



# INLAND BEEEMAIL

Monthly newsletter of the Inland Empire Beekeepers Association

Volume 10, Issue 5 — May2005 — www.inlandbeemail.com

President's  
Corner:

Our meeting focus this month is mainly business and then a class on spring increase and swarm control. This is the first business meeting after an education month so be ready to discuss ideas, suggestions, what works and what does not work.

Our recent bee class graduates are now officially keepers of bees. Lets make sure we say hello to these folks, ask them how their bees are doing, and encourage them to attend all our meetings. Networking is a wonderful thing and in these times it is becoming more and more important. Beekeeping changes very rapidly now. Information flow is even more critical.

We are in a wait and see mode with the North Yard. Half of the honey supers, 24 screened bottom boards,

12-five frame Nucs with frames, 720 - 6 1/4" Pierco frames for the honey supers, and 48 drone frames (green in color) have arrived. I am out of storage room. Storage of IEBA fair and miscellaneous equipment and North Yard equipment is something we will discuss at our meeting. I have a growing email address group for those who want to participate in the Cougar Queen program. Jerry, Bob, and I will continue to pursue WSU and somehow get this monster back on track.

Hope to see all of you Friday the 13<sup>th</sup>.



This is the time of year that it is natural and easy for you to increase your colony numbers. Bee fever has arrived! Note that this is a beekeeper illness and not related to the bee's normal propensity to increase. Swarming has already started in the warmer areas of eastern Washington but yet to start here in the cold north!

Swarming is one of the blessings of beekeeping. The bees naturally want to divide and repopulate the area and do so during the spring when so much abundance in food occurs. If you can successfully manage colony conditions you can take advantage of the urge to swarm and provide new colonies or just requeen your colony.

As the colony expands you will see the bees making small starter queen cups. These will appear at the lower edges of the frames usually in the top brood chamber. These cups will be numerous and first be seen without any eggs laid in them. As the colony gets stronger you may see a few cell cups with an egg in them. This is the first sign of the colony making plans to swarm. Often the egg will disappear and will not develop into a swarm cell even after the cups have been expanded and filled with royal jelly. Most likely after they have been started the egg will hatch and the cell will be filled with royal jelly. Once these cells are sealed the colony should be treated like it will swarm. Cutting

the cells out will usually just delay the inevitable.

The best swarm control is practiced before the bees have capped and matured swarm cells. The best techniques for swarm control depend upon reducing colony strength early enough that the colony still can build to proper strength in time for the honey flow.

## Spring Increase---Swarm Control

May Program Feature by Bob Arnold

If the colony has begun swarm preparations you can split the colony into two colonies by finding the queen and putting all of the sealed brood with her in one of the boxes and moving it to a new location. We will call this colony the parent colony. The new location can be in the same yard any comfortable distance away from the old location. If the parent colony is in the same yard or less than a few miles from the original location many of the field bees will drift back to the original location.

The other brood chamber will be queenless and should have mostly open brood and any queen cell cups or queen cells. This colony, called the new colony, is left on the original stand.

The parent colony has had its population reduced and if you took **mostly sealed brood** you have depleted the hive of the bees most

(Continued on page 5)

## IEBA Contacts

### President

Ted Swenson  
 (509) 238-6489  
 tedandbarb@icehouse.net

### Vice President

Joe Jovanovich  
 509-448-2493  
 joecoug@earthlink.net

### Treasurer

Colette Lehinger  
 509-924-1001  
 blehinger@aol.com

### Secretary

Linda Carney  
 509-448-0417  
 tlclimo@yahoo.com

### Newsletter Editor

Dave Bearden  
 509-226-5231  
 nmsuaggie@icehouse.net

### Associate Editor

Frank Seiler  
 509-226-2382  
 seilerbees@att.net

### Spokane County Fair Chairman

Kelly McSheehy  
 (208) 687-6016  
 McSheehy@aol.com

### Spokane County Fair Asst Chair WSU County Extension Liaison

Jerry Miller  
 509-838-6347

### North Idaho State Fair Chairman

Jack Knox  
 208-773-5452  
 pjlx@adelphia.net

### Web Master

John Pierce  
 509-455-4110  
 admin@bee-mail.org

### WSBA at Large Delegate, Technical Advisory Program, & IEBA Bee Class

Instructor  
 Jim Miller  
 509-299-9085  
 jandj@cet.com

### IEBA Program Chair & WSBA Area 6 Delegate

Bob Arnold  
 509-276-2399  
 sar3140@aol.com

### Joy in Beekeeping

Laura Shulenbarger (Chair)  
 Linda Carney  
 Ted Swenson

### IEBA Historian

Jon Burcham  
 509-928-4829

### IEBA Website

www.inlandbeemail.com



## May Agenda

—Ted Swenson

## Agenda

5/13/05

**Welcome!** Especially to our graduates who are now **BEEKEEPERS!**

### Business Meeting Night

This is a new meeting format and a work in progress. Suggestions for improvement are welcome.

### Reports:

The Secretary's Report - Linda  
 The Treasurer's Report - Ky  
 Joy in Beekeeping Report - Joe  
 Fair Reports - Kelly  
 Inland Beemail Report - Dave  
 WSBA Report - Jerry & Bob  
 Four Corner Bee Reports - All!!

