FLORIDA MELITTO FILES

NEWS FOR BEE LOVERS

Joint publication:
Florida Department of Agriculture & Consumer Services
University of Florida/ Institute of Food & Agricultural Sciences

VOL 3 | ISSUE 4

PEST ALERT: Argentine Ant,

Liniepithema humile Mayr (Hymenoptera: Formicidae)

David Westervelt, westerda@doacs.state.fl.us, Apiary Inspector and Researcher, Florida Department of Agriculture and Consumer Services, Division of Plant Industry

Eric T. Jameson, jamesoe@doacs.state.fl.us, Apiary Inspector, Florida Department of Agriculture and Consumer Services, Division of Plant Industry

INTRODUCTION

The Argentine ant, *Linepithema humile*, was introduced into Louisiana in 1890 on coffee ships from Brazil. It has since spread to most of the southern United States, where it has become a nuisance pest in the urban environment. It can and does disrupt ecosystems by directly displacing other ant species and other insects. Argentine ants utilize a wide variety of food sources that include protein (live or dead insects) and substances rich in sugars such as honeydew secretions from aphids. Foraging worker ants will also search for food indoors. Argentine ants form large colonies that can include numerous nesting sites that can cover a large area.

The Argentine ant can be a serious pest of commercial honey bee hives. This ant challenges the front entrance of the bee hive, causing the European honey bee (EHB) to guard it. While the bees are busy guarding the front entrance, the ants invade the colony in large numbers through the top or other unguarded openings in the hive (Fig. 1), causing the honey bees to abscond, abandoning the honey and brood for the ants to take back to their nest. If left unhindered, the ants will continue to overwhelm one or two hives a day until the whole bee yard is consumed. Argentine ants are very small and not easily obvious, which makes it difficult for a beekeeper to spot the beginning ant invasion. It is common for the ants' takeover to go unnoticed in the bee yard or in a hive.

Continued on back

Figure 1. Argentine ants invading top of hive. Beekeepers in Hillsborough County at the Port of Tampa, Gibsonton and Ruskin have reported hive losses caused by the Argentine ant. When beekeepers move their hives to bee yards that are not already occupied by EHB colonies, the Argentine ant can overwhelm new colonies overnight, ultimately causing the loss of an entire bee yard.

Save the date!
2010 Bee College
March 12 - 13

Jerry Hayes, FDACS/DPI
Asst. Chief Apiary Inspection

FDACS/DPI

FROM THE DESK OF JERRY HAYES

The Honey Bee Technical Council met on July 29 to review several pertinent issues that concern all of us. Here is a synopsis of the "official minutes" (details omitted due to article length). If you would like an official copy, please let me know.

There have been concerns for several years about the lack of information and communication between beekeepers and agencies practicing mosquito control. Mr. Dale Dubberly from the Florida Department of Agriculture and Consumer Service's (FDACS) Agricultural Environmental Services (AES) gave an overview on the AES Incident Response Team. He shared how AES, the Division of Plant Industry (DPI), the Florida State Beekeepers Association, and the University of Florida/Institute of Food and Agriculture Sciences are working together to keep the lines of communication open when the need arises for mosquito spraying in areas where bees are present. Mr. Dubberly explained that most spraying is done by local and county agencies until their finances become exhausted. At that point, AES can assist under the Eligibility of Vector Control (Mosquito Abatement), which can be found at their web site: http://www.fema.gov/government/grant/pa/9523_10.shtm. One past problem is that mosquito control districts often do not know how to contact beekeepers. Now by accessing the FDACS-DPI's registered beekeepers e-mail addresses, they have a new tool to protect public safety from disease carrying mosquitoes and the beekeeping industry from surprise spray applications. If you have not shared your e-mail address with the Apiary Section, then notification mosquito spray alerts will not get to you automatically. In that case, contacting your local Mosquito Control District office to be included in their manual contact list may work. For more information, see: http://edis.ifas.ufl.edu/IN813.

Ms. Stacie Hammack from the Division of Food Safety (DFS) spoke on the recently passed Standard of Identity of Honey. She said the media response was phenomenal. Ms. Hammack advised the group that Deputy Commissioner Dr. Joanne Brown received the first draft in January 2008, and the final draft was submitted and approved. Commissioner Charles Bronson gave a press release on July 13, 2009, that the Honey Standard took effect on July 14, 2009. Now that Florida has led with this new rule, other states are trying to implement their own laws.

