

Buzzword



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Next Meeting

May 20, 2003

American Foulbrood (AFB)

By Paul Hosticka

7:00 p.m. Stedman's in Silverdale

OFFICERS & COMMITTEES

President:
 Bob Martello 360-830-5456
Vice President:
 Stephen Augustine 360-779-1210
Secretary:
 Tricia Sullivan 360-779-1210
Treasurer:
 Susan Hosticka 360-297-3614

Educational Materials:
 Barbara Stedman 360-692-9453
Librarian:
 Roy & Vickie Barton 360-613-0175
Newsletter Editor:
 Stephen Augustine 360-779-1210

American Foulbrood

From Fundamentals of Beekeeping

American foulbrood (AFB) is an infectious brood disease caused by the spore-forming bacterium *Bacillus larvæ*. It is the most widespread and destructive of the brood diseases, afflicting queen, drone, and worker larvae alike. Adult bees, however, are not affected by AFB. *Bacillus larvæ* occurs in two forms: vegetative (rod-shaped bacterial cells) and spores. Only the spore stage is infectious to honey bees. Larvae less than fifty-three hours old become infected by swallowing spores present in their food. Older larvae are not susceptible. The spores germinate into the vegetative stage soon after they enter the larval gut and continue to multiply until larval death. New spores form after the larva dies.

Death typically occurs after the cell is capped, during the last two days of the larval stage or first two days of the pupal stage.

Brood combs in an infected colony have a scattered and irregular pattern of capped and uncapped cells. Infected cells are discolored, sunken, and have punctured cappings. This "pepperbox" appearance contrasts with the yellowish-brown, convex, and entirely sealed cells of a healthy brood comb. Dead larvae change gradually from a healthy pearly white to light brown and then to a dark coffee-brown. With American foulbrood, this color change is uniform over the entire body. Within a month or so, these dead larvae dry down into

brittle scales that are almost black. Each scale contains as many as 100 million spores. The scales lie flat along the lower walls of the cells with the rear portion curving partway up the bottom of the cell. House bees cannot completely remove the scales from the cells. During the early stages of decay, up until about three weeks after death, the dead larvae have a glue-like consistency. The cell mass may string out for an inch or more when a toothpick is inserted and withdrawn; this is known as the "ropy stage." When death does not occur until the pupal stage, pupae undergo the same changes in color and consistency as larvae. In
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New Officers Elected

WSBA elected new officers at the April 15 meeting. Elected were:

President: Bob Martello
Vice President: Stephen Augustine
Secretary: Tricia Sullivan
Treasurer: Susan Hosticka



We are very grateful to outgoing officers Paul Hosticka (president) and George Purkett (treasurer) for their exemplary service in leading our organization over the past three years.

Important Request From The Librarian

If you have borrowed materials from the WSBA library please return them in a timely manner.

In particular, the persons who have checked out the Beekeeping Seasons video set by Keith Delaplaine are requested to return them as soon as possible.

Library materials may be checked out during the regular meeting times or by arrangement with Roy or Vickie Barton. Normally all library materials can be checked out for one-month periods.





Get well
wishes go
out to:

Al Stedman who had surgery earlier this month. We hope for a speedy recovery.

If you know of a member who has been ill let us know at 779-1210 or 297-3614

".....store of bees, in a dry and warme bee-house, comely made of fir boards, to sing, and sit, and feede upon your flowers and sprouts, make a pleasant noyse and sight. For cleanly and innocent bees, of all other things, love and become, and thrive in your orchard. If they thrive (as they must needs if your gardiner be skilfull, and love them: for they love their friends and hate none but their enemies) they will besides the pleasure, yeeld great profit, to pay him his wages; yea the increase of twenty stock of stools with other bees, will keep your orchard."

~ William Lawson,
A New Orchard and Garden, 1618

BASICS IN NORTHWEST BEEKEEPING

Adapted from Ron Bennett (<http://members.aol.com/beetools/>)

Now starts the most exciting period of the beekeeping year. Your bees should have been started, treated and fed, and should be in a dramatic growth mode. The queen (bless her little heart) is laying over 1,000 eggs a day. We have had many good days with the air above 50° and winds below 14 mph, and the bees have been out working very hard bringing in pollen and nectar.

