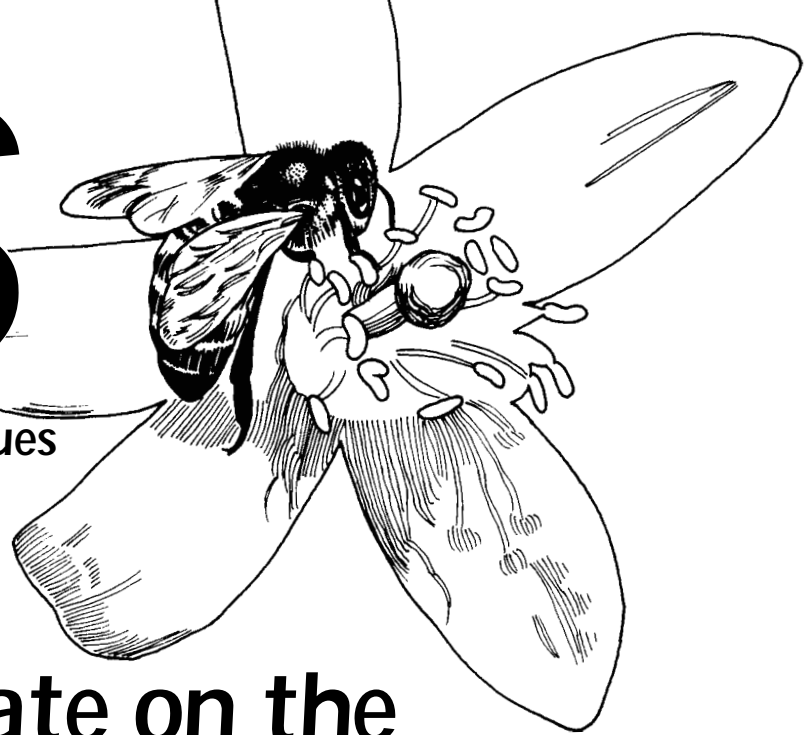


APIS



Apicultural Information and Issues

From IFAS/University of Florida
Department of Entomology and Nematology

August 1998

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APIS Volume 16, Number 8

ISSN 0889-3764

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Update on the Small Hive Beetle

THE FLORIDA DEPARTMENT OF AGRICULTURE'S Honey Bee Technical Council has now met twice about the introduced small hive beetle from South Africa, *Aethina tumida*. The first meeting on July 7 revealed little more than what was summarized in last month's issue of this newsletter¹. Because so little information was available at the time, the Council recommended that the agriculture commissioner maintain the movement moratorium for another thirty days while a survey could be carried out to better determine the extent of the problem.

The August 6 meeting has just concluded. The Council voted to recommend lifting the movement quarantine. The beetle continues to be generally confined to its original area in Florida as reported in the last issue of *APIS*. However, the insect has also been reported in South Carolina and there are rumors that it may be in other states as well. This suggests that the beetle has already been widely dispersed, reducing the need for regulated movement. In addition, in a few short weeks one of Florida's major beekeeping migrations will commence as bees are moved en masse to Brazilian pepper, making enforcement of any controls much more difficult. The scale of colony movement is so great in the Sunshine State, and for that matter across the country, that past moratoriums and quarantines have invariably been compromised in one way or another. Fortunately, the Council has received assurance that, should controls be lifted, making the beetle an unregulated pest in Florida, this will not threaten the future of research efforts already under way by either USDA or the Florida Department of Agriculture. Finally, the fact that preliminary studies have shown some encouraging results in controlling the beetle suggests that the problem can be solved much easier than originally thought.

THE COUNCIL'S duty is to advise the commissioner, who then must make the final decision. This probably will come in a week or so. Historically, the commissioner has followed the Council's recommendations; however, this is not a certainty at this time. Therefore, the movement moratorium remains in place in Florida until it is official rescinded by the commissioner. For the very latest information on this, and before moving bees, be sure to contact your local bee inspector.