### Old Business:

IEBA Charter/Constitution Update - Nothing to report.  
 IEBA is now "officially" a Non-Profit Corporation  
 Survey for Books - Scott  
 North Yard Report - Bob Arnold

### New Business:

MiteAway II - Jerry Tate

Meeting Adjourned

## April Minutes

—Linda Carney, Secretary

### April 8, 2005

President Swenson opened the meeting and welcomed everyone to the first meeting in a new format. 90% of our time tonight will be on education.



The **Treasurer's report** will be reported next month and the **Minutes** from our last meeting were published in the Bee

(Continued on page 3)

## Hive Care :

## MAY

**The Bees.** Now the activity really starts hopping. The nectar and pollen should begin to come into the hive and may get heavy at times. The queen will be reaching her greatest rate of egg laying. The hive should be bursting with activity.

**The Beekeeper.** You can remove your Apistan strips (if they have been in the hive for 45 days). Also remove the menthol if you were using that for Tracheal Mite control. Add a queen excluder if you choose to use them, and place honey supers on top of the top deep. Watch out for swarming. **See Bob Arnold's article starting on page one in this issue.** Inspect the hive weekly. Attend bee club meetings and workshops. And, if you are like rest of us, keep making up those frames to get ready in time for the honey flow.

If you have hives really busting at the seams, consider making up some splits to make up for any winter losses. An extra nuc or two always comes in handy.

—adapted from  
 www.backyardbeekeepers.com



Supercedure Queen Cell.  
 Photo © Z. Huang

(Continued from page 2)  
Mail.

We were saddened to learn Bob Stump, past President of the Washington State Beekeepers Association, passed away last week. His family requested live plants so our Association sent a Bonsai tree to his family in remembrance.

**4 Corners Bee Report-** South – nothing to report except the Carney’s lost all 6 of their hives.

**East** – Idaho- It is still cold. The pussy willows have just finished and there are a few crocus. Some hives have been lost.

**West** – Jim Miller reports that all 3 of his apiaries have lots of pollen.

**North-** No sealed brood and no hatched bees yet. Ted Swenson has 20 hives on the North side with 6-7 frames of bees but no brood. At the home yard there are 3-4 frames of brood.

**New Business-** Remember to pay your dues! It’s that time again and we need to get our dues into Colette or President Swenson.

Jonathan Burcham has volunteered for the position of Historian for our Association. Be sure to feed him the information we have and to gather information from the programs we attend and the educational activities that the Association provides to the community. We can use that information later to present to the Extension office and other agencies to show them the impact our beekeeping association has on the community.

**Fair report-** The value of our booth area is about \$750. We have been paying \$200 but this year the fee is going up to \$300 with the balance being waived in exchange for the educational value of the bee booth. Scott Ingles is helping with the Spokane Fair and the library. The Farm Fair is May 5<sup>th</sup>.

President Swenson attended the WA State Beekeepers meeting in Ellensburg and he spoke with Eric Olsen. Eric is probably the largest commercial beekeeper in the State of WA. Eric reported that a thousand hives were trucked in from Florida for almond pollination season and that those hives were reported to have infestations of small hive beetle and they (the beetles) are now in Yakima. Everyone should be reading up on the small hive beetle

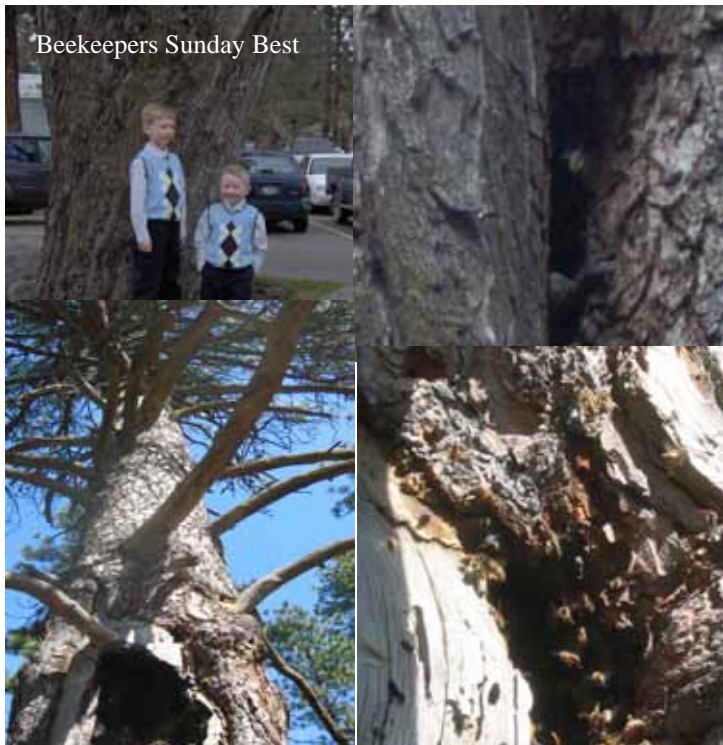
before it gets to our hives. There is an indication, according to Florida beekeepers, that they carry a fungus that will kill honey-bee larvae within 24 hours of contact. The excellent Bee mail we had this month was mentioned and all gave a round of applause.

President Swenson showed a nice sign from the National Honey board and mentioned other items that are available to beekeepers from their web site. It is a great value to us all.

President’s Words of Wisdom “*Don’t be bashful, ask questions of beekeepers before and after meetings.*” Also be sure to look up the new “queen rearing yard” page on the website.

