INLAND BEEMAIL

Monthly newsletter of the Inland Empire Beekeepers Association

Volume 9, Issue 8 — August 2004 — www.inlandbeemail.com

Fair Time!

Showing Honey at Fairs
Adapted From Beekeeping in the United States By E.C. Martin

Showing farm produce at the county fair or the State fair is a fine American tradition. Fair visitors can be so fascinated by attractive displays of honey and other apiary products, including observation hives, that we should surely make greater use of such opportunities to promote our products. Honey consumption in the United States is only slightly more than 1 pound per person. If no effort is made to promote its use, consumption could drop still further-and there could be a tendency toward lower prices.

About 200,000 people keep bees in the United States. Most States have a fair and there are hundreds of county fairs. Beekeepers in some States do marvelous jobs of organizing displays at the fairs. The initiative for getting beekeepers' displays on the fair prize list and then stimulating good, competitive response from the honey producers must come from State or local beekeepers' associations. Persistent effort by a continuing committee can develop the talent for showmanship present in every community. Expanded use of the fairs could provide the beekeeping industry with an interesting and profitable way to tell many millions of people the good qualities of honey.

Preparing Honey for Competition

Competition- particularly in white, liquid honey classes- can become quite keen, and some beekeepers become very expert in preparing honey for shows. Where competition is keen, beekeepers sometimes select the most ideal combs of honey, extract them in a hand extractor without the use of a honey pump so as to avoid incorporating air bubbles, strain the honey carefully and allow it to settle, and place it in jars free from crystals, bubbles, or specks of any kind. If show honey contains crystals, the honey may be heated cautiously until the crystals dissolve. Air bubbles may be brought to the surface by gently warming the honey for an hour or more. Moisture is best removed from honey by exposing combs to warm, dry, moving air before extracting.

Smoothly granulated honey is prepared for shows by seeding liquid honey with about 10 percent finely crystallized honey, mixing carefully, bottling, and storing at a temperature as close to 57°F as possible. If stored at the right temperature, the prepared honey will set firmly in about a week.

Liquid Honey
Appearance, suitability, and uniformity of containers -- 5
Uniform and accurate volume of honey -- 5
Freedom from crystals -- 10
Freedom from impurities, including froth -- 20
Uniform honey in all containers of the entry -- 5
Color -- 10
Brightness -- 10
Flavor and aroma -- 15
Density (No additional points below 16 percent water) --20

Granulated (Creamed) Honey
Appearance, suitability, and uniformity of containers -- 5
Uniform and accurate volume of honey -- 5
Firmness of set (not runny but spreadable) -- 20
Texture of granulation (smooth and fine) -- 20
Absence of impurities, including froth -- 15
Uniform honey in all containers of the entry -- 10
Color -- 10
Flavor and aroma (such as natural flavors present and undamaged by heat) -- 15

Comb Honey in Standard Sections
Suitability, uniformity, and cleanliness of sections (wood) -- 20
Completeness, uniformity, and cleanliness of cappings -- 30
Uniform and completely filled honey cells -- 30
Quantity, quality, and uniformity of honey -- 20

Cut Comb Honey
Accuracy and neatness of the cut edge of the comb -- 20
Uniform depth and filling of the honey cells -- 20
Complete, uniform, and clean cappings -- 20
Quality, quantity, and uniformity of honey -- 20
Freedom from leakage and general appearance of the pack -- 20

Chunk Honey
Uniformity, cleanliness, and general appearance of the entry -- 30
Freedom from impurities and granulation -- 20
Quality of the liquid honey -- 25
Quality and neatness of the comb honey -- 20
Uniform and accurate volume of honey -- 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
Frank Seiler
509-226-2382
seilerbees@att.net

Spokane County Fair Chairman
Bob Adsit
509-489-0730
Bvadsit@sisna.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
pjkx@adelphia.net

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

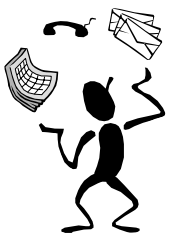
WSBA at Large Delegate,
Technical Advisory Program, &
IEBA Bee Class Instructor
Jim Miller
509-299-9085
jandj@cet.com

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 Website
www.inlandbeemail.com

WSBA Website
www.wasba.org



August Agenda

—Ted Swenson

Reports:

- The Secretary's Report
- The Treasurer's Report
- Joy in Beekeeping Report
- Fair Reports
  - Spokane Fair
  - North Idaho Fair
- *Inland Beemail* Report
- WSBA Conference Report
- WSBA Report
- Four Corner Bee Reports

Old Business:

- IEBA Charter/Constitution Review and Update Plan - Proposal
- IEBA Cook Book - Chris Fischer

New Business:

TBA

July Minutes

—Linda Carney, Secretary

After President Swenson called the meeting to order, he commented on how impressed he was with the attendance of this meeting.

The minutes were accepted as written in the Beemail with a brief overview read by the Secretary.

The President gave **the Treasurer's report**. The checking has $4595.94 and our savings account has $1986.11 for a total of $6582.05. We have also received a check from the Extension Office that will bring the total to over $7,000

Fair reports:

Jack Knox needs volunteers for the North Idaho Fair to fill in some open times. As he passed around the sign up sheet, Jack also pulled "a fast one" on the members. He asked them to taste some "honey" that was given to him by a lady who wanted to enter it in the North Idaho Fair. She called it "honey". Jack did admit that it is a blend of ingredients made to taste like honey but there is no honey in it. A lot of laughter and conversation came from this taste test. Jack told her he would not enter her in the Idaho Fair.

The Spokane Fair also had a sign up sheet as presented by Jerry Miller. Bob Adsit is still being the wanderer. A motion was presented and passed for $775 for the Spokane County Fair to pay $380 for rental of display cases, $200 set up fees, and $195 to purchase tickets for the volunteers. Jerry also wants a list of swarm collectors and honey suppliers. He also brought some fair books to distribute at the meeting. Others are available at the extension office as well as the Fairgrounds.

President Swenson would like to remind members and friends to be sure and sign up for State Convention as soon as possible.

WSBA had nothing to report.

4 Corners Report- Chris Fischer from the North side is

Hive Care : August

The Bees.

Nectar flows are slowing down. In some areas, the honey flow is over. Bees can be found curing the honey and capping it. Other areas can still have a flow, especially after a good rain.

The Beekeeper.

For most of us, this is extracting month. Get your supers off, extract, or cut comb. As you survey your crop, ready some of your efforts for fair entries.

If you are expecting some more flow, you can put some of the wet supers back on.

This is also the time that you need to take stock of your hives in terms of overall health, varroa infestation, and queen vitality. For a good article on fall (that means August here) requeening, please give Bob Arnold's suggestions a read.

Be sure that no honey supers are on when you start medicating. Treatments such as ApilLife Var™ are very temperature dependant, and need to be administered when the weather is warm. You may also wish to consider alternatives to Checkmite™ and Apistan™ by trying Sucrose Octoanoate this fall. Again, you need three weeks of decent weather to apply it.

Beeswax
Color between straw and canary yellow
(such as undamaged by propolis and iron stain) -- 30
Cleanliness (free from surface dirt, honey, and impurities) -- 25
Uniform appearance of all wax in the entry -- 15
Freedom from cracking, shrinkage, and marks -- 15
Texture and aroma
(such as pure wax free from hard water damage) --15

Bees in an Observation Hive
Correct type and color of bees for the class -- 15
Queen: Size, shape, and behavior -- 15
Brood pattern -- 15
Variety: Presence of queen, workers, drones, brood, honey, pollen, and so forth -- 15
Correct number of bees for interest and ease of observation -- 10
Cleanliness and suitability of the combs -- 15
Appearance, cleanliness, and suitability of the observation hive -- 15

Display of Apiary Products
Educational value -- 20
Advertising value (normally for the products in general, not a brand) -- 20
Attractive arrangement (pleasing and eye-catching) -- 20
Originality and variety -- 20
Appearance and quality of products in the display -- 20

already extracting some honey.
Bob Arnold bees had trouble finding the queen because the brood chambers were so wet. Travis said the Valley seems to be a little slow right now. The flora is in a transition period.

Some of the beekeepers are also experiencing failed hives. Several ideas were brought up on why this could be happening. It was thought that insecticide spraying was causing some of the losses to the colonies.

