduces transcription of a specific gene, the first step of making a gene, a piece of DNA, into a protein. This process, also known as "gene knockdown," has been successful in reducing the mating success and the number of eggs produced by cattle ticks, which threaten cows and other livestock around the world.

Using this approach, the team identified two genes that caused high mortality in Varroa mites — Da and Pros26S. In fact, Da killed more than 96 percent of mites. They also identified four genes — RpL8, RpL11, RpP0 and RpS13 — that control reproduction.

The GLP aggregated and excerpted this article to reflect the diversity of news, opinion and analysis. Read full, original post: Varroa mites — bees' archenemies — have genetic holes in their armor