President Swenson reminded us that beekeeping is a pleasure and joy. Get a chair and watch your hives and your bees. *Richard Taylor* has an excellent book on beekeeping but it is difficult to find. A motion was made and passed to adjourn our meeting.

**Recently we have found a couple of “Wild” hives and wanted to share a picture or two—Frank & Dave**



**2005 Program**

<p><b>May</b> Workday IEBA/WSU Apiary May field day May management Colony increase Nuc prep/queen cell introduction</p> <p><b>June</b> Field day IEBA/WSU Apiary June management Honey production Requeening &amp; Nuc introduction</p>	<p><b>July</b> Field day IEBA/WSU Apiary July management Honey removal/extraction Mite management</p> <p><b>August</b> Picnic Fall preparations</p> <p><b>September</b> Meeting at Fair September management</p>	<p>Fair preparations</p> <p><b>October</b> October Management Guest speaker</p> <p><b>November</b> Thanksgiving dinner Guest speaker</p> <p><b>December</b> Potluck dinner Election of officers</p>
---	--	---

## Mite-AwayII™

Author: David VanderDussen, President,  
NOD Apiary Products USA Inc.

Date: April 1, 2005

to whom: beekeeping industry press

Mite-AwayII™ - A new varroa and tracheal mite treatment product has been granted Section 3 registration from the United States Environmental Protection Agency. State registrations are underway.

Mite-AwayII™ is effective in hives with brood, giving a  $93.31 \pm 5.50\%$  varroa control. It is a single application treatment, remaining in the hive for 21 days. Studies have shown no problem with queen loss. There is no known way for resistance mites to develop. Supers can be put on immediately after treatment period, though no honey can be harvested for two weeks.

Mite-AwayII™ works by turning the hive into a fumigation chamber, releasing formic acid vapors into the hive in a controlled way. Hundreds of colonies have been involved in the development and testing of Mite-AwayII™, and thousands of colonies have been effectively treated. Formic acid is the active ingredient, but success of this product comes from its formulation and packaging.

Beekeepers have had two concerns with Mite-AwayII™: 1) the need for a spacer rim and 2) brood kill at the beginning of the treatment period. Nobody wants to have any extra equip-



ment to deal with, but the rim is required to accommodate the Mite-AwayII™ pad on the top of the hive, and it is part of forming the vapor column needed to distribute an

effective concentration of formic acid vapors through the colony. Beekeepers can modify their covers so the rim is built in, eliminating the need to handle an extra piece of equipment.

The treatment achieves good efficacy while minimizing impact on the colony. When it occurs the sight of brood kill is unpleasant, sometimes shocking to the beekeeper. However, the brood rearing rebounds quickly, all other colony activities remain normal, and no losses in productivity have been documented, when Mite-AwayII™ has been applied according to label.

### North to South

Treatments with Mite-AwayII™ under northern conditions are well defined. The extreme seasons focus treatment windows on each side of the honey flow. The bees also have specific seasonal physiological cycles, known as summer and winter bees.

Each of the two populations of bees has a specific purpose to ensure colony survival. Each needs to be protected from varroa for the colony to prosper. If the summer bees are not protected, reduced honey crop and possible late summer collapse can occur. If the winter bees are not protected, the winter cluster will be so weak survival is questionable.

**The pattern for a northern treatment program:** Spring treatment can be applied when the temperatures reach the levels set out on the label: daily highs of 50 to 79° F. For beekeepers using screen bottom boards, be sure to remove it and replace with a standard Langstroth bottom board, or close over the screen, returning it to Langstroth standards. Keep front entrances fully open. Even very low levels of varroa usually need to be treated because of the rapid build-up through the summer. Check with your State Apiarist for recommended spring treatment levels. After the 21 day of application period, remove the spent pad and perform the usual spring operations – reverse brood chambers if desired, make splits, re-queen, super, etc. Towards the end of summer, check your mite levels to see if mite treatment is required. If it is required, at the end of the summer, remove the crop and apply the Mite-AwayII™ treatment right away. This is the most cru-

cial application. The bees should still raise a full brood cycle after the Mite-AwayII™ pad has gone on. Those bees will be the stable core of the winter cluster. Time commitment for a Mite-AwayII™ program for the year should be about five minutes per hive, in a commercial beekeeping outfit.

Below are two pictures of colonies taken October 8-2004, in Ontario, Canada, 25 days after Mite-AwayII™ pads were put on the colonies. This is what you want to see. The colonies were fed during the application period, and the three plus frames of healthy brood will give them about 4-5 lbs. of winter bees to make up the cluster. These colonies are ready to winter, not just to survive but to come out strong in the spring. These colonies have relied on Mite-AwayII™ since 2002, and mite levels are being kept in check quite well. The bees are not from varroa resistant stock, since they were “mite farm” colonies used to provide varroa to run trials with. Even with highly susceptible bee stock, Mite-AwayII™ is shown to be a sustainable, stand alone treatment, when used to protect each cycle of bees.



**For control in the southern States** beekeepers can apply two treatments during the cooler months of the year. Applications could be three to five months apart, depending on temperature and honey flows. Two applications of Mite-AwayII™ should keep varroa mites at tolerable levels for the year, especially if the stock has some resistance.