OLD BUSINESS

Chris Fischer announced that the cookbook is at the printers. 190 recipes and 300 books! Thanks to Ancel and Bob Arnold the cookbook has two pages of history and it also has a mini collage of pictures furnished by Frank Seiler. The name of the book is *How Sweet it is, Recipes from the Hive*. The other great news is that we are being given 36 free books and we do not have to pay our bill for one month after delivery.

NEW BUSINESS

Help is needed for a presentation at 3pm at Hastings on July 24. Immediately the positions were filled with volunteers. (Do we have a great group?—Yes!).

August 10 is the deadline for fair entries.

President Senson will make a display map which will be used as a honey locator. It will give people an idea of the locations of local honey suppliers and it will have slots for business cards. Therefore, members should be prepared to give their information and some cards to President Swenson.

August picnic- Bob and Virginia Adsit cannot do the picnic this year. It will be August 8th at Plante's Ferry Park on Upriver Drive and will start at 1:00. It is potluck for the members. The Association will furnish hot dogs and buns and burger stuff and pop. Please RSVP to President Swenson so he can get an idea of supplies to purchase. A motion was passed for $250 for the annual picnic. Jerry Miller and Roger Carney will bring barbeques. (Hope to see lots of people there!!)
The meeting was adjourned.

Another Best Seller: IEBA members Bob Adsit and Frank & Ramón Seiler with young readers at Hastings

Classified Ads

Tate's Honey Farm has all of your extracting and packaging needs. Queens available though September. 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**
Please return your empty package bee containers!

BEEBOXES BY LEE
Woodenware, standard or custom orders, IPM bottom boards, Hive top feeders, etc, select lumber. —Lee Birchtold (208) 687-1300

Looking for used eight frame and Ross Round equipment — Frank Seiler (509) 991-3019

Miller's Homestead
Jim and Jenine Miller
Cheney, WA
1-509-299-9085
Providers of
-Natural honey
-Cut comb
-Creamed honey
-Custom Honey extraction
-Plastic containers
12oz wm plastic .55
24 oz wm plastic .65
Now available: Plastic widemouth jars: 12 oz @ 55¢/ea, 24 oz @ 65¢/ea. Honey Supers, 10 frame and painted $39.50 FOB 14606 Stangland Rd., Cheney. Look at our web site for prices on other containers for the honey flow. Extraction this year will be during the month of August. Saturdays only.
www.millershomestead.com

Extractor for Sale: 6-12 frame Dadant powered extractor with manual speed control, like new, stainless steel $700; 4 Frame Dadant powered estractor, stainless steel $350. Curt Bucklin, 208-265-5859

Now taking orders for Queen Cells and Nucs. Custom grafted Queen Cells and 4 frame nuc colonies for sale. Also 4.9 mm raised nucs available by special order. Contact Travis Sammons at 509-928-4326

Must sell: Platform scale, 50 gal ss honey tank with valve, 2-5 gal wax/honey separating tanks, 18"x10"x48" ss baffled sump tank, 2 fiberglass deep sinks 200 7 5/8" supers most never used, tops, inner covers,bottoms and queen excluders Contact: Jim McAdam 509-276-2386

BACK TO THE small bee

Original Article "Zurück zur kleinen Biene" published in Germany's national beekeeping magazines *ADIZ, Imkerfreund*, & *Die Biene*, 4/2003 by Thomas Kober (ImkereiKober@aol.com) Translated into English and edited by Frank Seiler (seilerbees@att.net)

Part 1: The history of cell sizes

Preface: Since the mid 90's there are reports that there are bee colonies that have been raised on 4.9 mm foundation and are surviving without Varroa treatments. The premise is that the sensitivity of the honeybee to various diseases and pests is a result of artificial enlargement due to increased cell size of 5.4 to 5.7 mm (as foundation in the market place is currently sized). This article and the two to follow are designed to be both an introduction to the technique of small cell beekeeping and form a basis for discussion.

First off it must be mentioned that what is presented here is not a sure fire and fool proof method that solves the Varroa crisis. However, the method relies on the thesis that a return to the biological basis of the naturally sized honeybee, with smaller individuals, has distinct advantages as to vitality and hence a better basis for selecting varroa resistant lines. The selection of the appropriate bee rather than fighting the mite problem is a route that has not been traveled often. Most research has been into how to combat the mite.

The size of a cell

Every beekeeper recognizes two different cells: that of the worker bee and that of the drone. Most are of the opinion that the size of the cells as offered on purchased foundation walls corresponds to the natural size of the European honeybee. History shows that this is not necessarily the case. For approximately the last one hundred years, experiments with the manufacture of foundations have been performed. Some authors from before this time report of naturally occurring comb that contained almost a third more cells for a given area (Ericksen et al, 1990; Österlund 2000).

Bees on small cell foundation, © T. Sammons

The artificial enlargement of the worker bee cell—and hence the bee itself—sprang out of a desire for a commercially better bee.

Measuring the cell size

Traditionally, cell size was expressed as number of cells per given surface area. A template measuring 10 x 10 cm was placed on the comb and the cells counted. The count is then doubled as the reference is for both sides of the comb (see table). In practical terms, measuring to the distance between the centers of cell walls is much easier. A metric ruler is laid across the comb, and, for example 10 cells are counted out. The measure is then divided by ten. Because cell size varies in nature as well as on man-made foundation, several places should be measured and the average taken. Man-made foundation is often stretched in the direction that it was rolled in.

Converting cell number to cell width (according to Badoux 1936)

Cells/dm²	Cell width in mm
650	5.96
700	5.75
750	5.56
800	5.38
850	5.21
900	5.06
950	4.93
1000	4.80
1050	4.70

Cell size affects bee size

On one hand, bee size is a function of its inherited makeup, on the other a function of external influence, such as cell size. The size of cell that a honeybee will construct naturally is partly inherited and partly dictated by its external environment. There is dual relationship here. It is not merely enough to measure freely built comb as an indication of natural comb size as bees will build similar comb as that out of which they hatched.

Natural cell size of European bees

To obtain accurate data about the true natural size of worker cells it is best to consult the literature written before the introduction of manufactured foundation. In 1770, Thomas Wildman in England described comb of 60 to 600 cells per foot (1 foot = 305 mm) which corresponds to 4.62 to 5.08 mm. Other authors describe cell sizes ranging from 4.7 to 5.4 mm. The most accurate measurements of the time are from Thomas Cowan (1890) who measures natural comb mainly in England, but also in France and the USA. Cowan found cell sizes from 4.72 to 5.36 mm.

Variability of cell size in a colony

In natural comb it is readily apparent that a wide variation of cell sizes exists. The cells are not uniformly the same as one would see on a piece of comb drawn from foundation. Rather, the smallest cells are about 4.7 to 4.9 mm and are found in the center of the brood nest. Here is where the brood for winter and spring is raised. Somewhat larger cells (4.9 to 5.2 mm) lay around this center and are used in late spring and summer when the brood nest has expanded. The largest cells are only used for brood in the largest brood expansion. Generally these are for honey storage.

Thus, unaltered natural colonies have small winter bees, allowing for a compact cluster. And, in the spring the brood nest remains tight and brood is reared at high density, allowing for easier thermal regulation in the challenging temperatures. In summer, both small and larger bees will be found in the colony.

Artificial enlargement

The above-described division of cell sizes had been entrenched through thousands of years of natural selection. Today, when most of us have regained some respect for the wisdom of nature, the idea of using uniformly sized cells that are larger than nature throughout the entire colony is actually absurd. But 100 years ago, one did not have such scruples.

In the years 1890 to 1925 all European foundation makers adopted a lager cell measure. Originally, foundation makers produced a product with approximately 920 cells per dm^2 (10 x 10 cm) whereas today's manufacturers sell foundation in the range of 750 to 800 cells/dm^2, corresponding to a cell size of 5.4 to 5.5 mm. Thus the bees are forced to raise brood in cells larger than cells used for honey storage in natural comb.

