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Guilford NEWS

JANUARY • FEBRUARY • MARCH, 2005

a local chapter of NORTH CAROLINA STATE BEEKEEPERS ASSOCIATION, INC.

MEETINGS & PROGRAMS:

- **Tuesday, January 11, 6:30.** Covered dish meal. Dr. Olav Rueppel & Stephanie Christine will inform us about their programs at UNC-G and Wake Forest University. You will be surprised at how these programs relate to each other and to beekeeping.
- **Tuesday, February 8, 7:00, No Meal.** Paul Hric & Norman Faircloth will lead discussions of spring hive management, diseases to check for & prevent, & other issues in general. Come and help them get it right! PLEASE.
- **Tuesday, March 8, 6:30.** Covered dish meal. Don Hopkins will have attended a convention of state apairists in Reno, Nevada, by this date and is planning to discuss what's new from this national group and what's going on in North Carolina.

NEEDS YOUR ATTENTION:

• Time for **DUES. DUES ARE DUE FOR 2005... Let's try to get everyone on a full calendar year membership. \$10 county, \$15 State, \$25 for both.**

• Coming in February will be our annual Beginner Beekeeping course. Please make plans to attend and be part of the program. Classes will be offered on Feb. 17 & 24 and March 3, 10 & 17 (24th for weather make-up if needed). Help make the class members feel welcome and let them know you are available to help them.

• Remember that the newsletter is now posted on our web page. Only those of you who do not have email will receive paper copies. Our Board approved this as a cost saving practice. The web letter will be in full color. If you are using dial-up connection it may take a short time to download.

• **Web site Help Wanted:** We are in need of individuals who would be interested in helping manage our web site. *We are also interested in knowing about what members might like to see on our web site that would make it more relevant.*

REVIEW:

Saving Bees: Fungus Found To Attack Varroa Mites

Parasites known as *Varroa* mites infest honey bee colonies, sucking blood from the bees and causing weight loss, deformities, diseases, and reduced lifespan. These mites, which



can nearly destroy an entire colony within a few months, now infest honey bee colonies across most of North America.

The honey bee is critical to maintaining natural vegetation, transferring pollen between flowers as it collects the pollen and nectar for its hive. And more than 130 agricultural plants in the United States are pollinated by honey bees. Every year, beekeepers send their best bees throughout the country to help pollinate crops, one farm at a time. In 2003, the value they added to U.S. crops was estimated at \$10 billion, not including the honey, beeswax, and royal jelly also produced. USDA's National

Agricultural Statistics Service reported more than 2.5 million honey bee colonies—up 1 percent from 2002—and U.S. honey production increased 5 percent, to 181 million pounds.

Since 2000, scientists in the **ARS** Beneficial Insects Research Unit (BIRU) at Weslaco, Texas, have been looking for a disease-causing agent, or pathogen, that can stop *Varroa* mites. The mite has developed resistance to the only approved chemicals—fluralinate and coumaphos—now used for control, and coumaphos is on the U.S. Environmental Protection Agency's "hit list" for possible removal from the market. So the researchers have looked at various disease agents, tried different dosages and application methods, and conducted toxicity tests. Finally, they selected a strain of the fungus *Metarhizium anisopliae* that was highly pathogenic to *Varroa* mites.

This potent fungus, which also kills termites, doesn't harm bees or affect their queen's production. To test it, the scientists coated plastic strips with dry fungal spores and placed them inside the hives. Since bees naturally attack anything entering their hives, they tried to chew up the strips, spreading the spores throughout the colony.

In field trials, once the strips were inside the hives, several bees quickly made contact with the spores. Within 5 to 10 minutes, all the bees in the hive were exposed to the fungus, and most of the mites on them died within 3 to 5 days. The fungus provided excellent control of *Varroa* without impeding colony development or population size.

"We tried to find a pathogen of *Varroa*, and we did it!" says ARS entomologist Walker A. Jones, research leader of the BIRU.

Tests showed that *Metarhizium* was as effective as fluralinate, even 42 days after application. "Commercial beekeepers are very edgy about using fluralinate and coumaphos and are eager to see this natural control get to market," Jones says.

This research was begun by Rosalind James, formerly with the Weslaco unit. Lambert H.B. Kanga, former BIRU research associate and now chair of the Entomology Department at Florida A&M University at Tallahassee, continues to collaborate on the project. "While *Metarhizium* doesn't kill as fast as fluralinate and coumaphos, the result is the same," Kanga says. " *Metarhizium* gets the job done, and we won't have to worry about *Varroa* becoming resistant to the fungus."