For all climate zones, consult with your State apiarist to determine treatment win-

dows and thresholds. Mite-AwayII™ is the safest way possible to use formic acid for mite control. It is a great tool for the IPM toolbox, controlling varroa and tracheal with no residue concerns. Always follow the label directions.

For more information: [www.miteaway.com](http://www.miteaway.com) or call 866-483-2929

**Skinner, A., Tam, J., Ross, S.** OBA TTP report for 2002, *The Sting*, vol.21 no.4. Published by the Ontario Beekeepers Association

**H.R. Mattila et al, (2001)** Timing of production of winter bees in honey bee (*Apis mellifera*) colonies. *Insectes Sociaux* 48: 88-93

*(Continued from page 1)*

able to provide the impulse for swarming—the young bees with the royal jelly making capability (ie mature hypopharyngeal glands). You must do this before the queen has stopped laying in preparation for swarming—before sealed queen cells are present and wax has been removed from the tip of the cell. If the queen has stopped laying she may still swarm even though you have moved her to a new site and dramatically reduced the hive population. The colony on the original site may also swarm if you have waited too late.

You should select a few of the best swarm cells in the new colony after they have been fully developed. Destroy the rest. Sometimes the bees will swarm if a number of queen cells are allowed to hatch. The parent colony should have all swarm cells and any queen cell cups with eggs removed.

If you have split the colony with mature swarm cells but the queen is still laying eggs it is generally the case that the parent colony will not swarm. You can use these mature swarm cells for starting some nucs—read on.

The new colony will not have a queen laying and will have a lot of bees so you must provide additional room or the single brood chamber will get full of pollen and nectar with no room for the new queen to lay. Usually an additional deep is added. Sometimes honey supers can be added and the bees will fill them before the new queen is laying.

It will take almost 30 days for the new queen to hatch, mature, mate and begin to lay eggs so be patient. The parent colony with the old queen will be growing in strength but will rarely swarm if you pro-

vide enough room. Another deep should be added to the parent colony as soon as the original deep is full of bees. It is best to wait until it is full of bees as the bees seem to prefer being crowded to keep the humidity and temperature in the box ideal for rearing brood.

#### Colony Division

Another way to control the swarming urge is to take some of the comb with sealed brood away and use it to start a new colony. This can be done very easily without finding the queen. First look into both brood chambers and divide the brood (sealed and open) and stores sealed equally into both chambers. If, for example there are 10 frames of sealed and open brood five go into each chamber. Then shake the top brood chamber bees off into the bottom chamber. Place a queen excluder over the bottom brood chamber and then the top brood chamber on top of the queen excluder. Put the lid back on the hive.

This insures that the queen is in the bottom chamber. Waiting a day will allow all of the bees to get repositioned equally in the colony. You can take the top brood chamber to a brand new site several miles away and introduce a new queen to this colony. This will give you two colonies of about the same strength. The original colony will rarely swarm.

If you cannot move the new colony to a site many miles away you can do the split in the same yard. In this case put all of the open brood in the lower brood chamber and the sealed brood in the upper brood chamber. Shake the bees into the lower chamber and put the two chambers back together with a queen excluder between them. On the next day move the lower brood chamber, containing the queen, to a

new site a few feet away. Leave the upper brood chamber on the original site and introduce a queen. The old queen colony will be considerably weakened but in the warm weather of spring will be able to keep going fine. You can strengthen it later by adding sealed brood from the new colony on the original site if you desire. Rarely will you have any swarms issue from either colony.

#### Starting a Nuc Hive

A nuc hive is simply a small hive that contains 3 to 5 frames of bees, brood and stores. Nucs are lifesavers to have in a beeyard as they provide a ready source for emergency queen replacement and can develop into an excellent hive to overwinter. Nucs can be started any time during our April to September period with as few as 2 frames of bees, brood and stores. They are usually the easiest and most dependable way to introduce a mated queen. You can also start with a queen cell that you raised or you removed from a hive that is wanting to swarm.

In starting a nuc it is generally best to move it to a new apiary some miles away. If this is impossible you can place the new nuc all assembled with the new mated queen or cell in a **dark cold** place for a few days. This is a problem for most of us as we don't have a cold place—45°F. So the best thing is to make up your nuc and take it to a friends apiary site for a week or two then bring it back to your apiary.

It is best to make up the nuc with 3 to 5 frames of bees, brood and stores. I like to have 2 frames of sealed brood, one open frame of brood, an empty frame and one frame of honey and pollen. When you take

*(Continued on page 9)*

## Classifieds

**Tate's Honey Farm** has all of your extracting and packaging needs as well as spring packages and queens. Woodenware for all your winter projects and spring needs. Shop hours are 8:30—2:00 every Saturday at E. 8900 Maringo, Millwood. Contact us at 509-924-6669 or online

www.tateshoneyfarm.com

**BEEKEEPERS order your package bees for April 9, 2005 delivery.**

### BEEBOXES BY LEE

Woodenware, standard or custom orders, IPM bottom boards, Hive top feeders, etc, select lumber. Order now to be ready for spring. Lee Berchtold (208) 687-1300

**WANTED:** I am looking for a wholesale source for bulk beeswax. I need pressure filtered golden beeswax with NO additives. Thank you, S. Burge  
smzsb@comcast.net