One of the driving forces in this case was Professor Ursmar Badoux from Belgium. He began in 1893 with the conscious enlargement of the worker bee cell. Badoux developed a method by which he would take then available foundation, and after warming it, placing it on rubber mats and stretching the wax foundation equally in all directions. This enlarged foundation was mounted in frames and given to the bees to draw out. He went about it in steps so that each successive generation of bees would draw out slightly larger cells than those out of which they hatched. By 1895 he was successfully rearing bees on foundation of 750 cells/dm^2 (5.56 mm). That year, he also had the first foundation press of that measure built. In years following, he achieved cell sizes down to 700 cells/dm^2 which came very close to drone cell size. In some instances he even achieved 675 cells/dm^2 in which worker brood was raised.

Badoux was a proponent of Lamarckism. According to this — at the time still popular —

theory, changes caused by the environment become hereditary. Accordingly, it was not possible to naturally increase the size of the honeybee as it would always raise itself in a small cell and thus build small cells. A catch-22 that could only be broken by using foundation with larger cells.

Bigger perceived as better

Badoux made some theoretical assertions about how much larger the honey stomach might be in the enlarged bees and therefore how much more they are able to carry. He could also determine that his large cell colonies produced bees with longer tongues: According to his results, the tongue increases 0.5 mm for every 50 fewer cells per dm^2. Back then, length of tongue was a much discussed topic, as a longer tongue, it was felt, made a better forager for many flowers with a deep nectary, such as red clover. Obviously this forage was an important contributor to the honey crop. The foraging capability of early season crops worked well by the small bees was not considered as beekeepers focused on summer and fall honey crops.

Badoux publicized his experiments extensively. That bees become larger when they reproduce on enlarged comb was many times proven. However that his larger bees produce more was never conclusively proven in field tests. He described that in a few cases, his larger bees tended to bring in up to 10 per cent more. Apparently, the advantage of a larger bee was so obvious, that hardly anyone required or wanted proof. By 1913, the company Rietsche had sold 2500 foundation forms measuring 736 cells per dm^2 (5.6 mm) and since about 1930 the forms with 820 cells/dm^2 (5.3 mm) were no longer available.

Feral colony on Spokane's South Hill drawing 4.8 mm comb in the brood nest. Lower photo shows John Sammons tying comb into frames. These small cell bees are now placed on 4.9 mm foundation

This development eventually also made its way to the United States. For a long time, the standard held to was 5 cells per inch (=5.08 mm). Root writes in his 1891 version of *ABC and XYZ of Beekeeping* that an enlargement of the cell over the traditional measure will not have lasting success. This concept seems to have held ground until the 1950's but eventually larger cells gained a foothold here also.

Influence on successive generations

Badoux described swarms that originated from hives of 700 cells/dm^2 building comb in skeps at about 732 cells/dm^2. Thus, the artificially enlarged foundation indirectly affects freely built comb, even though it does not translate 100%. Badoux thus saw proof for his belief in the theory of Lamarck. Nonetheless, after a few generations of naturally built comb, his bees returned to the natural size.

It is reasonable to conclude that the genetic material has been affected. Those that performed well on large cell foundation were selected for continued breeding. In this case, selection is for an environmental factor, namely the large cell.

An example of such selection is the project of bee breeder Barry Sergeant of South Africa. Within a period of about ten years he successfully (without the use of foundation) selected from the very small A. m. scutella lines and increased the size from naturally built cells of 4.8 to 4.9 mm to a bee that now builds 5.2 mm cells on average (Gustafsson, 2001).

Lehzen described skep colonies in 1880 kept in the Lüneburger Heide (a famous heather region in Germany) with cell sizes of 4.9 to 5.1 mm in worker brood. In the fall of 2002, Rainer Holsten surveyed a large number of skep colonies belonging to heather beekeeper Georg Klindworth (in the same area as the survey of 120 years earlier). He found in all the skeps worker brood that had cell sizes of 5.2 to 5.4 mm. Even though these colonies came from a continuous line of natural colonies (skeps do not use foundation), an increase in size of at least 0.3 mm has been recorded. This could be through influence from genetically larger material from drones of external colonies that are kept on larger foundation. According to Klindworth, the original "heather bee" has become virtually extinct in the last 10 to 20 years. Since there are only several hundred skeps still kept in the Lüneburger Heide, the colonies have been genetically "overrun" by adjacent Carniolan and Buckfast bees. Today's heather skep colonies show a much reduced swarming instinct, something essential to the traditional management of the heather harvest.

In spite of this almost universal distribution of large cell bees on a genetic plane, every once in a while one comes across a colony on naturally built comb that has apparently not been affected this way. (The original magazine showed a piece of feral comb in Sweden photographed by E. Österlund. The cells measured 4.77 mm). Interestingly these are sometimes neglected colonies that somehow have survived without any treatments by a beekeeper.

Is bigger really better?

Draught Horses are able to pull much heavier loads than its ancient smaller predecessors. This type of breeding makes sense in the light of the results. However, if such horses were turned back into the wild, they would not survive well without the care of the horse keeper's feed and medical attention.

Honeybees are, even though they are "kept" by humans, still wild creatures that forage freely in nature. Does it make sense to enlarge the honeybee just for the sake of a slightly larger honey stomach and a longer tongue? In recent years, beekeepers that have experimented with bees regressed to 4.9mm foundation have reported little differences in honey production between large and small bees. And when a difference is noticeable, often the small bee is the one performing better.

Dee and Ed Lusby, a commercial beekeeping couple in Arizona realized the problem related to cell size in the late 1980's and since the 90's have converted their operation of about 1000 colonies to a cell size of 4.9mm. In the last few years, their method has been duplicated by other beekeepers.

Part 2 of this series will explore some of the astounding results and challenges of converting to small cell foundation

Bibliography

Badoux, U (1933 & 1944): The influence of cell size. *Bee World*, 1/33 & 1/34 (found online at http://www.beesource.com/pov/lusby/index.htm)

Cowan, T (1890): *The Honey Bee: Its Natural History, Anatomy, and Physiology*, p181

Erickson, E. H., Lusby, D.A., Hoffman, G. D, Lusby, E.W. (1990): On the size of bee cells. *Bee Culture*, 2/90 & 3/90 and online at http://www.beesource.com/pov/lusby/index.htm

Gustafsson, P.-O. (2001) *Visiting Barry Sergeant*, to be found online at http://www.algonet.se/~beeman/za/za-1.htm

Lehzen, G. H. (1880): *Die Hauptstücke aus der Betriebsweise der Lüneburger Bienenzucht*; 1. Auflage

Österlund, E. (2000): En cellsam historia, *Bitidningen*, 9/2000.

Root, A. I. (1891) *ABC and XYZ of Beekeeping*, p. 172-178, also to be found at http://www.beesource.com/pov/lusby/index.htm

Wildman, T. (1770): *A treatise on the Management of Bees*, p. 22.

Translated and published in English with the kind permission of Thomas Kober. Also many thanks to Dave Bearden, John & Travis Sammons, and John Pierce for their kind help in this bee removal project. Photos by Dave Bearden and Travis Sammons.

Fall Requeening

By Bob Arnold, IEBA Program Chair

Fall is commonly used to describe the month after the main honey flow which occurs in June and July here in the Spokane area. Fall requeening is best not done in the fall (September or October) as there is too little time to recover from a mistake. It is best done in August as there is sufficient time for the new queen to get laying providing lots of young bees for winter and you can still recover from a unsuccessful queen introduction.

Why is fall requeening desirable? Purchased queens from California in April and May are often poorly mated and supercede during the month they are introduced. However, queens purchased from California in the June, July or August are usually mated well as weather in California readily permits necessary queen mating flights. The queens are also plentiful and often for a smaller price. The most important reason is to replace your queen before it goes through its second winter. Often second winter queens will survive the second winter only to fail in March or April when it is impossible to introduce another queen.

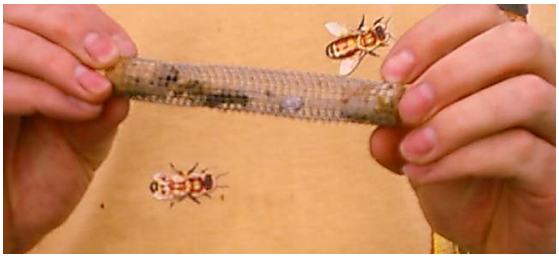
It is important when requeening in the fall that you have some method to keep the old queen laying until you have verified the new queen has been accepted and is laying properly. This is very important since little time is available if the introduced queen is not accepted and you can risk losing the entire hive if the queen is not accepted. It is best if you want to do requeening this time of year to do it as early in the month of August that you can. You still have time to recover if something goes wrong. Plus you still have some trickle of nectar coming in which is a big help in getting a queen started and the first round of brood laid.