But, here in the Northwest, there is about a three week period from the end of April into May where the nectar flow drops to almost zero. This is a very critical situation for your bees. They have been stimulated to build up a huge population to take advantage of the main nectar flow at end of May and are committed to raising and feeding a lot of young bees. Without feed sources around, your bees, which look big and strong and hard working, can actually

starve out in the next three weeks. So, watch your bees carefully and don't let colony stores get below 15 lbs. If the colony starts to get light, FEED!!! Use a light syrup (1:1 sugar to water by volume).

Now is also swarm season. Now is when you hope that your neighbor beekeeper is not as good a beekeeper as you are and you can catch swarms from their hives while your good management practice keeps your hives from swarming. Swarm control is probably one of the least successful areas of beekeeping. Swarming is the natural way for bees to ensure the survival of their species, and like all teenagers, the instinct to reproduce is very difficult to control.

One of the ways to minimize swarming is by requeening your hives. A swarm is a portion of your bees leaving with the old queen, and this tends to be with queens in their second year. So by requeening

with a new young queen, you not only assure yourself of a strong queen, you cut down on the chance of her swarming. A second technique is to reverse your hive boxes. The bees will start the swarm process when the queen starts to run out of perceived space in which to lay. Since she tends to only move upward, she does not use the space available below the brood cluster. By reversing the boxes, you force the bees to reorganize their stores and therefore create new space for the queen to lay in.

Another method is to remove queen cells as they appear. But this rarely works since it's next to impossible to find all the queen cells. Additionally the constant intrusion into the hive will stress the colony greatly. With that in mind, examine your colonies about every 10 days. Set off the supers; tilt up the second story and look for queen cells along the bottom of the brood comb. If you find

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Minutes of the Previous Meeting, March 18th, 2003

Treasurer's Report:

- * George Purkett gave the treasurer's report. Our bank balance as of April 15 was \$4602.49. We have 68 final paid members for 2002. So far we have 60 paid members for 2003.

Announcements:

- * Copies of Jim Willmann's packet from the Simon Fraser University course are available from Paul.
- * Jim Willman or J.P. or Chanetta Ludwig will cover the Bainbridge in Bloom Tour. Paul will get the info to them.
- * Stephen will post on the web site the beekeepers willing to provide pollination locally. Let him know if you'd like your name added.
- * Please return library materials if you have any checked out. The Keith Delaplaine video is missing.

New Business:

- * There was no report from the "auction fund" committee.
- * The Western Apicultural Society is meeting at Simon Fraser University from August 12-16.
- * Stephen Augustine is interested in doing a survey among members. A motion was made to allocate up to \$150 for mailing the survey and prizes for respondents.

Program:

We had our annual meeting to elect officers for 2003-2004. They are:
President: Bob Martello, Vice President: Stephen Augustine, Treasurer: Susan Hosticka and Secretary: Tricia Sullivan

Apimondia 2003

XXXVIII Congress
Ljubljana, Slovenia
August 24 - 29

*Beekeeping, A Way of
Life*

For further information
visit:
www.apimondia2003.com

... AMERICAN FOULBROOD (contd. from page 1)

addition, a pupal tongue sticks up from the remains toward the top wall of the cell; this is one of the most characteristic symptoms of American foulbrood.

Only a few dead larvae or pupae will be seen when the colony is first infected by the disease. Once established though, AFB disseminates rapidly through the hive. If left unchecked, AFB spreads quickly to other healthy colonies at the same location and in nearby apiaries. Nurse bees within the hive inadvertently feed honey contaminated with spores to young larvae, which perpetuates the disease. As the number of brood cells increases with the scales of dead larvae, which are spore reservoirs, housecleaning bees also aid in spore dispersal. Honey supplies within the brood chamber soon become contaminated as honey is stored in these spore-laden cells. Bees also transfer honey from the brood chamber to the supers above, thus spreading disease throughout the entire hive. As the infection weakens a colony, the colony can no longer defend itself against robbers from strong colonies in the area. Spore-contaminated honey is spread quickly from hive to hive.