### Miller's Homestead

**Jim and Jenine Miller**

Cheney, WA 1-509-299-9085

Package bee will be delivered April 9, 2005 to Millers Homestead and to Jack Knox's in Couer d'Alene. The cost for a 3 pound package is \$59.40 plus sales tax. Orders are to be made by March 25th. Prepayment required. 14606 Stangland Rd., Cheney. Look at our web site for prices on all available items.  
www.millershomestead.com

### NUC's - For Sale

You Get:

Proven Carniolan Queen  
3 frames brood  
1 frame honey  
1 frame honey/empty comb  
3 lbs. of bees

Chattaroy Hills Honey Farm  
Ted Swenson  
220-0185

Available: 9 or 16 April



### Small Hive Beetle<sup>1</sup>

Malcolm T. Sanford<sup>2</sup>

#### Introduction

The small hive beetle (*Aetina tumida*) (Figure 1) is native to South Africa. The name differentiates it from the larger hive beetle also found in South Africa, *Hypoplostoma fuligineus*. Both inhabit almost all colonies of honey bees (*Apis* sp.) in South Africa, but are generally not considered significant problems. In 1998, the small hive beetle was discovered in Florida and identified by Dr. Michael Thomas of the Florida Department of Agriculture and Consumer Services. Subsequent to this identification, the Department published a pest alert on this insect. Prior to identification in Florida, the beetle merited only a paragraph in most books on honey bee pests and predators.

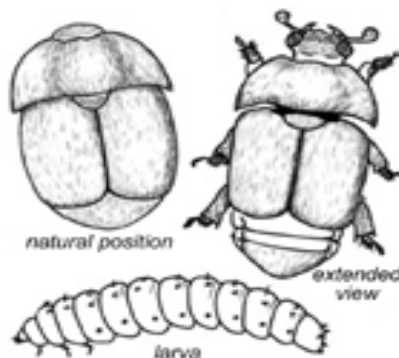


Figure 1. Small hive beetle adult (actual size 1/4 inch) and larva.

#### Distribution

Although not fully documented, it is thought the beetle may be found in any subtropical and tropical parts of Africa. Anecdotal reports subsequent to discovery in the New World indicate it may also inhabit more temperate areas. As of June 1999, the beetle has been found in Georgia, North and South Carolina, Florida, Minnesota, Ohio, Pennsylvania and New Jersey in the United States. Although first described in Florida, it is thought the beetle was originally introduced in the coastal portions of South Carolina or Georgia and then transported in bee colonies to Florida. Introduction into other states has principally been through packages and colonies from South Carolina and Georgia. Whether the beetle can persist in temperate regions of the United States and how far it will spread is only conjecture at the present

time.

#### Life Cycle

The small hive beetle undergoes complete metamorphosis, passing through the egg, larva, pupa, and adult stages. Only one concentrated study has been conducted on this creature by A.E. Lundie in 1940. Most of the life cycle information comes from his study.

#### Eggs:

Eggs of *Aethina tumida* are pearly-white, 1.4 m.m. long by .26 mm wide, similar in appearance to honey bee eggs, but smaller, being approximately two-thirds the length of the latter. Eggs are deposited in irregular masses. The female appears to prefer some crevice or cavity. Comb is not required and often ignored when females lay eggs as they can be found anywhere within the hive. Incubation period varies from one to six days, with most hatching between two to four days. The number of eggs a single female can lay has not been determined, however, Lundie has shown that two or three beetles in a pile of supers can cause a heavy infestation. Females are also relatively long-lived (ranging from a few days to several months) which adds to their egg-laying capacity.

#### Larvae:

The larva of the small hive beetle is the damaging stage of this pest. Larvae emerge from the egg shell through a longitudinal slit.

Newly-emerged larvae have relatively large heads and numerous protuberances all over their bodies. This may protect them from being smothered in honey. Beetle larvae may be confused with those of the greater wax moth (*Galleria melonella*), however, they can easily be distinguished by the presence of six prominent anterior legs. Wax moth larvae have a number of smaller less-developed, uniform prolegs. Both organisms may be found simultaneously in the same colony. Figure 1 shows a typical larva.

There is great variation in growth rate of same-aged larvae. Generally it is 10 to 14 days, but may be a week or longer. Slower maturing larvae are smaller and give rise to small adults. Many die soon after pupation, whereas mortality is less in quicker matur-



ing individuals. Larvae grow to 3/16 to 1/4 inch by day four, reaching 7/16 inch with a 1/16 inch diameter when full grown. Larvae entering the soil make a smooth-walled earthen cell to pupate. In damp soil, these may be connected by a tunnel to the surface and larvae may return to the surface before pupating. It is during transition from larva to pupa that the insect is vulnerable. The nature of the soil is also thought to be a variable in successful development.

### **Pupae:**

Pearly white color predominates in newly formed pupae. Pigmentation begins with transformation to adult, first in the eyes and then wing base before encompassing the whole body. Frequent twitching of legs is observed as maturing occurs within the pupal skin. Period spent in the soil varies greatly from 15 to 60 days. The majority of beetles emerge after three to four weeks in the ground.

### **Adults:**

The newly-matured adult is light, yellowish brown and becomes brown, dark brown and finally black at full maturity. This



changes take place during pupation and brown or black adults may be seen emerging from the ground. During the first day or two after emergence, young beetles are active, take flight readily and orient toward light. Later they become less active and keep to less illuminated portions of the bee colony. Adults are covered with fine hair, which makes them difficult to pick up by hand.