The general technique that I discussed at our July meeting is the method that I prefer. You need to have a queen excluder and a double screen board and the new queen the day you prepare the hive. Remove the honey from the hive, preferably a day before you prepare the hive to receive the new queen.

Find all of the brood and place half of the brood in each of the two hive bodies. Shake all of the bees down to the lower hive body and place the queen excluder on top of the bottom hive body. Put the top hive body back on top of the queen excluder. After a few hours the bees will have re-populated both boxes with the queen below the excluder. Remove the excluder and replace it with the double screen board. This board will have an entrance for the upper box. I like to face the upper hive body entrance opposite in direction to the lower original entrance of the bottom board.

This manipulation leaves you with two hives on one stand. The top hive is queenless and will start to raise a queen unless you introduce one. This will occur often the same day you perform the manipulation—other hives may take one or two days. In any case the bees in the top box will begin supercedure cells. It is best to introduce your new queen at the same time you put the double screen board on the hive.

For added insurance if you have a frame feeder put on a heavy sugar syrup feed on the top hive (2 parts sugar to 1 part water). This is best done for the period of time the bees are getting to know the queen until she is out of the cage and laying—a week to 10 days. The queen can be introduced in the cage she was shipped in. You must make sure she stays in the cage for a period of at least 2 days and preferably 3 days.



I prefer putting the queen into my own screen cage which is simply fashioned out of some 1/8" hardware cloth of dimensions 2.75" x 4" and formed on a ¾" x 3/8" stick. One end of the cage the screen is bent shut and the side soldered. A plug is fashioned out of the forming stick to plug the hole in the other end of the cage. The queen is herded into the cage by placing the mailer cage with the open cork hole up to the entrance to the screen cage. Gently blow on the queen and she will eventually find the new cage entrance and crawl in. Carefully place the plug in the cage. Do this in an enclosed area with a window. If the queen gets loose she will fly to the window and you can pick her up by the wing and place in the cage opening.

Place the mailer/cage in the area of the upper brood chamber where there is brood and a good supply of bees. If you are using the mailer cage do not pull the cork on the candy end. It is best to leave the mailer/cage in the hive for 3 days and then release the queen onto the comb. Before releasing the queen check carefully for any eggs or queen cell starts. If you find eggs you have a queen in the box and you need to start over. Destroy any queen cell starts—look very carefully as sometimes hives will kill an introduced queen if they have queen cells started before you introduce the queen.

You can release the queen from the mailer by gently removing the screen off the cage or pulling the plug on the end opposite the candy and letting the queen walk out onto the comb. With the cage just pull out the plug and lay the cage on the comb and wait for the queen to crawl out. Watch the queen carefully, if any bee jumps on her and attempts to sting her grab her by the wing and put her back into the cage. It is normal for the bees to climb on top of the queen. Usually they will be very aggressive with a queen they don't want by jumping her and trying to sting her almost the second she gets free of the cage. They will probably be trying to sting her while she is in the cage so check it first. Once the queen has crawled around the comb a bit and they do not seem to want to kill her you can place the comb back into the hive and shut it up. It is best to leave the hive alone for at least one week. Check for eggs after a week. If the queen has been accepted then you should wait and see the queen perform properly (no drone brood in worker cells and a good solid laying pattern) before doing anything to the old queen below. After 3 weeks of egg laying if the queen above is good then you can find and kill the old queen and simply pull the double screen from between the two hive bodies. This will work even in a nectar dearth as the two hives seem to be one. If you prefer, however, replace the double screen with newspaper.

This method takes about 4 to 5 weeks so start early in August. You still need to get all of your medications on and feed for wintering. This should leave the month of September and a week or two in October to finish. If the introduced queen is not accepted then just combine the two hives or redo the process with a new queen.

The details of all of this eliminate a lot of problems. If you change anything you may discover why I do it this way! Any questions please do ask me. Good luck.

The Three Bad Cousins!

Wasps, Hornets, and Yellowjackets

A phrase that we picked up from Jack Knox describing the less lovable species related to our honeybees is "the three bad cousins." But, as any entomologist will point out, they are not necessarily "bad." Wasps, yellowjackets, and hornets contribute greatly to our ecosystem, but this is the time of year when many of us come to view them as a pest, and for good reason.

The following information is from the web site

http://www.greensmiths.com/bees.htm

HORNETS, WASPS, AND YELLOWJACKETS

In parts of the United States, particularly in the eastern states, yellowjackets, wasps, hornets and bees are all called bees by the general public. Of course the general public is principally focused on one attribute these insects have in common -- their stingers.

Knowledge of the behavior of these pests is essential to their management; effective communication with frightened or, at best, fearful clients is an important skill technicians must develop.

Nests of stinging pests are usually the target for control. Understanding nesting and the make-up of the colony is essential.

NESTS AND COLONIES

Yellowjackets, hornets and paper wasps are all in the same insect family, Vespidae. The common Paper wasp with its umbrella shaped nest or single comb best demonstrates the basic building pattern of a colony.

THE GIANT HORNET (Vespa crabro)

Technically, this wasp is the only hornet in North America, but it did not originate here; it was introduced from Europe. It is found in the northeastern quarter of the United States; it ranges as far south as North Carolina and Tennessee with scattered sightings extending west of the Mississippi River.

The Giant hornet is reddish-brown and yellow and almost an inch long. It builds its nest mainly in hollow trees, and in wall voids of barns, sheds and sometimes houses. An open window or door is an invitation to hornet workers, and they frequent buildings under construction. Their large combs and envelope are constructed of partially decomposed wood and, like the Eastern yellowjacket, are very brittle. Workers of the Giant hornet capture a variety of insects including bees and yellowjackets to feed their young. Workers also have a habit of stripping bark back from some shrubs -- especially lilac. As they girdle the branches, they lick the sap from the torn edge. They will sting humans, and the sting is painful.

PAPER WASPS

Paper wasp queens, like other Vespid nest mothers, is the lone female reproductive, who begins her nest by attaching a thick paper strand to an overhanging structure. She then builds hollow paper cells by chewing wood or plant fibers (cellulose) mixed with water and shaped with her mouthparts.

When a half dozen cells or so are hanging together, the Queen lays an egg near the bottom of each one. The little white grubs that hatch from the egg glue their rear ends in the cell and begin receiving nourishment in the form of chewed up bits of caterpillars provided by their mother. When they grow large enough to fill the cell cavity, they break the glued spot and hold on their own by their stuffed fat bodies, hanging head down.

Mature larvae, then, spin silk caps, closing off the cell, and molt into pupae. This same larval behavior pattern is followed by yellowjackets and hornets also. All are females. Other than their white color, these Vespid pupae look like adults; they develop adult systems, then shed their pupal skins, chew through their silk cell cap, pump out their wings, and take their place as worker assistants to their mother. (Paper wasp queens and workers are the same size; yellowjacket and hornet queens are larger than their daughters.)

From Spring on, the queen lays eggs and the daughter workers feed larvae and expand the comb or nest. They do not eat the protein (insect) food they gather for the larvae but get their energy from flower nectar. Later in the season, some of the larvae develop into males and others will become next year's queens.

The new males and females mate with those of other colonies, and the fertilized females find hiding places under tree bark or in logs and wait out the winter until they can begin their new colony in the spring.

The male Vespids die in winter, likewise the nest disintegrates and will not be used again.

MANAGEMENT AND CONTROL OF PAPER WASPS (Polistes)

Paper wasps nests are often found near doorways and other human activity areas without occupants being stung. Colonies can become problems, but when they do, Paper wasps can be controlled easily.

When attracted to fallen ripe fruit, these wasps sting people who venture into the same area. Colonies in trees, out buildings, hollow fence posts and other protected places are not as easy to control as those from nests on structures.

Habitat Alteration

Remove old nests and scrape the point of attachment. [This spot is often selected by new queens for attachment of new combs.]

Remove ripe fallen fruit as often as possible.

Caulk openings in attics, window frames, and around wall penetrations to keep overwintering females out of unused rooms and spaces.