As noted above, research conducted by USDA scientists in Florida is showing evidence that *Aethina tumida* can be controlled. They hasten to point out, however, that nothing yet is legal and registered and improper use of any unlabelled materials could easily kill bees as well as beetles. There is also no need to contemplate treatment unless the beetle has been detected. As suggested in the July *APIS*, attacking the beetle's weak point — the fact that it must pupate in the soil —

Continued next page

¹ <http://www.ifas.ufl.edu/~mts/apishtm/apis98/apjul98.htm#1>

Hive Beetle continued

appears to be the best potential control tactic. Thus, soil treatments, including use of chemicals, nematodes and/or two strains of *Bacillus thuringiensis*, often simply called b.t., have shown the most promise so far.

Other tidbits of information obtained at the meeting include:

1. When the number of small hive beetle larvae reaches a certain level in a colony, honey bee brood rearing stops.
2. Adult beetles appear to be eating bee eggs and may even consume their own eggs. Larval cannibalism is also reported.
3. Amber light shone on frames at night will cause adult beetles to move and be detected.
4. Adult beetles do not get caught on sticky boards, and move quickly across them.
5. Adult beetles will lay eggs on fruit, but this does not appear to be their preferred

diet. The fruit also contains limited amounts of protein necessary for larval development.

6. Best survey technique for beetles is carefully examining the frass on bottom boards and/or cardboard inserts, with one side removed and the exposed corrugated portion in contact with the bottom board. The beetles apparently are drawn to this material and easily hide in the corrugations.
7. There is no need to consider treating this pest until it has been detected in the apiary. The mood of some beekeepers appears to be one of preventive treatments. This is not warranted.
8. Location of major infestations seems to be confined to the southeastern coastal plain. It could well be that soil moisture or makeup is optimal in these areas. The beetle may not effectively reproduce in other ecosystems, which are quite different in climate and soil type. *A. tumida* has been described as a subtropical to tropical organism in much

of Africa, but it is reported to also withstand temperate weather conditions in its homeland.

9. Freezing honey in the comb appears to kill both beetle and wax moth eggs and larvae.
10. Soil conditioning agents may also affect pupation of the beetle. Muriate of potash, sometimes known as 0600 fertilizer, might act as a dehydrating agent, similar to boric acid crystals for roach control in urban environments.

Late word from Garth Cambray in South Africa via the Internet is that bees cannot kill beetle larvae and may carry them as much as 150 feet from a colony. Thus, a larger area of soil may require treatment than one might think. His other observations include the fact that beetles can survive quite cold temperatures, will track swarms, and preferentially eat brood. The latter is a problem in nuclei because the heat created may cause the comb to collapse and bees to abscond². ■

“ Only substantial, visible support by beekeepers and beekeeper associations who contact their congressman will ensure this funding. ”

Research Funding in Jeopardy

THE HONEY BEE TECHNICAL COUNCIL also asked the agriculture commissioner to request \$200,000 from the Florida Legislature to be dedicated to research on parasitic mites and the small hive beetle. The chances of this being implemented are not good; a request last year for \$100,000 for Varroa resistance study was unsuccessful. A principal reason for this was insufficient support by the Florida beekeeping community.

At the federal level, research funds are also in jeopardy. The June issue of *The Speedy Bee* reports on the complicated process whereby funding approved for the Weslaco Beneficial Insects Laboratory last year will not continue unless appropriated

again next fiscal year³. Both the House and Senate versions of the Agricultural Appropriations Bill for FY 1999, which begins October 1998, contain new funding for both the Weslaco (\$500,000) and Baton Rouge (\$300,000) laboratories, according to the *Bee*. However, this may be changed in a House-Senate conference committee and/or vetoed by the president. In fact, the \$500,000 special Weslaco funding has already been eliminated from the budget proposed by the administration, along with some \$35 million in other production research monies. The message is clear. Only substantial, visible support by beekeepers and beekeeper associations who actively contact their congressmen will ensure this funding.