Females begin to lay eggs about a week after emergence. Adults show great size variability, but most are approximately 3/16 inch long and 2/3 broad as long. They are about one-third the size of a honey bee worker. Longevity appears to be evenly distributed across ages, ranging from only a few days to six months. Forty of sixty-

eight individuals in Dr. Lundie's study lived over two months. Longevity and overlapping of generations makes the beetle a constant source of annoyance to beekeepers.

### **Economic Significance**

The small hive beetle is not considered a major problem in South Africa. However, coincidentally with detection in the United States, a large number of colony deaths have been reported by U.S. beekeepers. Certainly the beetle puts more stress on a colony and can be a final straw in survival when its effects are multiplied by those of Varroa mites and other maladies. Some colonies have been reported to collapse after beekeepers have united them with other highly-infested supers, a common strategy for controlling wax moth infestation. The major economic damage, however, appears to be done by larvae found in unprotected honey supers. Like that of the wax moth, the beetle larva is a scavenger. Any situation that reduces the bee population may enable the beetle to get a significant foothold in a colony. Although wax moth larvae eat comb enriched by honey bee pupal skins, beetle larvae eat live brood and honey. Worse, they defecate in the honey promoting fermentation. Fermenting odor may be the first sign of a beetle-infestation. Fermentation is associated with many of the beetles in the family Nitidulidae. Frothy, fermented honey produced by the larvae is abandoned by the bees. Infestation of honey filled supers can happen very quickly. It appears beetles may lay eggs when supers are removed. Thus, larvae can hatch when no adult honey bees are present. Largest infestations have been found in and near honey houses. Unlike wax moth larvae, those of the small hive beetle do not appear to destroy the comb. Thus, fermented honey can be washed off infested combs, particularly those reinforced by generations of pupal honey bee skins, and they will be reused by bees.

### **Action**

#### **Threshold**

Honey bee colonies appear to withstand large populations of adults with impunity. These, however, are capable of laying numerous eggs, which

quickly develop into larvae, creating havoc in the honey house and unprotected honey-filled supers. Stacking supers containing larvae on healthy colonies is also reported to cause their collapse. Scrupulous sanitation by extracting honey within a day or two or removal and rendering the cappings will often keep infestations at bay.

Chemical control of beetles is problematic because no action thresholds have been defined. There are two routes to control: 1) in the colony for adults and 2) in the soil treatment for developing pupae. A Section 18 special exemption for Bayer Bee Strips (CheckMite +) has been authorized by the Environmental Protection Agency (EPA) to control adults. This is formulated using the active ingredient coumpos (10%), an organophosphate pesticide impregnated in a plastic strip. Honey supers must be removed before applying this material as a plastic strip stapled onto cardboard inserts. In Florida, it must also be used in accordance with a label and two separate memoranda written to the Florida Department of Agriculture and Consumer Services by EPA dated January 6 and May 28, 1999. The latter increases the treatment window from seven to 45 days and increases the number of strips that can be sold in Florida to 700,000. All the documents must be in the hands of applicator at time of application. For more specific information, contact a beekeeping supply outlet.

A product called GardStar® (40% EC) has also been labeled for treating small hive beetle in the soil. It is formulated as an emulsifiable concentrate containing 40% permethrin. It can be used any time of year and applied by low-pressure spray equipment. The product is packaged in 4 fl. oz. bottles with a 15-mil self-dispensing chamber for easy mixing. Again, it must be used in accordance with the label and can be found in many garden and pest control stores.

### **Management**

The first line of defense for small hive beetle is sanitation in the bee yard and honey house. Dr. Lundie says that the principal time beekeepers have trouble in South Africa is when combs of honey stand for long periods in the honey house prior to extraction, especially those that contain pollen. Cappings set aside during the extracting process may also become "wormy." Honey left over Porter bee es-



capas for a period is also at risk.

All these lead to infestations because honey bees are not available to remove either larvae or adults from the colony. Thus, Dr. Lundie concludes, "Any factor which so reduces the ratio of the population of a colony of bees to its comb surface that the bees are no longer able to protect this comb surface adequately is a precursor to the ravages of both the wax moths and *Aethina tumida*."

The honey bees in Africa are different than those in most of North America. *Apis mellifera scutellata*, the African honey bee, has radically different behavior from that found in the European *Apis mellifera* bee, managed by the beekeepers of North America. It is already known that African bees in the face of light predation or perturbation readily abscond. In doing so, they leave behind a nest heavily infested with all kinds of possible organisms. Dr. Lundie suggests that this behavior may be a reason why American foulbrood has never taken hold in South Africa. Scavengers like wax moths and *A. tumida* remove abandoned nests so quickly that the disease reservoir ceases to exist. European honey bees are not as likely to abscond as African bees; they also may not be as hygienic in the nest. Both are reasons that their relatives Africanized bees are thought to be more tolerant of the Varroa mite. Another African honey bee, *Apis mellifera capensis*, is also affected by the beetle, but appears also to be withstanding its effects. What does inferior hygienic behavior and the lack of a tendency to abscond portend for North American bee colonies invaded by *A. tumida*? Dr. Lundie provides a hint of this in his publication, saying that when honey bees cannot eject the beetle easily, strong as well as weak colonies may be equally affected. Even in South Africa, at rare times the beetle can heavily affect colonies.