Pesticide Application

Use pressurized sprays that propel spray for 8-12 feet or use aerosols on extension poles especially manufactured for aerosol cans.

If a ladder is needed wear a bee suit and veil. Proceed cautiously.

YELLOWJACKETS

Yellowjacket (with eighteen species in North America) colonies begin with a large fertilized queen; she develops smaller daughter workers and later reproductives just as the Paper wasps, but the nest structure is not the same. Some yellowjacket nests hang in trees and shrubs, and some are developed underground.

Aerial Nesters

Several yellowjackets make the aerial football- shaped paper nests, commonly called hornets nests. Two of these yellowjackets are common: the Aerial yellowjacket, Dolichovespula arenaria, and the Bald Faced hornet, Dolichovespula maculata.

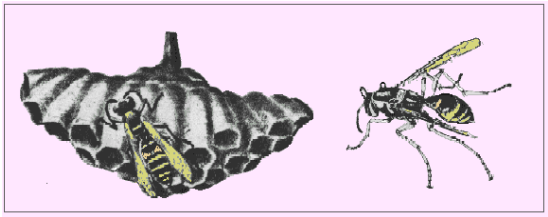


Figure 4. Polistes wasp and a paper nest.

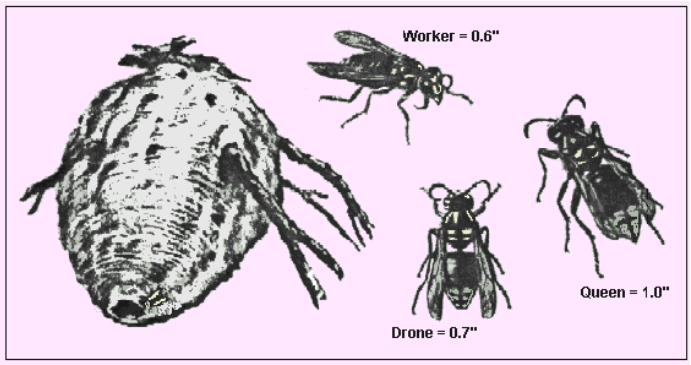


Figure 1. Bald-faced or white-faced hornets and their familiar nest.

The Aerial yellowjacket is found in the west, Canada, and east (but not in the central and southern states). This species begins its nest in March or April and is finished and no longer active by the end of July. Their nests, usually attached to building overhangs are smaller and more round than those of other species.

The Bald Faced hornet is larger than the other yellowjackets and is black and white -- not black and yellow. It lives along the west coast, across Canada, and in all of the states in the eastern half of the country.

On warm spring days, the large Aerial nesting queen develops a small comb, like the Paper wasp with a dozen or so cells, but she encloses it in a round gray paper envelope. The daughter workers later take over the nest duties, and by mid summer, when the worker population is growing and food is plentiful, the nest is expanded to full size. A full-sized Bald Faced hornet nest consists not of a single umbrella comb like the Paper wasp, but four to six wide circular combs -- one hanging below the other and all enclosed with an oval paper envelope consisting of several insulating layers. Bald faced hornets not only gather flies, but are large enough to kill and use other species of yellowjackets for larval food. They attach their nests to low shrubs or high in trees or on buildings. Although Aerial colonies can have four to seven hundred workers at one time, their food gathering habits do not routinely bring them in contact with humans. Large nests are often discovered only after leaves have fallen and the nests are exposed -- both to view and to nature's elements that finally bring about their disintegration.

Underground Nesters

The stinging wasp, often identified as a yellowjacket, is black and yellow. Primarily yellow bands cover a dark abdomen. These species are in the genus Vespula.

They begin their nests like the aerial nesters -- with an enveloped small comb made of wood fiber paper. Only these nests are started in soil depressions, rodent burrows, or in any small hole in the ground that will give protection until workers can develop. Once workers begin nest care, they enlarge the entrance hole and expand the nest. Combs are placed in tiers, one below the other. They can be very large; they have firm support from the soil surrounding the external envelope. Several species of Vespula make their nests in building wall voids, attics, hollow trees and other enclosed spaces as well as the ground.

Both Aerial and Ground Nesters

Of the thirteen species in North America, only a few require pest management. These few species have certain characteristics and habits that put them on a collision course with people:

They can live in what might be called disturbed environments (areas that have been changed to suit human activities in urban settings) such as yards, golf courses, parks, and other recreation areas.

They have large colonies -- some will develop thousands of workers.

Their habits do not restrict them to a specific kind of prey. Foraging workers capture insects for their larvae and nectar and other sweet carbohydrates for themselves where they can find it. Essentially, they are scavengers and work over garbage cans and dumpsters. They especially enjoy picnics and football games.

One can easily see that these habits put a large number of foraging stinging insects into close association with large populations of humans.

THE COMMON YELLOWJACKET Vespula vulgaris

V. vulgaris ranges across Canada and the northeastern United States. Common in higher elevations, it nests in shady evergreen forests around parks and camps in the western mountains and the eastern Appalachians. This species also is one of the most important stinging insects in Europe.

THE EASTERN YELLOWJACKET (Vespula maculifrons)

This common ground nesting yellowjacket is distributed over the eastern half of the United States. Its western border is from eastern Texas north to eastern North Dakota. Workers are slightly smaller than most yellowjackets, but colony size can number around 5,000 or more individuals. The nest of V. maculifrons is dark tan, made of partially decomposed wood and is quite brittle. The Eastern yellowjacket sometimes nests in building wall voids.

Most yellowjackets have very slightly barbed stingers but the sting will not set in the victim's tissue like the barbed stinger of the honey bee. The stinger of V. maculifrons, however, often sticks and when the insect is slapped off, the stinger may remain.

THE GERMAN YELLOWJACKET (Vespula germanica)

In Europe, German yellowjacket nests are subterranean, but in North America the vast majority of reported nests are in structures. This yellowjacket is distributed throughout the northeastern quarter of the United States. Nests in attics and wall voids are large, and workers can chew through ceilings and walls into adjacent rooms. The nest and nest envelope of this yellowjacket is made of strong light gray paper. Colonies of this yellowjacket may be active in protected voids into November and December when outside temperatures are not severe.

MANAGEMENT OF YELLOWJACKETS

Problems with yellowjackets occur mainly when:

Humans step on or jar a colony entrance.

A colony has infested a wall void or attic and has either chewed through the wall into the house or the entrance hole is located in a place that threatens occupants as they enter or leave the building.

Worker yellowjackets are no longer driven to feed larvae in the late summer months, and they wander, searching for nectar and juices -- finding ripe, fallen back yard fruit, beer, soft drinks and sweets at picnics, weddings, recreation areas, sporting events and other human gatherings.

Yellowjackets are sometimes responsible for injections of anerobic bacteria (organisms that cause blood poisoning). When yellowjackets frequent wet manure and sewage they pick up the bacteria on their abdomens and stingers. In essence, the stinger becomes a hypodermic needle. A contaminated stinger can inject the bacteria beneath the victim's skin. Blood poisoning should be kept in mind when yellowjacket stings are encountered.

Inspection

Sting victims often can identify the location of yellowjacket nests. Where the nest has not been located look in shrubbery, hedges, and low

tree limbs for the Bald Faced hornet. Soil nests are often located under shrubs, logs, piles of rocks and other protected sites. Entrance holes sometimes have bare earth around them. Entrance holes in structures are usually marked by fast flying workers entering and leaving. Nests high in trees should not be problems. Be sure to wear a bee suit or tape trouser cuffs tight to shoes.

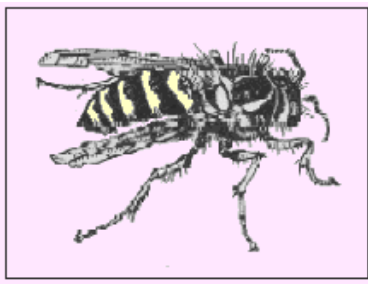


Figure 3. Yellow jacket..

Habitat Alteration

Management of outdoor food is very important.

Clean garbage cans regularly and fit them with tight lids.

Empty cans and dumpsters daily prior to periods of heavy human traffic at zoos, amusement parks, fairs and sporting events.

Remove attractive refuse, such as bakery sweets, soft drink cans, and candy wrappers, several times a day during periods of wasp and yellowjacket activity.