Another way American foulbrood is transmitted is through the interchange of combs between hives. When this disease is not recognized in an apiary, combs from a diseased hive inadvertently may be: (1) used in making splits or increases, (2) used in exchanging brood and food between hives, and (3) mixed with combs from other hives during honey extraction. In addition, the beekeeper's hive tool and gloves may spread AFB from hive to hive. American foulbrood spores are highly resistant to desiccation, heat, and chemical disinfectants. These spores can remain virulent for more than forty years in combs and honey. Therefore, honey should not be purchased from other sources to feed bees. Only feed combs of honey if you are absolutely sure they are disease-free. An inexperienced beekeeper should not buy bees or equipment that have not been examined by an inspector or someone else familiar with the disease. Even a stray swarm from an infected colony may carry AFB.

American foulbrood cannot be transmitted to humans and has no effect on honey for human consumption. Because of the highly contagious and devastating action of the disease, every beekeeper should know the symptoms and be able to recognize AFB in its early stages. If you suspect disease and need help in diagnosis, contact your local apiary inspector. Or send samples of diseased comb for laboratory tests to: Beltsville Bee Laboratory, Building 476 BARC-Fast, Beltsville, MD 20705

Colonies infected with American foulbrood should be destroyed by burning. The bottom board, hive bodies, supers, inner covers, and outer covers may be saved, disinfected, and reused. Before burning, diseased colonies should be killed in the evening after all foraging activities have ceased. The synthetic pyrethroid insecticide, resmethrin SBP 1382®, is approved for killing diseased colonies whose frames and combs will be destroyed. This insecticide, formulated as a 1 percent aerosol, is available from bee supply dealers. A ten- to fifteen-second application across the top of the frames under the inner cover is recommended. After treatment, hive exits should be sealed; all bees should be dead after thirty minutes.

Dig a pit 18 inches deep and wide enough to hold all combs and equipment to be burned. Build a fire in the pit. Set your unopen hive close to the pit and drop all combs and dead bees into the fire. After everything has been completely burned and the area cleaned of small pieces of comb or bees, cover the ashes with dirt. Equipment that was saved (bottom boards, hive bodies, and covers) should be scraped to remove all propolis and wax, then scrubbed with a stiff brush and hot soapy water. Dispose of the wash water and burn the scrapings so they are not accessible to the bees. After scraping and scrubbing, all equipment should be either fire scorched or completely immersed in a boiling lye solution. Prepare your lye solution (sodium hydroxide) by mixing 1 pound of lye with 10 gallons of water. Boil the equipment for twenty minutes; wooden parts can be damaged by longer exposure. Remember that lye solutions are caustic and can cause severe burns. Before using, read the label carefully and observe all precautions. A blowtorch is suitable for scorching small quantities of equipment. Burn the surface until it is light brown and be sure to hit the corners. For large quantities of hive bodies, brush the inside surfaces with kerosene. Stack the hive bodies with the metal rabbets facing downward on top of each other, five to eight supers high. Ignite the stacks and allow them to burn long enough to lightly char the wood.

Terramycin® (oxytetracycline HCL) is the only drug approved for use as a preventive treatment against American foulbrood. This antibiotic does not kill *Bacillus* larvae spores, but prevents or delays their growth when present in low concentrations in the food fed by workers to susceptible larvae. While this treatment allows individual larvae to survive, it does absolutely nothing about the virulent spores in the contaminated equipment. Thus the disease usually reappears once drug feeding stops. All drug feeding must stop at least four weeks before any surplus honey flow. Every precaution should be taken to ensure that no antibiotic will ever be present in honey taken from the hive.