The Weslaco funds are extremely important to Florida, because that facility has taken the lead in studying resistance by Varroa to Apistan® and control of the small hive beetle, both confined primarily to the Sunshine State. The May/June 1998 issue of the American Beekeeping Federation's newsletter suggests contacting the office of Senator Thad Cochran, chairman, Agriculture Appropriations Subcommittee, U.S. Senate, Washington, DC 50510-2404. To reach any Senate office, phone (202) 224-3121. ■

Bee Meetings

THE ESCAROSA Beekeeping Association announces its 1998 Annual Beekeeper's Workshop to be held Saturday, September 12, at the 4-H Langly Bell Center, west of Interstate 10 (Exit 1) on Highway 90 (9 Mile Rd.), Pensacola, Fla. Pre-registration, which includes lunch, is \$10 by September 1 and \$15 at the door. Highlights of the event include open-hive demonstrations (removing bees from a tree!), discussions with both Florida and Alabama bee inspectors, and displays by equipment vendors and others. For more information, contact Sylvia Bullard, ph (850) 478-7960.

The Florida State Beekeepers Association will meet October 30 through November 2, 1998, at the Florida Leadership Training Center in Haines City. For up-to-date information, contact Rebecca Randall, ph (352) 669-2441. ■

Resistance to Fluvalinate Confirmed in Florida

A LETTER from the Weslaco Laboratory, published in the June 1998 Florida State Beekeepers Association Newsletter, confirms resistance to fluvalinate by Varroa in Florida. This was determined by:

1. Field study using Apistan®, which compared with another pesticide strip showed significantly fewer mites killed.
2. Laboratory project using pure fluvalinate (the active ingredient in Apistan®) dissolved in acetone showed fewer Florida Varroa killed than mites from Texas.
3. The results reported above were confirmed using a test developed by Dr. Jeff

Pettis at the USDA Beltsville Laboratory, as published in the April 1998 *APIS*⁴.

According to the letters authors, Dr. Bill Wilson and colleagues, the results are clear indications of resistance to the active ingredient fluvalinate⁵. They also suggest that product failure is not the cause of reported control problems in Florida. Given this conclusion, the writers suggest the best way to help the situation is to seek another EPA-approved miticide to use in rotation with Apistan®. This research is continuing in Florida, and scientists are optimistic that such an alternative will be ap-

proved, although there are a lot of hurdles to clear before registration. This is another reason that the special funding for the Weslaco facility noted above is so desperately needed, especially by Florida beekeepers.

Although resistance has been confirmed, it is important to be confirmed a problem in a local area before giving up on the one legal Varroa control, Apistan®, based on fluvalinate. Resistance also appears to be a gradual phenomenon. Thus, constant vigilance is required to determine that treatments are working, advice published in the August 1997 *APIS*⁶. ■

Update on Apitherapy

THE USE of honey bees and their products in human health continues to increase. Several apitherapy conferences have been held across the world in recent years. The next is scheduled in Portoroz, Slovenia in September⁷. There is also a growing list of practitioners in demand for demonstrations and presentations. An active discussion list on the topic is coordinated by Durk Ellison⁸ and is hosted by BeeNet-Sverige, a dial-up network in Sweden. Mr. Ellison has also published a large data base of apitherapy information, containing 3,000 references and 4,000 authors⁹. Other Web sites contribute information to this area, including that of the American Apitherapy Society¹⁰. To reach the Society, contact Linda Day, office coordinator, 5370 Carmel Road, Hillsboro, Ohio 45133, ph (937) 466-9214, fax: (937) 466-9215.

I wrote a synopsis of the philosophy underpinning apitherapy in the February 1994 *APIS*¹¹. The activity includes using bee products as health aids, as well as actively stinging patients to relieve pain. Perhaps the best known patient is Ms. Pat Wagner, who successfully overcame the effects of multiple sclerosis, or MS, through the therapy, and published her experiences in bee journals and elsewhere. Besides receiving over 19,500 stings herself, Ms. Wagner is reported to have treated about 9,000 others suffering from this crippling disease. She has recently produced a 26-minute video, called *Stinging Solutions*, available for \$29.95, ph (800) 603-3577.