Locate food facilities strategically at late summer activities so that yellowjackets are not lured to dense crowds and events. [The National Park Service in their IPM programs, found that stings were dramatically reduced when drinks are served in cups with lids.]

Clean drink dispensing machines; screen food dispensing stations, and locate trash cans away from food dispensing windows.

To limit yellowjacket infestations in wall voids and attics, keep holes and entry spaces in siding caulked; screen ventilation openings.

Pesticide Application

When possible, treat ground and aerial nests after dark [Workers are in the nest at that time]. More often than not, because of traditional work schedules, treatment will be scheduled for the daytime.

Begin with the entrance hole in view and a good plan in mind.

Wear a protective bee suit. Unless these insects can hold on with their tarsal claws, they cannot get the leverage to sting. Bee suits are made with smooth rip-stop nylon which does not allow wasps and bees to hold on. A bee veil and gloves are part of the uniform. Wrist and ankle cuffs must be taped or tied to keep the insects out of sleeves and pant legs.

Move slowly and with caution. Quick movements will be met with aggressive behavior. Move cautiously to prevent stumbling or falling onto the colony.

Have equipment handy so one trip will suffice.

Application

Insert the plastic extension tube from a pressurized liquid spray or aerosol generator in the entrance hole; release the pesticide for 10 to 30 seconds. Resmethrin is most effective.

If the pressurized liquid spray includes chemicals that rapidly lower nest temperature (freeze products), be aware that it will damage shrubbery.

Plug the entrance hole with dusted steel wool or copper gauze. Dust the plug and area immediately around the entrance. [Returning yellowjackets cue on entrance holes using surrounding landmarks and seeing the shadowed opening. They will land at the entrance and pull at the plug picking up toxic dust. Any still alive inside will also work at the dusted plug.

Aerial Nests

Cut aerial nests down and seal them in a plastic bag. [The queen and workers inside will be dead, and larvae will fall out of their cells and die from either insecticide poisoning or starvation. Pupae in capped cells may escape the treatment, however, and emerge later.]

Be especially cautious when using ladders to get at aerial nests or wall void nests. Set the ladder carefully and move slowly.

Wall Voids

Approach the entrance hole cautiously; stay out of the normal flight pattern.

Watch first. Observe whether yellowjackets entering the nest go straight in or to one side or the other.

Insert the narrow diameter plastic tube in the hole in the observed direction of entrance and release pesticide for 10-30 seconds.

Dust inside the entrance and plug it as with underground nests.

Remember, German yellowjacket nests may remain active into December.

Use care not to contaminate food surfaces.

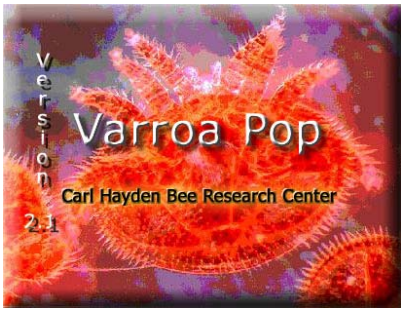
Spraying trash cans and the outside of food stands will reduce or repel yellowjackets at sporting events; the treatment will not last more than one day. Honey bees are also killed with this control measure. Remember, do not contaminate food surfaces.

Follow-up

Ongoing monitoring throughout the active yellowjacket season is essential when a pest management program is in place at parks, recreational areas, zoos and other outdoor activity areas.

Greensmiths is excited to introduce a new friend to our web site visitors. Mr. Mike Ash is a photographer from Tampa, FL and he is sharing many of his personal favorite pictures for our web site. He wishes to share his pictures with our many visitors for their personal use only. We encourage Students, Teachers and Professionals to feel free to use these pictures for training and learning purposes.

Illustrations courtesy of Cornell University found on http://www.cce.cornell.edu/suffolk/grownet/insect-pests/wasps.htm



About VarroaPop

VarroaPop simulates the growth of Varroa mite populations in honey bee colonies. The program demonstrates how Varroa mites influence colony population growth throughout the year. You can change many factors through the menus in the model such as the initial population size, queen egg laying potential, and mite reproduction rates, so you can see how these factors influence both colony and mite population growth. We hope that the model will help you understand the interactions between the honey bee and mite populations and provide insights on how best to control Varroa in colonies.

Download for free at http://gears.tucson.ars.ag.gov/soft/vpop/vpop.html

Francis Crick, DNA pioneer and English gentleman, dies

By Steve Connor Science Editor

30 July 2004

Tributes were paid yesterday to Francis Crick, the British scientist and DNA pioneer who died at his home in California on Tuesday after a long battle with cancer. He was 88.

Crick shared the Nobel Prize in 1962 with James Watson, with whom he made the most momentous discovery in modern biology. He and Watson were working at the Cavendish Laboratory in Cambridge when, in 1953, they realised that the DNA molecule consisted of a double helix, a structure that opened up an explanation for the inheritance of genes.

Watson was seen as the brash young American, but Crick was the quintessential English gentleman, although he was radical enough never to accept the knighthood both were offered. Watson, a former head of Cold Spring Harbor Laboratory on Long Island, New York, said: "I will always remember Francis for his extraordinarily focused intelligence and for the many ways he showed me kindness and developed my self-confidence.

"He treated me as though I were a member of his family. Being with him for two years in a small room in Cambridge was truly a privilege. I always looked forward to being with him and speaking to him, up until the moment of his death. He will be sorely missed."

In addition to a Nobel Prize, Crick had a string of academic achievements. He became a fellow of the Royal Society in 1959 and won the Copley Medal in 1975, the Royal Society's premier scientific award.

Lord May of Oxford, the president of the Royal Society, said yesterday: "Francis Crick made an enormous contribution to science and his discoveries helped to usher in a golden age of molecular biology. His death is a sad loss to science."

Crick, whom Watson had once jokingly described as a man never known to be in a modest mood, was, in fact, a self-effacing man who did not court publicity. In his later years, he moved from Cambridge to the Salk Institute for Biological Studies in La Jolla, California, investigating the nature of human consciousness.

Richard Murphy, the Salk's president, said Crick will be remembered as one of the most brilliant and influential scientists of all time. "He will be missed a gentleman, a role model and a person who has contributed so much to our understanding of biology and the health of mankind," Dr Murphy said. Crick realised human consciousness was perhaps the biggest outstanding mystery of life on Earth. He said he wanted to excite younger minds than his to study the problem.

Professor Kristof Koch, a neuroscientist who collaborated closely with Crick at the Salk institute, said he never lost his impish ways. "Francis delighted in playing the important role of devil's advocate for several generations of young researchers," he said.

Crick, who was born in Northampton in 1916, started as a physicist and worked briefly for the Admiralty during the Second World War then returned to Cambridge to study for a doctorate. Asked in 1997 why he went into the study of DNA, Crick said that at the time he did not really know what he wanted to do.

"I used what I call the 'gossip test' to describe what I wanted to do. The gossip test is simply that whatever you find yourself gossiping about is what you're really interested in," he said. "I had found my two main interests I discussed the most were what today would be called molecular biology, what I referred to as the borderline between living and the non-living, and the workings of the brain."

Professor Steve Jones, the geneticist, said Crick was the Darwin of the 20th century, and the science writer Matt Ridley said Crick made more than one great discovery. "He found that genes are digital codes written on DNA molecules, he found that the code is written in three-letter words and he was instrumental in cracking the code," Dr Ridley said. "Any one of those would have got him a place in the scientific pantheon. Discovering all three places him alongside Newton, Darwin and Einstein."

David Giachardi, the chief executive of the Royal Society of Chemistry, said Crick's work on DNA cannot be underestimated. "He and Watson performed a gigantic service for humanity, and it the astonishing strides taken since his pioneering work are just the very beginning of a scientific journey for mankind," Dr Giachardi said.

Dr Roger Pederson, of Cambridge University, said: "What we owe Francis Crick cannot be said briefly because it is so vast. His legacy will be remembered for centuries."

Professor Richard Gardner, of Oxford University, said: "From my contact with him at Cambridge, I would rank Francis Crick as one of the greatest minds of the 20th century. He was a theoretician rather than an experimentalist, and was extremely perceptive."

Reproduced with kind permission of *The Independent* www.independent.co.uk

---

Have You Seen This Bug?