*A. tumida* is at its most vulnerable when the larvae leave the hive to pupate in the soil, and this probably represents a good starting point for beekeepers to experiment with controlling this insect by cultural means. Perhaps the larvae can be trapped somehow before they reach the soil. Soil conditions also become important; the larvae may not pupate effectively in too dry, sandy or wet conditions. Dr. Lundie reports some indications that larvae infested with a soil-dwelling fungus died. Certain ants or other insects may prey on the lar-

vae. The imported fire ant (*Solenopsis invicta*) in the southern United States comes to mind as a possibility in some areas. Dr. Lundie reports that stationary colonies are more vulnerable than those that are moved. Thus, relocating colonies may break the beetle's life cycle, a classic control measure used elsewhere in agriculture. Certainly the bees' self-cleaning behavior itself should be used to the utmost. Colonies will probably vary in the ability to withstand infestation and should be monitored for the ability to do so. As part of this, beekeepers should be very careful not to provide more exposed comb than the bees can adequately cover, or purposefully infest a colony that doesn't already have beetles. The beetle's arrival could signal a paradigm shift in honey bee management. Standard practices like stacking empty or weak colonies on stronger ones, making weak splits, and/or liberally exchanging combs are not good options in beetle control.

Beekeepers should constantly monitor their operations for presence of the beetle. Detection is relatively easy. The larvae can be examined for the six rather large legs on their front end; wax moth larvae have uniformly sized prolegs found in most lepidopterous larvae. In contrast to those of the beetle, wax moth larvae do not usually move toward light, leave a colony nor burrow into the soil. Adult beetles are easy to spot, uniform in color and about one-third the size of an adult worker bee. They rapidly run across the combs and can often be found hiding in places that are not accessible to larger-bodied honey bees. Until more is known about the beetle in a particular area, it should be assumed that it is far more aggressive a scavenger than the wax moth and may overwhelm even strong, healthy colonies.

If *A. tumida* is suspected or detected, the following precautions are suggested:

1. Be scrupulously clean around the honey house. Leave filled supers standing only a short time before extraction. Beetles may rapidly build up in stored honey, especially where honey has been stored over pollen.
2. Be careful stacking infested equipment or extracted supers onto strong colonies. Beekeepers doing this before the beetle was identified may have inadvertently dealt a deathblow to uninfested, healthy colonies by providing space for the beetles to build up that the bees could not protect.

3. Pay close attention when supering colonies, making splits or exchanging combs; all these activities could provide room for the beetle to become established away from the cluster of protective bees.

4. Monitor colonies for hygienic behavior; are the bees actively attempting to rid themselves of both larval and adult *A. tumida*? If not, replace them.

Experiment with traps in an attempt to keep larvae from reaching the soil where they complete their development. Try moving bees from place to place. Adult beetles can fly, but their range is not known with certainty. Some areas may be much more hospitable to beetles due to local soil conditions than others.

Other tidbits of information have been obtained through observation of beetle behavior:

- When the number of small hive beetle larvae reaches a certain level in a colony, honey bee brood rearing stops.
- Adult beetles appear to be eating bee eggs and may even consume their own eggs. Larval cannibalism is also reported.
- Amber light shone on frames at night will cause adult beetles to move and be detected.
- Adult beetles do not get caught on sticky boards, and move quickly across them.
- Adult beetles will lay eggs on fruit, but this does not appear to be their preferred diet.
- 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. This has now been integrated with use of coumaphos impregnated plastic strips.
- 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.
- Location of major infestations appear to be confined to the southeastern United States 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.

- Freezing honey in the comb appears to kill both beetle and wax moth eggs and larvae.
- 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.

## Selected References

Buyts B.; Durr, H.J.R. (ed.); Giliomee, J.H. (ed.); Nester, S. (ed.) A survey of honeybee pests in South Africa. 1975. Entomological Society of Southern Africa: Proceedings of the First Congress of the Entomological Society of Southern Africa, 1974 Stellenbosch 185-189; 9 ref.

Delaplane, K.S. 1999. The Small Hive Beetle (*Aethina tumida*), Bugwood Publi-

cation #98-0111, Entomology and Forest Resources Information Digital Working Group. ([http://www.bugwood.org/factsheets/small\\_hive\\_beetle.html](http://www.bugwood.org/factsheets/small_hive_beetle.html))

Lundie A.E. 1940. The Small Hive Beetle (*Aethina tumida*). Union of South Africa Science Bulletin Department of Agriculture and Forestry (Entomological Series 3) 220, 30 pp.

Murray A. 1867. List of Coleoptera received from Old Calabar. Annals and Magazine of Natural History (3rd series) 19: 167-179.

Sanford, M.T. 1999. Small Hive Beetle (*Aethina tumida*). APIS: Apicultural Information and Issues, University of Florida, Cooperative Extension newsletter topics. (<http://apis.ifas.ufl.edu/threads/smbetle.htm>)

Sanford, M.T. 1999. Small Hive Beetle, Featured Creatures, Department of Entomology and Nematology, University of Florida. ([http://creatures.ifas.ufl.edu/misc/bees/small\\_hive\\_beetle.htm](http://creatures.ifas.ufl.edu/misc/bees/small_hive_beetle.htm))

Thomas, M. A Honeybee pest New to Florida and the Western Hemisphere *Aethina tumida* Murray (Coleoptera: Nitidulidae, June 1999). (<http://www.doacs.state.fl.us/pi/enpp/ento/aethinanew.htm>)

## Footnotes

1. This document is ENY-133, one of a series of the Entomology and Nematology Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Original publication date October 2, 1999. Reviewed May, 2003. Visit the EDIS Web Site at <http://edis.ifas.ufl.edu>.