Analytical parameters for the Florida Standard of Identity of Honey mean that no honey adulteration of any type is acceptable. Ms. Hammack explained that FDACS sends inspectors throughout the state to conduct surveys on retail honey and honey producers in order to authenticate that products labeled and sold as honey are unadulterated. A member asked who would be enforcing violation of labeling and when they would begin enforcing mislabeling. The question was raised because of fears that imported honeys may contain high levels of antibiotics and corn syrup. Ms. Hammack stated that Food Safety would take consumer complaints. The lab would acquire a sample of the product(s) in question, and a fine of up to $500 could be imposed. She advised that Food Safety Inspectors would do routine surveillance on retailer/processors and that fines would be handled by Compliance and FDACS's Legal Department. Questions can be directed to foodsafe@doacs.state.fl.us.

Nancy Gentry gave a presentation on the zoning restriction of beekeepers. Ms. Gentry advised the group that a model ordinance with law change needed to be in place that would prohibit local county/cities from banning beekeeping in any area. She highlighted the continued need for registered beekeepers maintaining European honey bees throughout Florida to slow the progression of the African bee population. Dr. Jamie Ellis stated that he gets inquiries concerning the restrictions of honey bee locations and what the acceptable number of colonies per area (if any) is. Director Gaskalla spoke about the same type of problems that developed over other agricultural issues. The actual legislative/law authority about bee zoning could be broad in scope with more detail on the specifics by rule.

Florida Beekeeper Management Calendar – Fall 2009

	Month	Management Calendar	Blooming Plants
North Florida Ensure that colonies have enough food. It can be cold in N. Florida during winter.	**Oct – Dec** Similar management schemes in Oct, Nov, and Dec. Pests become less of a problem late in year.	1) Varroa populations peaked in Aug/Sept. The economic threshold is 60+ mites/day on a sticky screen or 17+ mites in an ether roll for a **colony of average strength**. Treat if you exceed these numbers. Options include: Apiguard, ApilifeVAR, Mite Away II 2) Can treat colonies for Nosema disease using Fumigillin. Colonies may need as much as 4 gallons of medicated syrup to control *Nosema cerana* 3) Monitor for and control small hive beetles (options include Checkmite+, GardStar, Hood traps and West Beetle traps) 4) Feed colonies if light (colonies can starve!) 5) Can treat for tracheal mites (mix vegetable oil and powdered sugar until doughy - not sticky to touch: place a pancake-sized patty on top bars of brood chamber)	**Oct:** Spanish Needle, Mexican Clover[N], Primrose Willow[N], Spotted Mint[N], Golden Rod[N], Vine Aster[N], Smart Weed[N], Bush Aster[ND] **Nov:** nothing new blooms **Dec:** nothing new blooms
Central Florida: Varroa remain an issue through winter due to warmer temps.	**Oct – Dec** Similar management schemes in Oct, Nov, and Dec. Pests become less of a problem late in year.	1) Varroa populations peaked in Aug/Sept. The economic threshold is 60+ mites/day on a sticky screen or 17+ mites in an ether roll for a **colony of average strength**. Treat if you exceed these numbers. Options include: Apiguard, ApilifeVAR, Mite Away II 2) Can treat colonies for Nosema disease using Fumigillin. Colonies may need as much as 4 gallons of medicated syrup to control *Nosema cerana* 3) Monitor for and control small hive beetles (options include Checkmite+, GardStar, Hood traps and West Beetle traps) 4) Feed colonies if light (colonies can starve!) 5) Can treat for tracheal mites (mix vegetable oil and powdered sugar until doughy (not sticky to touch): place a pancake-sized patty on top bars of brood chamber)	**Oct:** Spanish Needle, Mexican Clover[N], Primrose Willow[N], Spotted Mint[N], Golden Rod[N], Vine Aster[N], Smart Weed[N], Bush Aster[ND] **Nov:** nothing new blooms **Dec:** nothing new blooms *Brazilian Pepper blooms from September through October and is a significant Fall source of nectar for bees.
South Florida Varroa are an important issue in S. Florida in winter because colonies rarely are broodless	**Oct – Dec** Similar management schemes in Oct, Nov, and Dec. Pests become less of a problem late in year.	1) Varroa populations peaked in Aug/Sept. The economic threshold is 60+ mites/day on a sticky screen or 17+ mites in an ether roll for a **colony of average strength**. Treat if you exceed these numbers. Options include: Apiguard, ApilifeVAR, Mite Away II 2) Can treat colonies for Nosema disease using Fumigillin. Colonies may need as much as 4 gallons of medicated syrup to control *Nosema cerana* 3) Monitor for and control small hive beetles (options include Checkmite+, GardStar, Hood traps and West Beetle traps) 4) Feed colonies if light (colonies can starve!) 5) Can treat for tracheal mites (mix vegetable oil and powdered sugar until doughy (not sticky to touch): place a pancake-sized patty on top bars of brood chamber)	**Oct:** Spanish Needle[ND], Mexican Clover[ND], Primrose Willow[ND], Smart Weed, Melaleuca[ND], **Nov:** nothing new blooms **Dec:** Maple, Willow *Brazilian Pepper blooms from September through October and is a significant Fall source of nectar for bees.