-Bob Arnold, IEBA program chair

Recently I have been seeing this small little weevil on the heads of the knapweed blooms. Many of the heads in my yard have this weevil on the bloom. I am fairly certain of its identity. So I looked up what is being done locally to biologically control the knapweed. Low and behold look what I found!! This weevil is readily observed with the naked eye. The body is tubular and is approximately 3 mm long and 1 mm in diameter. The information is from: www.co.stevens.wa.us/weedboard/htm_bio/larinus_minutus.htm

Larinus minutus
Knapweed Flower/Seedhead Weevil
Weed(s) Attacked:
Diffuse and Spotted Knapweed
SCNWCB January 2001

GENEALOGY

Original source for U.S. release was Greece. First U.S. releases were made in 1991. Now established in Montana, Oregon, and Washington. There are well established populations at release sites in many areas of Stevens County.

LIFE CYCLE

Overwintered adults emerge from the ground litter in late May or June and begin feeding. Females lay eggs in clusters after the flowers open. When the eggs hatch the larvae start feeding on flower parts and immature seeds. The larvae are aggressive and kill one another and other species within the seed head. The surviving larvae feed and go through numerous

changes. Pupation into an adult takes place inside a cocoon made of seed and flower parts that is attached to the flower receptacle. The new adults emerge from their cocoon in July and August. These adults feed before going into the ground litter to hibernate.

EFFECT
Both adult and larvae are destructive to knapweed plants. Adults feed on young leaves in spring, and leaves and flowers later on. A larva may destroy all the seeds in a single seedhead.

REDISTRIBUTION
A good collection method is to bend the entire plant over into a dish pan, shaking the agents off. New release sites should be open, not shaded, and in a knapweed patch where plants are spaced enough (1-2 feet) to allow the ground between to become hot and dry. Release of 250 adults is considered a workable number for a new site.

COMMENTS
The year 2000 marked the beginning of an effort to widely distribute this agent throughout Stevens County. Their activity has decimated the Diffuse Knapweed at one known site in south Stevens County. Requires a site free of disturbance for the first few critical years. Disturbance includes development, traffic, herbicides, and heavy grazing.

Picture from: http://mtwow.org/Larinus-minutus.html

Some highlights from the National Honey Board www.nhb.org

Food Labels Must Identify Allergens

Presented to the President July 23, legislation requiring food labels to identify allergens, in easy-to-understand language, will become law upon his signature (http://www.fda.gov/bbs/topics/news/2004/NEW01094.html). The bill also requires food ingredient statements to identify food allergens used in spices, natural or artificial flavorings and additives and will help create new incentives to develop and seek approval for treatments of diseases in animals.

New Recipe Brochure and Kids' Materials Available

The National Honey Board has three new items to assist honey industry members in publicizing the versatility of honey: *Honey, Let's Celebrate* recipe brochures (English and Spanish) and supporting Web pages (http://www.nhb.org/celebratehome.html), *Bee Fit* brochures and complementing Bee Fit Fling® toy for kids (http://www.nhb.org/beefit.html). Assessment-paying industry members may order 500 *Celebrate* brochures free of charge. *Bee Fit* and Fling® toys cost $.12 and $1.50 each respectively. Order at (888) 421-2977, pressing #7 for *Celebrate* and #5 for *Bee Fit*.

HONEY BEE FACTS

With the fair season upon us, those working in the bee booth will be barraged by questions. Lots of them. Here are a few more facts to give as answers to inquisitive minds courtesy the National Honey Board:

THE COLONY: Honey bees are social insects, with a marked division of labor between the various types of bees in the colony. A colony of honey bees includes a queen, drones and workers.

THE QUEEN: The queen is the only sexually developed female in the hive. She is the largest bee in the colony. A two-day-old larva is selected by the workers to be reared as the queen. She will emerge from her cell 11 days later to mate in flight with approximately 18 drone (male) bees. During this mating, she receives several million sperm cells, which last her entire life span of nearly two years. The queen starts to lay eggs about ten days after mating. A productive queen can lay 3,000 eggs in a single day.

THE DRONES: Drones are stout male bees which have no stingers. Drones do not collect food or pollen from flowers. Their sole purpose is to mate with the queen. If the colony is short on food, drones are often kicked out of the hive.

THE WORKERS : Workers, the smallest bees in the colony, are sexually undeveloped females. A colony can have 50,000 to 60,000 workers. The life span of a worker bee varies according to the time of year. Her life expectancy is approximately 28 to 35 days. Workers that are reared in September and October, however, can live through the winter. Workers feed the queen and larvae, collect nectar, guard the hive entrance and help to keep the hive cool by fanning their wings. In addition, honey bees produce wax comb. The comb is composed of hexagonal cells which have walls that are only 2/1000 inch thick, but support 25 times their own weight. Honey bees' wings stroke 11,400 times per minute, thus making their distinctive buzz

***HOBBYIST/PART-TIME BEEKEEPERS*:** The U.S. Department of Agriculture has estimated that there are between 139,600 and 212,000 beekeepers in the United States. The vast majority (95%) are hobbyists with less than 25 hives. In addition, about 4% are part-timers who keep from 25 to 299 hives. Together, hobbyists and part-timers account for about 50 percent of bee colonies and about 40 percent of honey produced. The number of U.S. bee colonies producing honey in 2003 was 2.59 million (based on beekeepers who manage five or more colonies).

***COMMERCIAL BEEKEEPERS*:** Commercial beekeepers are those with 300 or more bee colonies. There are approximately 1,600 commercial beekeeping operations in the United States which produce about 60 percent of the nation's honey. Many commercial beekeepers migrate their colonies during the year to provide pollination services to farmers and to reach the most abundant sources of nectar. Commercial beekeeping operations are frequently family businesses that are handed down from generation to generation.

***AGRICULTURE'S DEPENDENCE*:** Millions of acres of U.S. fruit, vegetable, oilseed and legume seed crops depend on insect pollination, including honey bees. A 1999 Cornell University study concluded that the direct value of honey bee pollination annually to U.S. agriculture is $14.6 billion. This is a 56.7% increase from $9.3 billion determined by the same study in 1989.

2003 HONEY CROP: Since 1980, U.S. honey production has averaged around 200 million pounds per year. In 2003, over 181 million pounds of honey were produced in the United States. The average annual yield per colony was 69.9 pounds of honey. The average producer price per pound was $1.40. The 2003 honey crop was valued at over $255 million.

***CONSUMPTION*:** The U.S. per capita consumption of honey is around 1.31 pounds per year.

ADDED VALUE: In addition to producing honey, honey bees produce beeswax and help pollinate agricultural crops, home gardens and wildlife habitat.

The USDA has estimated that 80 percent of insect crop pollination is accomplished by honey bees. Approximately one-third of the total human diet is derived directly or indirectly from insect-pollinated plants (fruits, legumes and vegetables).

The 5 B's of Honey Removal

Heather Clay

From the Canadian Honey Council

When it comes to removing honey you have five choices of methods to remove bees.

Butyric Anhydride (fume board)
Backlater- (Abandonment or tip up)
Bee-escape board
Blower
Brush

It depends on your management needs which method works best. Butyric anydride is commonly used by large beekeeping operations. It is the only chemical registered in Canada for repelling bees. The old products carbolic acid (phenol) and benzaldehyde are no longer legal and should not be used. Fume boards work quickly but they must be used carefully to avoid contamination of the honey. The other problem is the awful smell. To quote Dr. James Tew in Bee Culture, October 2000 "My co-worker, Dave, always uses some type of Bee Go (butyric anhydride) product. The bouquet of this repellent is similar to that of human infant up-chuck and seems to have a half-life of several thousand years. Bees are repelled by the smell. I am repelled by the smell. Neighbors are repelled by the smell. However, it does a good job of driving bees from supers when used on warm days."

Some large operations in the prairie provinces use the abandonment method when there is a strong nectar flow. The full honey supers are tipped vertically and placed on top of the hive or on pallets on the ground. The bees abandon the supers and several hours later the beekeeper can return to collect the supers. It is a clean, quiet and effective method provided that there is a strong nectar flow to prevent robbing. The disadvantage is the need for queen excluders and a second trip to the apiary.