2. Malcolm T. Sanford, professor/extension apiculturist, Entomology and Nematology Department, Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, 32611.

(Continued from page 5)

the frames from the parent colony try to disturb them the least. In fact, it is best to assemble the frames you want within the colony, shake off all of the bees into the lower box, put a queen excluder on the lower box and the frames you want in the order you want in the upper box. Put the upper box back on the hive and the next day come back and quietly remove the 5 frames you want into your nuc box and new comb into the parent box. Take it to a new location and introduce a new mated queen.

If you are introducing a cell wait until the nuc has a number of capped cells then pick all of their cells out and put in yours. It is best to use two cells in case something is wrong with one. You are wisest to introduce your cells at the same age as the cells

they made. Sometimes they will chew your introduced cell down and go about making some of their own if you introduce them the day the nuc is made up. During the normal spring build up this is rarely a problem—best time to add cells is during the swarm season.

So what do you do with the nuc? If you keep a few around your apiary they come in handy for requeening. All you have to do is find and kill the queen in a colony needing requeening. Shake all of the bees from the upper brood chamber into the lower brood chamber of the dequeened hive. Place a sheet of newspaper over the lower brood chamber. Replace five frames of the upper brood chamber with the nuc frames and reassemble the hive. During a honey flow you can just put your nuc directly into the dequeened hive.

If you have a drone laying colony shake all of the bees in the top brood chamber to the lower brood chamber—don't even try to find the queen. Put your nuc into the top brood chamber and reassemble the hive with a sheet of newspaper in between the brood chamber. The nuc should be 3 to 5 frames of bees.

If you don't need the nuc during the summer let it develop into a single box or more of bees and overwinter it above a double screen on top of a strong hive. This small hive will overwinter if it is healthy, has adequate stores and has 4 good strong frames of bees. It will develop into a fine hive next spring or can be used for one of your big hives that becomes queenless in March or April.

## The year 2001 was memorable for Ryan Scott

**Combs** of Wewahatchka, Fla. That year, Ryan came to the USDA Farm Service Agency (FSA) in Marianna, Fla., (his FSA Farm Loan servicing office) to apply for a youth loan to start a new business. This loan was for a 4-H beekeeping project. With the FSA Youth Loan, Ryan wanted to purchase some additional equipment for his operation and queens for his hives. Ryan started out with one bee colony in 1997, but he wanted to improve and expand his

operation. Ryan had been working part-time after school and during the summer with a local apiarian in Wewahatchka since 2000. The young man liked working with the bees and had heard about the FSA Youth Loan program so he decided to apply. When he applied for the loan in 2001, he had grown his colonies to 70 and wanted to expand possibly up to 170 colonies in 2001. Ryan was supervised

(Continued on page 11)



**Packages are FUN**





**Next Meeting:  
Friday May 13th  
7:00 PM Social Time  
7:30 Meeting**

**T**he Inland Empire Beekeepers Association (IEBA) meets the 2nd Friday of every month at the Spokane County Ag Extension office by the County Fairgrounds, at 222 N. Havana. The Association is affiliated with the Washington State Beekeepers Association (WSBA). IEBA membership dues are \$5.00 for an individual or \$10.00 for the entire family. This includes your receiving the *Inland Beemail*, which is published by the association every month.

## *INLAND BEEMAIL*

Dave Bearden, Editor  
5319 N Simpson Rd  
Otis Orchards  
WA 99027

Phone: (509) 226-5231  
email: nmsuaggie@icehouse.net

Send To:



*(Continued from page 9)*

**With help from FSA Farm Loans, Ryan's dreams of operating a profitable apiary are becoming reality.**

during the term of his Youth Loan by the Gulf County Extension Agent as well as the local beekeeper. Ryan's parents were very supportive of his plans and also helped with the supervision of his operation.

Ryan successfully paid his FSA Youth Loan in full in 2002. Ryan began working as an electrician in 2002, but he still had about 85 bee colonies he was working on the side for extra income. He loved being outside and working with the

bees so in the winter of 2004 he applied for a direct operating loan from FSA. With the loan funds he was able to purchase 500 more bee colonies and get the operating funds he needed for the first year of operation. He quit his outside job and is now a full time apiarian in business for himself. The FSA Farm Loan staff in Marianna will continue to assist Ryan toward his vision of becoming a successful beginning farmer! *By Bernedia (Birdie) Perkins, Farm Loan Officer, Marianna, Fla*

### **NOTE**

**If you would be interested in learning more about FSA Farm Loans including Youth Loans in our area contact information for FSA loan staff in North Idaho and NE Washington is shown below:**

Boundary / Bonner / Kootenai / Benewah and Shoshone Counties in Idaho contact Jack Suesz at (208) 746-9621 email jack.suesz@id.usda.gov

Spokane / Stevens / Pend Oreille counties in Washington contact Steve King, Chris Sletager or Amy Hou-takker at (509) 924-7350 email steve.king@wa.usda.gov

### **The next meeting on May 13th will have for the program agenda:**

Workday IEBA/WSU Apiary / May field day / May management / Colony increase / Nuc prep & queen cell introduction