[N]Continues to bloom in Nov, [D]Continues to bloom in Dec, [ND]Continues to bloom in Nov and Dec

Varroa Research continued

Ales Gregorc, Ph.D.
Ales.Gregorc@kis.si

My name is Ales Gregorc, and I am coming to the University of Florida after several years of research in bee biology, pathology and beekeeping. I received a master's degree from the Veterinary Faculty, University of Zagreb, Croatia, and a Ph.D. from the Veterinary Faculty, University of Ljubljana, Slovenia.

My master's research project involved the transmission of nosema spores between worker bees and queens in mating nuclei. During my Ph.D. thesis, I studied the physiological and pathological development of honey bee larvae. Specifically, the histochemical and cytochemical characteristics of larvae upon their infection with American foulbrood. During these studies, I focused on the programmed cell death in larvae.

While a Ph.D. student and a post doctoral research fellow, I worked at the Bee Research Unit at the University of Wales in Cardiff, Wales. In Cardiff, colleagues and I studied heat shock proteins (Hsp90 and Hsp70), histone group protein expression, and cell death in the midgut and other tissues of healthy larvae and adult bees as a response to AFB-infection.

During my career, I have worked extensively on varroa mites with a special emphasis on developing and testing control strategies for the parasite. Colleagues and I have determined the effectiveness of thymol, oxalic acid, and other chemicals against mites in honeybee colonies. At the University of Florida, our varroa team plans to conduct basic research in varroa control and is interested in hearing from beekeepers concerning their varroa control ideas.

Kamran Fakhimzadeh, Ph.D.
drfakhimzadeh@gmail.com

My name is Kamran Fakhimzadeh, and I am from Finland. I am a specialist in honey bee pathology. I have had a long and successful relationship with the apiculture industry in Finland, and was honored to have obtained the first Finnish Ph.D. in Apiculture from the University of Helsinki.

Working to help beekeepers in Finland cope with varroa over the last 20 years has given me an appreciation for what a formidable parasite varroa is. Varroa research has hit a plateau in regards to understanding control in relation to varroa biology and mating behavior. These are the specific areas that colleagues and I plan to investigate further. We have a goal of reducing or eliminating chemical inputs in bee colonies, while maintaining an efficacious varroa control scheme.

I am looking forward to joining the tremendous group of varroa researchers including Dr. Jamie Ellis, Dr. Peter Teal and his staff, and the world-renowned Apiary Inspection Section at DPI, led by Jerry Hayes. I am confident that the focus on varroa control by Florida researchers at DPI, UF, and the USDA will help win the battle with varroa for Florida beekeepers and the world.

My family will join me in Florida after Christmas this year. It will be a big move and adjustment; I am confident they will enjoy Florida as I have in my short time here.

Our varroa team plans to conduct basic research and is interested in hearing from beekeepers concerning their varroa control ideas.

UF/IFAS

FROM THE DESK OF DR. JAMIE ELLIS

Dr. Jamie Ellis
UF Assistant Professor

News from the **UF Honey Bee Research and Extension Laboratory (HBREL)**

The HBREL currently is home to two Post Doctoral Research Fellows, four graduate students, three technicians, and two undergraduate assistants. All are dedicated to providing Florida beekeepers with top quality research and extension efforts. It is important to me that you know what occurs in my lab, so I'd like to update you about a few of our research and extension efforts.

1) The next training/examinations for the UF Master Beekeeper Program will occur on November 5, 2009, one day before the Florida State Beekeeper's Association meeting (see flier included in this issue of the Melitto Files). We will offer training/examinations for Apprentice and Advanced Beekeepers. For more information about the UF Master Beekeeper Program, see UFhoneybee.com.