Bee blowers are handy for removing bees from honey supers. Many beekeepers have moved from fume boards to backpack blowers. A quick blast of air blows the bees off the combs without injuring or angering them. The honey supers are placed on a stand in front of the hive and the blower is directed to blow bee towards the hive. Although blowers are noisy, the advantage is that they are effective on cold, cloudy days. The disadvantage is that it is not fast and requires two people, one to operate the blower and one to lift the supers.

Brushing the bees off comb is achieved by removing one frame at a time from the supers and using a soft bristle bee-brush, the bees are swept off the frame onto the ground at the front entrance. On a warm day the bees will return faster than they can be brushed off. This task is best done in the cooler hours of the early morning. This method is for the beekeeper who does not have a lot of hives.

Bee escapes are popular non invasive removal methods. They come in various shapes from the original Porter bee escape invented in 1891 to the Shaparew escape patented in 1981. Dave Cushman has drawings and specs for some of the different types of escapes on his website http://website.lineone.net/~dave.cushman/. The principle of a bee escape is to allow the bees to exit the super but not allow them to return. The bee escape board is placed below the honey super with the center hole of the bee escape facing upward. Within 12-24 hours all the bees should move down into the lower hive bodies. Sometimes not all the bees leave the honey supers. This can occur if

1. the bee escape is blocked
2. the bee escape allows bees to enter as well as exit
3. there is crowding below the bee escape
4. brood is present
5. there is a hole or gap in the side of the super.

This system of removing bees from the honey supers requires two trips to the apiary and is generally not practical for large commercial operations.

---

http://www.ehow.com/how_1649_harvest-honey.html

How to Harvest Honey

(This works well for a beekeeper with a few hives.) Honey in frames is ready to be harvested when bees have capped it with a layer of wax.

Removing the Super Steps:

1. Get all bee equipment ready.
2. Light smoker and smoke your clothing and the hive lightly. You will remove honey from the top super of the hive.
3. Put a bee escape into the center hole in the inner cover. Place this cover under the super.
4. Place the outer cover back over the super.
5. Wait 24 hours for the bees to go down into the next super.
6. Again, get ready to remove the super.
7. Remove the super holding the honey you plan to harvest.
8. Remove each frame and examine it for bees while you're still outdoors.
9. Brush any remaining bees from the frame.

Tips: Smoke the hive just lightly. Smoke can affect the flavor of honey.

Uncapping the Comb Steps:

1. Have all equipment ready and in easy reach.
2. Remove layer of wax over top of cells, or "cappings."
3. Save the cappings in a large pan or tub.
4. Place uncapped frames of comb and honey into an extractor.
5. Spin frames using the handle or, if the extractor is electric, simply let the machine spin the frames.
6. Remove frames.
7. Repeat until all frames are empty of honey.

Tips: Drain honey from cappings, and use wax for crafts or sell it to wax buyers.

Packaging the Honey Steps:

1. Have jars and labels ready.
2. Pour honey into each jar using the spout on the side of the extractor, or better yet, a settling bucket.
3. Take a warm, damp cloth and wipe each jar, including the mouth.
4. Screw jar lid on tightly.
5. Place your personal label on the jar.
6. Store in a cool, dry place out of direct sunlight.

Tips: It's best to let the honey sit in the bucket for 24 hours to allow air bubbles and pieces of wax to float to the top.

Schedule of Events:

August 14th, 2004	*IEBA Meeting*	Summer Picnic –Preparations for fairs and late queen intros
August 25-29, 2004	*North Idaho State Fair*	in Coeur D'Alene
Sept. 9, 2004	*IEBA Meeting*	Fair Grounds on Thursday night
Sept. 10-19, 2004	*Spokane Interstate Fair*	
October 8, 2004	*IEBA Meeting*	Selection of hives for wintering Preparing hives for winter
October 14- 16, 2004	*WSBA State Convention*	Will be held in Spokane (see box on right)
November 14, 2004	*IEBA Meeting*	Thanksgiving catered meal RSVP required Dinner at 6:30 pm
December 12, 2003	*IEBA Meeting*	Pot Luck Christmas dinner Election of Officers

North Idaho "Bee Booth" volunteer scheduled hours

Wed. Aug. 25	11:00 AM—3:00 PM Jerry Miller Bob Adsit Chris Fischer Jack Jack Knox 208-773-5452	3:00 PM—7:00 PM Jerry Miller Frank Seiler Al Dwinell Patsy Dwinell	7:00PM—11:00PM Roger/Linda Carney Jerry Tate Joan Nolan
Thurs. Aug. 26	11:00 AM—3:00 PM Jerry Miller Jack Knox	3:00 PM—7:00 PM Jerry Miller Bob Arnold Bob Hegerberg Joseph Berchtold	7:00 PM—11:00 PM Jerry Tate Jack Knox
Frid. Aug. 27	11:00AM—3:00 PM Jerry Miller Jack Knox	3:00 PM—7:00 PM Jerry Miller Patsy Dwinell Al Dwinell Frank Seiler	7:00 PM—11:00PM Peggy Abbott Nate Abbott Gayle Engle
Sat. Aug. 28	11:00 AM—3:00 PM Jack Knox Joseph Berchtold Leo Berchtold	3:00 PM—7:00 PM John Pierce Katuska Kohut Eileen Davis	7:00 PM—11:00 PM Chris Fischer Jack Knox
Sun. Aug. 29	11:00 AM—3:00 PM Travis Sammons Shauna Sammons Dustin Sammons John Sammons Jack Knox	3:00 PM—6:00PM Roger/Linda Carney Frank Seiler Jack Knox	

Please contact Jack Knox at (208) 773-5452 to help out or let him know of any changes in your schedule.

WSBA 2004 Annual Meeting

October 14-16

The IEBA is hosting the 2004 WSBA convention. Many of our members are already hard at work putting the program together. If you would like to help out, contact the appropriate committee leaders listed here:

- ***Registration —*** *Collette Lehinger* 509-924-1001
- ***Thursday Night Reception*** *— Wine tasting hosted by John Pierce and Katuska Kohut of Vins de Vie*
- ***Suppliers Booths****— Ted Swenson* (509) 238-6489
- ***Friday Night Auction*** *— Roger Carney* 509-448-0417
- ***Advertisement*** *— Joe Jovanovich*

The Program Committee is working on bringing in first class speakers to help us with these main topics:

- *Queen Breeding and Russian Bee Research Program*
- *Current WSU Research, Importation of new honeybee strains into the US*
- *IPM (Integrated Pest Management) Implementation of techniques to reduce chemical and antibiotic uses*
- *Effects of pesticides and miticides onqueen and colony health*
- *Sound scientific research — how to interpret the information that is available*

Plan Now to Attend!

Doubletree Hotel

Inland Empire Beekeepers Association

Next Meeting:
SUNDAY August 8th, 2004
1:00 pm Summer Picnic
At Plante's Ferry State Park

AUGUST PICNIC
See details below

The Inland Empire Beekeepers Association (IEBA) meets the 2nd Friday of every month at the Spokane Fairgrounds Extension office by the County Fairgrounds. The association is affiliated with the Washington State Beekeepers Association (WSBA). Dues are $15.00 for an individual or $1[illegible] This includes your receiving the [illegible] which is published by the association every [illegible]

Inland Beemail

Frank Seiler, Editor
PO Box 214
Newman Lake
WA 99025

Phone/Fax: (509) 226-2382
email: seilerbees@att.net

Send To:

Even though I never met the man, Ormond Aebi had a profound influence on by enjoyment of beekeeping. Long before I had my first hive I enjoyed reading about the fascinating world of bees through the eyes of Ormond and his father Harry. The two books he authored were not scientific works, or strictly how-to books, but full of enjoyable anecdotes that, above all, shared his infectious love for honey bees. He called it "bee fever."

Ormond Aebi died this week at age 88 in Santa Cruz, California, the same place he had his world record hive in 1976, extracting 404 lbs of honey from a single queen hive. Ormond chronicles this, and many other experiences in *The Art & Adventure of Beekeeping* and *Mastering the Art of Beekeeping*.

Every beekeeper, new or experienced, would do well to read his books and think about the methods he used to keep his bees. May you too be struck by "bee fever."

Vantage Point
Frank Seiler, Newsletter Editor

Summer Picnic Sunday Aug 8th — 1:00 p.m. Plante's Ferry Park
Please RSVP to Ted Swenson at (509) 238-6489