Research in the clinical use of treating MS with bee venom has now been approved by the Institutional Review Board of the American College for Advancement

in Medicine. A Chicago-area physician who has successfully used the therapy in treating multiple sclerosis, chronic pain and depression is conducting the study. The protocol is based on dosages of bee venom used by field apitherapy practitioners. It allows for an individualized treatment plan, which then prescribes dosages of bee venom that are considered optimal for each individual. This active collaboration between doctor and patient is one of apitherapy's major tenets. The study is currently accepting patients. For information phone (708) 848-7789 or fax (708) 848-7763. The physician in charge is Ross A. Hauser, MD, Caring Medical and Rehabilitation Services, 715 Lake Street, Suite 600, Oak Park, IL 60301. Other doctors interested in participating as satellite sites in this study are also encouraged to contact Dr. Hauser.

BEE PRODUCTS have long had a human health connection. These are being scrutinized closer for their therapeutic benefits. The use of propolis may be where most growth has occurred in recent years¹². This is especially true in Brazil, where it became a major product after the Apimondia conference in Nagoya, Japan¹³.

The use of honey products in human health has also caught the fancy of the National Honey Board. This appears to be one of the major thrusts of the Board's promotional efforts in the next few years. As I stated in my report of the Colorado Springs American Beekeeping Federation (*The Speedy Bee*, March, April, 1998), the nutrition industry is booming and seeing good growth in natural foods, dietary supple-

ments, and herbs and botanicals for personal care. This trend should continue into the next century¹⁴.

According to Dr. Elizabeth Sloan, one of the Board's marketing consultants, consumers will be increasingly responsible for and in control of their own nutrition and health, again reflecting the core philosophy of apitherapy. There is now a shift to what is called "positive eating," the "better-for-you foods." All of this should be good for honey in the value-added marketplace. Products here include honey as a nutraceutical and antioxidant¹⁵. For a more detailed analysis of honey as a value-added product, see *The Speedy Bee*, January and February 1996¹⁶.

Another area discussed by Dr. Sloan is strategic partnering between honey and pharmaceuticals. There is a lot to recommend the sweet if one examines the literature. This includes honey's use in peptic ulcer treatment and oral rehydration for children suffering from diarrhea. Perhaps best-documented are honey's bactericidal components, benefiting wound (skin ulcers and pressure sores) and burn therapy. This was recently published June 1998 in *The Speedy Bee*, originating from *Bee Scene*,

² <http://www.ifas.ufl.edu/~mts/apishtm/apis98/aethina/garth.htm>

³ <http://www.ifas.ufl.edu/~mts/apishtm/apis98/apmar98.htm#2>

⁴ <http://www.ifas.ufl.edu/~mts/apishtm/apis98/apapr98.htm#2>

⁵ <http://www.ifas.ufl.edu/~mts/apishtm/apis98/apapr98.htm#1>

⁶ <http://www.ifas.ufl.edu/~mts/apishtm/apis97/apaug97.htm#1>

⁷ <http://www.uni-lj.si/~bfbee/apitherapy/index.html>

⁸ Durk.Ellison@beenet.pp.sci.fi

⁹ <http://www.sci.fi/~apither>

¹⁰ <http://www.beesting.com/>

¹¹ <http://www.ifas.ufl.edu/~mts/apishtm/apis94/apfeb94.htm#1>

¹² <http://www.ifas.ufl.edu/~mts/apishtm/apis97/apnov97.htm#3>

¹³ <http://gnv.ifas.ufl.edu/~mts/apishtm/papers/TERES.HTM#13>

¹⁴ <http://gnv.ifas.ufl.edu/~mts/apishtm/papers/COLORADO.HTM#10>

¹⁵ <http://www.ifas.ufl.edu/~mts/apishtm/apis97/apoct97.htm#3>

¹⁶ <http://www.ifas.ufl.edu/~mts/apishtm/papers/nhbsem.htm#4>

newsletter of the British Columbia Honey Producers Association, which reported on a presentation by Dr. Peter Molan at the University of Waikato, New Zealand, at the International Apitherapy Conference in Tel Aviv, Israel, in 1996.