The scientific team is now fine-tuning the strategy for transfer to producers.—By **Alfredo Flores**, Agricultural Research Service Information Staff.

This research is part of Crop Production, an ARS National Program (#305) described on the World Wide Web at www.nps.ars.usda.gov

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"**Saving Bees: Fungus Found To Attack Varroa Mites**" was published in the **October 2004** issue of *Agricultural Research* magazine.

The "KÖNYA" beehive with rotating frame of broodnest

Hungarian invention, a new technology modernizing apiculture

Its aims: making the work of beekeepers easier increasing the efficiency of honey production killing mites without chemicals (by an innocuous method).



Its principle: The recognition that gravity has a fundamental effect on the life and reproduction of mites and influences the bees' certain actions, too.

The main features of the hive: It prevents the reproduction of Varroa mites in the sealed brood cells.

The Varroa mite orientates itself by the help of gravity and sense of smell. In this manner it finds the site suitable for feeding on the body of the bee-pupa, and posits its eggs on the most secure, upper part of the cell.

The frames of the broodnest are circular and rotate by 180 degrees at a determined pace. The alteration of up and down stops the quiet conditions necessary for the reproduction of the mite. Because of the loss of their orientation mites cannot continue their lives according to the rules programmed in their genes. Therefore, their oviposition and reproduction become impossible.

In the hive with rotating frame of broodnest the chemical protection against the mite is unnecessary during the whole honey season. Hence, high quality honey without chemical residues can be produced.

It prevents swarming.

In building the swarming cell bees also orientate themselves by the help of gravitation: they always build it from above. In the hives with rotating frame of broodnest because of the periodical rotation the bee family can build only the base of the swarming cell. They cannot raise a queen-bee and they cannot swarm. A single rotation in a day does not disturb the bees. After the rotation the hive can be opened, if necessary. In spite of the rotation the bees build the foundation perfectly.

It gives a mechanized and electronic method for treating bee families and thus makes the work of beekeepers easier.

In a round frame of broodnest bees put honey over the brood. After the rotation this honey gets to the exit of the hive and the bees save it to the honey-box. These freshly cleaned cells are readily oviposited by the queen, so the whole area of the round frame will be taken up by broods.

The beekeeper is not obliged to intervene in the system (e.g. to remove the honey from the broodnest or to arrange the broodnest), the honey and the broods become separated from each other due to the rotation. (The broods remain in the broodnest and the honey remains in the honey-box.) The work of the beekeeper is reduced to the occasional quick controlling of the families and to removing honey.

By this new method professional beekeepers can increase the number of families to 1,000. The beehive with rotating frame of broodnest is powered by a machine and controlled by

electronics. Therefore, the hive can be put on bee-houses or containers.

Prospects:

Today's apiculture is characterized by a century old technology in the whole world. This technology has hardly been renewed in the last one hundred years, since it did not utilize the advantages provided by machines and electronics. Because of the outdated technology apiculture is not a successful branch of agriculture in the developed countries.

The hive with rotating frame of Y broodnest is the result of a research conducted for several years. It was presented for the first time in Hungary at an international symposium held in Godolld on 15th September 2002.

The new technology has attracted lively interest among beekeepers. The inventor made several presentations with great success in Hungarian towns. The Hungarian media (journals for beekeepers, newspapers, television) also participated in the popularization of the new technology.

The inventor:

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Like to join Guilford County Beekeepers Association?

Meetings are held on the 2nd Tuesday of each month. (Odd months @ 6:30 p.m. with a covered dish meal, even months @ 7:00 p.m.) Just come to our next meeting at the Guilford County Agricultural Center and join in. Dues are \$25.00 per year (that's \$10.00 for GCBA and \$15.00 for expanded membership in the North Carolina State Beekeepers Association).

FOR MORE INFORMATION:

- Don Hopkins, State Inspector: (336) 376-8250
- Guilford County Beekeepers Association web site <http://www.guilfordbeekeepers.org>
- North Carolina State Beekeepers Association web site <http://www.ncbeekeepers.org>

Our Christmas party on December 14, 2004 was a great time with good friends, good food, Christmas Carols, prizes, and games.



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