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Refreshment Schedule

May: Joe Grubbs & Pamela Tarver
Jun: William Biehl, Joseph Higdon
Jul: -open-
Aug: Summer Picnic
Sep: Mike Hoey, Betty & Walter Schicker

If you are unable to fulfill your commitment to provide refreshments for a meeting please notify Barbara Stedman by giving her a call at 360-692-9453 before the meeting date.

Octopus Garden Queens



Kitsap County bred,
New World Carniolan,
marked, laying queens.

Limited supply,
available beginning in
June.

Call Paul at 297-3614

Editor's Note:

Articles of interest to beekeepers and announcements of interest to Association members are welcomed and encouraged.

Submit articles and announcements to Stephen Augustine:

Email: stephen@lalgudi.net
 Mail: 401 B Liberty St NW
 Poulsbo, WA 98370

...BASICS IN BEEKEEPING (CONTD. FROM PAGE 2)

only eggs or larvae in the queen cells and the hive is crowded with bees, remove all the cells -- top and bottom. Put the hive body containing mostly worker bees or larvae on the bottom board, and the other containing mostly sealed brood on top. Next put on the queen excluder and add supers to provide 10 to 15 empty full depth comb, or their equivalent in the supers. Place the empty comb directly on the excluder.

If you find sealed or ripe queen cells, or possibly hatched ones, divide the colony. Set the top body, usually with most of queen cells, onto a bottom board and cover with a lid. Put this hive on a separate stand. Remove all queen cells from the lower body; put on the excluder and add supers to provide 10 to 15 empty full depth combs, or their equivalent, above the excluder. Several hours later, look for the queen in the divide. If you find a virgin queen (no eggs laid), let her remain, but if you find the old queen pick her up and let her run into the entrance of the colony on the old stand. Let the queen cells hatch in the divide. If you find no attempt to rear queens, and the hive is full of bees, examine the supers and add more to provide 10 to 15 empty full depth combs, or their equivalent, above the excluder.

If the bees seem reluctant to work in the

supers thru the excluder, reverse the two hive bodies. This causes them to rearrange their stores and they will move some thru the excluder. Some colonies need training to go thru the excluder.

Give your hives a 3/4 inch depth entrance for better ventilation. Some beekeepers use a additional 3/4-1" hole in the upper box as a entrance and to provide ventilation.

Keep on the lookout for American foulbrood and take remedial action as necessary. If it's a very small outbreak it may be possible to remove the affected frames and treat with Terramycin. If treating with Terramycin do not treat with supers on that you intend to extract for honey. In the event of a full-blown outbreak the recommended action is to destroy the colony and burn the equipment. Keep grease patties on all colonies throughout the season and replenish them at the 10-day intervals.

Give supers with foundation, but only to those colonies that are working in the supers. Place directly over the queen excluder, if you are using one. If you have been fortunate and the honey flow has been good, add new supers under supers with capped honey. Remove and extract the supers containing well-ripened honey.



...FOULBROOD (CONTD. FROM PAGE 3)

Preventive Terramycin treatments are normally made early in the spring, at least one month before the first major nectar flow, and again in the fall after the honey crop has been removed. Terramycin should be fed as a dust mixed with powdered sugar.

Approved methods of treatment include mixing one part TM-5 with one part powdered sugar; one part TM-10 with two parts powdered sugar; one part TM-25 with five parts powdered sugar. About 1 tablespoon of the drug-sugar mixture should be applied on the edges or ends of the top bars of the brood chamber. Do not sprinkle the mixture so that it drops into cells containing young larvae, as this can kill them. Three treatments, seven to ten days apart, are commonly made in the early spring and fall.

The secret of success in controlling American foulbrood is to find the disease in its early stages, burn all honey and combs, and disinfect the equipment before the disease can spread to other colonies. No treatment is considered totally effective for permanent control of American foulbrood. Therefore, the beekeeper should always be alert for possible recurrence.



West Sound Beekeepers Association
10982 NE Tulin Rd
Kingston, WA 98346
<http://www.westsoundbees.org>

Next Meeting —
American Foulbrood
 Tuesday, May 20
 7 p.m. at Stedman's