2) SAVE THE DATE: The next UF Bee College venue and date have been determined!!! The 3rd Annual UF Bee College will be held at UF Whitney Marine Laboratory on March 12–13, 2010. As before, training/examinations for the UF Master Beekeeper Program will be held March 11, the day before the Bee College. Registration announcements will be sent in the January issue of the *Melitto Files*. Last year, we had over 200 people attend, so you will need to register fast!

3) Jason Graham, a masters student in the HBREL, completed three projects on the attraction of small hive beetles (SHB) to bumble bee colonies. He found that (1) commercial bumble bee colonies do contain the yeast that attracts SHBs, (2) SHBs are attracted equally to constituents from honey bee and bumble bee colonies, and (3) bumble bee colonies produce different volatile profiles (smells) than honey bee colonies. The application: controlling SHBs in honey bee colonies may not be enough — especially since commercial (and wild?) bumble bee colonies may serve as a source for SHB.

4) After one year of testing the effects of various bee diets on colony strength and foraging activity, we found that in late summer, bees consume Megabee™ at higher rates than Feed Bee (bee consumption of Bee-Pro® did not differ from that of the other two diets). Despite this, no single supplement increased the number of bees or amount of brood in colonies over that of feeding colonies nothing at all. We also tested the efficacy of these diets in mid-winter (January). These data were not as clear so we are repeating this portion of the study January–March 2010. Ultimately, we hope to be able to make recommendations by mid-2010 concerning what diets to use and what benefits to expect.

5) In February/March 2009, my lab tested the efficacy of Fumagilin-B and Nozevit at controlling nosema infections in Florida bee colonies. We identified colonies with high nosema infections, treated them, and then determined nosema spore counts. The results were surprising. Neither treatment lowered spore count over doing nothing at all. Early results indicate that a spring treatment with either product will not help control nosema. We plan to test a fall treatment of both products beginning October/November of this year. We will follow the colonies through winter and into spring to determine the effects of the treatments.

In addition to these projects, we currently are investigating varroa control, nosema control, the effects of pesticides on developing bees, and honey bee pollination ecology/nutritional requirements. Stay tuned for more updates.

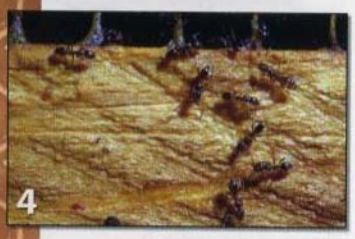

Figure 2. Argentine ant size compared to a cell of honey.

Figure 3. Argentine ant has a smooth (hairless) abdomen.

Figure 4. Argentine ants; when they have fed on honey their abdomens are almost transparent.

PEST ALERT: Argentine Ant, continued from page 1

DISTRIBUTION

The Argentine ant is considered to be established in most of the southern United States. In Florida, it has been reported from the following counties: Alachua, Bay, Broward, Duval, Escambia, Gulf, Highlands, Hillsborough, Okaloosa, Orange, Palm Beach, Pinellas, Polk, Putnam, Seminole, Walton and Washington.

DESCRIPTION

Workers are small, 2–3 mm (1/8") in length, and light to dark brown to almost black. Queens are two to four times larger than the worker, and the abdomen is notably enlarged. Drones (males) are 4–5mm (1/4") long, light brown, and winged.

ECONOMIC IMPACT

For years U.S. beekeepers have been experiencing economic strain because of honey bee habitat loss and the introduction of new pests and diseases. The impact of pests such as the Argentine ant will only add to this burden by increasing operation costs due to additional insecticide treatments and/or moving bee yards.

Figure 5. Argentine ants consuming a dead bee in the hive.

Photographs courtesy of Jeffrey Lotz, FDACS-DPI

Jerry Hayes

Florida Department of Agriculture & Consumer Services

1911 SW 34 Street
PO Box 147100
Gainesville, FL 32614-7100
352-372-3505 x128
hayesg@doacs.state.fl.us

www.doacs.state.fl.us/pi

Jamie Ellis, Ph.D.

University of Florida Institute of Food & Agricultural Sciences

Bldg. 970, Natural Area Drive
PO Box 110620
Gainesville, FL 32611-0620
352-392-1901 x130
jdellis@ufl.edu

www.ufhoneybee.com
http://solutionsforyourlife.ufl.edu/

Division of PLANT INDUSTRY
Fresh from Florida. Protection through Detection
Florida Department of Agriculture & Consumer Services
Charles H. Bronson, Commissioner

&

UF UNIVERSITY of FLORIDA
IFAS
Entomology and Nematology

SOLUTIONS for your LIFE

DACS-P-01492