

Unstoppable Asian Mites Endangering U.S. Honey Bees

ITHACA, N.Y. — Parasitic mites from Asia are threatening to wipe out honey bees throughout the United States, not only paralyzing the nation's beekeeping industry, but also hampering pollination of many agricultural crops, according to a Cornell University entomologist.

At stake are several million honey bee colonies that produce about \$130 million worth of honey annually. More importantly, the mite infestation could seriously jeopardize the pollination of agricultural crops, the value of which is estimated at \$20 billion annually.

The scientist who issued the warning is Professor Roger A. Morse, one of the nation's leading authorities on honey bees. He described the situation as the "most serious" since European honey bees were brought to this continent more than three centuries ago.

He stressed the need to mount major research efforts to meet the new challenge and suggested that countermeasures might include chemical controls and development of honey bee strains that are resistant to the pest.

The mite, whose scientific name is *Varroa jacobsoni*, is about the size of a pinhead — less than one millimeter (0.4 inch) in length. It has eight legs, a hairy shell and a sharp, two-pronged tongue for feeding. It enters bee hives, attaches itself to bee larvae and sucks blood from its victims. It also attacks pupae as well as adult drone (male) and worker (female) bees.

"If left unchecked, the mites can destroy a whole colony in no time," Morse said.

Mite-infested bees weaken and die prematurely, according to Scott Camazine, a research associate in entomology at Cornell. In a recent study, Morse's research team found that adult bees suffered as much as a 50 percent reduction in longevity even when attacked by only a single mite. Pupae infested with five or more mites lost weight drastically; some of them suffered deformations.

Morse conceded that nothing can stop the mites from overrunning some 3.5 million honey bee colonies, which are owned and operated by 200,000 hobby beekeepers and 1,600 commercial beekeepers.

"We can be sure that within a year — and certainly within two years — they will have overrun all honey bee colonies in the country," he predicted.

All honey bees in the United States are descendants of the European bees *Apis mellifera*. Honey bees in North America have never encountered the Asian mites before, and therefore "are highly susceptible to the invader," Morse said.

Morse, a professor and chairman of the Department of Entomology in the College of Agriculture and Life Sciences at Cornell, has studied the Asian mite extensively in Brazil over the past several years where it maintains a peaceful coexistence with Africanized bees, known more popularly as the killer bees.

Morse explained that the mite can spread rapidly because honey bees don't always remember the location of their own colonies and therefore often "drift" away and join other colonies. Frequent raids and takeovers of weaker colonies also hasten the spread of the mite.

Moreover, tens of thousands of colonies involving countless hon-

ey bees are moved around the country each year to pollinate agricultural crops. According to Morse, California, for example, uses honey bees from 11 states to pollinate almond trees each February. Maine and Massachusetts also rely on a large number of out-of-state bee colonies to pollinate cranberry and blueberry crops.

Varroa originated in Asia. It was first found in Indonesia in 1904, attacking the Asian honey

bee *Apis cerana*. Since then, it has spread all over Asia and other parts of the world, including Europe, North Africa, South America and Central America. It showed up in the Soviet Union as early as 1952. It has been reported that Australia is the only continent that remains free of this mite.

"The Asian mite now is the world's leading pest problem of honey bees," Morse pointed out. How this pest got into the

United States is not known, but it turned up in Wisconsin for the first time in late September 1987. Its presence has since been confirmed in 10 other states — New York, Pennsylvania, Maine, Florida, Ohio, Michigan, Illinois, South Dakota, Mississippi and Nebraska.

Morse said that effective countermeasures might include newly developed chemicals designed to kill the Asian mite without harming the honey bee. Fluralinate,

which is known by its trade name Spur, has just been cleared with the Environmental Protection Agency for general use in the United States, Morse reported. The chemical already has been used in Europe for the past several years, thus bringing the mite infestation under control.

In addition to using the chemical-control measure, the Cornell scientist hopes to seek a long-term solution to the problem by developing resistant strains of honey bees through breeding programs.

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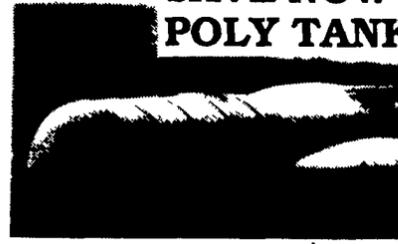
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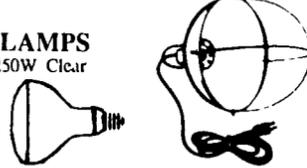
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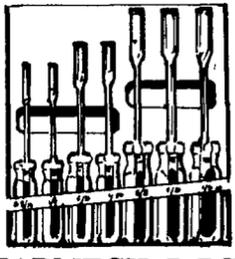


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