According to Dr. Molan, many reports show that use of honey reduces swelling and pain, while sloughing necrotic tissue and healing occurs rapidly, with minimal scarring and less need for grafting. Healing will not happen unless infection is cleared from the lesion, and this occurs rapidly when swabbing wounds dressed with honey. In fact, honey is superior to extensively used, modern, hydrocolloid wound dressing in this regard. Unfortunately, although a moist environment enhances tissue renovation, this also favors growth of infecting bacteria. Antibiotics may become less effective in this environment, and antiseptics cause tissue damage, slowing the healing process. Honey causes no tissue damage, and the healing process is greatly promoted as a consequence of its inherent antimicrobial properties.

Honey also provides important nutrients to cells that are regrowing in a lesion, according to Dr. Molan. This includes supplying leukocytes with necessary glucose so they can effectively destroy bacteria using a "respiratory burst." Honey also supplies nutrients to cells by drawing serum out of the tissue through osmosis. This helps in "self-debridement," so important in the healing process. Finally, this osmosis creates a film of liquid between the tissues and dressings, allowing bandages to be removed easily with minimal damage to the regrowing cells.

Using honey also helps reduce swelling in the surrounding inflamed tissue, a major cause of pain, according to the Dr. Molan. The odor associated with skin ul-

cers is almost eliminated by the sweet as well. Sugar from honey is used by the bacteria in preference to amino acids from serum and dead cells. Deamination of amino acids give rise to ammonia and irritates the tissue, but use of sugar by bacteria forms a more benign lactic acid. Studies of wound healing reveal that acidification also helps healing. Honey's low pH is beneficial in this context. Comparing honey with sugar paste as a wound dressing reveals that the latter has no antibacterial activity. Although sugar pastes sup-

press bacterial growth because of their high osmolarity (concentration), serum exudation can quickly compromise this ability. More information on Dr. Molan's research can be seen on the Web.^{17, 18}

Although most bee products appear to have salutary benefits, care must always be taken when administering them for health reasons. This is particularly important if they are ingested. Pollen, for example, might cause an allergic reaction and so might royal jelly, as reported in May and July 1996 *APIS*. ■

Bee Conservation in the Southeast

DR. KEITH DELAPLANE, University of Georgia, has recently published Georgia Cooperative Extension Bulletin 1164, *Bee Conservation in the Southeast*. In his introduction Dr. Delaplane says: "A pollination vacuum occurs as bees of all kinds decline. And less pollination means lower food quality and higher food prices. Thus, large bee populations are in everyone's best interest. Anyone who grows or uses plant products is a stakeholder in bee conservation."

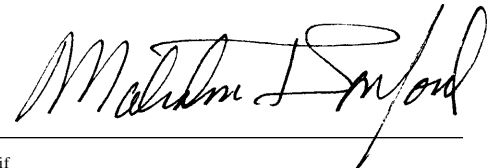
The document is not just about honey bees, although they are important and one of the most well-known bees, Dr. Delaplane says. It also lists other important pollinating insects, including bumble bees, mason bees, and the large group of solitary, soil-nesting bees. The latter category includes polyester, southeastern blueberry and squash bees.

The principles of bee conservation in the Southeast are based on habitat conservation and improvement. Most of these insects survive best in open, sunny habitats

that are relative undisturbed throughout the year. If adequate habitat does not exist, Dr. Delaplane suggests creating it and provides detailed information on how to do so. Unfortunately, although this advice results in land set aside for pollinator conservation, this acreage is not then available for other kinds of agriculture. Nevertheless, the stakes are high for everyone who has any interest in perpetuating the food supply. Thus, in the long run conserving pollinator populations makes good sense, Dr. Delaplane concludes.

Copies of this publication are available by contacting Dr. Delaplane, Georgia Cooperative Extension Service, 413 Biological Sciences Building, Athens, GA 30602, phone (706) 542-1765, fax (706) 542-3872, e-mail ksd@arches.uga.edu. ■

Sincerely,



¹⁷ <http://www.wave.co.nz/pages/honey/index.html#images/titlebar1.gif>

¹⁸ <http://www.bio.waikato.ac.nz/honey/index.html>

¹⁹ <http://www.ifas.ufl.edu/~mts/apishtm/apis96/apjul96.htm#4>

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